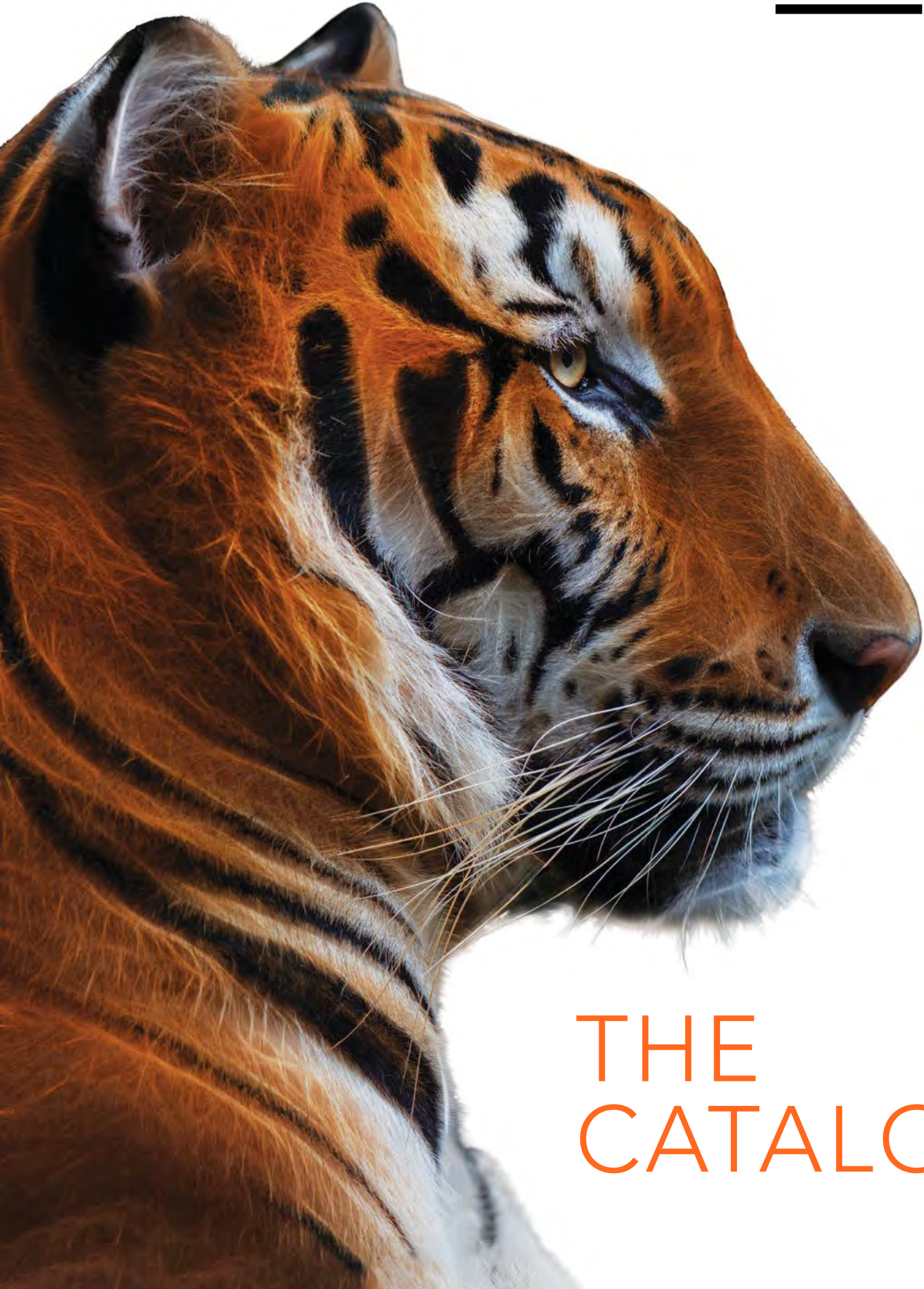


samtec



# THE CATALOG

# A DIFFERENT BREED OF CAT

INNOVATIVE TECHNOLOGIES • SUDDEN SERVICE®

Founded in 1976, Samtec is much more than just another connector company. We put people first, along with a commitment to **exceptional service**, **quality products** and **innovative technologies** that take the industry further faster. This is enabled by our unique, **fully integrated business model**, which allows for true **collaboration and innovation** without the limits of traditional business models.

We believe that taking care of our customers and our employees is paramount in how we approach our business, and this belief is deeply ingrained throughout Samtec worldwide.

## INNOVATIVE TECHNOLOGIES

At Samtec, integration leads to innovation. We are leading the way in high-performance system design and support for complete system optimization from **SILICON-TO-SILICON™**. Samtec is positioned to produce solutions quickly, with higher densities, faster speeds and smaller footprints to meet the demands of next generation systems.

From standard cataloged products to unique high-performance design, Samtec's **SOLUTION BLOCKS** are designed to support any interconnectivity need, regardless of application, performance requirements or environment.

### Silicon-to-Silicon



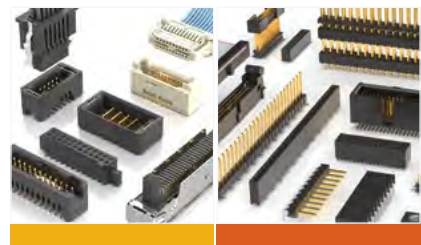
**HIGH-SPEED BOARD-TO-BOARD**

**HIGH-SPEED CABLE**

**OPTICS**

**RF**

### Core Board-to-Board



**RUGGED/POWER**

**FLEXIBLE STACKING**

## SUDDEN SERVICE®

Samtec is the service leader in the industry, offering unmatched technical support, free product samples and access to online resources, and innovative online tools to help streamline the design process.





# HIGH-SPEED BOARD-TO-BOARD

OPEN-PIN-FIELD ARRAYS | GROUND PLANE STRIPS | EDGE CARDS | ULTRA-MICRO | BACKPLANE

ExaMAX®

QSERIES®

samtec

XCede HD

ACCELERATE®mP

EDGE RATE SYSTEM

ACCELERATE®HD

ACCELERATE®HP

NOVARAY®

SEARAY™

RAZOR™ BEAM SYSTEM

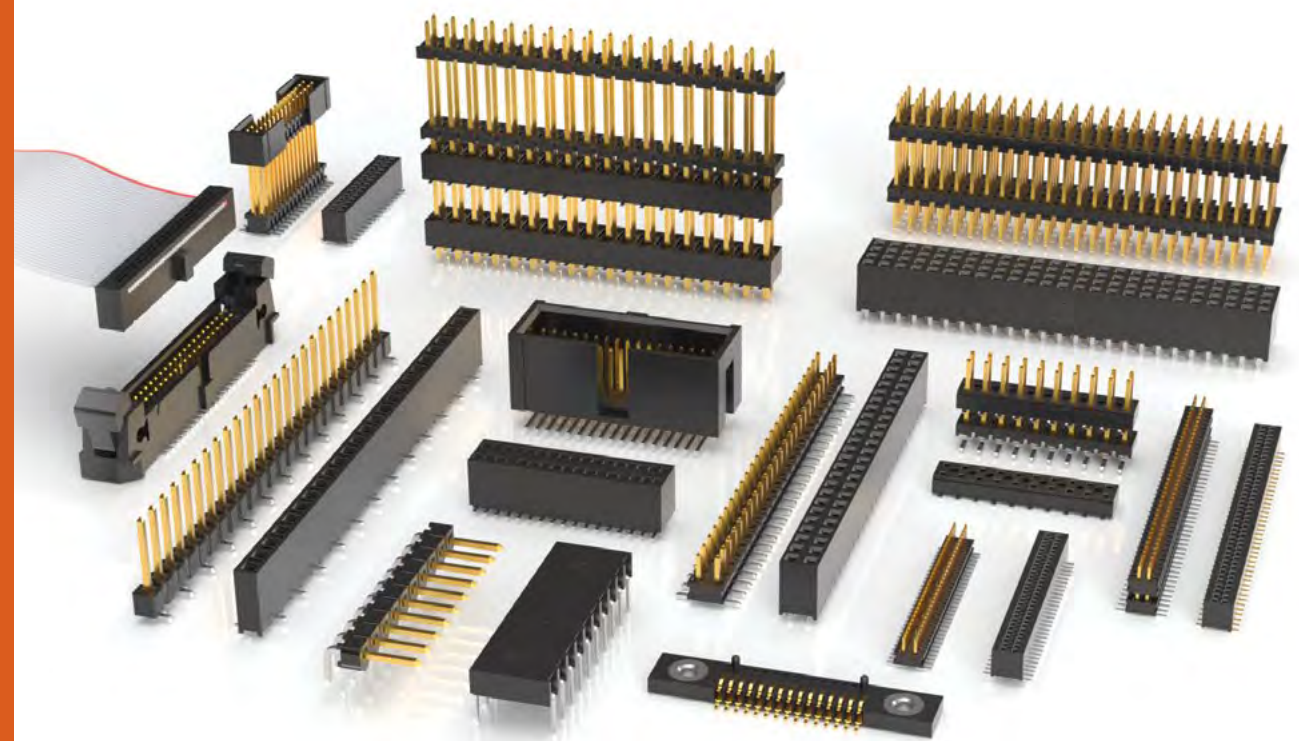
# RUGGED/POWER

ULTRA RUGGED | BLADE POWER | RUGGED I/O | BOARD-TO-BOARD | DISCRETE WIRE



# FLEXIBLE STACKING

LOW PROFILE | PASS-THROUGH | ONE-PIECE | SKYSCRAPERS | SHROUDED HEADERS | IDC SYSTEMS





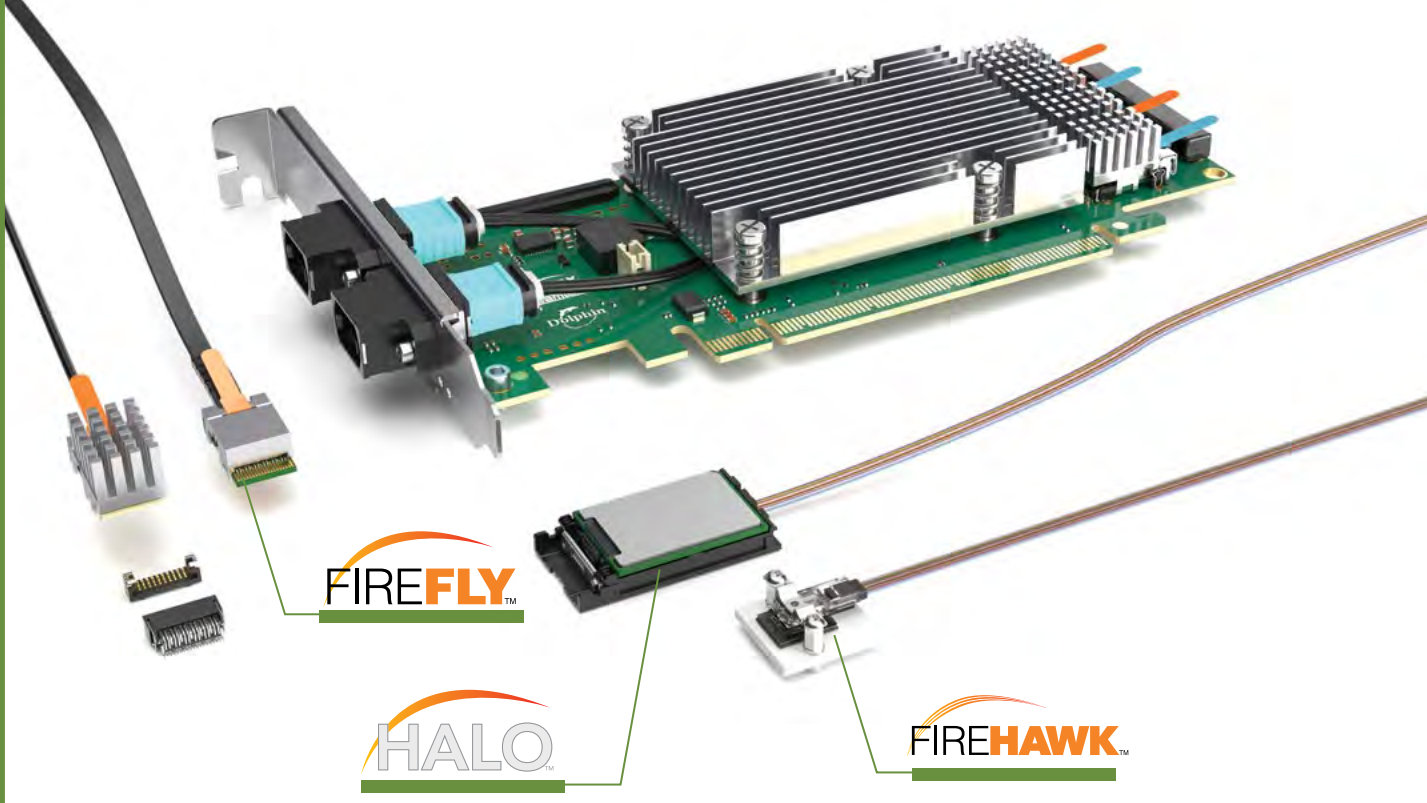
# HIGH-SPEED CABLES

FLYOVER® | MID-BOARD & PANEL | BACKPLANE | MICRO COAX & TWINAX



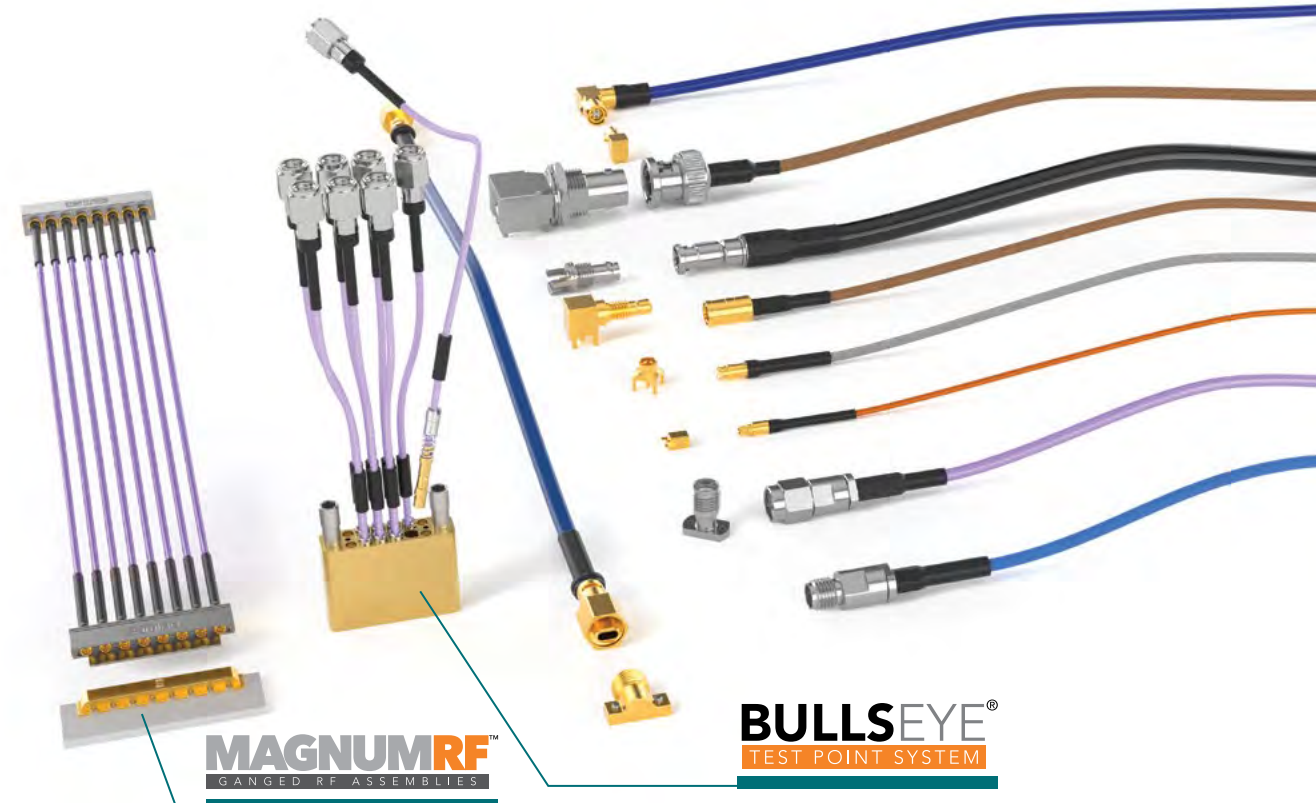
# OPTICS

MICRO FLYOVER SYSTEM™ | RUGGED OPTICS | PCI EXPRESS®-OVER-FIBER | NEXT GEN



# RF

PRECISION RF | 50 Ω SOLUTIONS | 75 Ω SOLUTIONS | ORIGINAL SOLUTIONS





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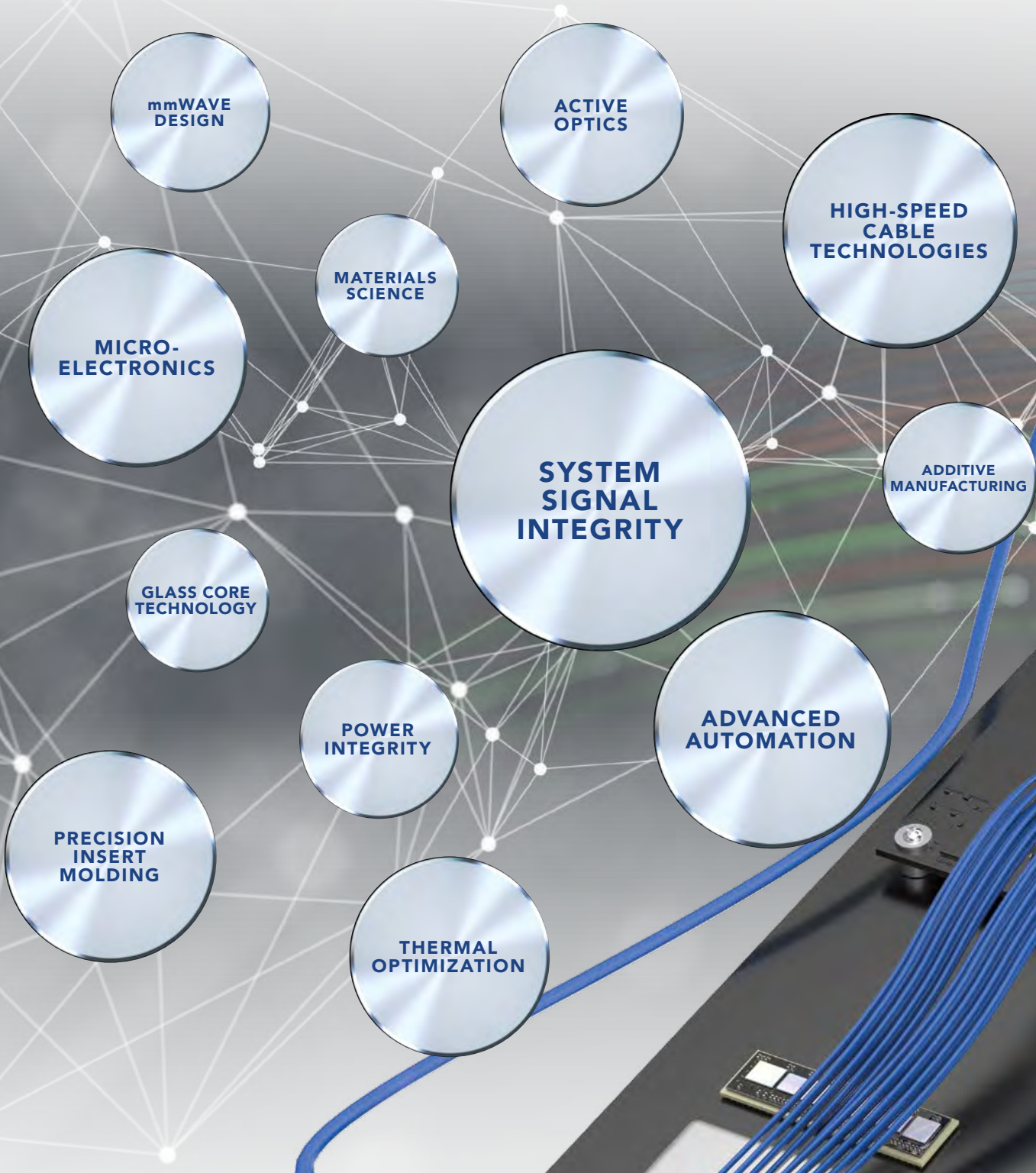
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# INTEGRATION LEADS TO INNOVATION

Samtec's integrated approach provides high-level design and development of advanced interconnect systems and **TECHNOLOGIES**, along with industry-leading expertise that allows us to offer effective strategies and support for **optimizing the entire signal channel of high-performance systems.**

Samtec is structured like no other company in the interconnect industry. We work in a fully integrated capacity that enables true collaboration and results in uniquely innovative **PRODUCTS** because **our technology teams are not limited by the boundaries of traditional business units.**

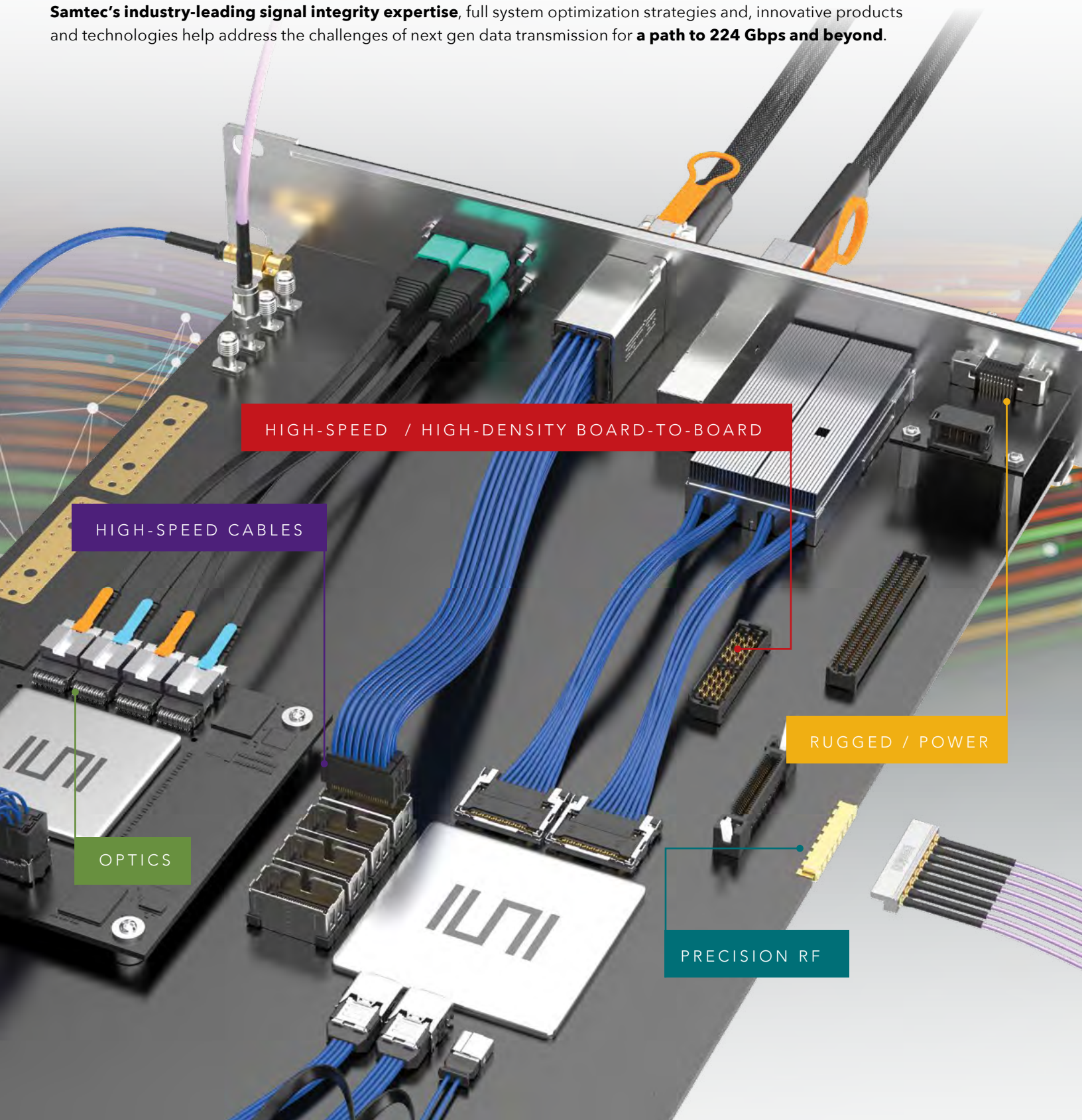




# SILICON-TO-SILICON™ SOLUTIONS

As bandwidth, scale and power requirements continue to challenge conventional engineering methods, we want to help **optimize the landscape of your entire system** - and develop solutions, together.

**Samtec's industry-leading signal integrity expertise**, full system optimization strategies and, innovative products and technologies help address the challenges of next gen data transmission for **a path to 224 Gbps and beyond**.



HIGH-SPEED / HIGH-DENSITY BOARD-TO-BOARD

HIGH-SPEED CABLES

RUGGED / POWER

OPTICS

PRECISION RF

# SUDDEN SERVICE®

Samtec's Sudden Service® provides unmatched global service, free access to data and industry leading tools, along with engineering support, to help you design, develop, test and deliver the best solution for any complex application.

## GLOBAL OPERATIONS & SUPPORT NETWORK



## AWARD-WINNING SERVICE

#1 in Bishop's Customer Survey of the Electronic Connector Industry.



Samtec has been consistently rated as the #1 connector company in North America, Europe and Asia. This is the highest overall rating in the Bishop & Associates' U.S., Europe and Asia Customer Surveys of the Electronic Connector Industry.



## UNMATCHED LEAD-TIMES

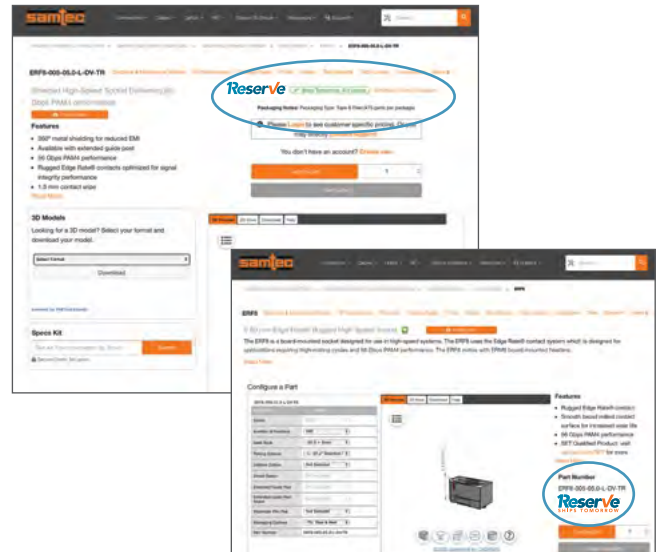
Innovative Programs & Systems Enable Deliveries in Days, Not Weeks.

# Reserve™

## SHIPS TOMORROW

This designation allows customers to **quickly and easily identify availability of over 200,000 of Samtec's most popular connectors and cables - guaranteed to ship in 1-day.**

Look for the **Reserve** badge throughout **samtec.com** to quickly determine if your part number is eligible, along with current availability, quantity breaks and pricing. Hundreds of part numbers are being added daily!



**Free product samples, shipped in 24-hours** or less have been a cornerstone of Samtec Sudden Service® since the company was founded. Visit **samtec.com** to quickly request your sample.

An innovative shipping program that **bridges the gap between manufacturing facilities and customers**, allowing for manufacturing flexibility without increased costs, and with even faster lead-times. Contact **ecustomerservice@samtec.com** to learn more.

## 24/7 WORLDWIDE ACCESS

Samtec is the Electronics Industry's Service & Technology Leader.

### Technical Support

Signal Integrity Group: [sig@samtec.com](mailto:sig@samtec.com)

Application Support Group: [asg@samtec.com](mailto:asg@samtec.com)

Interconnect Processing Group: [ipg@samtec.com](mailto:ipg@samtec.com)

### Supply Chain Support

MySamtec™ Real-Time Account Access: [account.samtec.com](http://account.samtec.com)

Personal Account Managers & CSRs: [ecustomerservice@samtec.com](mailto:ecustomerservice@samtec.com)

Upfront, Aggressive 24-Hour Quotes: [pricing@samtec.com](mailto:pricing@samtec.com)

## ONLINE TOOLS

Find, Design & Validate Your Solution

### PICTURE SEARCH



Browse through a highlight reel of Samtec's most popular products to find the ideal solution for your application, view specifications, check availability, order samples and more. Visit [samtec.com/picturesearch](http://samtec.com/picturesearch).



### SOLUTIONATOR®

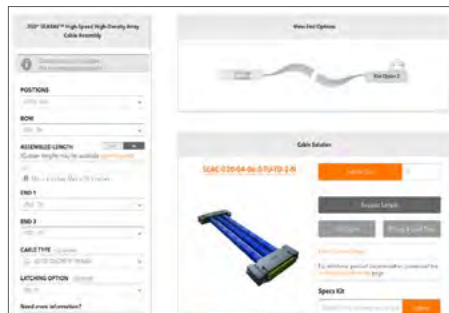
Quickly build mated connector sets or design full cable assemblies using a wide variety of user-defined search parameters and filters, view specs and order samples.

#### Solutionator **HS** GET A MATED SET IN SECONDS TO-BOARD



[samtec.com/hsb2b-solutionator](http://samtec.com/hsb2b-solutionator)

#### Solutionator **HS** DESIGN IN A MINUTE CABLE



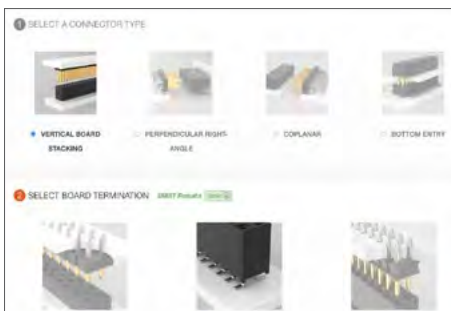
[samtec.com/cablebuilder](http://samtec.com/cablebuilder)

#### Solutionator **RF** DESIGN IN A MINUTE CABLE



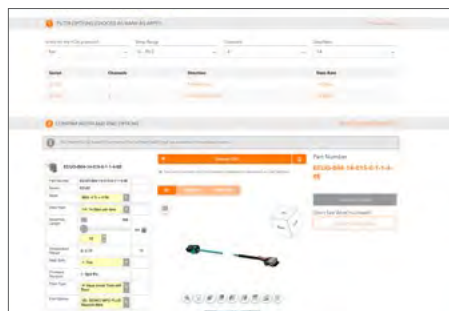
[samtec.com/rf-cablebuilder](http://samtec.com/rf-cablebuilder)

#### Solutionator **FLEX** GET A MATED SET IN SECONDS STACKING



[samtec.com/flex-solutionator](http://samtec.com/flex-solutionator)

#### Solutionator **ACTIVE OPTICS** DESIGN IN A MINUTE



[samtec.com/optics-solutionator](http://samtec.com/optics-solutionator)

#### Solutionator **DISCRETE WIRE** DESIGN IN A MINUTE



[samtec.com/dw-cablebuilder](http://samtec.com/dw-cablebuilder)



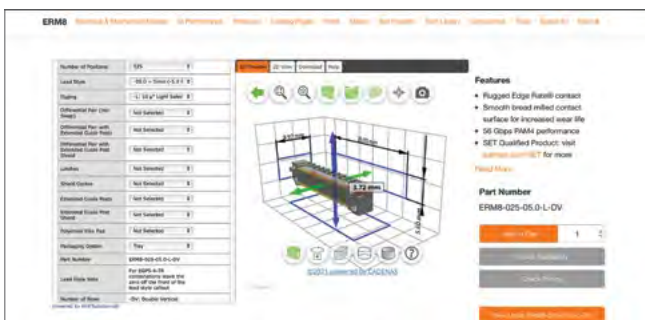
Samtec is committed to the continuous evolution of our award-winning website, providing customers with innovative design tools, technical resources and support needed to make **finding, designing and ordering** the right product as easy and streamlined as possible.

## DOWNLOADS

3D Models, Specs, Prints & More

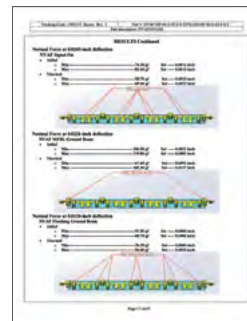
### 3D Models

Quickly configure, preview and download models in more than 150 different formats, including AutoCad, Solid Edge, Inventor and many more.



### Test Reports

Samtec provides immediate access to a variety of testing and qualification reports for our products, including high-speed characterization, thermal, frequency and time domain, Extended Life Product™, Severe Environment Testing, and others.



### PCB Footprint / eCAD Models

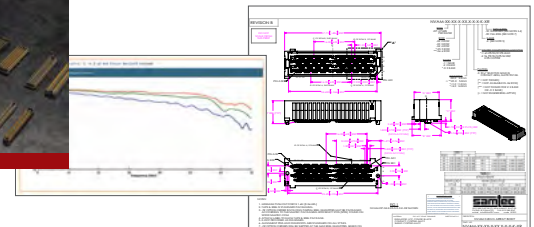
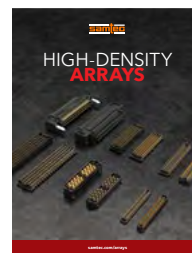
Instantly view, download and design with over 200,000 ready-to-use eCAD models.



These detailed models have been formatted to work with leading schematic captures and include accurate assembly, silkscreen and 3D features.

### Technical Library

Samtec's online Technical Library contains a wealth of resources, including Prints & Specifications, White Papers, Application Notes, Test Reports, Product Videos, Design Guides, Processing Information and much more.



**mySamtec**<sup>TM</sup>  
account.samtec.com

Samtec's user-friendly eCommerce platform allows you to quickly and easily check product availability and pricing, as well as place and manage your orders online.

# MODIFIED & CUSTOM SOLUTIONS

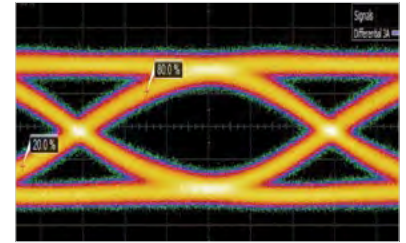
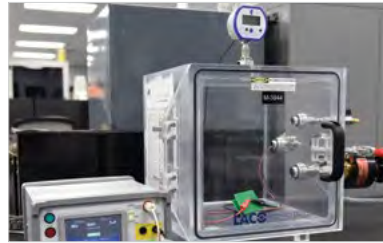


With dedicated Application Specific Product engineers and technicians, Samtec is open to customizing interconnects spanning every product category we offer, which includes both simple modifications as well as completely new and custom designs.

## INDUSTRY-LEADING SUPPORT & EXPERTISE

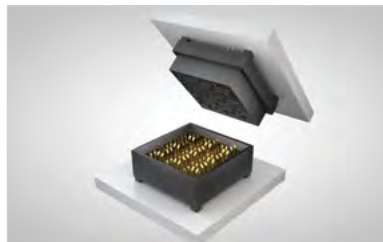
Visit [samtec.com/custom](https://www.samtec.com/custom) for details.

- Full engineering, design and prototype support
- Design, simulation and processing assistance
- Dedicated Application Specific Product engineers and technicians
- Industry-leading Customer Service
- Quotes and samples turned around in 24 hours
- Flexible, quick-turn in-house manufacturing
- Customer specific testing - AS9102 FAIs available
- ITAR compliant with U.S. based manufacturing
- Contact the Application Specific Products Group at [asp@samtec.com](mailto:asp@samtec.com) to discuss your application



## EXPRESS MODIFICATIONS & ENGINEERED CUSTOMS

- Up to 50  $\mu$ m Gold and Tin Lead plating available
- Polarized positions
- Modified stack heights, latching and screw downs
- Modified contacts, bodies, stamping, plating, wiring, molding and much more
- Ruggedizing features including strain relief, plastic housings, screw downs, latches, locks, etc.
- Mix-and-match cable end options for application specific requirements
- Many non-cataloged cable standards available, including 75  $\Omega$  micro coax & high-density twinax solutions
- Solutions for Optics in extreme environments: Samtec MIL-coat protected, salt-fog impenetrable, mitigation for tin whiskers, fungal resistant, extreme shock and vibration, full support for liquid immersion cooling





# HIGH-SPEED HIGH-DENSITY ARRAYS

EXTREME DENSITY • HIGH-PERFORMANCE • MAXIMUM DESIGN FLEXIBILITY

16-17

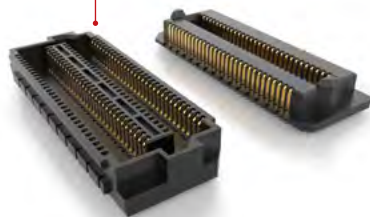
NOVARAY® EXTREME  
PERFORMANCE ARRAYS  
(NVAM, NVAF)



NOVARAY

18-19

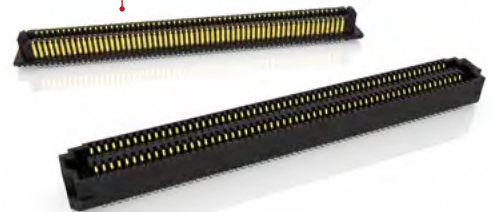
ACCELERATE® HP  
HIGH-PERFORMANCE  
ARRAYS (APM6, APF6)



ACCELERATE®HP

20-21

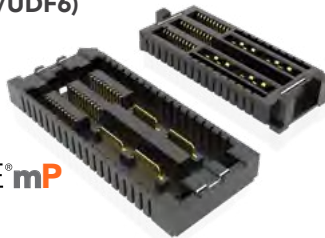
ACCELERATE® HD  
HIGH-DENSITY  
ARRAYS (ADM6, ADF6)



ACCELERATE®HD

22-23

ACCELERATE® MP  
POWER/SIGNAL ARRAYS  
(UDM6/UDF6)



ACCELERATE®mP

24-27

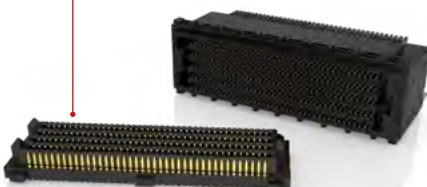
SEARAY™ 1.27 mm PITCH  
OPEN-PIN-FIELD ARRAYS  
(SEAF, SEAM)



SEARAY™

28-29

SEARAY™ 0.80 mm PITCH  
OPEN-PIN-FIELD ARRAYS  
(SEAM8, SEAF8)



SEARAY™.8mm

30-31

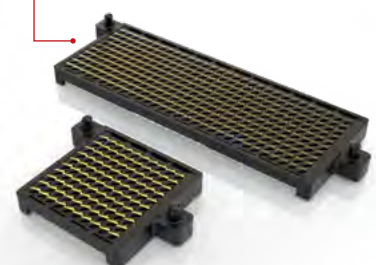
LP ARRAY™  
LOW PROFILE ARRAYS  
(LPAM, LPAF)



LPARRAY™

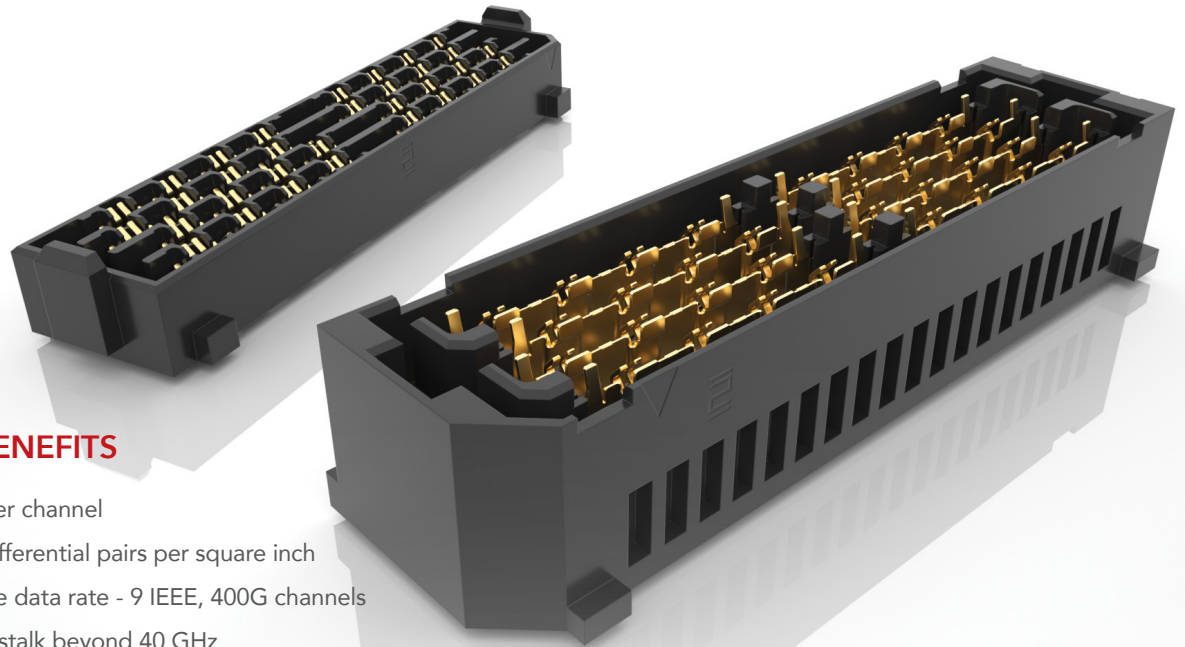
32

SUPERNOVA™  
LOW PROFILE  
COMPRESSION  
INTERPOSERS (GMI)



## EXTREME PERFORMANCE HIGH-DENSITY ARRAYS

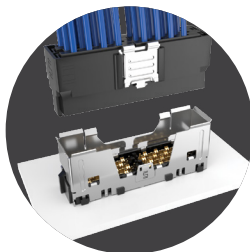
(0.80 mm) .0315" x (1.80 mm) .071" PITCH



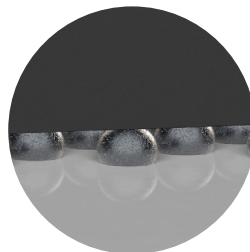
### FEATURES & BENEFITS

- 112 Gbps PAM4 per channel
- 48 fully shielded differential pairs per square inch
- 4.0 Tbps aggregate data rate - 9 IEEE, 400G channels
- Extremely low crosstalk beyond 40 GHz
- Incredibly tight impedance control
- Minimal variance in data rate as stack height increases
- Utilizes 40% less space with the same data throughput as compared to traditional arrays
- PCIe® 6.0/CXL 3.1 capable

NRZ	PAM4
56 Gbps	112 Gbps



High-speed mezzanine connector and cable in one product family



BGA attach to board for greater density and optimized trace breakout region



Two reliable points of contact with a 1.14 mm wipe

### KEY SPECIFICATIONS (NVAM/NVAF)

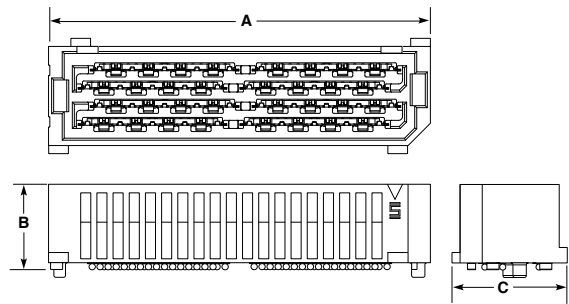
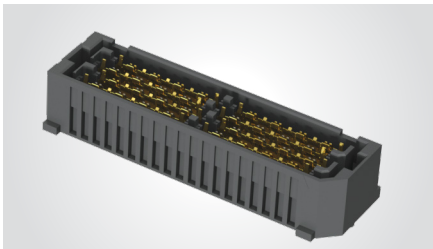
TOTAL PAIRS	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	WORKING VOLTAGE	LEAD-FREE SOLDERABLE
Up to 32 pairs	Black LCP	Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	-55 °C to +125 °C	2.1 A per pin (signal) 9.6 A per pin (ground)	200 VAC	Yes

PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.

**0.80 mm x 1.80 mm PITCH • EXTREME PERFORMANCE ARRAYS**

SERIES	STYLE	NO. OF ROWS	NO. OF BANKS	LEAD STYLE	PLATING OPTION	SOLDER TYPE	K	"X"R
<b>NVAM</b> Terminal	<b>-DP</b> = 4 pairs per wafer	<b>-02</b>	<b>-1</b> = 1 Bank	<b>-02.0</b> = (2 mm) .0787" (NVAM only)	<b>-S</b> = 30 μm (0.76 μm) Gold on contact area, Matte Tin on solder tail	<b>-2</b> = Lead-Free Solder Charge	<b>-K</b> = (3.50 mm) .138" DIA Polyimide film Pick & Place Pad	<b>-TR</b> = Tape & Reel
<b>NVAF</b> Socket		<b>-03</b>	<b>-2</b> = 2 Banks	<b>-05.0</b> = (5 mm) .1969"				<b>-FR</b> = Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)
		<b>-04</b>		<b>-07.0</b> = (7 mm) .2756" (NVAF only)				

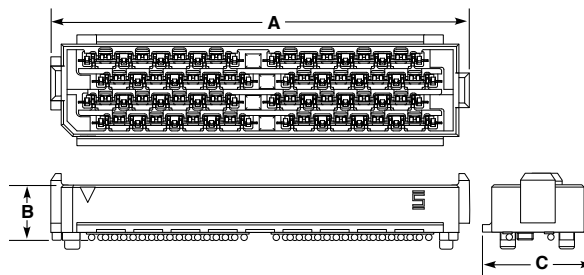
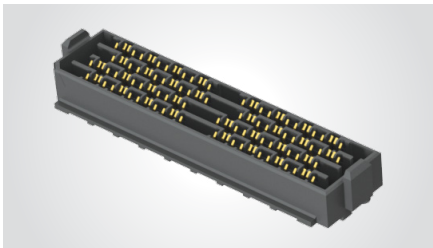
**NVAM**  
Board Mates:  
NVAF  
Standoffs:  
GPSO



NO. OF BANKS	A	LEAD STYLE	B	NO. OF ROWS	C
-1	(21.75) .856	-02.0	(5.46) .215	-02	(7.80) .307
-2	(37.75) 1.486	-05.0	(8.46) .333	-03	(9.60) .378
				-04	(11.40) .449

View complete specifications at: [samtec.com?NVAM](http://samtec.com?NVAM)

**NVAF**  
Board Mates:  
NVAM  
Standoffs:  
GPSO



NO. OF BANKS	A
-1	(20.25) .797
-2	(36.25) 1.427

LEAD STYLE	B
-05.0	(4.80) .189
-07.0	(6.80) .268

NO. OF ROWS	C
-02	(6.00) .236
-03	(7.80) .307
-04	(9.60) .378

MATED HEIGHTS*		
NVAF LEAD STYLE	NVAM LEAD STYLE	
	-02.0	-05.0
-05.0	(7.00) .276	(10.00) .394
-07.0	(9.00) .354	(12.00) .472

AGGREGATE DATA RATE (NRZ)				
448 Gbps	672 Gbps	896 Gbps	1344 Gbps	1792 Gbps
1 Bank		2 Bank		
2 Row	3 Row	4 Row 2 Row	3 Row	4 Row
8 Pairs	12 Pairs	16 Pairs	24 Pairs	32 Pairs

\*Processing conditions will affect mated height.

**Notes:**  
Some sizes, styles and options are non-standard, non-returnable

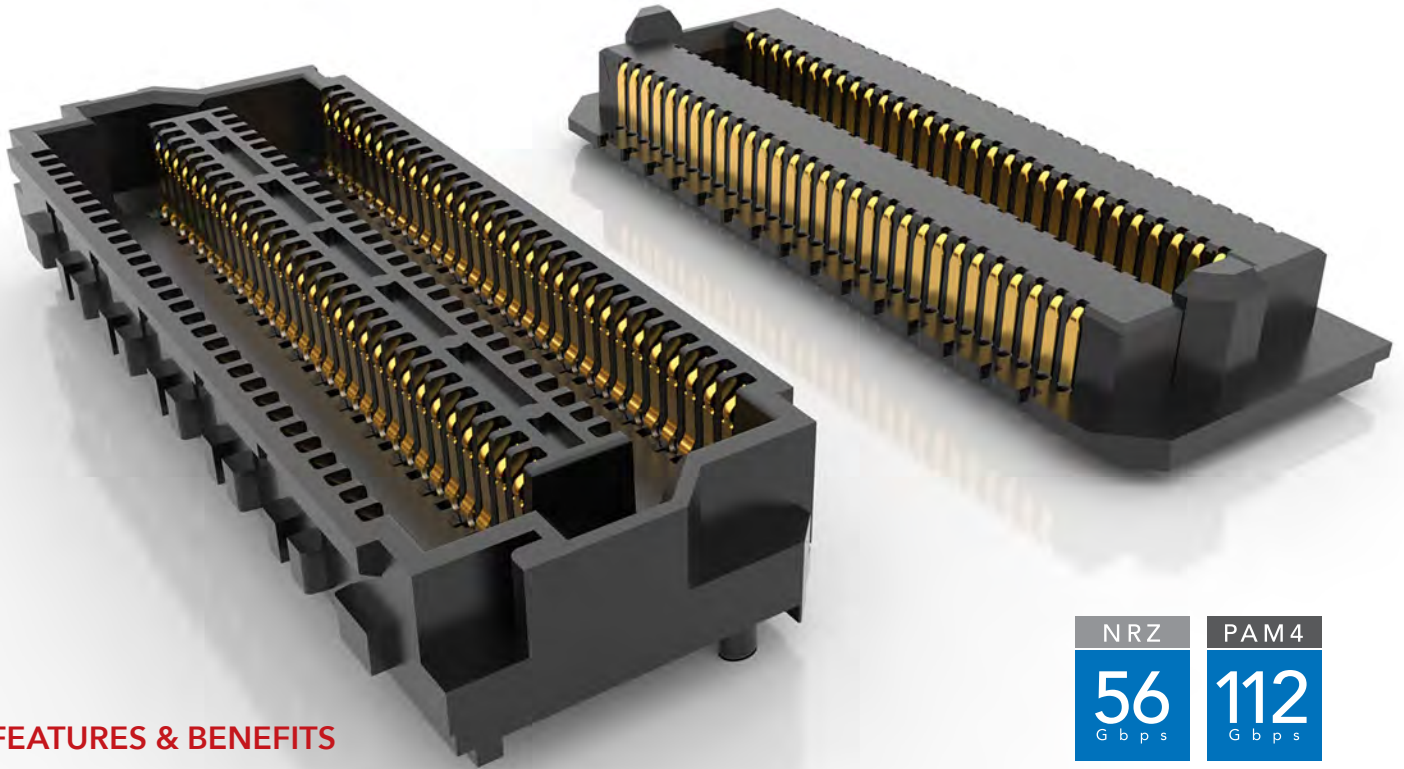
View complete specifications at: [samtec.com?NVAF](http://samtec.com?NVAF)



# ACCELERATE<sup>®</sup>HP

## HIGH-PERFORMANCE ARRAY SYSTEM

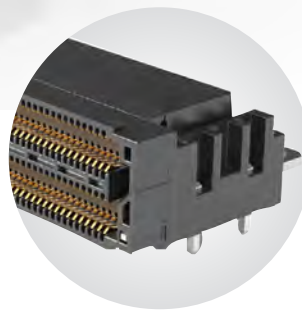
(0.635 mm) .025" PITCH



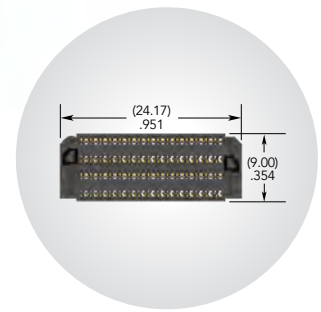
### FEATURES & BENEFITS

- Flexible open-pin-field and cost optimized, extreme performance solution
- Low profile 5 mm and up to 10 mm stack heights
- 0.635 mm pitch
- Four row design with up to 400 total pins; roadmap to 1,000+ pins
- Data rate compatible with PCIe<sup>®</sup> 6.0/CXL<sup>™</sup> 3.1 and 100 GbE
- In Development: 6, 8 and 10 rows, additional position counts

NRZ	PAM4
56 Gbps	112 Gbps



Right-angle connector  
([samtec.com?APF6-RA](http://samtec.com?APF6-RA))



APF6 Series; 120 pins

### KEY SPECIFICATIONS (APM6/APF6)

TOTAL PINS	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING	LEAD-FREE SOLDERABLE
40 - 400	Black LCP	Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	-55 °C to +125 °C	1.2 A (4 pins powered)	150 VAC	Yes

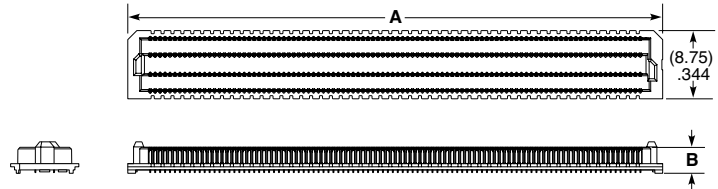
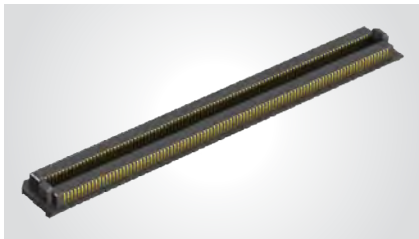
PCI-SIG<sup>®</sup>, PCI Express<sup>®</sup> and the PCIe<sup>®</sup> design marks are registered trademarks and/or service marks of PCI-SIG.

**(0.635 mm) .025" PITCH • 112 Gbps PAM4 OPEN-PIN-FIELD ARRAYS**

SERIES	NO. OF POSITIONS	LEAD STYLE	PLATING OPTION	NO. OF ROWS	0	OPTION	"X"R
<b>APM6</b> Terminal	<b>-020, -040, -060, -100</b> (per row)	<b>-01.5</b> = 1.5 mm (APM6 only)	<b>-L</b> = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on tail	<b>-04</b> = Four Rows		(Leave blank for no alignment pin)	<b>-TR</b> = Tape & Reel
<b>APF6</b> Socket	<b>-064</b> (per row) (APM6 & -01.9 lead style only)	<b>-01.9</b> = 1.9 mm (APM6-064 only)	<b>-S</b> = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on tail			<b>-A</b> = Alignment Pin	<b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)
		<b>-06.5</b> = 6.5 mm (APM6 only)					
		<b>-03.5</b> = 3.5 mm (APF6 only)					

**APM6**  
Board Mates:  
APF6, APF6-RA

Standoffs:  
GPSO



NO. OF POSITIONS PER ROW	A	LEAD STYLE	B
-020	(17.82) .701	-01.5	(3.33) .131
-040	(30.52) 1.201	-01.9	(3.71) .146
-060	(43.22) 1.701	-06.5	(8.33) .328
-064	(45.21) 1.780		
-100	(68.62) 2.701		

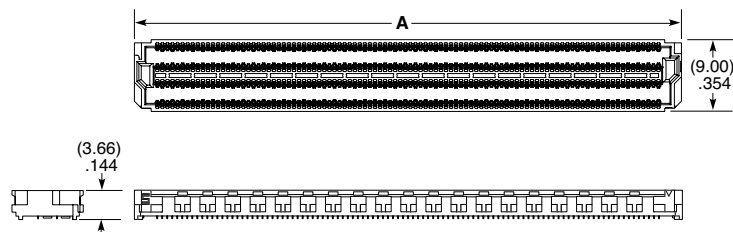
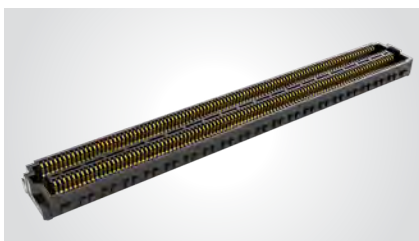
View complete specifications at: [samtec.com?APM6](http://samtec.com?APM6)

MATED HEIGHTS *		
APF6 LEAD STYLE	APM6 LEAD STYLE	
	-01.5	-06.5
-03.5	(5.00 mm) .197"	(10.00 mm) .394"

\* Processing conditions will affect mated height.

**APF6**  
Board Mates:  
APM6

Standoffs:  
GPSO



**ALSO AVAILABLE**

Right-angle  
[samtec.com?APF6-RA](http://samtec.com?APF6-RA)

**Notes:**  
Some sizes, styles and options are non-standard, non-returnable

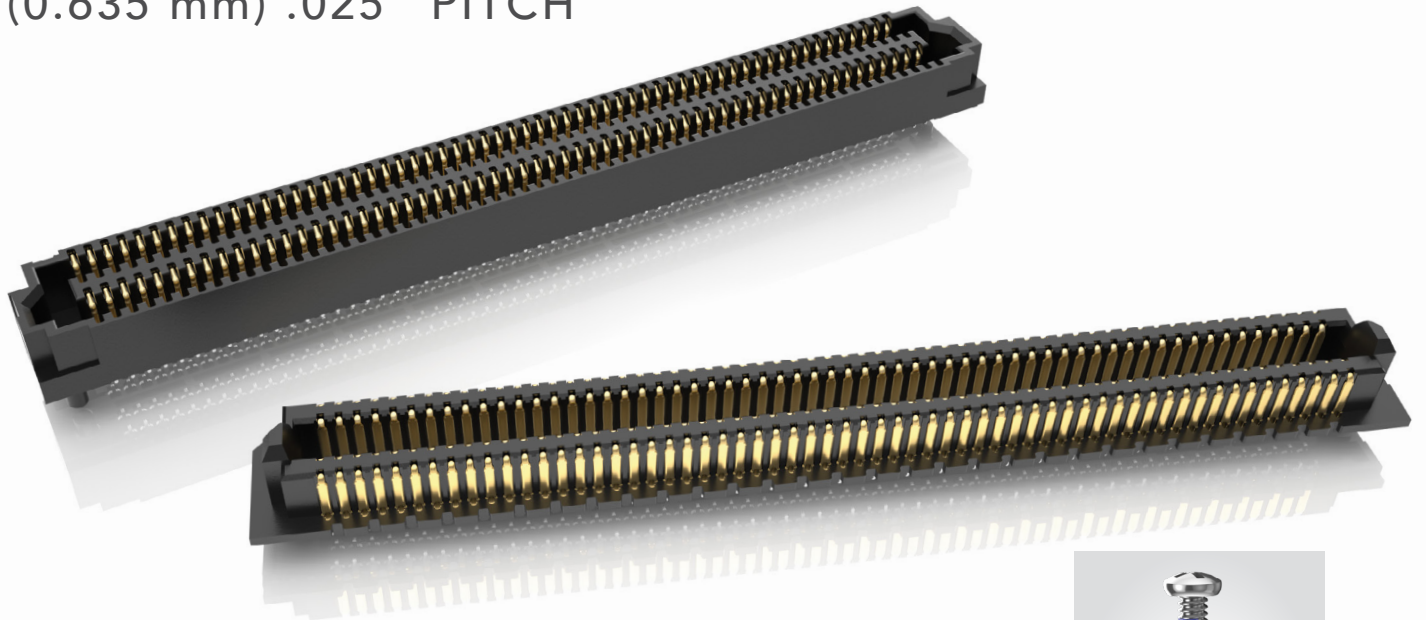
View complete specifications at: [samtec.com?APF6](http://samtec.com?APF6)

NO. OF POSITIONS PER ROW	A
-020	(17.82) .701
-040	(30.52) 1.201
-060	(43.22) 1.701
-100	(68.62) 2.701

# ACCELERATE<sup>®</sup> HD

## HIGH-DENSITY SLIM BODY ARRAYS

(0.635 mm) .025" PITCH



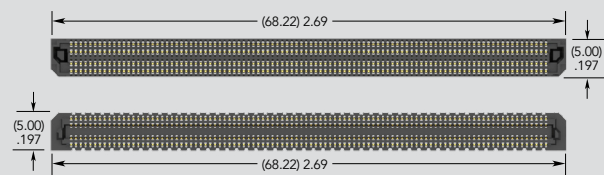
### FEATURES & BENEFITS

- Up to 400 positions in a 4-row design
- 5 mm, 7 mm, 9 mm, 10 mm, 11 mm, 12 mm, 14 mm & 16 mm stack heights
- Slim 5 mm width body design
- Edge Rate<sup>®</sup> contact system optimized for signal integrity performance
- Open-pin-field for grounding and routing flexibility
- Supports 64 Gbps PAM4 (32 Gbps NRZ) applications
- PCIe<sup>®</sup> 6.0/CXL<sup>™</sup> 3.1 capable



SureWare<sup>™</sup> ultra rugged guide post standoffs available (GPSO)

### HIGHER DENSITY THAN PREVIOUS GENERATION STRIPS



ADM6/ADF6 Series (400 total positions)

### KEY SPECIFICATIONS (ADM6/ADF6)

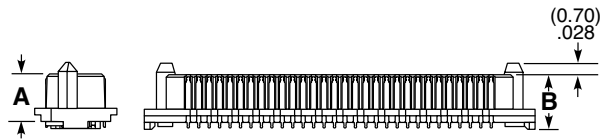
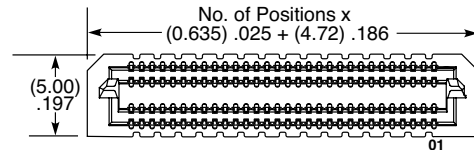
PITCH	TOTAL POSITIONS	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	WORKING VOLTAGE	LEAD-FREE SOLDERABLE
(0.635 mm) .025"	40 - 400	Black LCP	Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	-55 °C to +125 °C	1.4 A per pin (4 pins powered)	155 VAC	Yes

PCI-SIG<sup>®</sup>, PCI Express<sup>®</sup> and the PCIe<sup>®</sup> design marks are registered trademarks and/or service marks of PCI-SIG.



**(0.635 mm) .025" PITCH • SLIM BODY OPEN-PIN-FIELD ARRAYS**

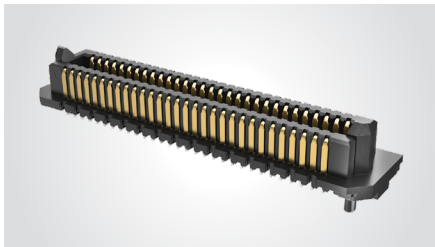
SERIES	NO. OF POSITIONS	LEAD STYLE	PLATING OPTION	NO. OF ROWS	0	OPTION	"X"R
<b>ADM6</b> Terminal	<b>-10, -20,</b> <b>-30, -40,</b> <b>-50, -60,</b> (per row)	<b>-01.5</b> = 1.5 mm (ADM6 only)	<b>-L</b> = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on tail	<b>-4</b> = Four Rows		(Leave blank for no alignment pin)	<b>-TR</b> = Tape & Reel
<b>ADF6</b> Socket	<b>-70, -80,</b> <b>-90, -100</b> (ADF6-03.5 & ADM6-01.5 lead styles only)	<b>-03.5</b> = 3.5 mm	<b>-S</b> = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on tail			<b>-A</b> = Alignment Pin	<b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)
		<b>-06.5</b> = 6.5 mm (ADM6 only)	<b>-STL</b> = 30 μ" (0.76 μm) Gold on contact area, Tin/Lead on solder tail (ADM6 -01.5 lead style & ADF6 -03.5 lead style only)				
		<b>-07.5</b> = 7.5 mm (ADF6 only)					
		<b>-08.5</b> = 8.5 mm (ADM6 only)					



**ADM6**

Board Mates:  
ADF6

Standoffs:  
JSO, GPSO



LEAD STYLE	A	B
-01.5	(2.90) .114	(3.32) .131
-03.5	(4.90) .193	(5.32) .209
-06.5	(7.90) .311	(8.32) .328
-08.5	(9.90) .390	(10.32) .406

View complete specifications at: [samtec.com?ADM6](http://samtec.com?ADM6)

**MATED HEIGHTS \***

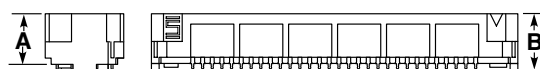
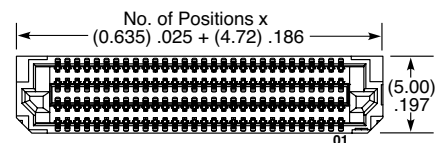
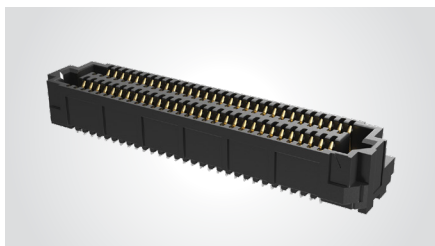
ADF6 LEAD STYLE	ADM6 LEAD STYLE			
	-01.5	-03.5	-06.5	-08.5
-03.5	(5 mm) .197"	(7 mm) .276"	(10 mm) .394"	(12 mm) .472"
-07.5	(9 mm) .354"	(11 mm) .433"	(14 mm) .551"	(16 mm) .630"

\* Processing conditions will affect mated height.

**ADF6**

Board Mates:  
ADM6

Standoffs:  
JSO, GPSO



LEAD STYLE	A	B
-03.5	(3.23) .127	(3.65) .144
-07.5	(7.23) .285	(7.65) .301

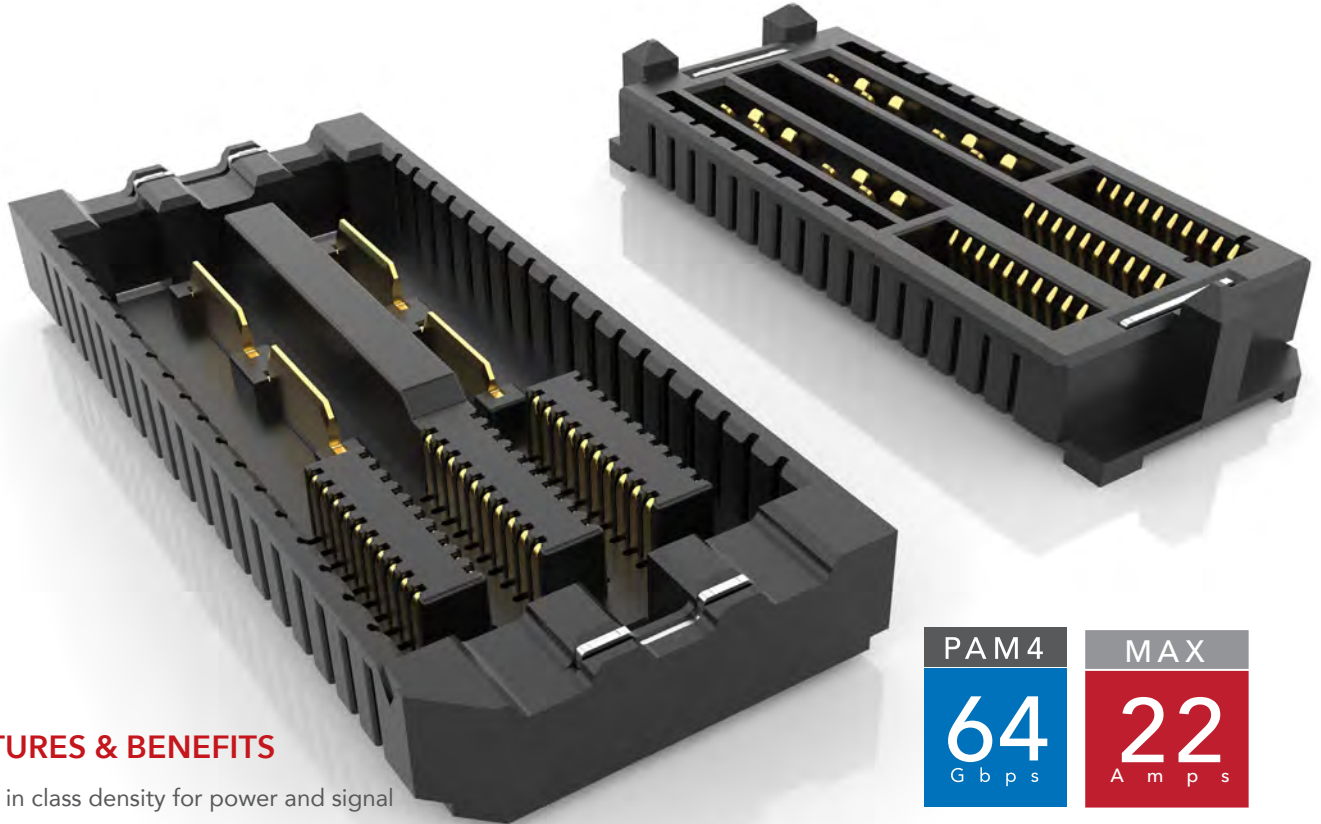
**Notes:**

Some sizes, styles and options are non-standard, non-returnable

View complete specifications at: [samtec.com?ADF6](http://samtec.com?ADF6)

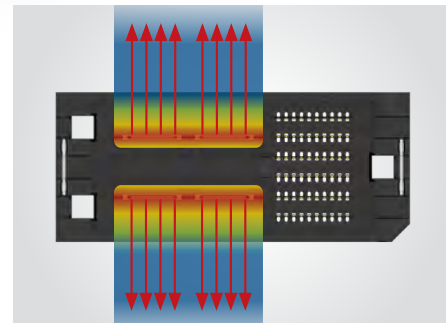
# ACCELERATE<sup>®</sup>mP

## HIGH-DENSITY, HIGH-SPEED POWER/SIGNAL ARRAYS



### FEATURES & BENEFITS

- Best in class density for power and signal
- Rotated power blades improve performance and simplify breakout region (BOR)
- Open-pin-field design for routing and grounding flexibility
- Low profile 5 mm stack height; up to 16 mm in development
- Up to 8 power and 240 signal positions; additional position counts in development
- 0.635 mm signal pitch
- Supports 64 Gbps PAM4 (32 Gbps NRZ) applications
- PCIe<sup>®</sup> 6.0/CXL<sup>™</sup> 3.1 capable
- Optional alignment pins and weld tabs for a secure connection to the board
- Polarized guide posts for blind mating



Blades rotated 90° have equal access to heat escape for uniform cooling, increased current capacity and reduced crowding

### KEY SPECIFICATIONS (UDM6/UDF6)

PITCH	STACK HEIGHTS	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING	LEAD-FREE SOLDERABLE
0.635 mm (Signal) 6.00 mm (Power)	5 mm	Black LCP	Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	Testing Now!	Testing Now!	Testing Now!	Yes

PCI-SIG<sup>®</sup>, PCI Express<sup>®</sup> and the PCIe<sup>®</sup> design marks are register trademarks and/or service marks of PCI-SIG.



**(0.635 mm) .025" PITCH • UDM6/UDF6 SERIES**

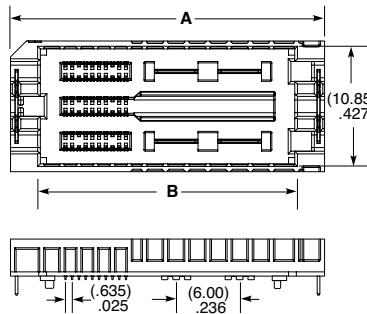
UDM6	NO. OF SIGNAL POSITIONS	NO. OF POWER POSITIONS	LEAD STYLE	PLATING OPTION	OPTION	WELD TAB	"X"R
	-10, -40 (Per Row)	-2, -4 (Per Row)	-01.5 = 1.5 mm	-L = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on tail  -S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on tail  -STL = 30 μ" (0.76 μm) Gold on contact area, Tin/Lead on solder tail	(Leave blank for no alignment pin)  -A = Alignment Pin	-TH = Through-Hole	-TR = Tape & Reel  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

PRELIMINARY

**UDM6**

Board Mates:  
UDF6

Standoffs:  
GPSO



NO. OF SIGNAL PER ROW	NO. OF POWER PER ROW	A	B
-010	-2	(29.68) 1.168	(24.42) .961
-040	-4	(60.73) 2.391	(55.47) 2.184

**UDM6-10-2-01.5-X-A-TH-XR**  
(Some center features removed for clarity)

**Notes:**  
Some sizes, styles and options are non-standard, non-returnable

View complete specifications at: [samtec.com?UDM6](http://samtec.com?UDM6)

UDF6	NO. OF SIGNAL POSITIONS	NO. OF POWER POSITIONS	LEAD STYLE	PLATING OPTION	OPTION	WELD TAB	"X"R
	-10, -40 (Per Row)	-2, -4 (Per Row)	-03.5 = 3.5 mm	-L = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on tail  -S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on tail  -STL = 30 μ" (0.76 μm) Gold on contact area, Tin/Lead on solder tail	(Leave blank for no alignment pin)  -A = Alignment Pin	-TH = Through-Hole	-TR = Tape & Reel  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

PRELIMINARY

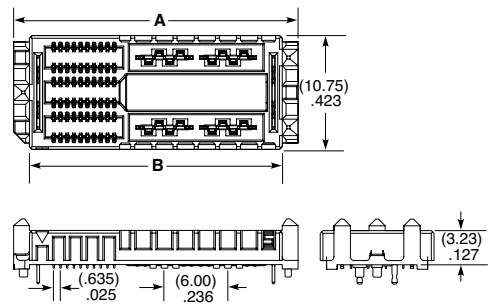
**UDF6**

Board Mates:  
UDM6

Standoffs:  
GPSO



NO. OF SIGNAL PER ROW	NO. OF POWER PER ROW	A	B
-010	-2	(26.88) 1.058	(23.90) .941
-040	-4	(57.93) 2.281	(54.95) 2.163



**UDF6-10-2-03.5-X-A-TH-XR**  
(Some center features removed for clarity)

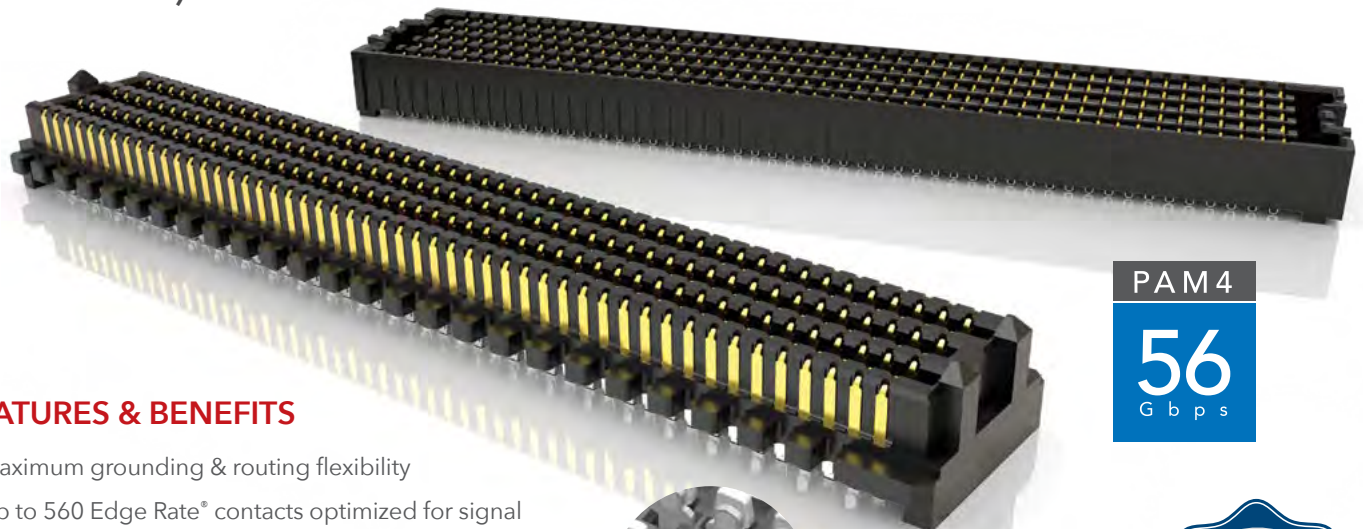
**Notes:**  
Some sizes, styles and options are non-standard, non-returnable

View complete specifications at: [samtec.com?UDF6](http://samtec.com?UDF6)



# HIGH-DENSITY OPEN-PIN-FIELD ARRAYS

(1.27 mm) .050" PITCH

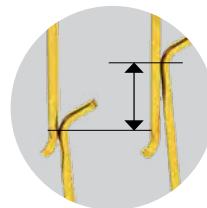


## FEATURES & BENEFITS

- Maximum grounding & routing flexibility
- Up to 560 Edge Rate® contacts optimized for signal integrity performance.
- 7 mm to 40 mm stack heights
- Variety of designs and options: Right-Angle, Guide Posts, 85 Ω Elevated Risers, 85 Ω Tuned, Press-Fit and Press-Fit Right-Angle, Guide Post Field Termination Kits
- Cable mates (SEAC Series) and Jack Screw Standoffs (JSO Series) also available
- Standards: VITA 47, VITA 57.1 FMC, VITA 57.4 FMC+, VITA 74 VNX, PISMO™ 2
- Supports high-speed protocols such as Ethernet, PCI Express®, Fibre Channel & InfiniBand™
- Severe Environment Testing qualified (SEAM/SEAF); aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)



Solder Charges



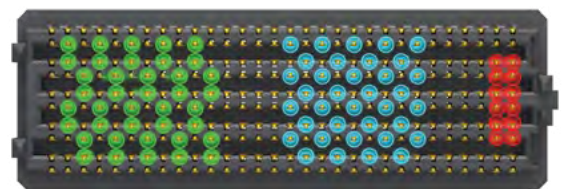
(1.12 mm) .044" Nominal Wipe

**EDGE RATE**  
CONTACT

PAM 4  
**56**  
G b p s



## MAXIMUM GROUNDING & ROUTING FLEXIBILITY



Differential Pair      Single-Ended      Power

SERIES	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING	LEAD-FREE SOLDERABLE
SEAM/SEAF	Black LCP	Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	-55 °C to +125 °C	2.7 A (10 pins powered)	240 VAC	Yes
SEAM-RA/SEAF-RA	Black LCP	Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	-55 °C to +125 °C	1.9 A (10 pins powered)	260 VAC	Yes
SEAM-GP	Black LCP	Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	-55 °C to +125 °C	2.7 A (10 pins powered)	240 VAC	Yes
SEAMP/SEAFP	Natural High Temp Nylon	Copper Alloy (SEAMP) BeCu Alloy (SEAFP)	Au or Sn over 50 μ" (1.27 μm) Ni	-55 °C to +125 °C	1.9 A (6 pins powered)	225 VAC	Not Available
SEAR	Black LCP	Hard Gold Plated	Au over 50 μ" (1.27 μm) Ni	-55 °C to +125 °C	Contact Samtec	240 VAC	Not Available
SEAMI	Black LCP	Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	-55 °C to +125 °C	Not Available	Not Available	Yes

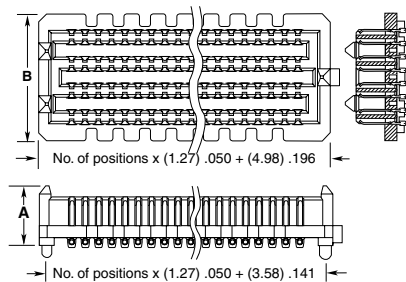
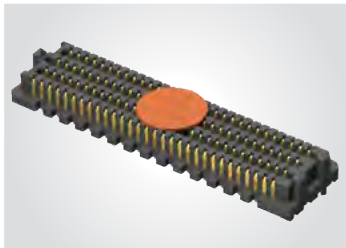
**Note:** Some lengths, styles and options are non-standard, non-returnable

**(1.27 mm) .050" PITCH • SEAM/SEAF SERIES**

SERIES	POSITIONS PER ROW	LEAD STYLE	PLATING OPTION	NO. OF ROWS	SOLDER TYPE	A	K	"X" R
<b>SEAM</b> Terminal	<b>-10, -15, -20, -30, -40, -50</b>	Specify LEAD STYLE from chart	<b>-L</b> = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on solder tail	<b>-04</b>	<b>-1</b> = Tin/Lead Alloy Solder Charge	<b>-A</b> = Alignment Pin	<b>-K</b> Polyimide Film Pick & Place Pad	<b>"X" R</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)
<b>SEAF</b> Socket	SEAM & SEAF: -10 only available in -04 Row  SEAM: -15 only available in -04 Row with -02.0 Lead Style, and -10 Row with any Lead Style  SEAF: -15 only available in -04 or -10 Row with -5.0 Lead Style		<b>-S</b> = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on solder tail	<b>-05</b> <b>-06</b> <b>-08</b> <b>-10</b>	<b>-2</b> = Lead-Free Solder Charge			
			<b>-STL</b> = 30 μ" (0.76 μm) Gold on contact area, Tin/Lead on solder tail	(SEAM -04, -05 & -06 Rows not available with -06.5 Lead Style)				

**SEAM**

Board Mates: SEAF, SEAFP  
Standoffs: JSO



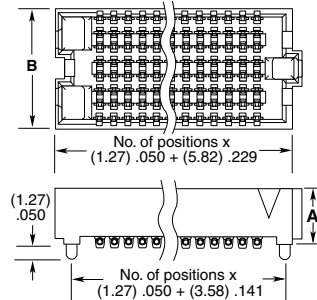
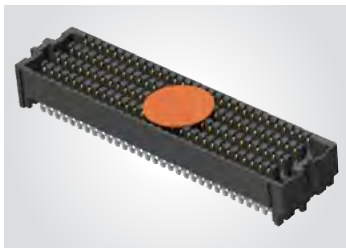
LEAD STYLE	A	NO. OF ROWS	B
-02.0	(5.61) .221	-04	(7.06) .278
-03.0	(6.60) .260	-05, -06	(9.60) .378
-03.5	(7.11) .280	-08	(12.14) .478
-06.5	(10.16) .400	-10	(14.68) .578
-07.0	(10.59) .417		
-09.0	(12.60) .496		
-11.0	(14.61) .575		

View complete specifications at: [samtec.com?SEAM](http://samtec.com?SEAM)

**ALSO AVAILABLE**  
See website for 14 row option.

**SEAF**

Board Mates: SEAM, SEAMP, SEAR, SEAMI  
Standoffs: JSO



LEAD STYLE	A	NO. OF ROWS	B
-05.0	(5.05) .199	-04	(5.66) .223
-06.0	(6.05) .238	-05, -06	(8.20) .323
-06.5	(6.55) .258	-08	(10.74) .423
-07.5	(7.54) .297	-10	(13.28) .523

View complete specifications at: [samtec.com?SEAF](http://samtec.com?SEAF)

**STANDARDS**

VITA 47  
VITA 57.1 FMC  
VITA 57.4 FMC+  
VITA 74 VNX  
PISMO™ 2

Visit [www.samtec.com/standards](http://www.samtec.com/standards) for more information.

MATED HEIGHTS				
SEAM LEAD STYLE	SEAF LEAD STYLE			
	-05.0	-06.0	-06.5	-07.5
-02.0	7 mm	8 mm	8.5 mm	9.5 mm
-03.0	8 mm	9 mm	9.5 mm	10.5 mm
-03.5	8.5 mm	9.5 mm	10 mm	11 mm
-06.5	11.5 mm	12.5 mm	13 mm	14 mm
-07.0	12 mm	13 mm	13.5 mm	14.5 mm
-09.0	14 mm	15 mm	15.5 mm	16.5 mm
-11.0	16 mm	17 mm	17.5 mm	18.5 mm

**Notes:**  
IPC-A-610F and IPC J-STD-001F Class 3 solder joint.

Severe Environment Testing qualified; aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)

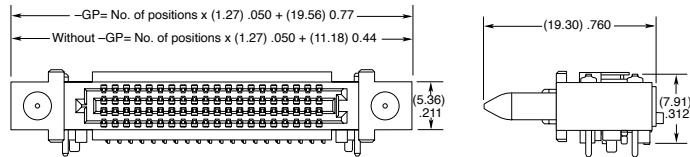


## (1.27 mm) .050" PITCH • RIGHT-ANGLE & GUIDE POST

SERIES	POSITIONS PER ROW	01	PLATING OPTION	NO. OF ROWS	SOLDER TYPE	RA	OPTIONS	"X"R	
SEAM Right-Angle Terminal	-20		-L = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on solder tail	-04	-1 = Tin/Lead Alloy Solder Charge		-GP = Guide Post/Hole	-TR = Tape & Reel	
	-30			-06			-K = Polyimide Film Pick & Place Pad	-FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)	
SEAF Right-Angle Socket	-40		-S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on solder tail	-08	-2 = Lead-Free Solder Charge		-08 & -10 Row options require fixturing to process	-LP Latch Post (Available with SEAF in -06 Row with 30 positions only; Required for mating to SEAC)	
	-50			-10					

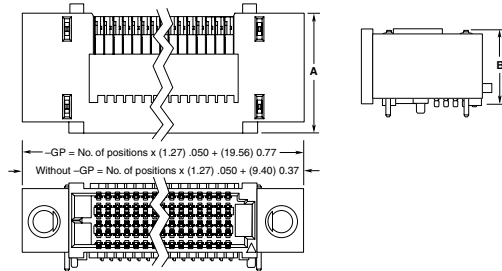
### SEAM-RA

Board Mates:  
SEAF, SEAF-RA, SEAFP



### SEAF-RA

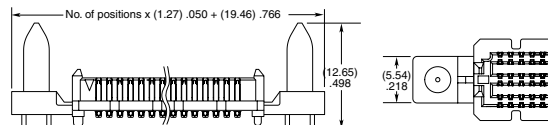
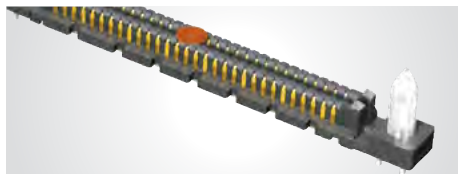
Board Mates:  
SEAM, SEAMP



NO. PINS PER ROW	A	B
-04	(13.77) .542	(7.91) .311
-06	(16.31) .642	(10.45) .411
-08	(18.85) .742	(12.99) .511
-10	(21.39) .842	(15.53) .611

View complete specifications at: [samtec.com?SEAM-RA](http://samtec.com?SEAM-RA) & [samtec.com?SEAF-RA](http://samtec.com?SEAF-RA)

SERIES	POSITIONS PER ROW	02.0	PLATING OPTION	NO. OF ROWS	SOLDER TYPE	A	GP	K	"X"R		
SEAM Terminal with Guide post	-20, -30, -40, -50		-L = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on solder tail	-04	-1 = Tin/Lead Alloy Solder Charge				-TR = Tape & Reel		
				-06					-K = Polyimide Film Pick & Place Pad	-FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)	
SEAM-GP Board Mates: SEAF-RA-GP	-40		-S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on solder tail	-08	-2 = Lead-Free Solder Charge				-08 & -10 Row options require fixturing to process		
				-10							



View complete specifications at: [samtec.com?SEAM](http://samtec.com?SEAM)

**Note:** Some lengths, styles and options are non-standard, non-returnable

**(1.27 mm) .050" PITCH • PRESS-FIT & 85 Ω OPEN-PIN-FIELD ARRAYS**

SERIES	POSITIONS PER ROW	LEAD STYLE	PLATING OPTION	NO. OF ROWS	OPTION	PACKAGING
SEAMP Terminal	-10, -20, -30, -40, -50	-02.0 (SEAMP only)	-L = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on tail	-04, -06, -08, -10	-GP Guide Post (SEAMP only)	-TR = Tape & Reel
SEAFP Socket		-05.0 (SEAFP only)	-S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on tail	SEAFP: -04 & -06 Rows only		-FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**SEAMP**  
Board Mates:  
SEAF,  
SEAF-RA-GP,  
SEAFP

NO. OF ROWS	A
-04	(7.06) .278
-06	(9.60) .378
-08	(12.14) .478
-10	(14.68) .578

**SEAFP**  
Board Mates:  
SEAM,  
SEAM-RA,  
SEAMP

NO. OF ROWS	A
-04	(5.61) .221
-06	(8.15) .321

View complete specifications at: [samtec.com?SEAMP](http://samtec.com?SEAMP) & [samtec.com?SEAFP](http://samtec.com?SEAFP). Visit [samtec.com?SEAFP-RA](http://samtec.com?SEAFP-RA) for right-angle socket.

SERIES	POSITIONS PER ROW	LEAD STYLE	NO. OF ROWS	085
SEAR 85 Ω Tuned Riser	-40, -50	-10.0 = 20 mm Mated Height -20.0 = 30 mm Mated Height -30.0 = 40 mm Mated Height	-06, -08, -10	

**SEAR**  
Board Mates:  
SEAFC

POSITIONS PER ROW	A
-40	(71.42) 2.812
-50	(84.12) 3.312

NO. OF ROWS	B
-06	(11.43) .450
-08	(13.97) .550
-10	(16.51) .650

SERIES	POSITIONS PER ROW	11.0	PLATING OPTION	NO. OF ROWS	SOLDER TYPE	A	K	"X"R
SEAMI 85 Ω Tuned Terminal	-40 -50		-L = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on solder tail	-08 -10	-1 = Tin/Lead Alloy SolderCharge			-TR = Tape & Reel
SEAMI			-S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on solder tail		-2 = Lead-Free Solder Charge			-FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**SEAMI**  
Board Mates:  
SEAF

**Note:** Some lengths, styles and options are non-standard, non-returnable

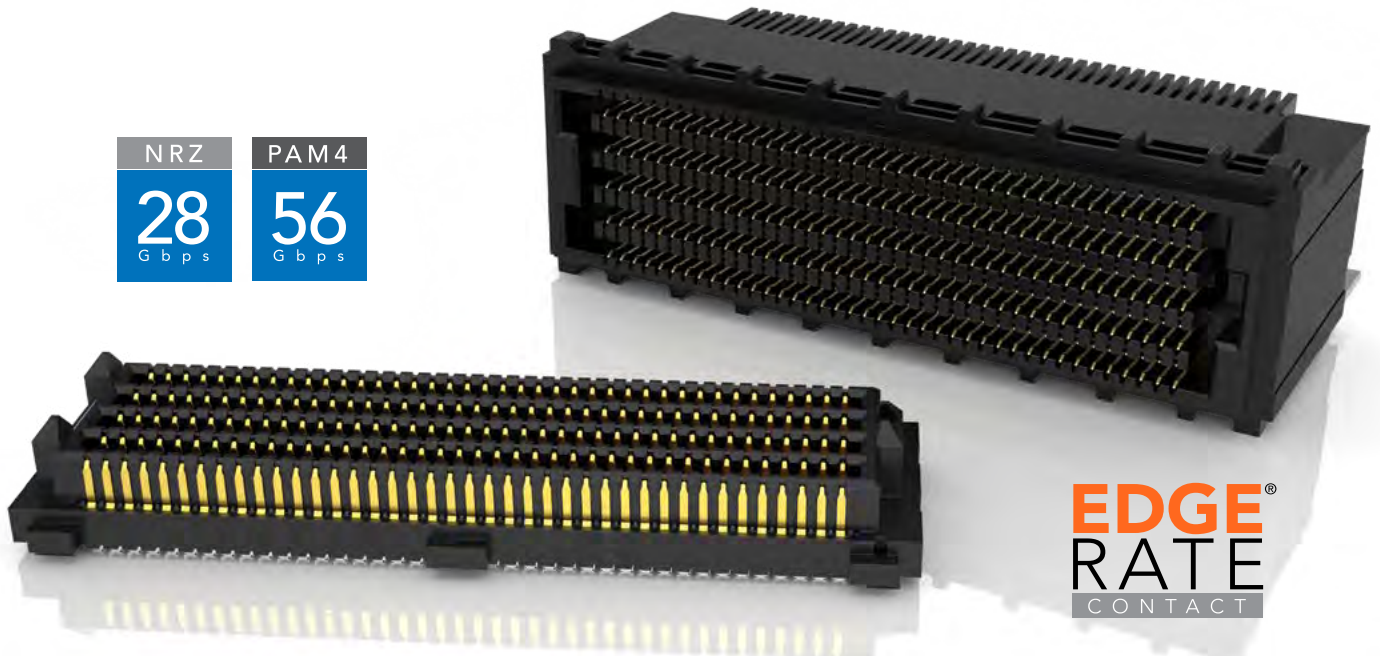
NO. OF ROWS	A
-08	(13.41) .528
-10	(15.95) .628

View complete specifications at: [samtec.com?SEAR](http://samtec.com?SEAR) & [samtec.com?SEAMI](http://samtec.com?SEAMI).

# SEARAY<sup>TM</sup>.8mm

## ULTRA HIGH-DENSITY, HIGH-SPEED OPEN-PIN-FIELD ARRAYS

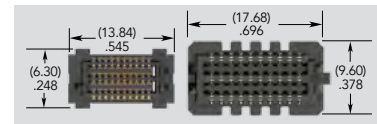
(0.80 mm) .0315" PITCH



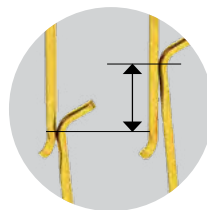
NRZ	PAM4
28 Gbps	56 Gbps

### FEATURES & BENEFITS

- 0.80 mm (.0315") pitch grid
- 50% board space savings versus .050" (1.27 mm) pitch arrays
- Performance up to 28 Gbps NRZ/56 Gbps PAM4
- Rugged Edge Rate<sup>®</sup> contact system
- Up to 500 I/Os
- 7 mm and 10 mm stack heights
- Solder charge terminations for ease of processing
- Lower insertion/withdrawal forces
- Severe Environment Testing qualified (SEAM8/SEAF8); aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)

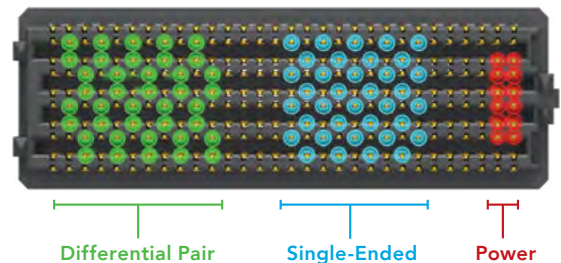


0.80 mm pitch vs. 1.27 mm pitch (60 pins shown)



(1.12 mm) .044" Nominal Wipe

### MAXIMUM GROUNDING & ROUTING FLEXIBILITY



### KEY SPECIFICATIONS (SEAF8/SEAM8)

SERIES	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING	LEAD-FREE SOLDERABLE
SEAM8	Black LCP	Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	-55 °C to +125 °C	1.3 A per pin (10 adjacent pins powered)	220 VAC	Yes
SEAF8					1.1 A per pin (10 adjacent pins powered)		
SEAF8-RA							




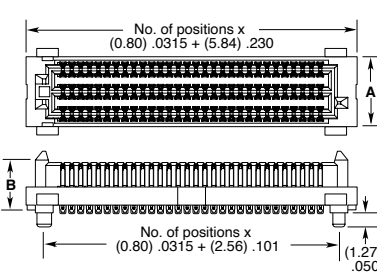
**(0.80 mm) .0315" PITCH • ULTRA HIGH-DENSITY ARRAYS**

SERIES	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	NO. OF ROWS	SOLDER TYPE	OPTION	"X"R
SEAM8 Terminal	-10, -20, -30, -40, -50	-S02.0 = 2 mm Body Height (SEAM8 only)	-L = 10 μm (0.25 μm) Gold on contact area, Matte Tin on solder tail	-04	-1 = Tin/Lead Alloy Solder Crimp (-STL only)	-GP = Guide Post (-S02.0 lead style only) (Mates with SEAF8-RA-GP)	Tape & Reel is standard. Leave blank for Tape & Reel.
		-S05.0 = 5 mm Body Height (SEAM8 only)	-S = 30 μm (0.76 μm) Gold on contact area, Matte Tin on solder tail	-06			
SEAF8 Socket	-10, -20, -30, -40, -50	-S05.0 = 5 mm Body Height (SEAF8 only)	-STL = 30 μm (0.76 μm) Gold on contact, Tin/Lead on solder tail (-1 solder type only)	-08	-3 = Lead-Free Solder Crimp		-FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)
		-05.0 = 5 mm Body Height (SEAF8 only)		-10			

**SEAM8**  
Board Mates:  
SEAF8  
Cable Mates:  
ESCA  
Standoffs:  
JSO





LEAD STYLE	B
-S02.0	(4.54) .179
-S05.0	(7.54) .297


NO. OF ROWS	A
-04	(4.30) .169
-06	(6.30) .248
-08	(8.30) .327
-10	(10.30) .406

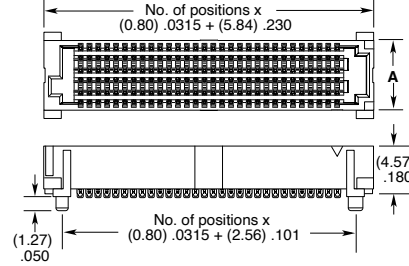
View complete specifications at: [samtec.com?SEAM8](http://samtec.com?SEAM8)

SERIES	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	NO. OF ROWS	SOLDER TYPE	OPTION	"X"R
SEAF8	-20, -30, -40, -50	-05.0	-S = 30 μm (0.76 μm) Gold on contact area, Matte Tin on solder tail	-04 (-50 positions only)	-2 = Lead-Free Solder Crimp	-GP = Guide Post Holes	Tape & Reel is standard. Leave blank for Tape & Reel.

**SEAF8**  
Board Mates:  
SEAM8  
Cable Mates:  
ESCA  
Standoffs:  
JSO





**MATED HEIGHTS\***

SEAF8 LEAD STYLE	SEAM8 LEAD STYLE	
	-S02.0	-S05.0
-05.0	(7.00) .276	(10.00) .394

\*Processing conditions will affect mated height.


**Notes:**  
Polyimide Pick & Place Pad standard without specifying -K.  
Severe Environment Testing qualified; aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)

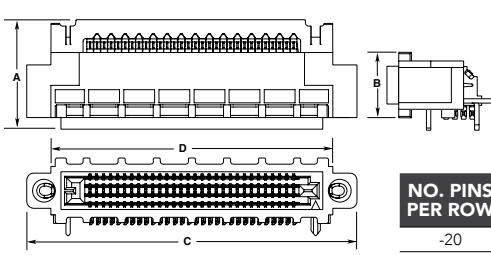
View complete specifications at: [samtec.com?SEAF8](http://samtec.com?SEAF8)

SERIES	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	NO. OF ROWS	SOLDER TYPE	OPTION	"X"R
SEAF8-RA (Right-angle)	-20, -30, -40, -50	-04, -08, -10	-S = 30 μm (0.76 μm) Gold on contact area, Matte Tin on solder tail	-04 (-50 positions only)	-2 = Lead-Free Solder Crimp	-GP = Guide Post Holes	Tape & Reel is standard. Leave blank for Tape & Reel.

**SEAF8-RA**  
(Right-angle)  
Board Mates:  
SEAM8  
Cable Mates:  
ESCA





NO. OF ROWS	A	B
-04	(12.48) .491	(7.46) .294
-08	(16.48) .649	(11.46) .451
-10	(18.48) .728	(13.46) .530

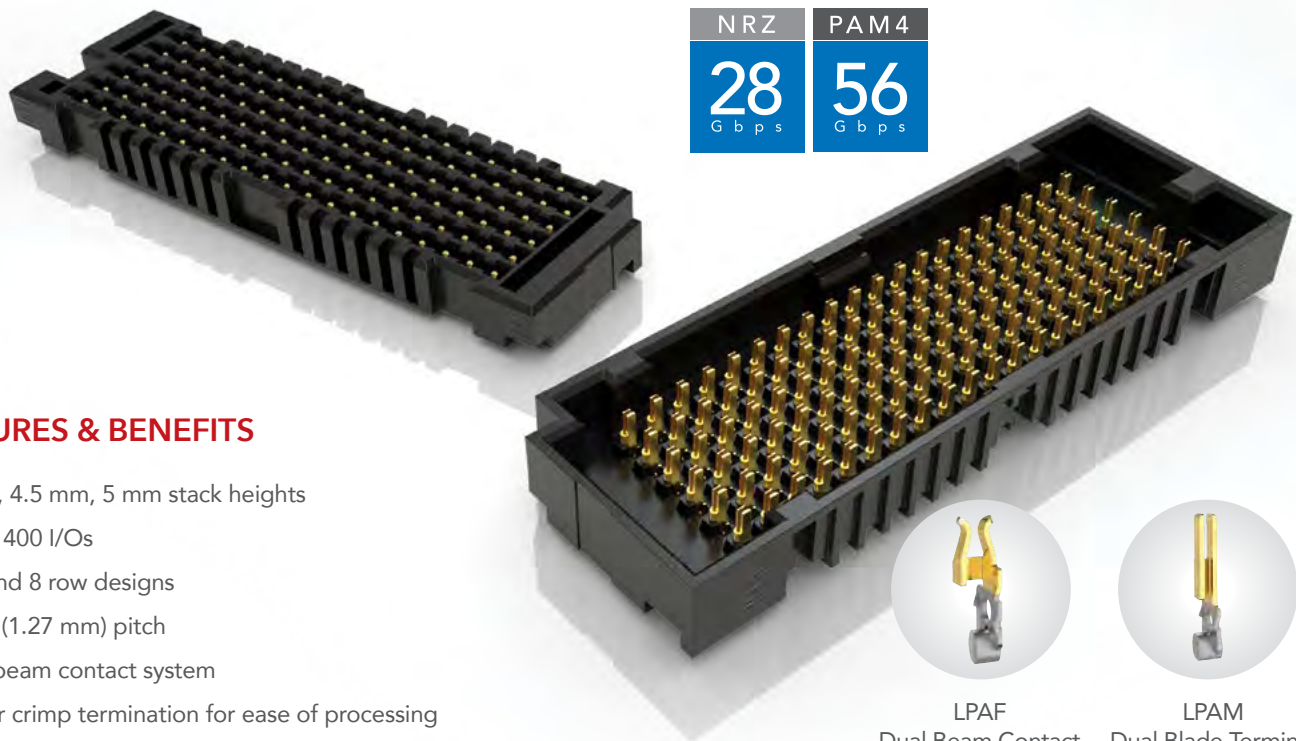
NO. PINS PER ROW	C	D
-20	(29.62) 1.166	(24.12) .950
-30	(37.62) 1.481	(32.12) 1.265
-40	(45.62) 1.796	(40.12) 1.580
-50	(53.62) 2.111	(48.12) 1.894

View complete specifications at: [samtec.com?SEAF8-RA](http://samtec.com?SEAF8-RA)

# LPARRAY™

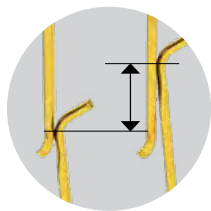
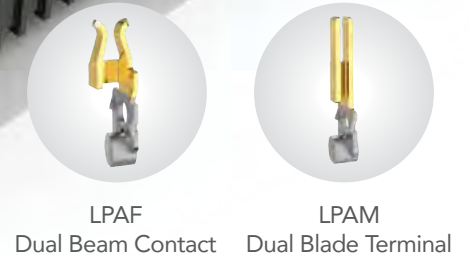
## LOW PROFILE OPEN-PIN-FIELD ARRAYS

(1.27 mm) .050" PITCH

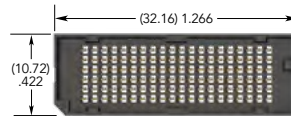


### FEATURES & BENEFITS

- 4 mm, 4.5 mm, 5 mm stack heights
- Up to 400 I/Os
- 4, 6 and 8 row designs
- .050" (1.27 mm) pitch
- Dual beam contact system
- Solder crimp termination for ease of processing
- Board stacking standoffs available to assist with unmating and reduce risk for component damage on board

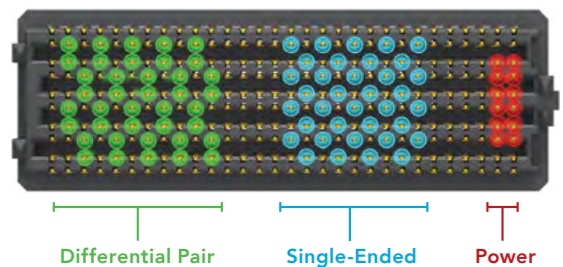


(0.51 mm) .020"  
Nominal Wipe



LPAM Series; 120 pins

### MAXIMUM GROUNDING & ROUTING FLEXIBILITY



### KEY SPECIFICATIONS (LPAM/LPAF)

PITCH	TOTAL PINS	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	CURRENT RATING	WORKING VOLTAGE	LEAD-FREE SOLDERABLE
1.27 mm x 1.27 mm	Up to 400 I/Os	Black LCP	Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	2.2 A per pin (8 adjacent pins powered)	250 VAC	YES

**(1.27 mm) .050" PITCH • LOW PROFILE OPEN-PIN-FIELD ARRAYS**

SERIES	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	NO. OF ROWS	SOLDER TYPE	K	"X"R
LPAM Terminal	-10, -20, -30, -40,	-01.0 = (1.0 mm) .039" (LPAM only)	-L = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on solder tail	-04 -06 -08	-1 = Tin/Lead Alloy Solder Crimp		-K = Polyimide film Pick & Place Pad
LPAF Socket	-50 (-08 rows only)	-01.5 = (1.5 mm) .060" (LPAM only)	-S = 30 μ" (0.76 μm) Gold on contact area, Matt Tin on solder tail		-2 = Lead-Free Solder Crimp		-TR =Tape & Reel
		-03.0 = (3.0 mm) .118" (LPAF only)					-FR =Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)
		-03.5 = (3.5 mm) .138" (LPAF only)					

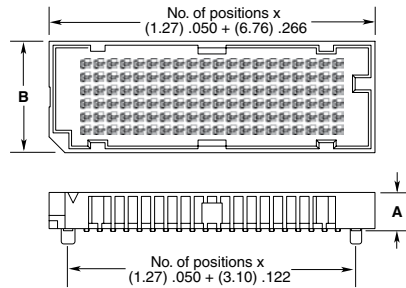
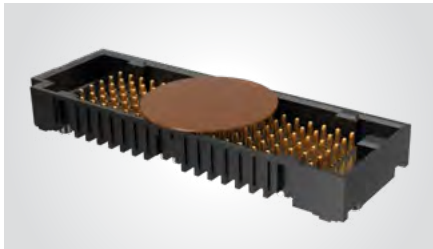
**LPAM**

Board Mates:

LPAF

Standoffs:

JSO, SO



NO. OF ROWS	B
-04	(8.18) .322
-06	(10.72) .422
-08	(13.26) .522

LEAD STYLE	A
-01.0	(3.68) .145
-01.5	(4.19) .165

View complete specifications at: [samtec.com?LPAM](http://samtec.com?LPAM)

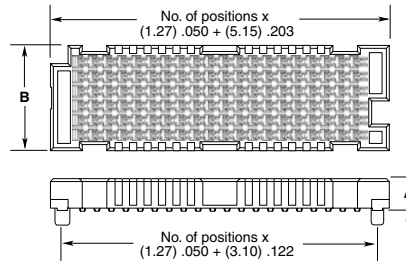
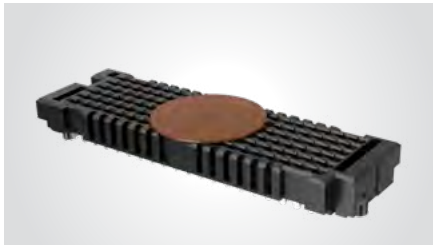
**LPAF**

Board Mates:

LPAM

Standoffs:

JSO, SO



NO. OF ROWS	B
-04	(6.71) .264
-06	(9.25) .364
-08	(11.79) .464

LEAD STYLE	A
-03.0	(2.79) .110
-03.5	(3.30) .130

**MATED HEIGHTS\***

LPAM LEAD STYLE	LPAF LEAD STYLE	
	-03.0	-03.5
-01.0	(4.00) .157	(4.50) .177
-01.5	(4.50) .177	(5.00) .197

\*Processing conditions will affect mated height.

**Notes:**

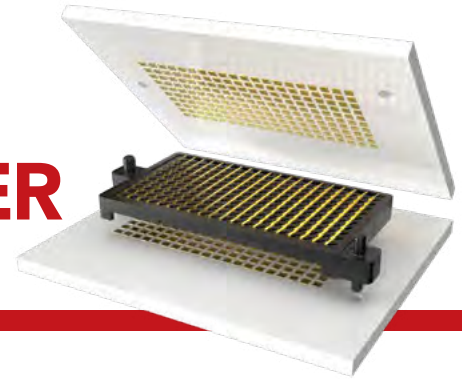
Some sizes, styles and options are non-standard, non-returnable

View complete specifications at: [samtec.com?LPAF](http://samtec.com?LPAF)



# SUPERNOVA™ LOW PROFILE COMPRESSION INTERPOSER

PAM4  
56  
Gbps



(1.00 mm) .0394" PITCH • GMI SERIES

## SPECIFICATIONS

**Insulator Material:**  
Black LCP  
**Contact Material:**  
Copper Alloy  
**Plating:**  
Au or 50 μ" (1.27 μm) Ni  
**Current Rating:**  
.89 A per pin  
(10 pins powered)

GMI

POSITIONS  
PER ROW

-10, -20, -30

STYLE

-2  
= Dual  
Compression

BOARD  
SPACING

-1.27  
= (1.27 mm) .050"  
Board Space

PLATING  
OPTION

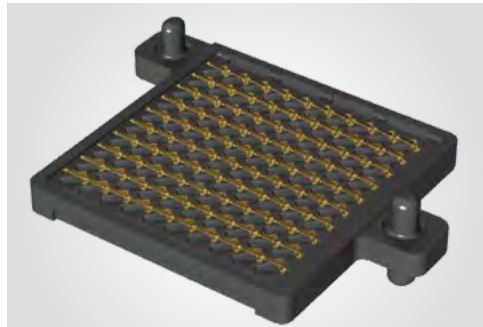
-G  
= 10 μ"  
(0.25 μm)  
Gold on  
contact area

ROWS

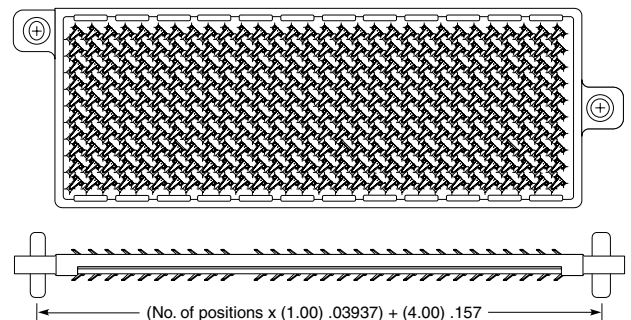
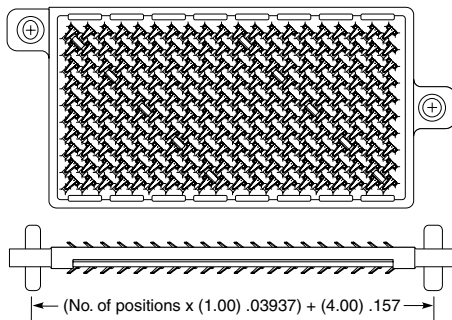
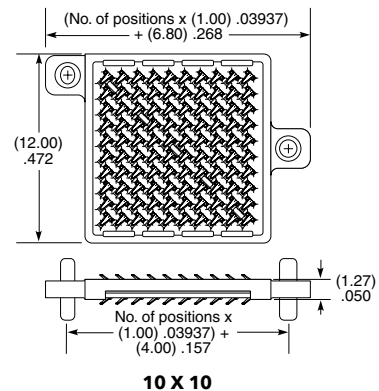
-10  
= Ten Rows

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Complanarity:**  
(0.05 mm) .002" (10-20)\*  
(0.08 mm) .003" (30)\*  
\*(.004" stencil solution  
may be available;  
contact ipg@samtec.com)



GMI Series is an ideal low-cost solution  
for board stacking, module-to-board or  
LGA interface



**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable

# JACK SCREW STANDOFF

## JSO SERIES



**JSO**  
Use With:  
SEAX, SEAX8, LPAX, LSHM

**JSO**

**BOARD  
STACKER**

**LEAD STYLE**

**PLATING  
OPTION**

### SPECIFICATIONS

**Material:**  
Stainless Steel  
**Locking Compound:**  
Nylon

Specify  
BOARD STACKER  
from chart

**-01**  
= Press-In  
(-0415, -0515, -0715, -0815 only)

**-03**  
= Male Thread  
(-0815, -1015, -1115, -1615 only)

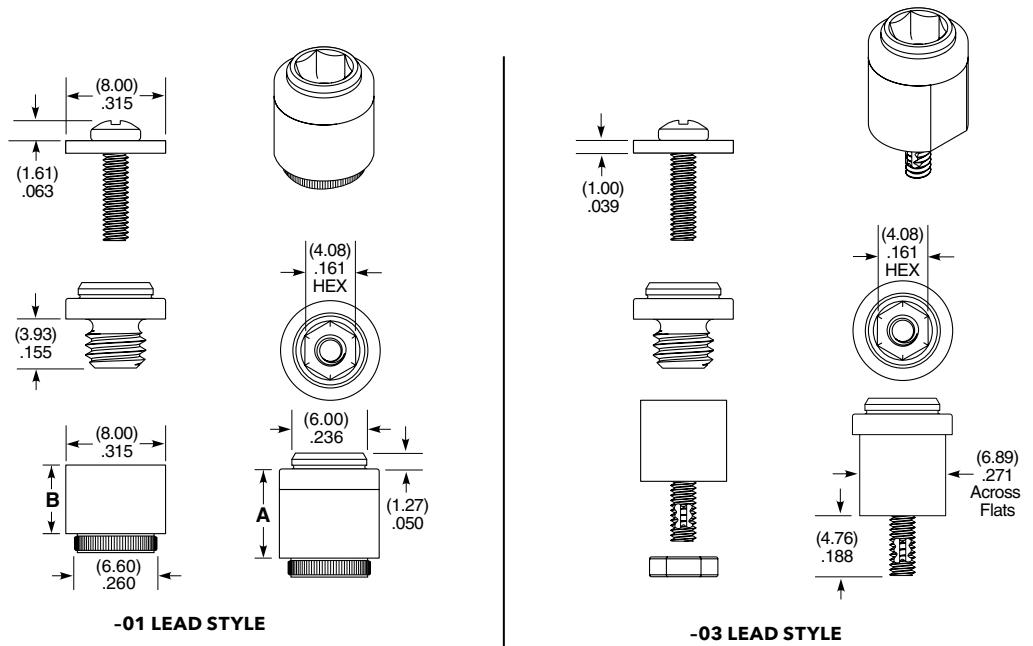
**-L**  
= Locking compound  
(Not available with -01 lead style,  
Required for -03 lead style)

BOARD STACKER	A	B	BOARD STACK HEIGHT
-0415	(4.15) .163	(2.50) .098	4 mm
-0515	(5.15) .203	(3.50) .138	5 mm
-0715	(7.15) .281	(5.50) .217	7 mm
-0815	(8.15) .321	(6.50) .256	8 mm
-1015	(10.15) .400	(8.50) .335	10 mm
-1115	(11.15) .439	(9.50) .374	11 mm
-1615	(16.15) .636	(14.50) .571	16 mm

### ALSO AVAILABLE

MOQ Required

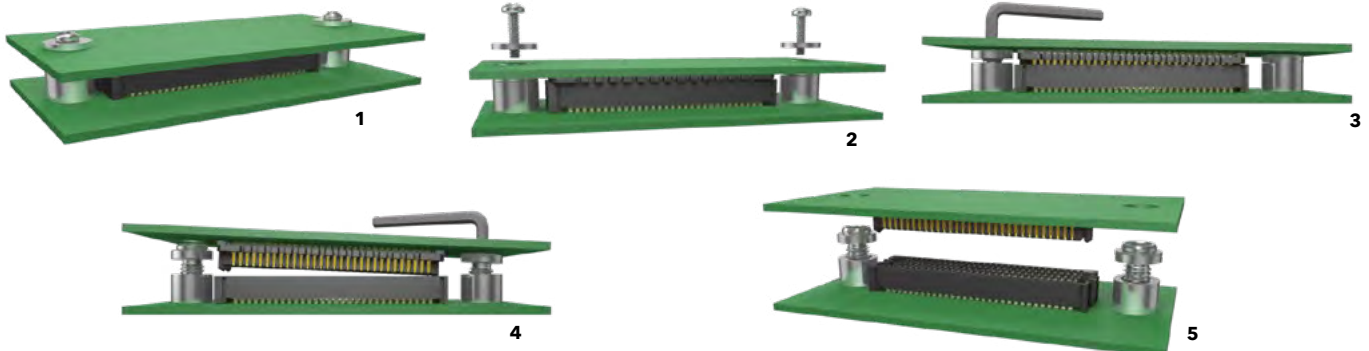
Other heights  
Locking compound removed



**Note:**  
Some sizes, styles and  
options are non-standard,  
non-returnable.

Components are to be packaged in separate bags unassembled.

## APPLICATION



# BOARD-TO-BOARD GUIDE POST STANDOFF

## GPSO SERIES

**GPSO**  
Use With:  
NVAX, APX6, ADX6,  
UMPX, UDX6

### SPECIFICATIONS

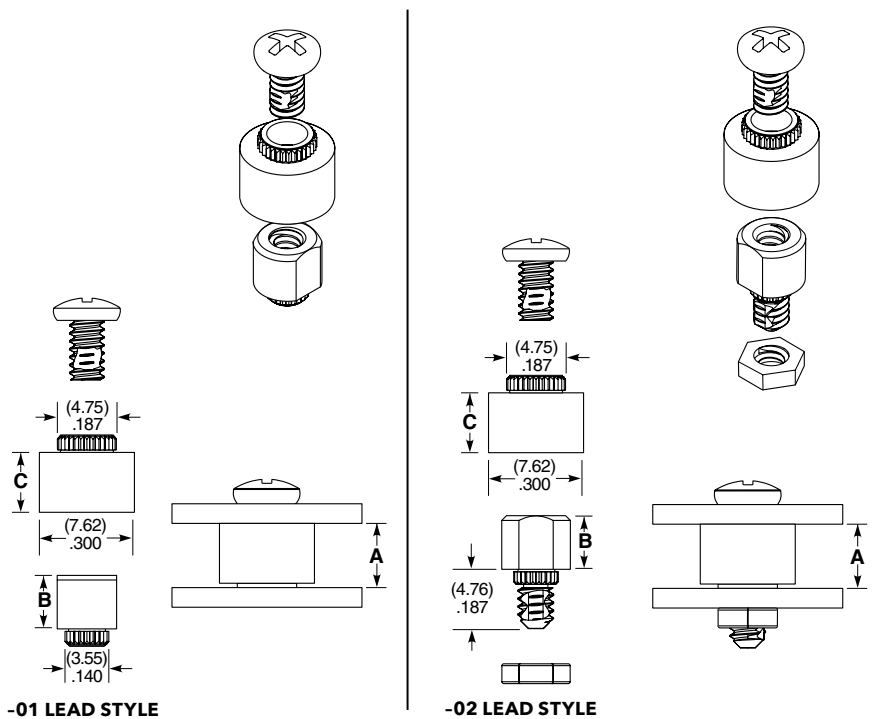
**Locking Compound:**  
Nylon

BOARD STACK HEIGHT	A	B	C
-0500	(5.00) .197	(4.15) .163	(4.65) .183
-0515	(5.15) .203	(4.30) .169	(4.80) .189
-0700	(7.00) .276	(6.15) .242	(6.65) .262
-0715	(7.15) .281	(6.30) .248	(6.80) .268
-0865	(8.65) .341	(7.80) .307	(8.30) .327
-0900	(9.00) .354	(8.15) .321	(8.65) .341
-0915	(9.15) .360	(8.30) .327	(8.80) .346
-1000	(10.00) .394	(9.15) .360	(9.65) .380
-1015	(10.15) .400	(9.30) .366	(9.80) .386
-1115	(11.15) .439	(10.30) .406	(10.80) .425
-1200	(12.00) .472	(11.15) .439	(11.65) .459
-1215	(12.15) .478	(11.30) .445	(11.80) .465
-1315	(13.15) .518	(12.30) .484	(12.80) .504
-1415	(14.15) .557	(13.30) .524	(13.80) .543
-1515	(15.15) .596	(14.30) .563	(14.80) .583
-1524	(15.24) .600	(14.39) .567	(14.89) .586
-1615	(16.15) .636	(15.30) .602	(15.80) .622

**Notes:**  
Standoffs to be used with  
(1.57 mm) .062" min thick boards.  
Threaded options PCB max  
thickness of (3.16 mm) .124".

Some sizes, styles and options are  
non-standard, non-returnable.

GPSO	BOARD STACK HEIGHT	LEAD STYLE	MATERIAL	KIT OPTION
	Specify BOARD STACK HEIGHT from chart	-01 = Press-In -02 = Press-In with Nut	-01 = 303 Stainless Steel with MIL-C-13924 black oxide finish	-N = No hardware (Standoff only) Leave blank for kit



Components are to be packaged in separate bags unassembled.  
Top and bottom components available for purchase separately, contact Samtec.

## APPLICATIONS

GPSO mated with ADX6

GPSO mated with UMPX

Allows for 0.035" of initial misalignment

Alignment starts before connectors engage.



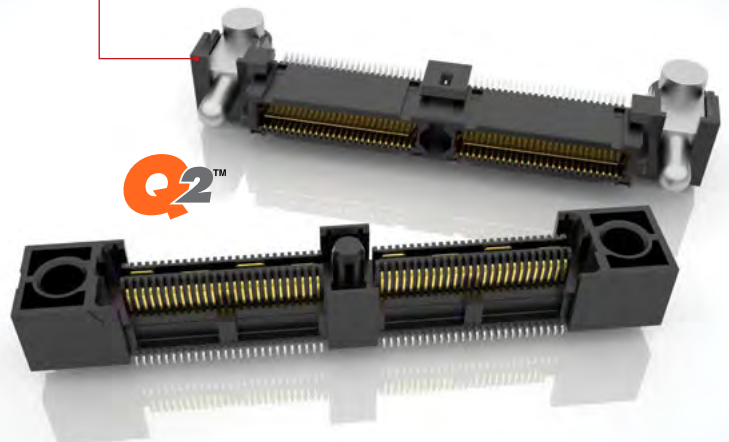
# HIGH-SPEED MEZZANINE SYSTEMS

25+ Gbps PERFORMANCE • INTEGRAL GROUND PLANE • EDGE RATE® CONTACTS

**37-39** **Q STRIP® INTEGRAL GROUND PLANE INTERCONNECTS**  
 0.50 mm (.0197") Pitch (QTH, QSH)  
 0.80 mm (.0315") Pitch (QTE, QSE)  
 0.635 mm (.025") Pitch (QTS, QSS)



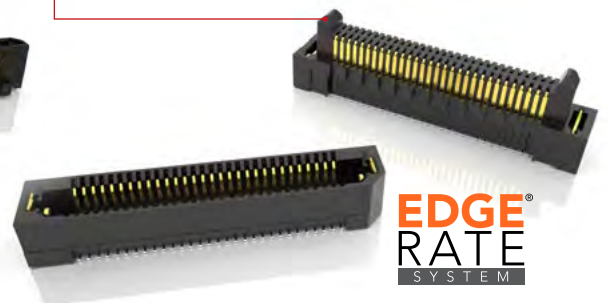
**40-41** **Q2™ RUGGED INTEGRAL GROUND PLANE INTERCONNECTS**  
 0.635 mm (.025") Pitch (QMS, QFS)  
 0.635 mm (.025") Pitch Shielded (QMSS, QFSS)



**42** **Q RATE® SLIM BODY INTEGRAL GROUND PLANE INTERCONNECTS**  
 0.80 mm (.0315") Pitch (QRM8, QRF8)

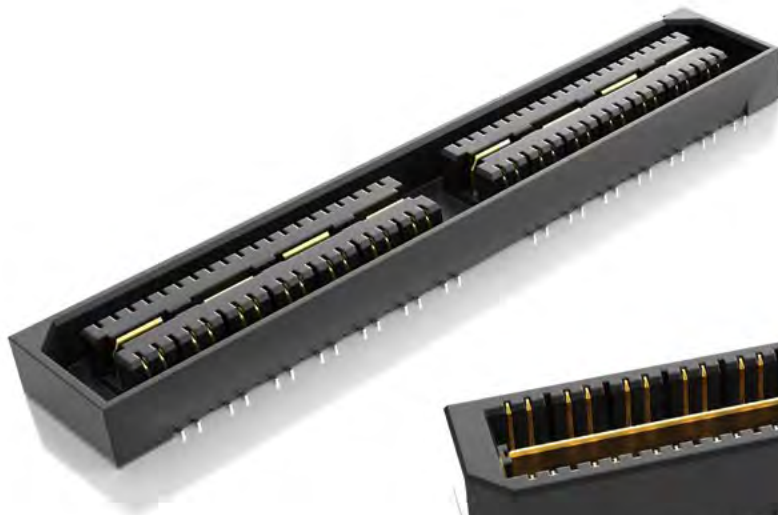


**47-52** **EDGE RATE® RUGGED HIGH-SPEED INTERCONNECTS**  
 0.50 mm (.0197") Pitch (ERM5, ERF5)  
 0.635 mm (.025") Pitch (ERM6, ERF6)  
 0.80 mm (.0315") Pitch (ERM8, ERF8)





# HIGH-SPEED GROUND PLANE MEZZANINE CONNECTORS



## FEATURES & BENEFITS

- Designed for high-speed board-to-board applications where signal integrity is essential
- Q Strip® low profile connectors on 0.50 mm, 0.635 mm and 0.80 mm pitches
- Q Rate® slim connectors with Edge Rate® contacts on 0.80 mm pitch with a 1.20 mm contact wipe
- Q2™ rugged connectors on 0.635 mm pitch with increased insertion depth for rugged applications
- Right-angle, edge mount, EMI shielding and power options
- Differential pair and single-ended routing



Differential Pairs  
Reduce Noise



Rugged Edge Rate®  
Contact System



Power, Retention  
& RF Options



Precision Board  
Stacking Standoffs

## INTEGRAL GROUND / POWER PLANE

- Surface mount ground plane between two signal rows improves electrical performance
- Significantly reduces row-to-row crosstalk
- Integral metal plane for power to 25 Amps





**(0.50 mm) .0197" PITCH • QTH/QSH SERIES**

**QTH**  
Board Mates:  
QSH

**QSH**  
Board Mates:  
QTH

**QTH/QSH**  
Cable Mates:  
HQCD, HQDP

**Standoffs:**  
SO

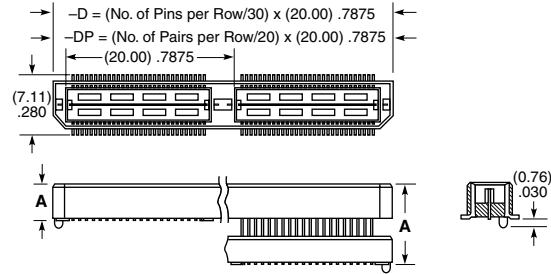
QTH	PINS PER ROW NO. OF PAIRS	LEAD STYLE	PLATING OPTION	TYPE	A	OTHER OPTIONS	"X"R
	<b>-030, -060, -090</b> (60 total pins per bank = -D)	Specify <b>LEAD STYLE</b> from chart	<b>-F</b> = Gold flash on contact, Matte Tin on tail	<b>-D</b> = Single-Ended		<b>-K</b> = (7.00 mm) .275" DIA Polyimide film Pick & Place Pad (Not available with -05 & -07 lead style)	Leave blank for Tray Packaging
	<b>-020, -040, -060</b> (20 pairs per bank = -D-DP)		<b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail	<b>-D-DP</b> = Differential Pair (-01 only)		<b>-L</b> = Latching Option (-01 lead style only) (Not available on -060 (-D-DP) & -090)	<b>-TR</b> =Tape & Reel (Not available with -05 & -07 lead style)
			<b>-C</b> = 50 μ" (1.27 μm) Electro-Polished Selective Gold on contact, Matte Tin on tail (passes 10 year MFG testing)				<b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (Not available with -05 & -07 lead style)

**SPECIFICATIONS**

**Insulator Material:**  
Liquid Crystal Polymer  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over 50 μ" (1.27 μm) Ni  
**Current Rating:**  
Contact:  
2 A per pin (2 pins powered)  
Ground Plane:  
25 A per ground plane (1 ground plane powered)  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Voltage Rating:**  
175 VAC (5 mm Stack Height)  
**Max Cycles:**  
100

QTH LEAD STYLE	A	HEIGHT WITH QSH*
-01	(4.27) .168	(5.00) .197
-02	(7.26) .286	(8.00) .315
-03	(10.27) .404	(11.00) .433
-04	(15.25) .600	(16.00) .630
-05	(18.26) .718	(19.00) .748
-07	(24.24) .954	(25.00) .984
-09	(13.26) .522	(14.00) .551

\*Processing conditions will affect mated height. See SO Series for board space tolerances.



**-01 & -02      -03 THRU -09**

**PROCESSING**

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (030-060)  
(0.15 mm) .006" max (090)\*  
\*(.004" stencil solution may be available; contact ipg@samtec.com)  
**Board Stacking:**  
For applications requiring more than two connectors contact ipg@samtec.com

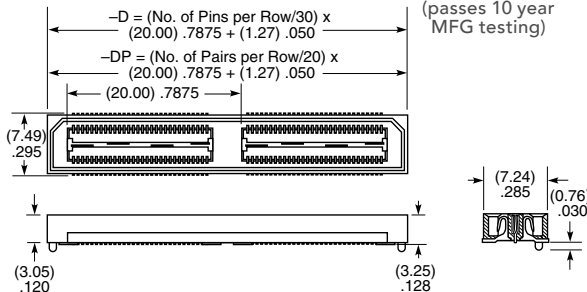
View complete specifications at: [samtec.com?QTH](http://samtec.com?QTH)

**STANDARDS**

**PISMO™ 1:**  
Visit [samtec.com/standards](http://samtec.com/standards) for more information.



QSH	PINS PER ROW NO. OF PAIRS	01	PLATING OPTION	TYPE	A	OTHER OPTIONS	"X"R
	<b>-030, -060, -090</b> (60 total pins per bank = -D)		<b>-F</b> = Gold flash on contact, Matte Tin on tail	<b>-D</b> = Single-Ended		<b>-K</b> = (8.25 mm) .325" DIA Polyimide film Pick & Place Pad	Leave blank for Tray Packaging
	<b>-020, -040, -060</b> (20 pairs per bank = -D-DP)		<b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail	<b>-D-DP</b> = Differential Pair		<b>-L</b> = Latching Option (Not available on -060 (-D-DP) & -090)	<b>-TR</b> =Tape & Reel (N/A -05 to -07 lead style)
			<b>-C</b> = 50 μ" (1.27 μm) Electro-Polished Selective Gold on contact, Matte Tin on tail (passes 10 year MFG testing)				<b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)



**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?QSH](http://samtec.com?QSH)





**(0.80 mm) .0315" PITCH • QTE/QSE SERIES**

**QTE**  
Board Mates:  
QSE

**QSE**  
Board Mates:  
QTE

**QTE/QSE**  
Cable Mates:  
EQCD, EQDP

**Standoffs:**  
SO

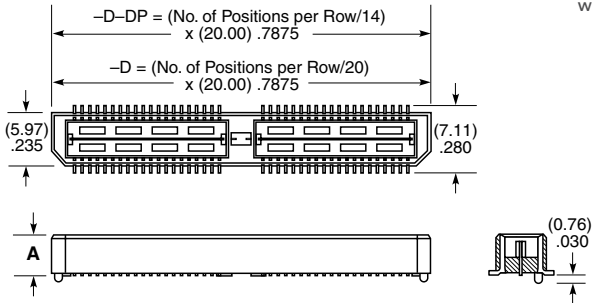
QTE	PINS PER ROW NO. OF PAIRS	LEAD STYLE	PLATING OPTION	TYPE	A	OTHER OPTIONS	"X"R
	-020, -040, -060 (40 total pins per bank = -D)	Specify LEAD STYLE from Chart	-F = Gold flash on contact, Matte Tin on tail  -L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail  -C = 50 μ" (1.27 μm) Electro-Polished Selective Gold on contact, Matte Tin on tail (passes 10 year MFG testing)	-D = Single-Ended  -D-DP = Differential Pair (-01 only)		-K = (7.00 mm) .275" DIA Polyimide film Pick & Place Pad  -L = Latching Option (N/A on -042 & -060 positions)	Leave blank for Tray Packaging  -TR = Tape & Reel (Not available with -05 & -07 lead style)  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (Not available with -05 & -07 lead style)

**SPECIFICATIONS**

**Insulator Material:** Liquid Crystal Polymer  
**Contact Material:** Phosphor Bronze  
**Plating:** Au or Sn over 50 μ" (1.27 μm) Ni  
**Current Rating:** Contact: 2 A per pin (2 pins powered) Ground Plane: 23 A per ground plane (1 ground plane powered)  
**Operating Temp Range:** -55 °C to +125 °C  
**Voltage Rating:** 225 VAC when mated & 5 mm Stack Height  
**Max Cycles:** 100

QTE LEAD STYLE	A	HEIGHT WITH QSE*
-01	(4.27) .168	(5.00) .197
-02	(7.26) .286	(8.00) .315
-03	(10.27) .404	(11.00) .433
-04	(15.25) .600	(16.00) .630
-05	(18.26) .718	(19.00) .748
-07	(24.24) .954	(25.00) .984
-09	(13.26) .522	(14.00) .551

\*Processing conditions will affect mated height. See SO Series for board space tolerances.



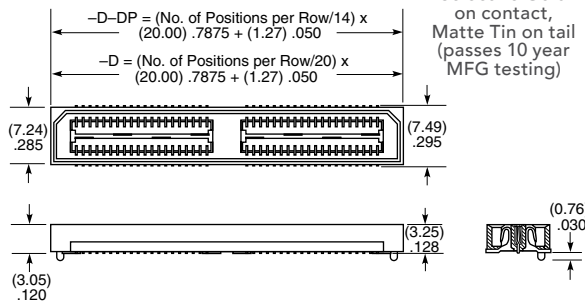
View complete specifications at: [samtec.com?QTE](http://samtec.com?QTE)

**PROCESSING**

**Lead-Free Solderable:** Yes  
**SMT Lead Coplanarity:** (0.10 mm) .004" max (020-060)  
**Board Stacking:** For applications requiring more than two connectors contact ipg@samtec.com



QSE	PINS PER ROW NO. OF PAIRS	01	PLATING OPTION	TYPE	A	OTHER OPTIONS	"X"R
	-020, -040, -060 (40 total pins per bank = -D)		-F = Gold flash on contact, Matte Tin on tail  -L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail  -C = 50 μ" (1.27 μm) Electro-Polished Selective Gold on contact, Matte Tin on tail (passes 10 year MFG testing)	-D = Single-Ended  -D-DP = Differential Pair		-GP = Guide Post  -K = (8.25 mm) .325" DIA Polyimide Film Pick & Place Pad  -L = Latching Option (Not available on -042 & -060 positions)	Leave blank for Tray Packaging  -TR = Tape & Reel (40 positions max. with -GP)  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (40 positions max. with -GP)



**Note:** Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?QSE](http://samtec.com?QSE)



NRZ  
25  
Gbps



(0.635 mm) .025" PITCH • QTS/QSS SERIES

**QTS**  
Board Mates:  
QSS

**QSS**  
Board Mates:  
QTS

**QTS/QSS**  
Cable Mates:  
SQCD

Standoffs:  
SO



**-025, -050, -075**  
(50 total positions per bank)

Specify LEAD STYLE from Chart

**-F**  
= Gold flash on contact, Matte Tin on tail

**-L**  
= 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail

**-C**  
= 50 μ" (1.27 μm) Electro-Polished Selective Gold on contact, Matte Tin on tail (passes 10 year MFG testing)

**-K**  
= (7.00 mm) .275" DIA Polyimide film Pick & Place Pad

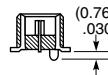
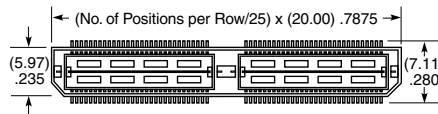
Leave blank for Tray Packaging

**-TR**  
= Tape & Reel

**-FR**  
= Full Reel Tape & Reel must order max. quantity per reel; contact Samtec for quantity breaks)

**SPECIFICATIONS**

**Insulator Material:** Liquid Crystal Polymer  
**Contact Material:** Phosphor Bronze  
**Plating:** Au or Sn over 50 μ" (1.27 μm) Ni  
**Current Rating:** Contact: 1.8 A per pin (2 pins powered) Ground Plane: 23.1 A per ground plane (1 ground plane powered)  
**Operating Temp Range:** -55 °C to +125 °C  
**Voltage Rating:** 285 VAC  
**Max Cycles:** 100



QTS LEAD STYLE	A	MATED HEIGHT WITH QSS
-01	(4.27) .168	(5.00) .197
-02	(7.26) .286	(8.00) .315

\*Processing conditions will affect mated height. See SO Series for board space tolerances.

View complete specifications at: [samtec.com?QTS](http://samtec.com?QTS)

**PROCESSING**

**Lead-Free Solderable:** Yes  
**QTS SMT Lead Coplanarity:** (0.10 mm) .004" max (025-075)  
**QSS SMT Lead Coplanarity:** (0.10 mm) .004" max (025-050) (0.15 mm) .006" max (075)\* \*(.004" stencil solution may be available; contact ipg@samtec.com)  
**Board Stacking:** For applications requiring more than two connectors contact ipg@samtec.com



**-025, -050, -075**  
(50 total positions per bank)

**-F**  
= Gold flash on contact, Matte Tin on tail

**-L**  
= 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail

**-C**  
= 50 μ" (1.27 μm) Electro-Polished Selective Gold on contact, Matte Tin on tail (passes 10 year MFG testing)

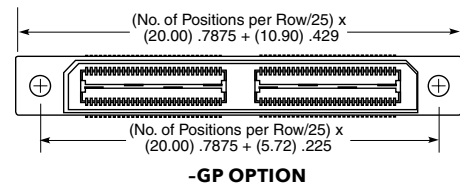
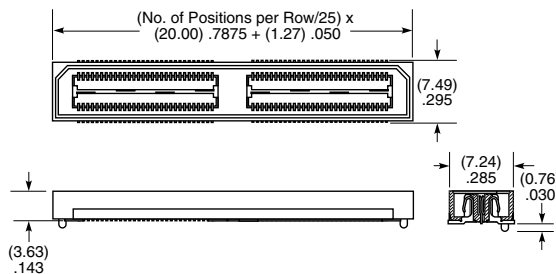
**-GP**  
= Guide Holes for mating with QTS-RA

**-K**  
= (8.25 mm) .325" DIA Polyimide Film Pick & Place Pad

Leave blank for Tray Packaging

**-TR**  
= Tape & Reel

**-FR**  
= Full Reel Tape & Reel must order max. quantity per reel; contact Samtec for quantity breaks)

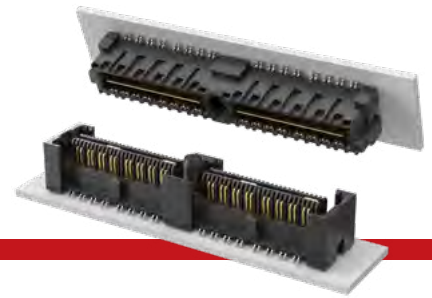


**Note:** Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?QSS](http://samtec.com?QSS)



NRZ  
25  
Gbps



(0.635 mm) .025" PITCH • QMS/QFS SERIES

**QMS**  
Board Mates:  
QFS

**QFS**  
Board Mates:  
QMS

**QMS/QFS**  
Cable Mates:  
6QCD

Standoffs:  
SO, JSOM

QMS	PINS PER ROW NO. OF PAIRS	LEAD STYLE	PLATING OPTION	TYPE	A	OTHER OPTION
-----	---------------------------	------------	----------------	------	---	--------------

-026,  
-052, -078  
(52 total pins per bank = -D)

Specify LEAD STYLE from Chart

-L  
= 10 μ" (0.25 μm)  
Gold on contact, Matte Tin on tail (-05.75 & -06.75 Lead Style Only)

-D  
= Single-Ended  
-D-DP  
= Differential Pair

-K  
= (5.50 mm) .217" DIA Polyimide film Pick & Place Pad

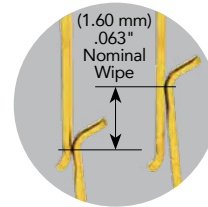
-016,  
-032, -048  
(16 pairs per bank = -D-DP)

(-078 & -048 Not available with -09.75 Lead Style)

-SL  
= 10 μ" (0.25 μm)  
Gold on contact, Matte Tin on tail (-09.75 Lead Style Only)

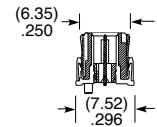
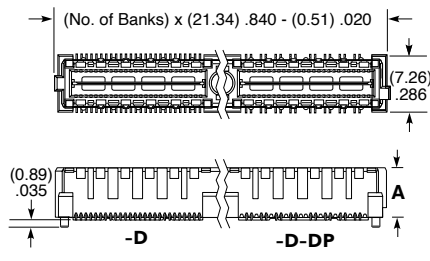
**PACKAGING OPTION**

Tape & Reel Options (-TR & -FR) available. Visit series web page and view engineering prints for complete specifications.



MATED HEIGHT*			
QMS LEAD STYLE	A	QFS LEAD STYLE	
		-4.25	-6.25
-05.75	(5.38) .212	10 mm	12 mm
-06.75	(6.35) .250	11 mm	13 mm
-09.75	(9.35) .368	14 mm	16 mm

\*Processing conditions will affect mated height. See SO Series for board space tolerances.



**SPECIFICATIONS**

**Insulator Material:** Liquid Crystal Polymer  
**Contact & Ground Plane Material:** Phosphor Bronze  
**Plating:** Au over 50 μ" (1.27 μm) Ni (Tin on Ground Plane Tail)  
**Current Rating:** Contact: 2.6 A per pin (2 pins powered) Ground Plane: 15.7 A per ground plane (1 ground plane powered)  
**Operating Temp Range:** -55 °C to +125 °C  
**Voltage Rating:** 300 VAC

**PROCESSING**

**Lead-Free Solderable:** Yes  
**QMS SMT Lead Coplanarity:** (0.10 mm) .004" max (026-052) (0.15 mm) .006" max (078)\* \*(.004" stencil solution may be available; contact ipg@samtec.com)  
**QFS SMT Lead Coplanarity:** (0.10 mm) .004" max (026-078)  
**Board Stacking:** For applications requiring more than two connectors contact ipg@samtec.com

**STANDARDS**

SUMIT™  
PCI/104-Express™  
PCI/104-Express™ OneBank  
Visit samtec.com/standards for more information, including mated heights and complete part numbers.

**Note:** Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?QMS](http://samtec.com?QMS)

QFS	PINS PER ROW NO. OF PAIRS	LEAD STYLE	PLATING OPTION	TYPE	A	OTHER OPTION
-----	---------------------------	------------	----------------	------	---	--------------

-026, -052,  
-078  
(52 total pins per bank = -D)

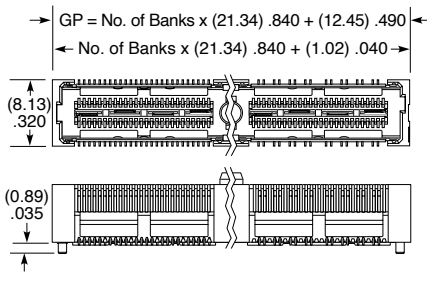
Specify LEAD STYLE from Chart

-L  
= 10 μ" (0.25 μm)  
Gold on contact, Matte Tin on tail (-04.25 Lead Style only)

-D  
= Single-Ended  
-D-DP  
= Differential Pair (-04.25 Lead Style only)

-GP  
= Guide Holes (-04.25 Lead Style only)

-016, -032,  
-048  
(16 pairs per bank = -D-DP)



LEAD STYLE	A
-04.25	(7.44) .293
-06.25	(9.42) .371

**PACKAGING OPTION**

Tape & Reel Options (-TR & -FR) available. Visit series web page and view engineering prints for complete specifications.

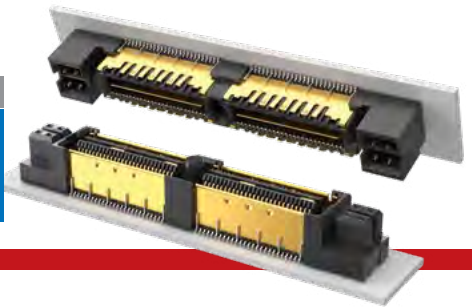
View complete specifications at: [samtec.com?QFS](http://samtec.com?QFS)





(0.635 mm) .025" PITCH • QMSS/QFSS SERIES

NRZ  
14  
Gbps



**QMSS**  
Board Mates:  
QFSS

**QFSS**  
Board Mates:  
QMSS

**QMSS/QFSS**  
Standoffs:  
SO

QMSS	PINS PER ROW NO. OF PAIRS	06.75	PLATING OPTION	TYPE	A	OTHER OPTION
------	---------------------------	-------	----------------	------	---	--------------

**-026, -052, -078**  
(52 total pins per bank / 40 signals + 12 grounds to shield = -D)

**-016, -032, -048**  
(16 pairs per bank = -D-DP)

**-L**  
= 10 μm (0.25 μm)  
Gold on contact,  
Matte Tin on tail

**-D**  
= Single-Ended  
**-D-DP**  
= Differential Pair

**-K**  
= (5.50 mm) .217" DIA Polyimide film Pick & Place Pad (N/A with -PC4)

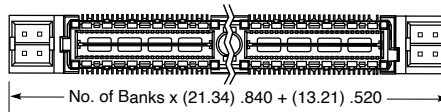
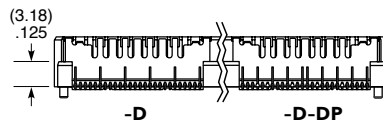
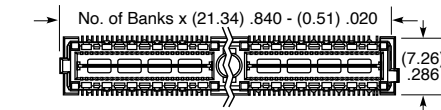
**-PC4**  
= 4 Power Pins/End (N/A with -A)

**SPECIFICATIONS**

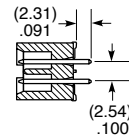
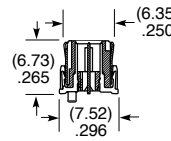
**Insulator Material:**  
Liquid Crystal Polymer  
**Terminal, Ground Plane & Shield Material:**  
Phosphor Bronze  
**Plating:**  
Au over 50 μm (1.27 μm) Ni (Tin on Ground Plane Tail)  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Voltage Rating:**  
300 VAC

**PROCESSING**

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (026-078)  
**Board Stacking:**  
For applications requiring more than two connectors contact ipg@samtec.com



**-PC4 OPTION**



**PACKAGING OPTION**  
Tape & Reel Options (-TR & -FR) available. Visit series web page and view engineering prints for complete specifications.

View complete specifications at: [samtec.com?QMSS](http://samtec.com?QMSS)

QFSS	PINS PER ROW NO. OF PAIRS	04.25	PLATING OPTION	TYPE	A	OTHER OPTION
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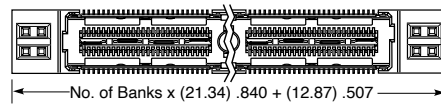
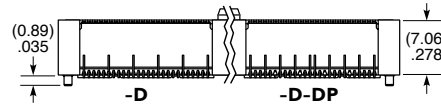
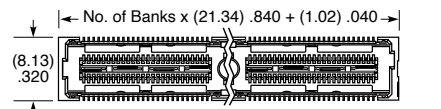
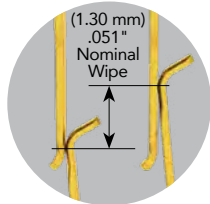
**-026, -052, -078**  
(52 total pins per bank / 40 signals + 12 grounds to shield = -D)

**-016, -032, -048**  
(16 pairs per bank = -D-DP)

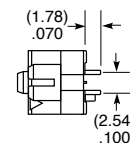
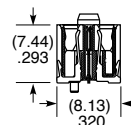
**-L**  
= 10 μm (0.25 μm)  
Gold on contact,  
Matte Tin on tail

**-D**  
= Single-Ended  
**-D-DP**  
= Differential Pair

**-PC4**  
= 4 Power Pins/End (N/A with -A)



**-PC4 OPTION**



**PACKAGING OPTION**  
Tape & Reel Options (-TR & -FR) available. Visit series web page and view engineering prints for complete specifications.

**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?QFSS](http://samtec.com?QFSS)



**(0.80 mm) .0315" PITCH • QRM8/QRF8 SERIES**

**QRM8**  
Board Mates:  
QRF8

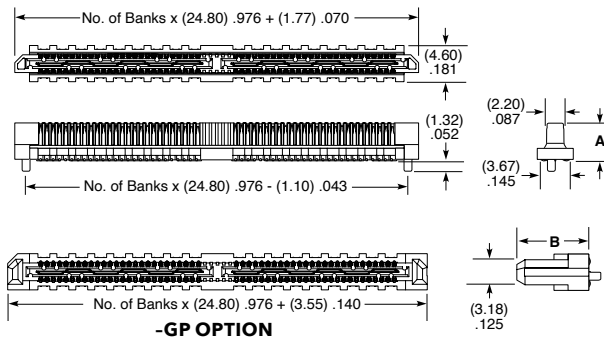
**QRF8**  
Board Mates:  
QRM8

**QRM8/QRF8**  
Cable Mates:  
EQRD

**SPECIFICATIONS**

**Insulator Material:**  
Black LCP  
**QRM8 Terminal Material:**  
Phosphor Bronze  
**QRF8 Contact Material:**  
BeCu  
**Ground Plane Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Current Rating:**  
Contact:  
2.2 A per pin (2 pins powered)  
Ground Plane:  
8.5 A per ground plane  
(1 ground plane powered)  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Voltage Rating:**  
215 VAC  
**Max Cycles:**  
100

QRM8	PINS PER ROW NO. OF PAIRS	LEAD STYLE	PLATING OPTION	TYPE	A	OTHER OPTIONS	"X"R
	-026, -052, -078 (52 total pins per bank = -D)	-02.0 = 2 mm Body Height Not available with -054 & -078 Positions)	-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail	-D = Single-Ended		-GP = Guide Post	Leave blank for Tray Packaging
	-018, -036, -054 (18 pairs per bank = -D-DP)	-05.0 = 5 mm Body Height	-S = 30 μ" (0.76 μm) Gold on contact, Matte Tin on tail	-D-DP = Differential Pair		-K = (5.00 mm) .197" DIA Polyimide Film Pick & Place Pad	-TR = Tape & Reel  -FR = Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)



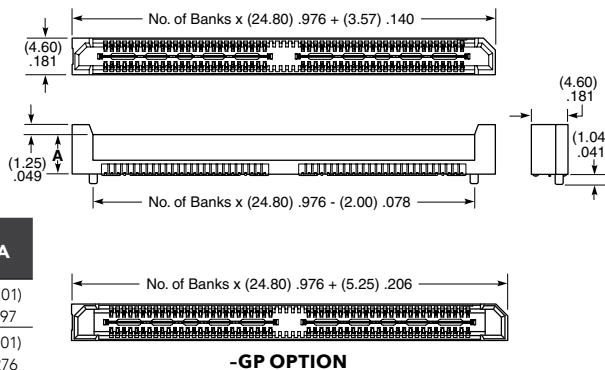
LEAD STYLE	A	B
-02	(4.81) .189	(6.12) .241
-05	(7.81) .307	(9.12) .359
-07	(9.78) .385	(11.12) .438

View complete specifications at: [samtec.com?QRM8](http://samtec.com?QRM8)

**PROCESSING**

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (018-026)  
(0.15 mm) .006" max (036-078)\*  
\*(.004" stencil solution may be available; contact ipg@samtec.com)  
**Board Stacking:**  
For applications requiring more than two connectors contact ipg@samtec.com

QRF8	PINS PER ROW NO. OF PAIRS	LEAD STYLE	PLATING OPTION	TYPE	A	OTHER OPTIONS	"X"R
	-026, -052, -078 (52 total pins per bank = -D)	-05.0 = 5 mm Body Height	-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail	-D = Single-Ended		-GP = Guide Post	Leave blank for Tray Packaging
	-018, -036, -054 (18 pairs per bank = -D-DP)	-07.0 = 7 mm Body Height	-S = 30 μ" (0.76 μm) Gold on contact, Matte Tin on tail	-D-DP = Differential Pair		-K = (5.00 mm) .197" DIA Polyimide Film Pick & Place Pad	-TR = Tape & Reel (Not available with -054 & -078 positions)  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (Not available with -054 & -078 positions)

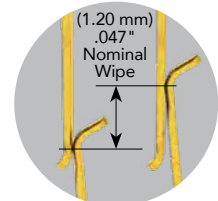


LEAD STYLE	A
-05	(5.01) .197
-07	(7.01) .276

MATED HEIGHT*			
QRF8 LEAD STYLE	QRM8 LEAD STYLE		
	-02.0	-05.0	-07.0
-05	(7.00) .276	(10.00) .394	(12.00) .472
-07	(9.00) .354	(12.00) .472	(14.00) .551

\*Processing conditions will affect mated height. See SO Series for board space tolerances.

View complete specifications at: [samtec.com?QRF8](http://samtec.com?QRF8)



**Note:**  
Some lengths, styles and options are non-standard, non-returnable.



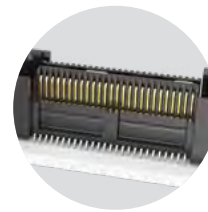
# HIGH-SPEED SIGNAL & POWER COMBINATIONS

## Q2™ Rugged Signal/Power

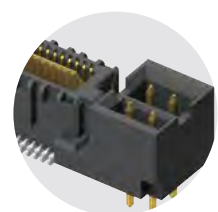
- Integral power/ground plane rated for up to 15.7 Amps
- Optional integral power pins rated at 4 Amps
- Wide variety of standard high-speed mating cable assemblies
- Combination signal/power cable assemblies
- 0.635 mm pitch with choice of stack heights
- Rugged contact system with increased insertion depth
- See QMS/QFS Series



Integral Power / Ground Plane



Maximum Insertion Depth

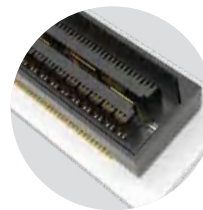


Optional Power Pins

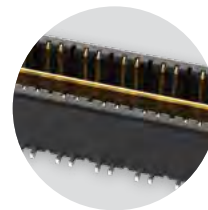


## Q Strip® High-Speed Signal/Power

- Integral power/ground plane rated for up to 25 Amps
- Wide variety of standard high-speed mating cables
- Low profile (5 mm) to elevated (25 mm) stack heights
- Choice of pitches: QTH/QSH Series (0.50 mm pitch), QTS/QSS Series (0.635 mm pitch), and QTE/QSE Series (0.80 mm pitch)



Single-Ended or Differential Pair



Surface Mount or Through-Hole Power Planes

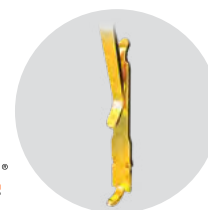


Low Profile to Elevated Stack Heights



## Q Rate® Slim Body High-Speed Signal/Power

- Widely accepted industry standard power/ground plane rated for up to 8.5 Amps
- Signal integrity optimized Edge Rate® contact is robust when “zippered” during unmating
- Slim 4.60 mm body width on 0.80 mm pitch
- 7 mm to 14 mm stack heights
- See QRM8/QRF8 Series



Edge Rate® Contact System



Integral Power / Ground Plane







## RIGHT-ANGLE & EDGE MOUNT HIGH-SPEED GROUND PLANE CONNECTORS

- Right-Angle and Edge Mount designs for coplanar and perpendicular mating
- Q Strip® Right-Angle High-Speed Connectors on 0.50 mm & 0.635 mm pitches
- Q2™ Right-Angle & Edge Mount Rugged High-Speed Connectors on 0.635 mm pitch
- Q Rate® Right-Angle Slim Body High-Speed Connectors on 0.80 mm pitch
- Visit [samtec.com/QSeries](http://samtec.com/QSeries) for complete specifications and ordering information





### Q STRIP® HIGH-SPEED GROUND PLANE CONNECTORS

#### (0.50 mm) .0197" PITCH RIGHT-ANGLE GROUND PLANE HEADERS & SOCKETS

 <b>QTH-RA</b> Board Mates: QSH	<b>SERIES</b>	<b>PINS PER ROW NO. OF PAIRS</b>	<b>01</b>	<b>PLATING</b>	<b>TYPE</b>	<b>RA</b>	<b>OTHER OPTION</b>
	<b>QTH</b> Header	<b>-030, -060, -090</b> -D = (60 total pins per bank)		<b>-F</b> = Gold Flash on contact, Matte Tin on tails	<b>-D</b> = Single-Ended		<b>-PGP</b> = Plastic Guide Post (QTH only)
 <b>QSH-RA</b> Board Mates: QTH	<b>QSH</b> Socket	<b>-020, -040, -060</b> -D-DP = (20 pairs per bank)		<b>-L</b> = 10 μ" (0.25 μm) Gold contact, Matte Tin on tails	<b>-D-DP</b> = Differential Pair		<b>-GP</b> = Guide Post Holes (QSH only)
							<b>-K</b> = Polyimide film Pick & Place Pad

View complete specifications at: [samtec.com?QTH-RA](http://samtec.com?QTH-RA) or [samtec.com?QSH-RA](http://samtec.com?QSH-RA)

#### (0.635 mm) .025" PITCH RIGHT-ANGLE GROUND PLANE HEADERS & SOCKETS

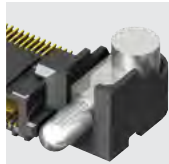
 <b>QTS-RA</b> Board Mates: QSS	<b>SERIES</b>	<b>POSITIONS PER ROW</b>	<b>01</b>	<b>PLATING</b>	<b>D</b>	<b>RA</b>	<b>WT</b>	<b>OTHER OPTION</b>
	<b>QTS</b> Header	<b>-025, -050, -075</b> (50 total Positions per bank)		<b>-F</b> = Gold Flash on Signal Pins and Ground Plane, Matte Tin on tails			<b>-WT</b> = Weld Tab (N/A with -025 Positions)	<b>-SP</b> = Solder Pin (QTS only)
 <b>QSS-RA</b> Board Mates: QTS Cable Mates: SQCD	<b>QSS</b> Socket			<b>-L</b> = 10 μ" (0.25 μm) Gold on Signal Pins and Ground Plane, Matte Tin on tails				

**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?QTS-RA](http://samtec.com?QTS-RA) or [samtec.com?QSS-RA](http://samtec.com?QSS-RA)

## Q2™ HIGH-SPEED GROUND PLANE CONNECTORS

### (0.635 mm) .025" PITCH RIGHT-ANGLE GROUND PLANE HEADERS & SOCKETS



**QMS-RA**  
Board Mates:  
QFS



**QFS-RA**  
Board Mates:  
QMS

SERIES	PINS PER ROW NO. OF PAIRS	01	PLATING	TYPE	RA	MG	OTHER OPTION	PACKAGING
<b>QMS</b> Header	<b>-026, -052, -078</b> -D = (52 total pins per bank)		<b>-SL</b> = 10 μ" (0.25 μm) Gold on Signal Pins and Ground Plane, Matte Tin on tails	<b>-D</b> = Single- Ended  <b>-D-DP</b> = Differential Pair		<b>-MG</b> = Metal Guide Post (QMS only)	<b>-K</b> = Polyimide film Pick & Place Pad	Leave blank for Tray Packaging  <b>-TR</b> = Tape & Reel (-016, -026, -032 & -052 only)  <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-016, -026, -032 & -052 only)
<b>QFS</b> Socket	<b>-016, -032, -048</b> -D-DP = (16 pairs per bank)							

View complete specifications at: [samtec.com?QMS-RA](http://samtec.com?QMS-RA) or [samtec.com?QFS-RA](http://samtec.com?QFS-RA)

### (0.635 mm) .025" PITCH EDGE MOUNT GROUND PLANE HEADERS & SOCKETS



**QMS-EM**  
Board Mates:  
QFS



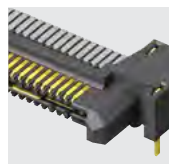
**QFS-EM**  
Board Mates:  
QMS

SERIES	POSITIONS PER ROW	01	PLATING	D	EM2	END OPTION	PACKAGING
<b>QMS</b> Header	<b>-026, -052, -078</b>		<b>-SL</b> = 10 μ" (0.25 μm) Gold on Signal Pins and Ground Plane, Matte Tin on tails			<b>-PC4</b> = 4 Power Pins per end (QMS only)	Leave blank for Tray Packaging  <b>-TR</b> = Tape & Reel (-026 & -052 only)  <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-026 & -052 only)
<b>QFS</b> Socket							

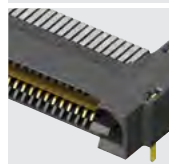
View complete specifications at: [samtec.com?QMS-EM](http://samtec.com?QMS-EM) or [samtec.com?QFS-EM](http://samtec.com?QFS-EM)

## Q RATE® SLIM BODY HIGH-SPEED GROUND PLANE CONNECTORS

### (0.80 mm) .0315" PITCH RIGHT-ANGLE SLIM BODY GROUND PLANE HEADERS & SOCKETS



**QRM8-RA**  
Board Mates:  
QRF8  
(-GP Required)



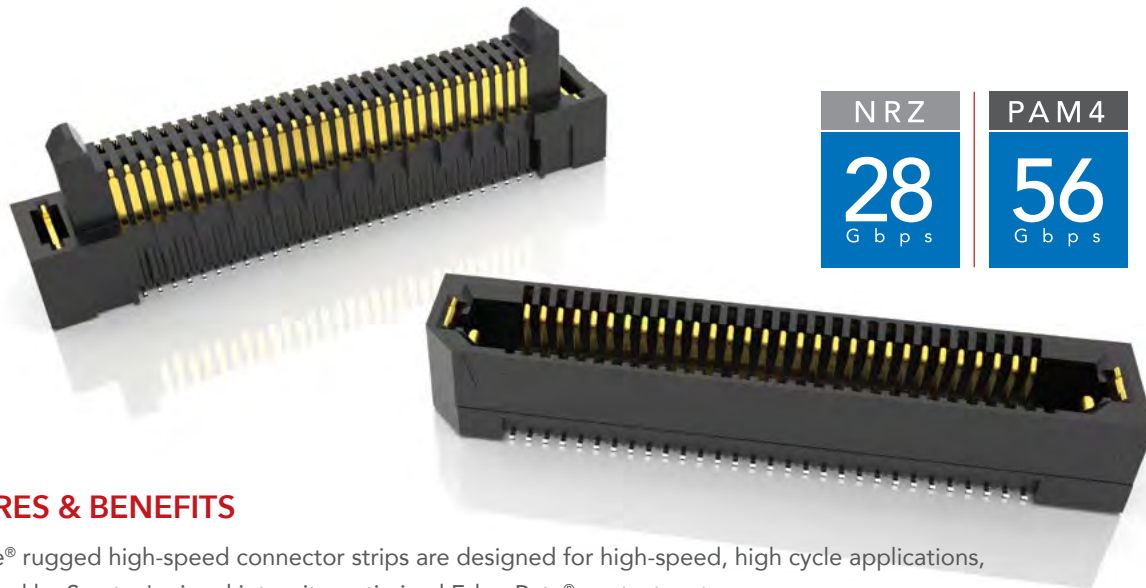
**QRF8-RA**  
Board Mates:  
QRM8  
(-GP Required)

SERIES	POSITIONS PER ROW	01	PLATING	RA	GP	OPTION	PACKAGING
<b>QRM8</b> Header	<b>-026, -052, -078</b> (52 total positions per bank)		<b>-L</b> = 10 μ" (0.25 μm) Gold contact, Matte Tin on tails		<b>-GP</b> = Guide Post (Requires -GP on mating connector)	<b>-K</b> = (7.00 mm) .275" DIA Polyimide film Pick & Place Pad (-052 only)	Leave blank for Tray Packaging  <b>-TR</b> = Tape & Reel (-026, -052 only)  <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-026 & -052 only)
<b>QRF8</b> Socket							

**Note:**  
Some lengths, styles and options  
are non-standard, non-returnable.

View complete specifications at: [samtec.com?QRM8-RA](http://samtec.com?QRM8-RA) or [samtec.com?QRF8-RA](http://samtec.com?QRF8-RA)

# RUGGED HIGH-SPEED STRIPS

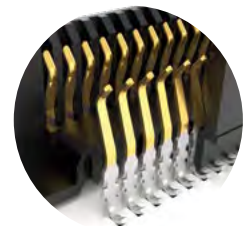


NRZ	PAM4
28 Gbps	56 Gbps

## FEATURES & BENEFITS

Edge Rate® rugged high-speed connector strips are designed for high-speed, high cycle applications, and enabled by Samtec's signal integrity-optimized Edge Rate® contact system.

- Up to 1.5 mm contact wipe for a reliable connection
- 20 to 200 positions
- Choice of 0.50 mm, 0.635 mm or 0.80 mm pitch
- 0.50 mm pitch system offers up to 40% PCB space savings vs. 0.80 mm pitch
- 0.635 mm pitch system with extremely slim 2.5 mm body width
- Rugged latching, extended guide posts and 360° shielding
- Severe Environment Testing qualified (ERM8/ERF8); aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)



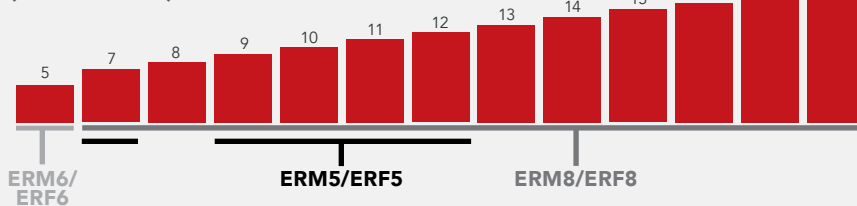
Signal integrity-optimized Edge Rate® contact system reduces broadside coupling



Rugged 360° shielding reduces EMI

### EDGE RATE® STACK HEIGHT FLEXIBILITY

(shown in mm)



## KEY SPECIFICATIONS

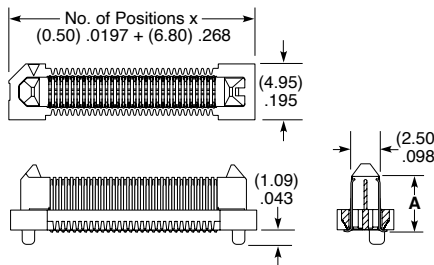
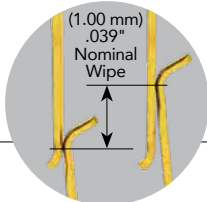
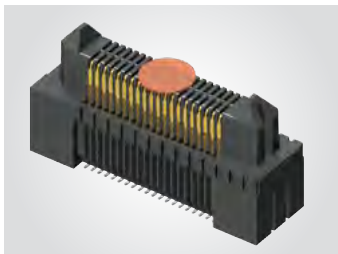
SERIES	PITCH	INSULATOR MATERIAL	TERMINAL MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING	LEAD-FREE SOLDERABLE
ERM5 / ERF5	0.50 mm	Black LCP	Phosphor Bronze or BeCu (ERM5), BeCu (ERF5)	Au or Sn over 50 μm (1.27 μm) Ni	-55 °C to +125 °C	1.5 A	190 VAC	Yes
ERM6 / ERF6	0.635 mm		Copper Alloy			1.4 A	155 VAC	
ERM8 / ERF8	0.80 mm		Phosphor Bronze or BeCu (ERM8), BeCu (ERF8)			1.4 A	225 VAC	



**(0.50 mm) .0197" PITCH • RUGGED HIGH-SPEED STRIPS**

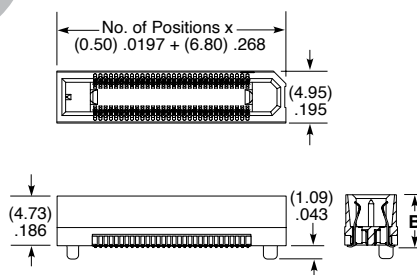
SERIES	POSITIONS PER ROW	LEAD STYLE	PLATING OPTION	DV	PICK & PLACE PAD	"X"R
<b>ERM5</b> = Header	<b>-010, -020, -030, -040, -050, -060, -070, -075</b>	<b>-02.0</b> = 2 mm Body Height (ERM5 only)	<b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on Tail		(required in callout) <b>-K</b> = (3.50 mm) .138" DIA Polyimide Film Pick & Place Pad (ERM5 -04.0 -05.0 and Lead Style only) <b>-P</b> = (6.00 mm) .236" DIA Polyimide Film Pick & Place Pad (ERF5 only)	<b>-TR</b> = Tape & Reel <b>-FR</b> = Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)
<b>ERF5</b> = Socket		<b>-04.0</b> = 4 mm Body Height (ERM5 only)				
		<b>-05.0</b> = 5 mm Body Height				
		<b>-07.0</b> = 7 mm Body Height (ERF5 only & Available up to 50 Pos. only)			<b>-P</b> = Plastic Pick & Place Pad (ERM5 -02.0 Lead Style only; ERM5 -010 Positions and ERF5 Not Available)	

**ERM5**  
Board Mates:  
**ERF5**



LEAD STYLE	A (ERM5)	B (ERF5)
-02.0	(4.84) .191	N/A
-04.0	(6.84) .269	N/A
-05.0	(7.84) .309	(4.91) .193
-07.0	N/A	(6.91) .272

**ERF5**  
Board Mates:  
**ERM5**



ERM5 LEAD STYLE	MATED HEIGHT*	
	ERF5 LEAD STYLE -05.0	ERF5 LEAD STYLE -07.0
-02.0	(7.00) .276	(9.00) .354
-04.0	(9.00) .354	(11.00) .433
-05.0	(10.00) .394	(12.00) .472

\*Processing conditions will affect mated height.

View complete specifications at: [samtec.com?erm5](http://samtec.com?erm5) or [samtec.com?erf5](http://samtec.com?erf5)

ERF5	POSITIONS PER ROW	01	PLATING OPTION	D	RA	"X"R
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Right-Angle Socket

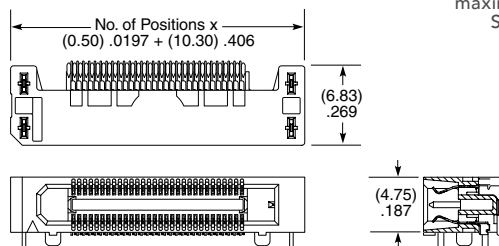
**-010, -020, -030, -040, -050**

**-L**  
= 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail

**-TR**  
= Tape & Reel

**-FR**  
= Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)

**ERF5-RA**  
Board Mates:  
**ERM5**



**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?erf5-ra](http://samtec.com?erf5-ra)

**(0.635 mm) .025" PITCH • RUGGED HIGH-SPEED HEADERS & SOCKETS**

<b>ERM6</b>	<b>POSITIONS PER ROW</b>	<b>01.5</b>	<b>PLATING OPTION</b>	<b>DV</b>	<b>A</b>	<b>OPTION</b>	<b>K</b>	<b>"X"R</b>
-------------	--------------------------	-------------	-----------------------	-----------	----------	---------------	----------	-------------

**-10, -20, -30,  
-40, -50, -60**  
(Standard Sizes)

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact,  
Matte Tin on tail

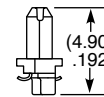
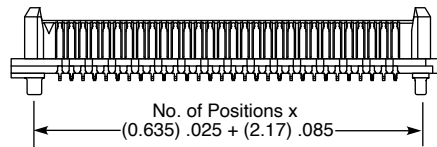
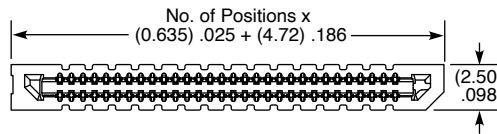
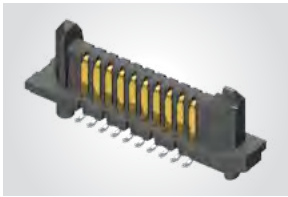
(Leave Blank for  
No Weld Tab)

**-WT**  
= Weld Tab

**-TR**  
= Tape & Reel

**-FR**  
= Full Reel Tape & Reel  
(must order maximum quantity  
per reel; contact Samtec for  
quantity breaks)

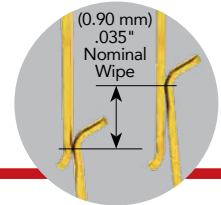
**ERM6**  
Board Mates:  
ERF6



**MATED HEIGHT\***

ERF6 LEAD STYLE	ERM6 LEAD STYLE
	<b>-01.5</b>
<b>-03.5</b>	(5.00) .197

\*Processing conditions will affect mated height.



View complete specifications at: [samtec.com?ERM6](http://samtec.com?ERM6)

<b>ERF6</b>	<b>POSITIONS PER ROW</b>	<b>03.5</b>	<b>PLATING OPTION</b>	<b>DV</b>	<b>A</b>	<b>OPTION</b>	<b>K</b>	<b>"X"R</b>
-------------	--------------------------	-------------	-----------------------	-----------	----------	---------------	----------	-------------

**-10, -20, -30,  
-40, -50, -60**  
(Standard Sizes)

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact,  
Matte Tin on tail

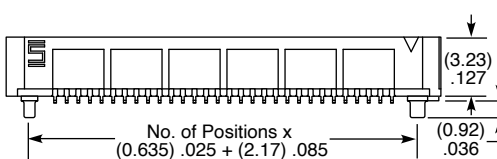
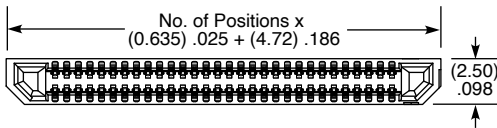
(Leave Blank for  
No Weld Tab)

**-WT**  
= Weld Tab

**-TR**  
= Tape & Reel

**-FR**  
= Full Reel Tape & Reel  
(must order maximum quantity  
per reel; contact Samtec for  
quantity breaks)

**ERF6**  
Board Mates:  
ERM6



**MATED HEIGHT\***

ERF6 LEAD STYLE	ERM6 LEAD STYLE
	<b>-01.5</b>
<b>-03.5</b>	(5.00) .197

\*Processing conditions will affect mated height.

**Notes:**  
Kapton pad and tape & reel  
packaging are standard.

Some lengths, styles and  
options are non-standard,  
non-returnable.

View complete specifications at: [samtec.com?ERF6](http://samtec.com?ERF6)

**(0.80 mm) .0315" PITCH • RUGGED HIGH-SPEED HEADERS & SOCKETS**

TYPE	POSITIONS PER ROW	LEAD STYLE	PLATING OPTION	DV	OPTIONS	"X"R
------	-------------------	------------	----------------	----	---------	------

**ERM8**  
= Header  
**ERF8**  
= Socket

**-005, -010, -011, -013, -020, -025, -030, -035, -040, -049, -050, -060, -070, -075, -100**  
  
(100 Position Only Available with ERM8-09.0 & ERF8-05.0 Lead Styles; -L or -EGP N/A)

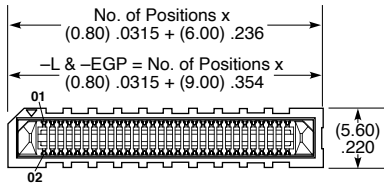
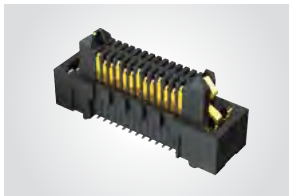
**SPECIFY LEAD STYLE FROM CHART**

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact, Matte Tin on tail  
**-S**  
= 30 μ" (0.76 μm)  
Gold on contact, Matte Tin on tail

**-DS**  
= Differential Pair (ERM8 -05.0 Lead Style with -010, -013, -025, -049 Positions only) (-P not available)  
**-L**  
= Latching (ERM8 -03.0, -05.0 & -09.0 Lead Styles only & -EGP Option not available) (ERF8 -05.0, -07.0 & -09.0 Lead Style only, -L & -EGP Options not available)

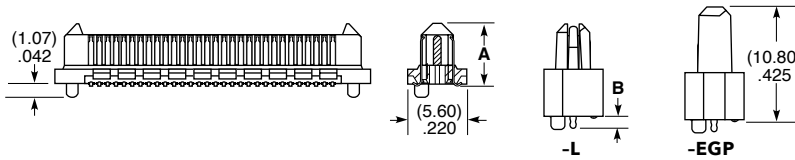
**-TR**  
= Tape & Reel (100 Positions N/A)  
**-FR**  
= Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks) (100 Positions N/A)

**ERM8**  
**Board Mates:**  
ERF8  
**Cable Mates:**  
ERCD, ERDP



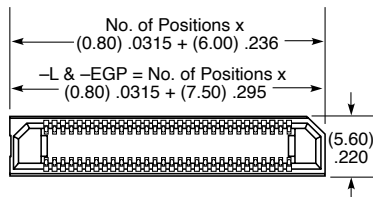
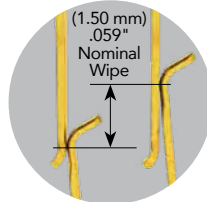
ERM8 LEAD STYLE	A	B
-02.0	(5.97) .235	N/A
-03.0	(6.97) .274	(1.60) .063
-05.0	(8.91) .351	(1.17) .046
-08.0	(11.91) .469	N/A
-09.0	(12.91) .508	(1.60) .063

**-EGP**  
= Extended Guide Post (ERM8 -05.0 & ERF8 -07.0 Lead Style Only & -L Option not available)  
**-DSP**  
= Differential Pair with Extended Guide Post (ERM8 -05.0 Lead Style with -013 and -025 Positions only)  
**-K**  
= Polyimide Film Pick & Place Pad (-02.0 Lead Style not available)  
**-P**  
= Pick & Place Pad (ERM8 -02.0, -03.0 & -05.0 Lead Styles only) (-DS not available)



View complete specifications at: [samtec.com?ERM8](http://samtec.com?ERM8)

**ERF8**  
**Board Mates:**  
ERM8  
**ERF8**  
**Cable Mates:**  
ERCD, ERDP

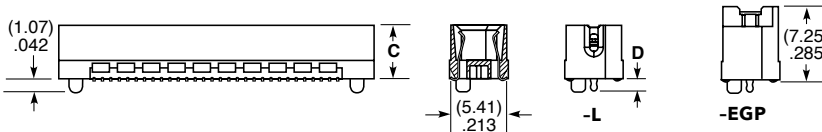


ERF8 LEAD STYLE	C	D
-05.0	(5.34) .210	(1.60) .063
-07.0	(7.25) .285	(1.17) .046
-09.0	(9.34) .368	(1.60) .063

ERM8 LEAD STYLE	MATED HEIGHT*		
	ERF8 LEAD STYLE -05.0	-07.0	-09.0
-02.0	(7.00) .276	(9.00) .354	(11.00) .433
-03.0	(8.00) .315	(10.00) .394	(12.00) .472
-05.0	(10.00) .394	(12.00) .472	(14.00) .551
-08.0	(13.00) .512	(15.00) .591	(17.00) .669
-09.0	(14.00) .551	(16.00) .630	(18.00) .709

\*Processing conditions will affect mated height.

**Notes:**  
Severe Environment Testing qualified; aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)



Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?ERF8](http://samtec.com?ERF8)



**(0.80 mm) .0315" PITCH • RIGHT-ANGLE & EDGE MOUNT HIGH-SPEED HEADERS**

ERM8	POSITIONS PER ROW	01	PLATING OPTION	D	RA	OPTIONS	"X"R
------	-------------------	----	----------------	---	----	---------	------

Right-Angle Terminal

**-010, -013, -020, -025, -030, -040, -049, -050, -060, -070, -075**

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact area, Matte Tin on tail

**-K**  
= (6.00 mm) .236" DIA  
Polyimide Film Pick & Place Pad

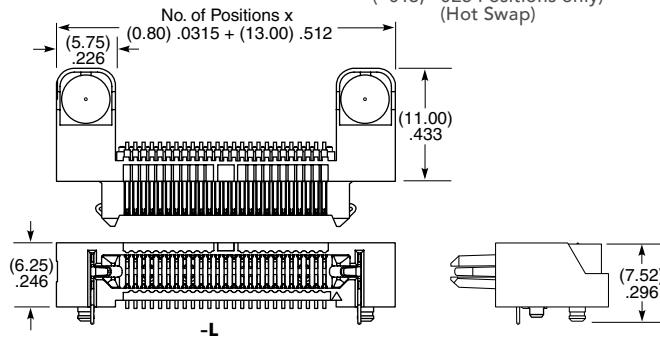
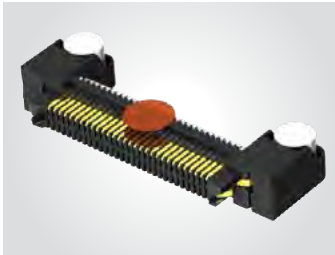
**-TR**  
= Tape & Reel

**-L**  
= Latching

**-DS**  
= Differential Pair (-013, -025 Positions only) (Hot Swap)

**-FR**  
= Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)

**ERM8-RA**  
Board Mates: **ERF8**  
Cable Mates: **ERCD**



View complete specifications at: [samtec.com?ERM8-RA](http://samtec.com?ERM8-RA)

ERM8	POSITIONS PER ROW	01	PLATING OPTION	D	EM2	OPTIONS	"X"R
------	-------------------	----	----------------	---	-----	---------	------

Edge Mount Terminal

**-010, -013, -020, -025, -030, -040, -049, -050, -060, -070, -075**

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact area, Matte Tin on tail

= (1.60 mm) .062" Thick PCB

**-L**  
= Latching (Mates to ERF8 Lead Style -05.0 or -RA Only)

**-TR**  
= Tape & Reel

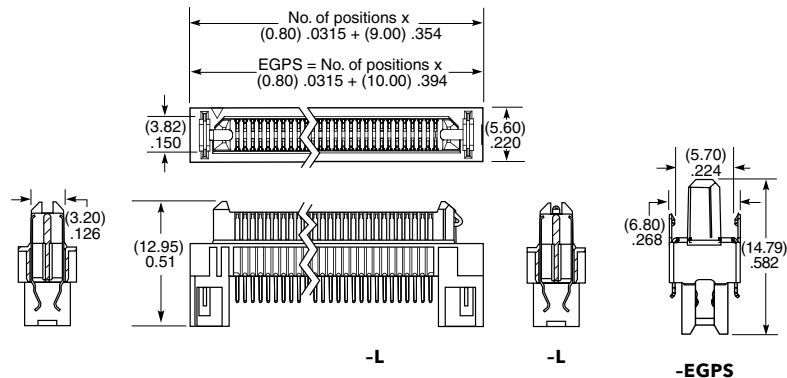
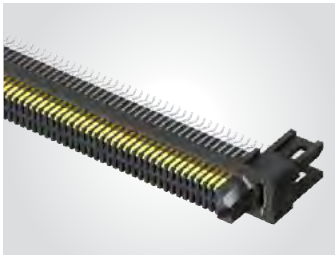
**-DS**  
= Differential Pair (-013 & -025 Positions only) (Hot Swap)

**-FR**  
= Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)

**-EGPS**  
= Extended Guide Post Shield (-010, -020, -025, -030 Positions Only)

**-DSS**  
= Differential Pair + Extended Guide Post Shield (-025 Positions Only) (Hot Swap)

**ERM8-EM**  
Board Mates: **ERF8**  
Cable Mates: **ERCD**



**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?ERM8-EM](http://samtec.com?ERM8-EM)

**(0.80 mm) .0315" PITCH • RIGHT-ANGLE & EDGE MOUNT HIGH-SPEED SOCKETS**

ERF8	POSITIONS PER ROW	01	PLATING OPTION	D	RA	OPTIONS	"X"R
------	-------------------	----	----------------	---	----	---------	------

Right-Angle Socket

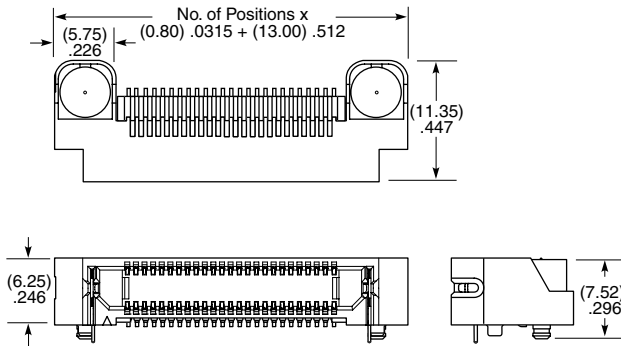
-010, -013, -020,  
-025, -030, -040,  
-049, -050, -060,  
-070, -075

-L  
= 10 μ" (0.25 μm)  
Gold on contact  
area, Matte Tin  
on tail

-L  
= Latching  
(N/A with -EGP Option)  
  
-EGP  
= Extended Guide Post  
(N/A with -L Option)

-TR  
= Tape & Reel  
  
-FR  
= Full Reel  
Tape & Reel  
(must order maximum  
quantity per reel;  
contact Samtec for  
quantity breaks)

**ERF8-RA**  
Board Mates:  
ERM8  
Cable Mates:  
ERCD, ERDP



View complete specifications at: [samtec.com?ERF8-RA](http://samtec.com?ERF8-RA)

ERF8	POSITIONS PER ROW	01	PLATING OPTION	D	EM2	OPTIONS	"X"R
------	-------------------	----	----------------	---	-----	---------	------

Edge Mount Socket

-010, -013,  
-020, -025,  
-030, -040,  
-049, -050,  
-060, -070,  
-075

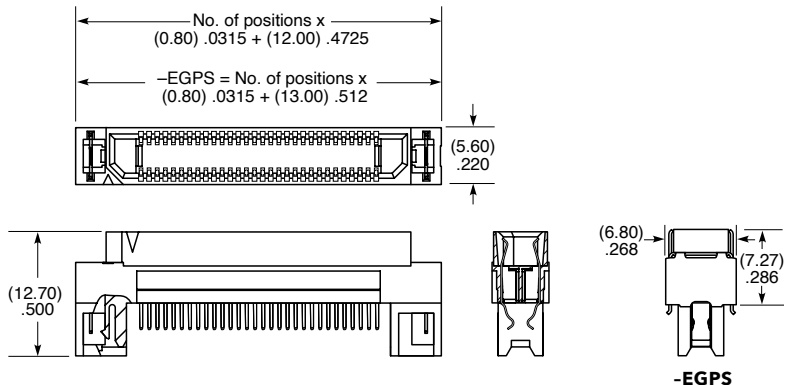
-L  
= 10 μ" (0.25 μm)  
Gold on contact  
area, Matte Tin  
on tail

= (1.60 mm)  
.062" Thick  
PCB

-EGPS  
= Extended Guide Post Shield  
(-010, -020, -025, -030 Pos. only)

-TR  
= Tape & Reel  
  
-FR  
= Full Reel Tape & Reel  
(must order maximum  
quantity per reel;  
contact Samtec for  
quantity breaks)

**ERF8-EM**  
Board Mates:  
ERM8



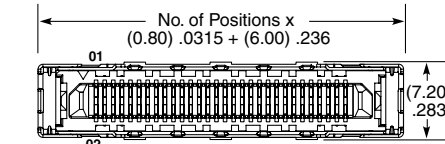
**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

View complete specifications at: [samtec.com?ERF8-EM](http://samtec.com?ERF8-EM)

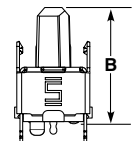
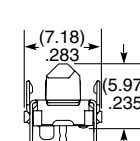
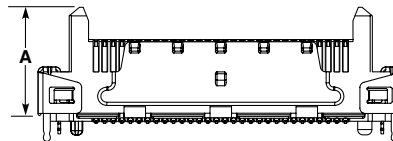
**(0.80 mm) .0315" PITCH • SHIELDED HIGH-SPEED HEADERS & SOCKETS**

TYPE	POSITIONS PER ROW	LEAD STYLE	PLATING OPTION	DV	OPTIONS	"X"R
<b>ERM8</b> = Shielded Terminal	<b>-010,</b> <b>-020,</b> <b>-025,</b> <b>-030</b>	<b>-02.0</b> = 2 mm (ERM8 with -S only)	<b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail		<b>-S</b> = Shield (Lead Styles: ERM8 -02.0 only; ERF8 -05.0 only)	<b>-TR</b> = Tape & Reel
<b>ERF8</b> = Shielded Socket		<b>-05.0</b> = 5 mm (ERF8 with -S & ERM8 with -EGPS & -DSS only)	<b>-S</b> = 30 μ" (0.76 μm) Gold on contact, Matte Tin on tail		<b>-EGPS</b> = Extended Guide Post Shield (Lead Styles: ERM8 -05.0 & -09.0 only; ERF8 -07.0 only)	
		<b>-07.0</b> = 7 mm (ERF8 with -EGPS only)			<b>-DSS</b> = Differential Pair with Extended Guide Post Shield (ERM8 only, with -05.0 & -09.0 Lead Styles, -10 & -025 Positions only)	
		<b>-09.0</b> = 9 mm (ERM8 with -EGPS & -DSS only)			<b>-K</b> = Polyimide Film Pick & Place Pad (-02.0 Lead Style N/A)	
					<b>-P</b> = Pick & Place Pad (ERM8 -02.0 & -05.0 Lead Styles only)	

**ERM8-S Board Mates:**  
See "Mated Height" Chart  
  
(Note: ERF8-S does not mate with ERM8-EGPS)



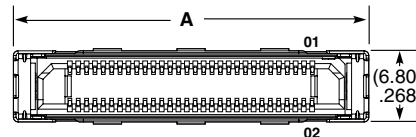
LEAD STYLE	A	B
-05.0	(9.87) .389	(10.81) .425
-09.0	(13.87) .546	(14.81) .583



**-S OPTION -EGPS OR -DSS OPTION**

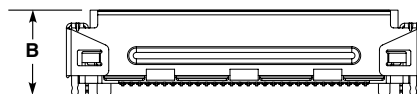
View complete specifications at: [samtec.com?ERM8](http://samtec.com?ERM8)

**ERF8-S Board Mates:**  
See "Mated Height" Chart  
  
(Note: ERM8-EGPS does not mate with ERF8-S)



POSITIONS PER ROW	A
-010	(18.00) .71
-020	(26.00) 1.02
-025	(30.00) 1.18
-030	(34.00) 1.34

LEAD STYLE	B (-S)	B (-EGPS)
-05.0	(5.90) .232	N/A
-07.0	N/A	(7.42) .292



**-S OPTION**

**Notes:**  
Severe Environment Testing qualified; aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)

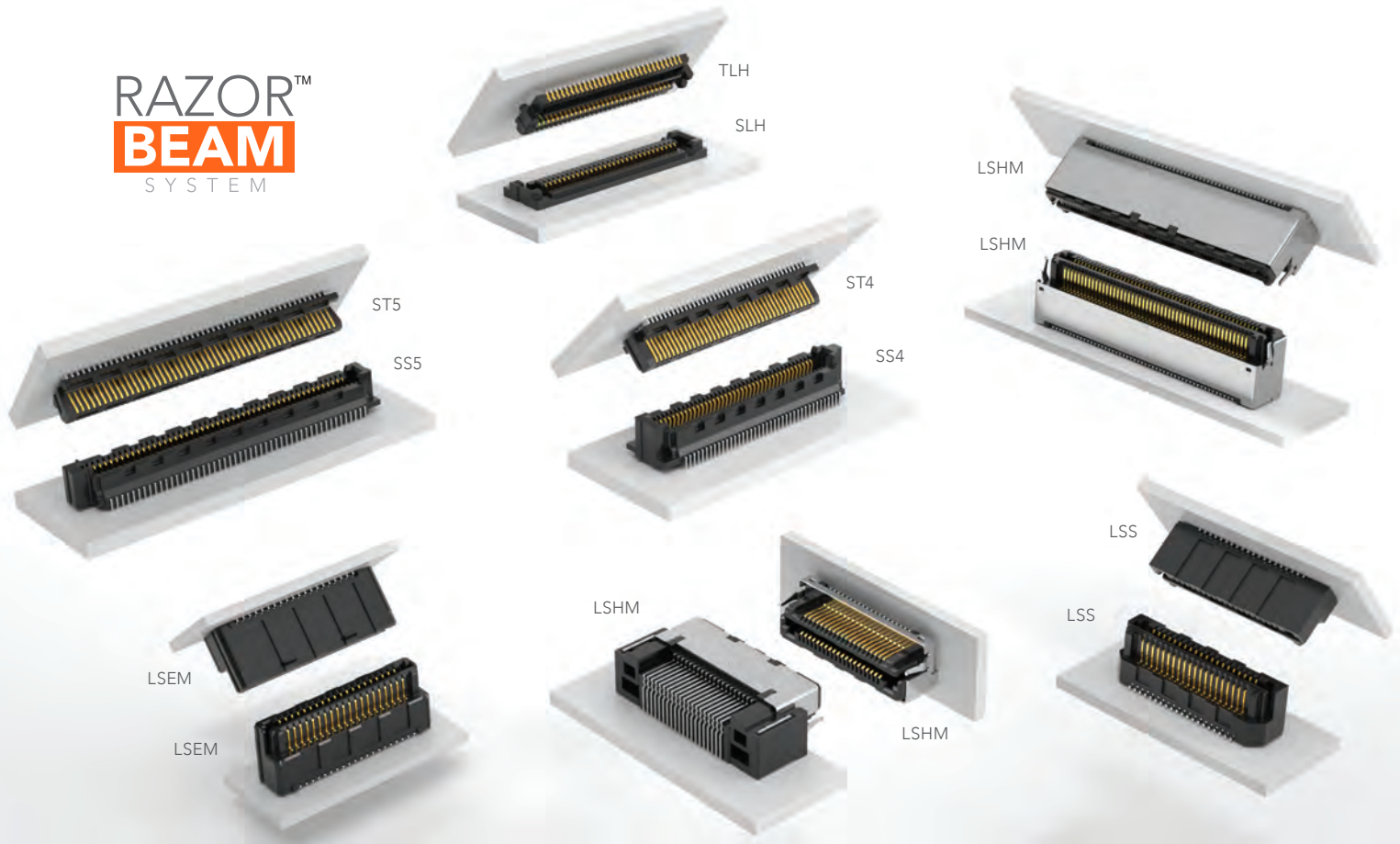
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?ERF8](http://samtec.com?ERF8)



# ULTRA MICRO INTERCONNECTS

SPACE SAVING DESIGNS • RUGGED HERMAPHRODITIC • ULTRA FINE PITCH



## 54-56

### RAZOR BEAM™

0.50 mm Pitch Hermaphroditic Connectors (LSHM) .....	54-55
0.635 mm Pitch Hermaphroditic Connectors (LSS) .....	56
0.80 mm Pitch Hermaphroditic Connectors (LSEM) .....	56

## 57-59

### MICRO BLADE & BEAM STRIPS

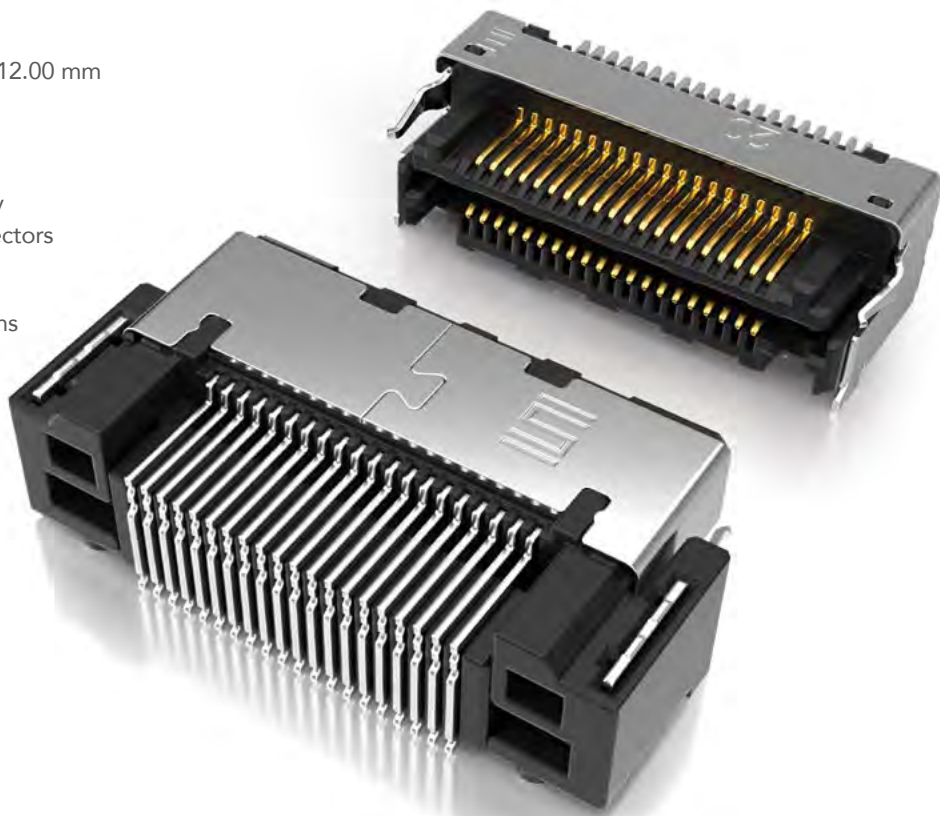
0.40 mm Pitch Low Profile Strips (ST4, SS4) .....	57
0.50 mm Pitch Low Profile Strips (ST5, SS5, SLH, TLH) .....	58-59

# FINE PITCH SELF MATING CONNECTORS

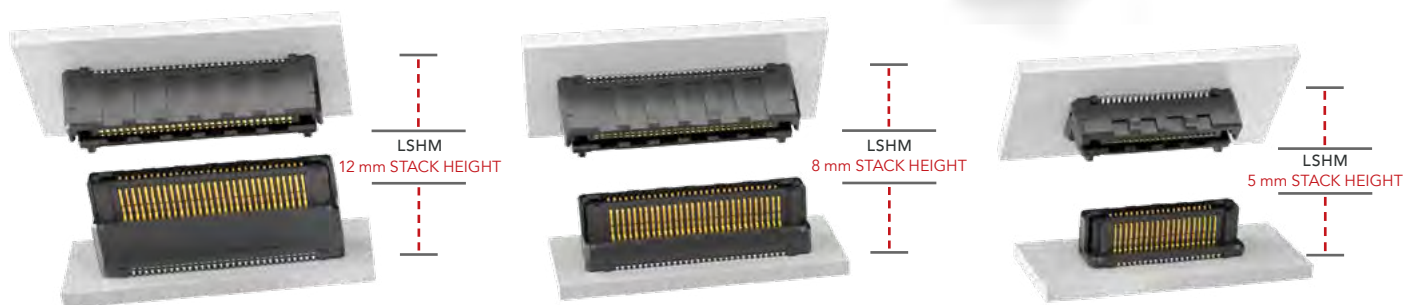
(0.50 mm) .0197" PITCH

## FEATURES & BENEFITS

- Ten stack height options from 5.00 mm to 12.00 mm
- 0.50 mm, 0.635 mm or 0.80 mm pitches
- Audible click when mated
- Mating and unmating forces approximately 4-6x greater than typical micro pitch connectors
- Self-mating system reduces inventory cost
- Parallel, perpendicular and coplanar systems
- Shielded and lubricated options
- Severe Environment Testing qualified (LSHM); aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)



## SLIM BODY DESIGNS (40 total positions each)



## KEY SPECIFICATIONS

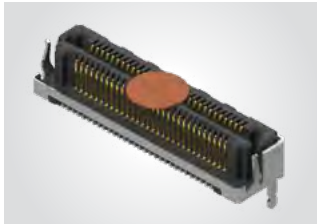
INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	SMT COPLANARITY	LEAD-FREE SOLDERABLE
Black LCP	Phosphor Bronze	Au or Sn over 50 μ" (1.27 μm) Ni	-55 °C to +125 °C	LSHM: 2.0 A per pin LSS: 1.7 A per pin LSEM: 1.8 A per pin	(0.10 mm) .004" max	Yes

**(0.50 mm) .0197" PITCH • RUGGED HERMAPHRODITIC CONNECTORS**

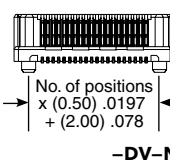
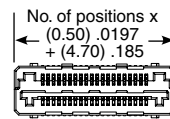
LSHM	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	TAIL OPTION	A	SHIELD OPTION	K	"X"R
		05, 10, 20, 30, 40, 50	(Vertical) <b>Specify LEAD STYLE from chart</b>  (Right-angle) <b>-01</b> = Standard  (Right-angle) <b>-L1</b> = Lubricated	<b>-F</b> = Gold flash on contact, Matte Tin on tail  <b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail	<b>-DV</b> = Vertical  <b>-DH</b> = Right-angle (Lead style -01 & -L1 only)  <b>-RH</b> = Reverse Right-angle (Lead style -01 & -L1 only)		<b>-S</b> = With Shield  <b>-N</b> = Without Shield	<b>-K</b> = (3.50 mm) .138" DIA Polyimide film Pick & Place Pad	<b>-TR</b> = Tape & Reel  <b>-FR</b> = Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)

**LSHM**

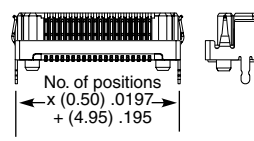
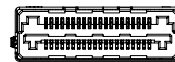
Board Mates:  
LSHM  
Cable Mates:  
HLCD



LEAD STYLE (STANDARD)	LEAD STYLE (LUBRICATED)	A	B
-02.5	-L2.5	(3.95) .156	(1.00) .039
-03.0	-L3.0	(4.45) .175	(1.50) .059
-04.0	-L4.0	(5.45) .215	(2.50) .098
-06.0	-L6.0	(7.45) .293	(4.50) .177



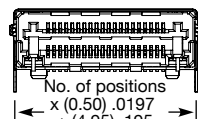
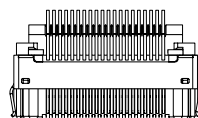
**-DV-N**



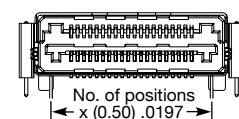
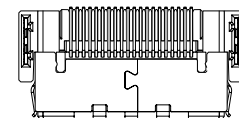
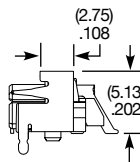
**-DV-S**

LEAD STYLE	MATED HEIGHT *
-02.5 & -02.5	(5.00) .196
-02.5 & -03.0	(5.50) .217
-03.0 & -03.0	(6.00) .236
-02.5 & -04.0	(6.50) .256
-03.0 & -04.0	(7.00) .276
-04.0 & -04.0	(8.00) .315
-02.5 & -06.0	(8.50) .335
-03.0 & -06.0	(9.00) .354
-04.0 & -06.0	(10.00) .394
-06.0 & -06.0	(12.00) .472

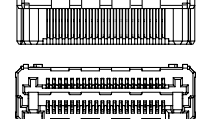
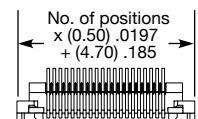
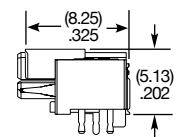
\*Processing conditions will affect mated height.



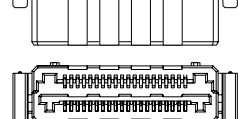
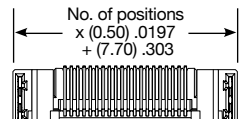
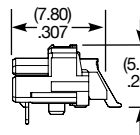
**-DH-S**



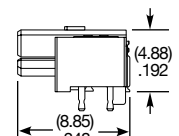
**-RH-S**



**-DH-N**



**-RH-N**



**Notes:**  
Severe Environment Testing qualified; aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)

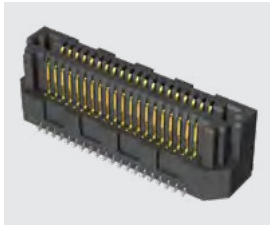
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?LSHM](http://samtec.com?LSHM)

**(0.635 mm) .025" PITCH • RUGGED HERMAPHRODITIC CONNECTORS**

**LSS** - **1** **NO. PINS PER ROW** - **LEAD STYLE** - **PLATING OPTION** - **DV** - **A** - **OPTION**

10, 20, 30, 40, 50



Specify **LEAD STYLE** from chart

**-F**  
= Gold flash on contact, Matte Tin on tail

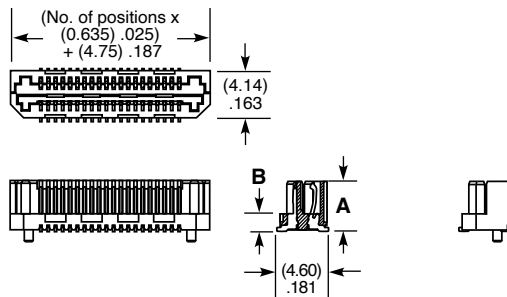
**-L**  
= 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail

**-K**  
= (3.50 mm) .138" DIA Polyimide film Pick & Place Pad

**-TR**  
= Tape & Reel

**-FR**  
= Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)

LEAD STYLE	A	B
-01	(4.45) .1752	(1.59) .0628
-02	(7.45) .2933	(4.59) .1808
-03	(5.45) .2146	(2.59) .1021



LEAD STYLE	MATED HEIGHT *
-01 & -01	(6.00) .236
-01 & -03	(7.00) .276
-03 & -03	(8.00) .315
-01 & -02	(9.00) .354
-02 & -03	(10.00) .394
-02 & -02	(12.00) .472

\*Processing conditions will affect mated height.

View complete specifications at: [samtec.com?LSS](http://samtec.com?LSS)

**(0.80 mm) .0315" PITCH • RUGGED HERMAPHRODITIC CONNECTORS**

**LSEM** - **1** **NO. PINS PER ROW** - **LEAD STYLE** - **PLATING OPTION** - **TAIL OPTION** - **A** - **N** - **K** - **"X"R**

20, 30, 40, 50



Specify **LEAD STYLE** from chart

**-F**  
= Gold flash on contact, Matte Tin on tail

**-L**  
= 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail

**-DV**  
= Vertical

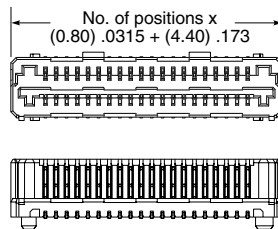
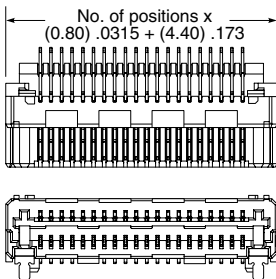
**-DH**  
= Right-angle (Lead style -01 only)

**-K**  
= (3.50 mm) .138" DIA Polyimide film Pick & Place Pad

**-TR**  
= Tape & Reel

**-FR**  
= Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)

LEAD STYLE	A	B
-01 (-DH only)	N/A	NA
-03.0	(4.45) .175	(1.50) .059
-04.0	(5.45) .215	(2.50) .098
-06.0	(7.45) .293	(4.50) .177



LEAD STYLE	MATED HEIGHT *
-03.0 & -03.0	(6.00) .236
-03.0 & -04.0	(7.00) .276
-04.0 & -04.0	(8.00) .315
-03.0 & -06.0	(9.00) .354
-04.0 & -06.0	(10.00) .394
-06.0 & -06.0	(12.00) .472

\*Processing conditions will affect mated height.

**Note:** Some lengths, styles and options are non-standard, non-returnable.

**-DH**

**-DV**

View complete specifications at: [samtec.com?LSEM](http://samtec.com?LSEM)



# MICRO BLADE & BEAM SOCKET & HEADER

28  
Gbps

(0.40 mm) .0158" PITCH • SS4/ST4 SERIES



**SS4**  
Mates:  
ST4

**ST4**  
Mates:  
SS4

## SPECIFICATIONS

**Insulator Material:**  
Black LCP  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Current Rating:**  
1.6 A per pin  
(2 pins powered)

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max

SS4	POSITIONS PER ROW	LEAD STYLE	PLATING OPTION	D	K	"X"R
-----	-------------------	------------	----------------	---	---	------

-10, -20,  
-30, -40, -50

-3.00  
= 3.00 mm

-3.50  
= 3.50 mm

-L  
= 10 μ"  
(0.25 μm)  
Gold on contact,  
Matte Tin on tail

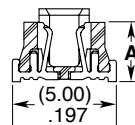
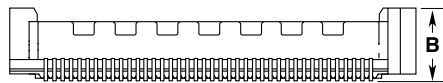
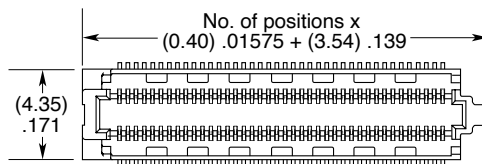
(Required in callout)

-K  
= (3.50 mm)  
.138" DIA  
Polyimide  
Film  
Pick &  
Place Pad

(Required in callout)

-TR  
= Tape & Reel

-FR  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)



LEAD STYLE	A	B
-3.00	(2.85) .112	(3.50) .138
-3.50	(3.35) .132	(4.00) .157

ST4	POSITIONS PER ROW	LEAD STYLE	PLATING OPTION	D	P	"X"R
-----	-------------------	------------	----------------	---	---	------

-10, -20,  
-30, -40, -50

-1.00  
= 1.00 mm

-1.50  
= 1.50 mm

-2.50  
= 2.50 mm

-L  
= 10 μ"  
(0.25 μm)  
Gold on contact,  
Matte Tin on tail

(Required in callout)

-P  
= Pick &  
Place Pad

(Required in callout)

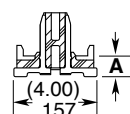
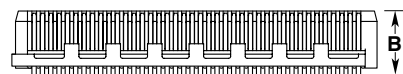
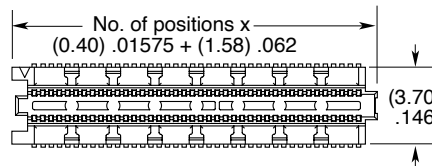
-TR  
= Tape & Reel

-FR  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)

## MATED HEIGHT \*

ST4 LEAD STYLE	SS4 LEAD STYLE	
	-3.00	-3.50
-1.00	(4.00 mm) .157"	(4.50 mm) .177"
-1.50	(4.50 mm) .177"	(5.00 mm) .197"
-2.50	(5.50 mm) .217"	(6.00 mm) .236"

\*Processing conditions will affect mated height.



LEAD STYLE	A	B
-1.00	(1.00) .039	(3.08) .121
-1.50	(1.50) .059	(3.58) .141
-2.50	(2.50) .098	(4.58) .180

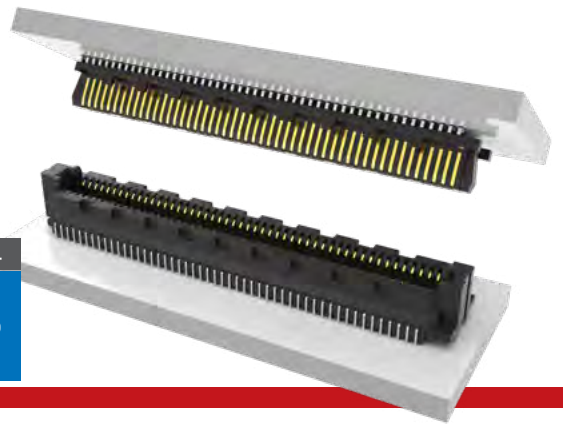
**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

# MICRO BLADE & BEAM SOCKET & HEADER

(0.50 mm) .0197" PITCH • SS5/ST5 SERIES

PAM 4

56  
G b p s



**SS5**  
Mates:  
ST5

**ST5**  
Mates:  
SS5

## SPECIFICATIONS

**Insulator Material:**  
Black LCP  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Current Rating:**  
1.5 A per pin  
(2 pins powered)

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max

SS5	NO. OF POSITIONS	LEAD STYLE	PLATING OPTION	D	K	"X"R
-----	------------------	------------	----------------	---	---	------

-10, -15, -20,  
-30, -40, -50,  
-60, -70, -80  
(Per Row)

-3.00  
= 3.00 mm  
-3.50  
= 3.50 mm

-L  
= 10 μ"  
(0.25 μm)  
Gold on contact,  
Matte Tin on tail

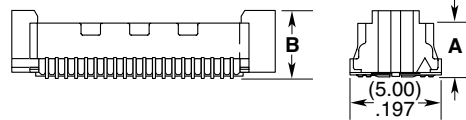
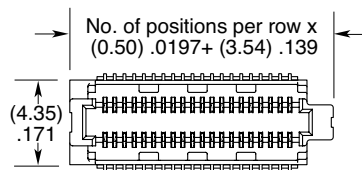
(Required in callout)

-K  
= (3.50 mm)  
.138" DIA  
Polyimide  
Film  
Pick &  
Place Pad

(Required in callout)

-TR  
= Tape & Reel

-FR  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)



LEAD STYLE	A	B
-3.00	(2.85) .112	(3.50) .138
-3.50	(3.35) .132	(4.00) .157

## MATED HEIGHT \*

ST5 LEAD STYLE	SS5 LEAD STYLE	
-1.00	(4.00 mm) .157"	(4.50 mm) .177"
-1.50	(4.50 mm) .177"	(5.00 mm) .197"

\*Processing conditions will affect mated height.

ST5	NO. OF POSITIONS	LEAD STYLE	PLATING OPTION	D	P	"X"R
-----	------------------	------------	----------------	---	---	------

-10, -15, -20,  
-30, -40, -50,  
-60, -70, -80  
(Per Row)

-1.00  
= 1.00 mm  
-1.50  
= 1.50 mm

-L  
= 10 μ"  
(0.25 μm)  
Gold on contact,  
Matte Tin on tail

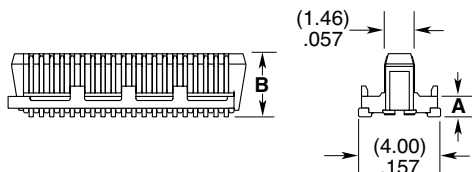
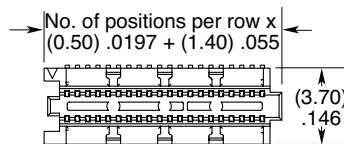
(Required in callout)

-P  
= Pick &  
Place Pad

(Required in callout)

-TR  
= Tape & Reel

-FR  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)



LEAD STYLE	A	B
-1.00	(1.00) .039	(3.08) .121
-1.50	(1.50) .059	(3.58) .141

## ALSO AVAILABLE

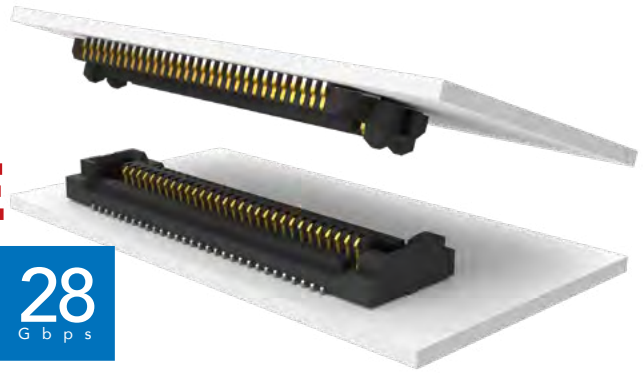
MOQ Required

Other lead styles

**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

# ULTRA-LOW PROFILE HEADER & SOCKET

(0.50 mm) .0197" PITCH • SLH/TLH SERIES



**SLH**  
Mates:  
TLH

**TLH**  
Mates:  
SLH

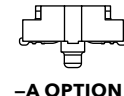
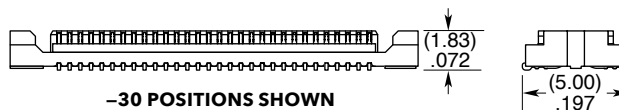
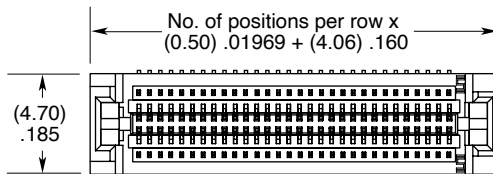
## SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Contact Material:**  
Copper Alloy  
**Plating:**  
Au over 50 μ" (1.27 μm) Ni  
**Current Rating:**  
2.1 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +125 °C

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max  
**Board Stacking:**  
For applications requiring two  
or more connectors per board,  
contact [ipg@samtec.com](mailto:ipg@samtec.com)

SLH	NO. OF POSITIONS	LEAD STYLE	PLATING OPTION	D	OPTION	OPTION	"X"R
	-010, -020, -030 (Per Row)	-1.50 =1.50 mm	-G = 10 μ" (0.25 μm) Gold in contact, Gold flash on tail		-A = Alignment Pin	-K = (3.00 mm) .118" DIA Polyimide Film Pick & Place Pad	(Leave blank for tape & reel)  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)



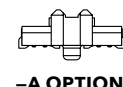
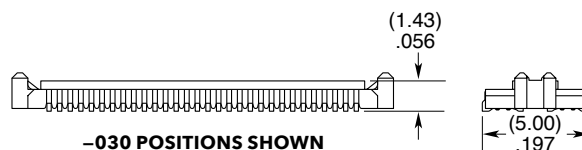
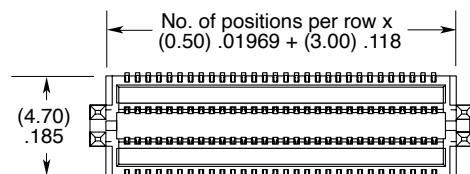
-A OPTION

## MATED HEIGHT\*

SLH LEAD STYLE	TLH LEAD STYLE
-1.50	-0.50 (2.00) .0787

\*Processing conditions will affect mated height.

TLH	NO. OF POSITIONS	LEAD STYLE	PLATING OPTION	D	OPTION	OPTION	"X"R
	-010, -020, -030 (Per Row)	-0.50 =0.50 mm	-G = 10 μ" (0.25 μm) Gold in contact, Gold flash on tail		-A = Alignment Pin	-K = (3.00 mm) .118" DIA Polyimide Film Pick & Place Pad	(Leave blank for tape & reel)  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)



-A OPTION

**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

# PRECISION BOARD STACKING STANDOFF



## SO SERIES

### SO

#### Use With:

QXH, QXE, QXS,  
QXSS, QRX8, ERX5,  
ERX6, ERX8, LSHM,  
LSS, LSEM, SX4, SX5, XLH

### SPECIFICATIONS

#### Material:

Aluminum

#### Locking Compound:

Nylon



**Specify BOARD STACKER from chart**

**-01**  
= Female Thread/Press-In  
(-0515 thru -0865 only)

**-02**  
= Male/Male Thread  
(-0515 and  
-1115 thru -2515 only)

**-03**  
= Male/Female Thread  
(-0815 thru -2515 only)

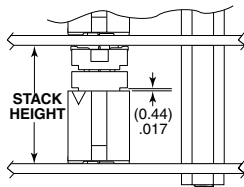
**-05**  
= Female/Female Thread  
(-1524 thru -2515 only)

**-01**  
= #4-40  
Thread

**-02**  
= M3 x 0.5  
Thread

**-L**  
= -02 & -03  
Lead Style  
thread locking  
compound  
(Leave blank for  
-01 Lead Style)

### INDUSTRY STANDARD SOLUTIONS



Requires Standoff  
SO-1524-03-01-01-L or  
JSOM-1524-02 for 15.24 mm  
or SO-2200-03-01-01-L  
for 22 mm board spacing.  
Connectors designed to not  
fully seat when mated.  
For more information on the JSOM,  
visit [samtec.com?JSOM](http://samtec.com?JSOM)

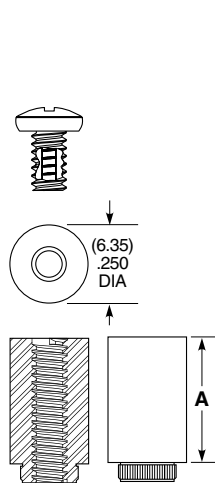
BOARD STACKER	A	BOARD STACK HEIGHT
-0515	(5.15) .203	5 mm
-0715	(7.15) .282	7 mm
-0815	(8.15) .321	8 mm
-0865	(8.65) .341	8.5 mm
-1115	(11.15) .439	11 mm
-1215	(12.15) .478	12 mm
-1524	(15.24) .600	15.09 mm
-1615	(16.15) .636	16 mm
-1890	(18.90) .744	18.75 mm
-1915	(19.15) .754	19 mm
-2515	(25.15) .990	25 mm

INDUSTRY STANDARD	INTERCONNECTS			
	TERMINAL	SOCKET	BANKS	STACK HEIGHT
SUMIT™	ASP-129637-01	ASP-129646-01	1	15.24 mm
PCI/104-Express™	ASP-129637-03	ASP-129646-03	3	15.24 mm
PCI/104-Express™	ASP-129637-13	ASP-129646-22	1	15.24 mm
PCI/104-Express™	ASP-142781-01	ASP-129646-01	1	22 mm
PCI/104-Express™	ASP-142781-02	ASP-129646-02	2	22 mm
PCI/104-Express™	ASP-142781-03	ASP-129646-03	3	22 mm

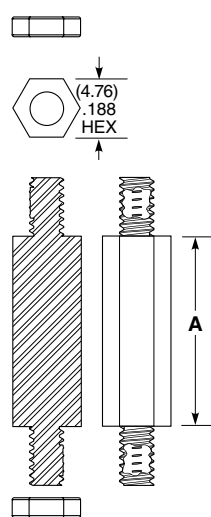
### ALSO AVAILABLE

MOQ Required

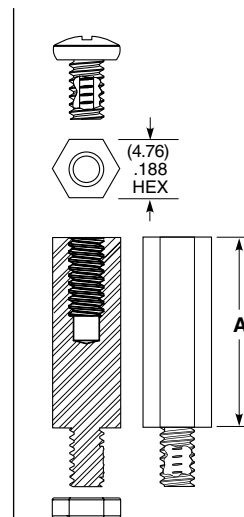
Other heights  
Stainless Steel  
Locking compound removed  
Other materials and threading  
No Hardware



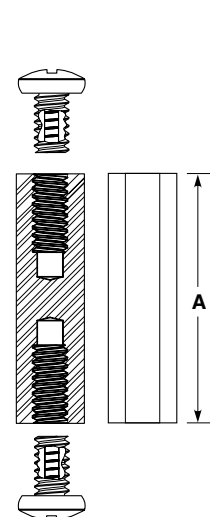
-01 LEAD STYLE



-02 LEAD STYLE



-03 LEAD STYLE



-05 LEAD STYLE

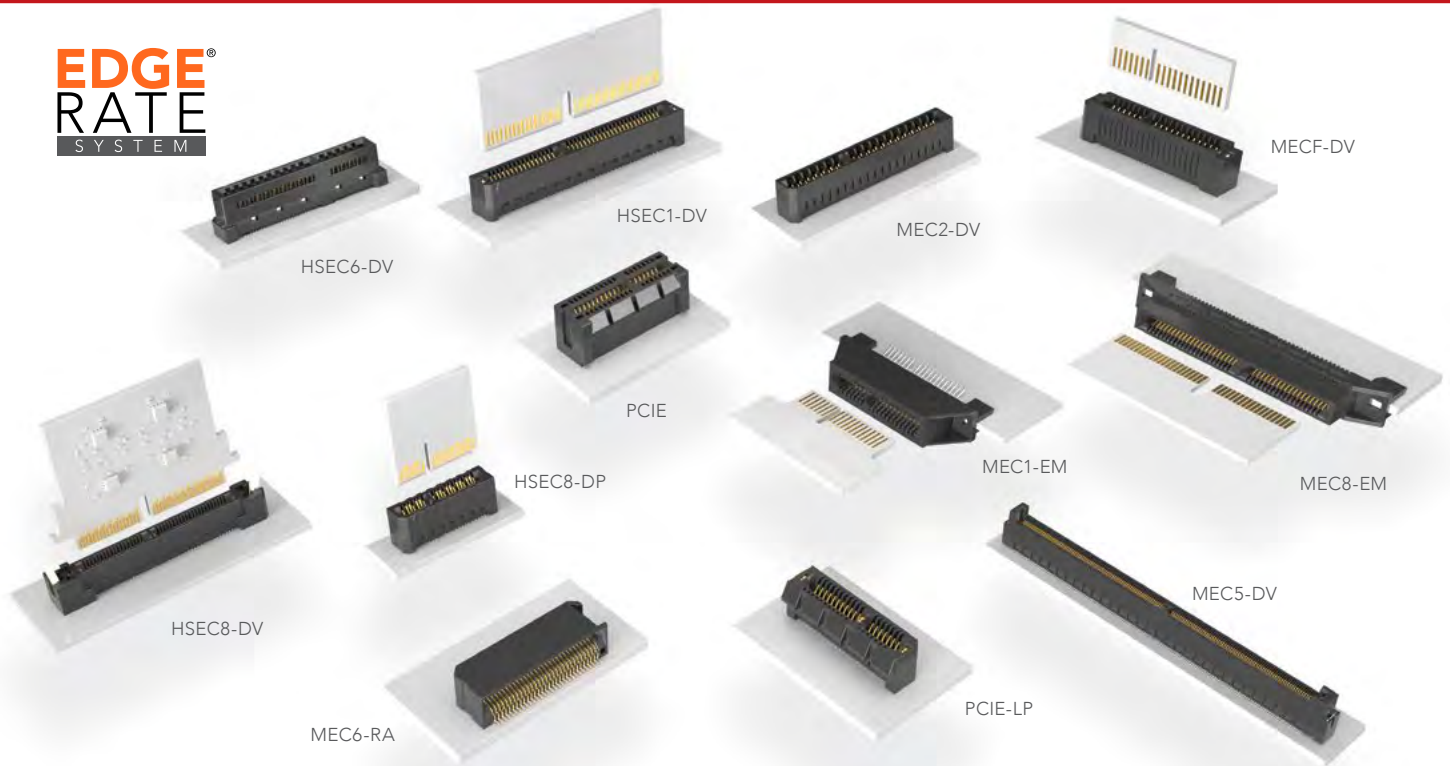
Components are to be packaged in separate bags unassembled.

**Note:**  
Some sizes, styles and  
options are non-standard,  
non-returnable.



# HIGH-SPEED EDGE CARD SYSTEMS

SPEEDS TO 56 Gbps • RUGGED EDGE RATE® CONTACTS • VARIETY OF OPTIONS



## 62-69

### HIGH-SPEED EDGE CARD INTERCONNECTS

0.60 mm Pitch Edge Rate® Socket (HSEC6)	63
0.80 mm Pitch Rugged Edge Card Socket (HTEC8)	64
0.80 mm Pitch Edge Rate® Socket (HSEC8)	65-68
1.00 mm Pitch Edge Rate® Socket (HSEC1)	69

## 70-77

### MICRO/MINI EDGE CARD INTERCONNECTS

0.50 mm Pitch Micro Socket (MEC5)	71
0.635 mm Pitch Micro Socket (MEC6)	72
0.80 mm Pitch Micro Edge Socket (MEC8)	73-74
1.00 mm Pitch Mini Edge Card Socket (MEC1)	75-76
1.27 mm Pitch Mini Edge Card Socket (MECF)	77
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## 78-80

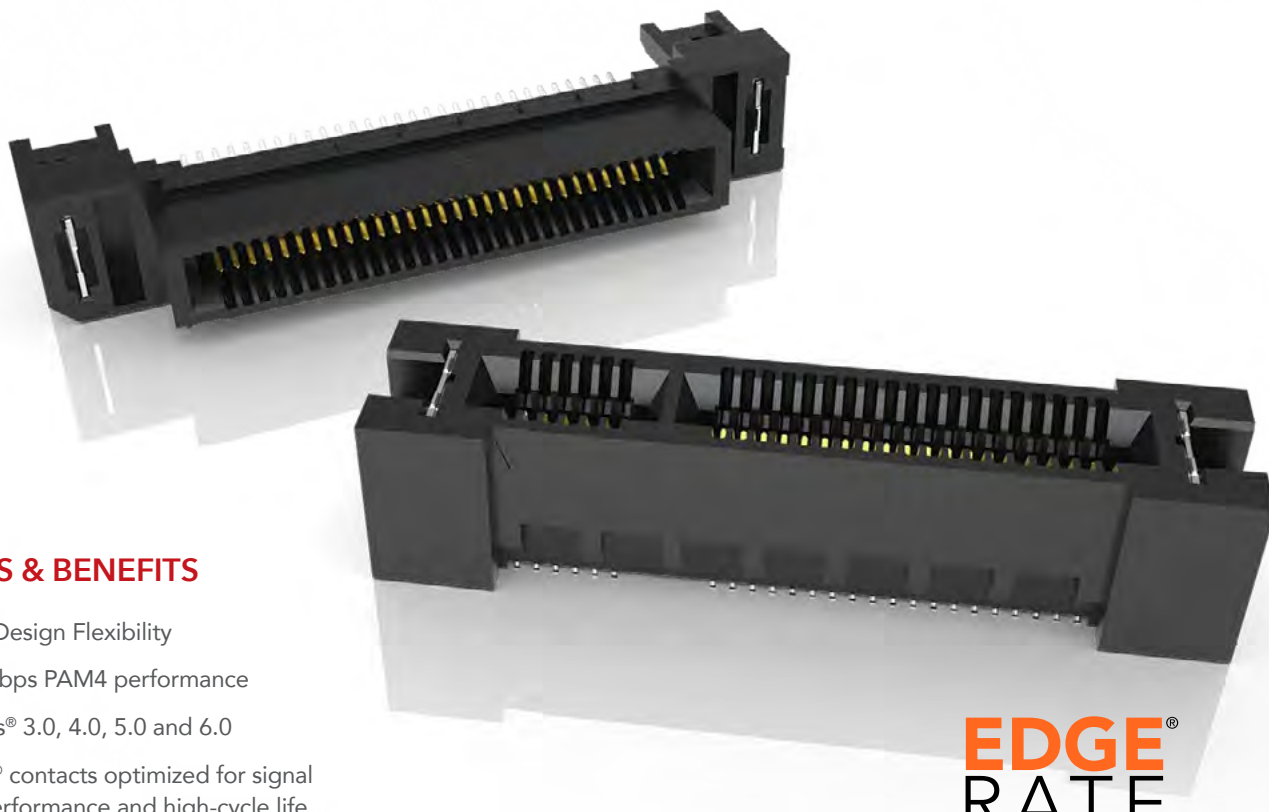
### PCI EXPRESS® INTERCONNECTS

PCI Express® & Low Profile PCI Express® Sockets (PCIE)	79
PCI Express® 4.0 & 5.0 Sockets (PCIE-G4 & PCIE-G5)	80

# GENERATE™

## HIGH-SPEED EDGE CARD SYSTEMS

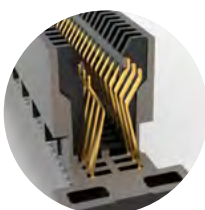
0.60 mm, 0.80 mm and 1.00 mm PITCH



### FEATURES & BENEFITS

- Maximum Design Flexibility
- Up to 64 Gbps PAM4 performance
- PCI Express® 3.0, 4.0, 5.0 and 6.0
- Edge Rate® contacts optimized for signal integrity performance and high-cycle life
- Up to 200 positions available
- Vertical, right-angle, edge mount, pass-through orientations
- Power/signal combo, press-fit tails, rugged weld tabs, locks and latches
- Mating cable assemblies available

**EDGE  
RATE**  
CONTACT



Rugged tucked beam technology (HTEC8)



Differential pair for increased speed (HSEC8-DP)



Custom designs allow for misalignment in the X-Y axes (HSEC1)

### KEY SPECIFICATIONS

SERIES	PITCH	TOTAL POSITIONS	INSULATOR MATERIAL	CONTACT MATERIAL	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING	LEAD-FREE SOLDERABLE
HSEC6	0.60 mm	56-168	Black LCP	Copper Alloy	-55 °C to +125 °C	1.9 A (2 pins)	240 VAC	Yes
HTEC8	0.80 mm	20-200	Black LCP	Copper Alloy	-55 °C to +125 °C	3.0 A (2 pins)	215 VAC	Yes
HSEC8	0.80 mm	18-200	Black LCP	BeCu	-55 °C to +125 °C	2.8 A (2 pins)	240 VAC	Yes
HSEC1	1.00 mm	20-140	Black LCP	Phosphor Bronze	-55 °C to +125 °C	2.2 A (2 pins)	215 VAC	Yes

**(0.60 mm) .024" PITCH • VERTICAL EDGE CARD SOCKET**

HSEC6	POSITIONS PER ROW	CARD THICKNESS	PLATING OPTION	DV	SHIELD OPTION	WT	"X"R
	-028, -042, -070, -084	-01 = (1.60 mm) .062" thick card	-S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on tail		Leave blank for no shield  -S = Shield (not available with -084 positions)	Required for everything but shielded -028 positions  -WT = Weld tab	-TR = Tape & Reel  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

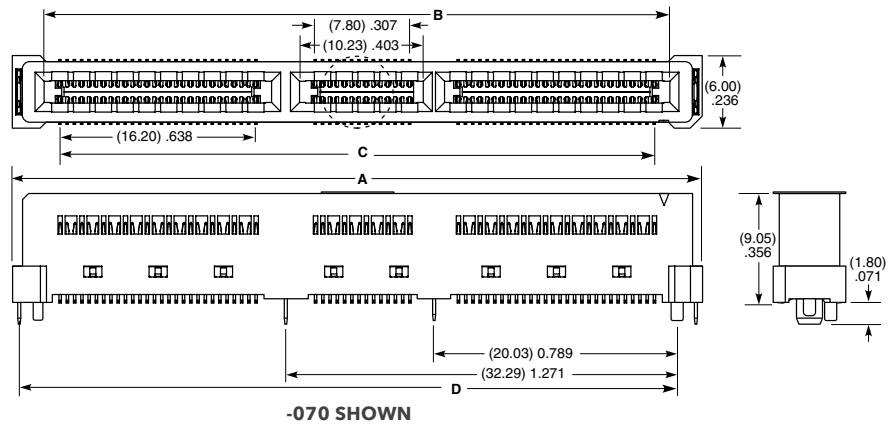
**HSEC6**  
Card Mates:  
(1.60 mm)  
.062" card

Cable Mates:  
GC6



**ALSO AVAILABLE**

0.60 mm Pitch Mating High-Speed Cable Assembly. See GC6 Series.



**STANDARDS**

**SFF-TA-1002**  
Visit [www.samtec.com/standards](http://www.samtec.com/standards) for more information.

HIGH-SPEED PAIRS	SFF-TA-1002	POSITIONS PER ROW	A	B	C	D
x4, 8 DP's	1C	-028	(23.88) .940	(18.62) .733	(16.20) .638	(21.18) .834
x8, 16 DP's	2C	-042	(35.60) 1.402	(30.61) 1.205	(28.01) 1.103	(32.90) 1.295
	4C	-070	(57.02) 2.245	(51.72) 2.036	(49.12) 1.934	(54.32) 2.139
x16, 32 DP's	4C+	-084	(69.17) 2.723	(63.92) 2.516	(61.32) 2.414	(66.52) 2.619

**Note:**  
Polyimide film pick & place pad is standard.

Some sizes, styles and options are non-standard, non-returnable

View complete specifications at: [samtec.com?HSEC6-DV](http://samtec.com?HSEC6-DV)

**(0.80 mm) .0315" PITCH • RUGGED HIGH-SPEED EDGE CARD SOCKET**

**HTEC8** - **1** POSITIONS PER ROW - **01** - **PLATING OPTION** - **DV** - **OPTION** - **OTHER OPTION** - **"X"R**

**10, 20,  
30, 40, 50,  
60, 80, 100**

**-L**  
= 10 μm  
(0.25 μm)  
Gold on  
contact area,  
Matte Tin  
on tail

**-S**  
= 30 μm  
(0.76 μm)  
Gold on  
contact area,  
Matte Tin  
on tail

Leave blank for no  
alignment pin

**-A**  
= Alignment Pin

**-WT**  
= Weld Tab  
(-A option required)

**-K**  
= (7.00 mm)  
.276" DIA  
Polyimide  
Pick &  
Place Pad

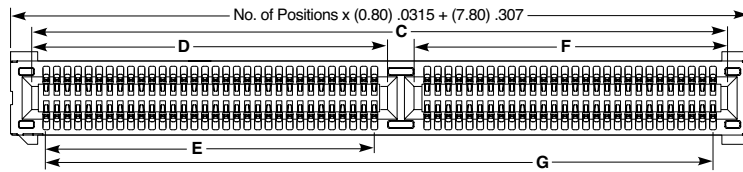
Leave blank for  
Tray Packaging

**-TR**  
= Tape & Reel  
(10 thru 60  
positions only)

**-FR**  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec  
for quantity breaks)  
(10 thru 60  
positions only)

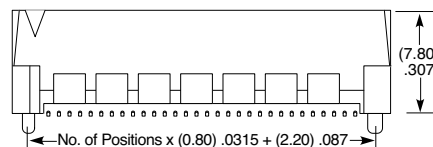
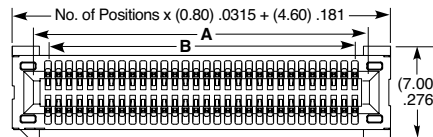
**HTEC8**

**Card Mates:**  
(1.60 mm) .062" thick card



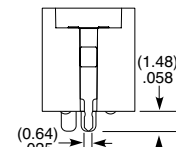
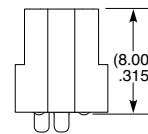
**40, 50, 60, 80 & 100 POSITIONS**

POSITIONS PER ROW	C	D	E	F	G
40	(36.60) 1.440	(18.90) .744	(16.80) .661	(15.70) .618	(34.40) 1.354
50	(44.60) 1.756	(22.90) .902	(20.80) .819	(19.70) .776	(42.40) 1.669
60	(52.60) 2.071	(26.90) 1.059	(24.80) .976	(23.70) .933	(50.40) 1.984
80	(68.60) 2.701	(26.90) 1.059	(24.80) .976	(39.70) 1.563	(66.40) 2.614
100	(84.60) 3.331	(26.90) 1.059	(24.80) .976	(55.70) 2.193	(82.40) 3.244



**10, 20 & 30 POSITIONS**

POSITIONS PER ROW	A	B
10	(9.40) .370	(7.20) .283
20	(17.40) .685	(15.20) 5.98
30	(25.40) 1.000	(23.20) .913



**-WT  
OPTION**

**Note:**  
Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?HTEC8](http://samtec.com?HTEC8)



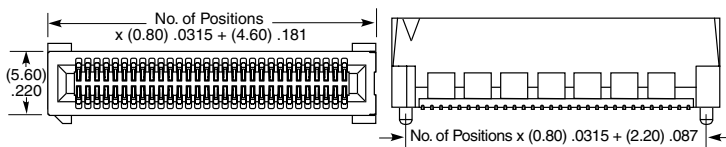
## (0.80 mm) .0315" PITCH • VERTICAL EDGE CARD SOCKET

HSEC8	1	POSITIONS PER ROW	CARD THICKNESS	PLATING OPTION	DV	A	OTHER OPTIONS	"X"R
		<b>09, 10, 13, 20, 25, 30, 37, 40, 49, 50, 60, 70, 80, 100</b> (13, 25, 49 only available with -L or -L2 latching option; 09 only available with -L2 option; 37 only available with -L latching option)	<b>-01</b> = (1.60 mm) .062" thick card  <b>-03</b> = (2.36 mm) .093" thick card	<b>-L</b> = 10 μm (0.25 μm) Gold on contact area, Matte Tin on tail  <b>-S</b> = 30 μm (0.76 μm) Gold on contact area, Matte Tin on tail			<b>-K</b> = Polyimide Pick & Place Pad  <b>-BL</b> = Board Locks; -01 card only (Weld tab standard)  <b>-L</b> = Latching Option; -01 card only (13, 25, 37, 49 only) (Weld tab standard)  <b>-L2</b> = ECDP Latching; -01 card only (09, 13, 25, 49 only) (For use with ECDP) (Weld tab standard)  <b>-WT</b> = Weld tab	Leave blank for Tray Packaging  <b>-TR</b> = Tape & Reel (09 - 70 only)  <b>-FR</b> = Full Reel Tape & Reel (must order max. quantities per reel; contact Samtec for quantity breaks) (09-70 only)

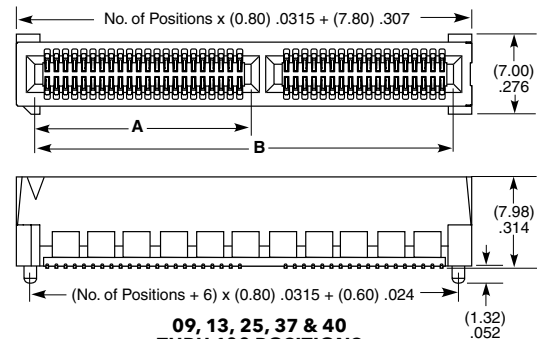
### HSEC8-DV

**Card Mates:**  
 (1.60 mm) .062" card,  
 (2.36 mm) .093" card,  
 HSC8

**Cable Mates:**  
 ECDP



10, 20, & 30 POSITIONS



09, 13, 25, 37 & 40 THRU 100 POSITIONS

### OTHER SOLUTIONS

For complete edge card system with cards and sockets, visit [samtec.com?RU8](http://samtec.com?RU8)

For a card to mate with an HSEC8 socket, visit [samtec.com?HSC8](http://samtec.com?HSC8)



POSITIONS PER ROW	A	B
09*†	(4.50) .177	(11.80) .465
13*†	(6.10) .240	(15.00) .591
25*†	(6.10) .240	(24.60) .969
37†	(18.10) .713	(34.20) 1.346
40	(18.90) .744	(36.60) 1.441
49*†	(22.90) .902	(43.80) 1.724
50	(22.90) .902	(44.60) 1.756
60	(26.90) 1.059	(52.60) 2.071
70†	(26.90) 1.059	(60.60) 2.386
80†	(26.90) 1.059	(68.60) 2.701
100†	(26.90) 1.059	(84.60) 3.331

CABLE	CONNECTOR
ECDP-04	HSEC8-109-L2
ECDP-08	HSEC8-113-L2
ECDP-16	HSEC8-125-L2
ECDP-32	HSEC8-149-L2

Positions where no dimensions are given do not have keying feature.

\* Mates with ECDP Series

† Available with -01 Card Only

**Note:**  
 Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?HSEC8-DV](http://samtec.com?HSEC8-DV)

**(0.80 mm) .0315" PITCH • RIGHT-ANGLE & EDGE MOUNT SOCKET**

<b>HSEC8</b>	<b>- 1</b>	<b>POSITIONS PER ROW</b>	<b>CARD THICKNESS</b>	<b>PLATING OPTION</b>	<b>RA</b>	<b>OTHER OPTIONS</b>	<b>"X"R</b>
--------------	------------	--------------------------	-----------------------	-----------------------	-----------	----------------------	-------------

09, 10, 13,  
20, 25, 30,  
40, 49, 50, 60

**-01**  
= (1.60 mm) .062"  
thick card

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact area,  
Matte Tin on tail

**-S**  
= 30 μ" (0.76 μm)  
Gold on contact area,  
Matte Tin on tail

**-BL**  
= Board Locks  
(09, 13, 25, 40,  
49, 50, 60 only)

**-L2**  
= ECDP Latching  
(09, 13, 25, 49 only)

Leave blank for  
Tray Packaging

**-TR**  
= Tape & Reel

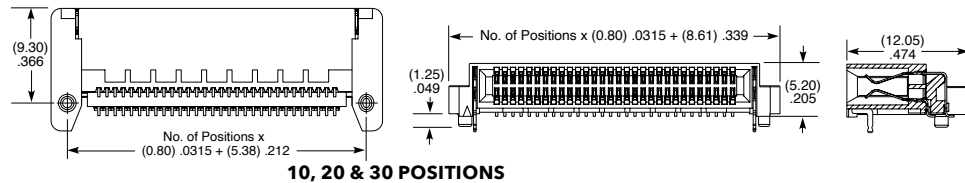
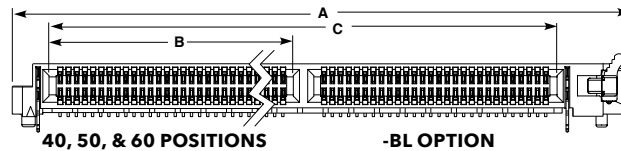
**-FR**  
= Full Reel  
Tape & Reel Packaging  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)

**HSEC8-RA**

**Card Mates:**  
(1.60 mm) .062"  
thick card,  
**HSC8**  
**Cable Mates:**  
**ECDP**



POSITIONS PER ROW	A	B	C
40	(43.80) 1.724	(18.90) .744	(36.60) 1.441
50	(51.80) 2.039	(22.90) .902	(44.60) 1.756
60	(59.80) 2.354	(26.90) 1.059	(52.60) 2.071
40-BL	(51.30) 2.020	(18.90) .744	(36.60) 1.441
50-BL	(59.30) 2.335	(22.90) .902	(44.60) 1.756
60-BL	(67.30) 2.650	(26.90) 1.059	(52.60) 2.071



View complete specifications at: [samtec.com?HSEC8-RA](http://samtec.com?HSEC8-RA)

<b>HSEC8</b>	<b>- 1</b>	<b>POSITIONS PER ROW</b>	<b>01</b>	<b>PLATING OPTION</b>	<b>D</b>	<b>EM2</b>
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10, 20, 30, 40, 50, 60

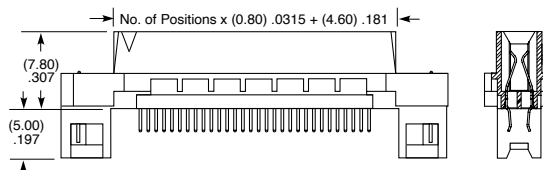
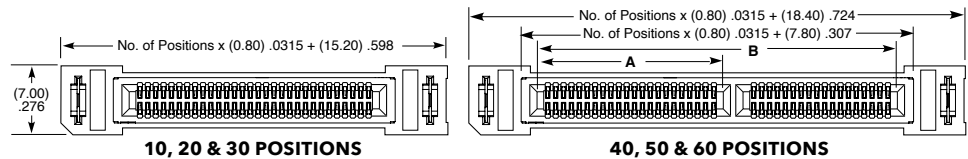
**-L**  
= 10 μ" (0.25 μm)  
Gold on contact area,  
Matte Tin on tail

**-S**  
= 30 μ" (0.76 μm)  
Gold on contact area,  
Matte Tin on tail

**-EM2**  
=(1.60 mm) .062"  
thick PCB

**HSEC8-EM**

**Card Mates:**  
(1.60 mm) .062"  
thick card,  
**HSC8**  
**Cable Mates:**  
**ECDP**



POSITIONS PER ROW	A	B
40	(18.90) .744	(36.60) 1.441
50	(22.90) .902	(44.60) 1.756
60	(26.90) 1.059	(52.60) 2.071

View complete specifications at: [samtec.com?HSEC8-EM](http://samtec.com?HSEC8-EM)

**Note:**  
Some sizes, styles and  
options are non-standard,  
non-returnable.

**(0.80 mm) .0315" PITCH • PASS-THROUGH & POWER COMBO**

<b>HSEC8</b>	<b>1</b>	<b>POSITIONS PER ROW</b>	<b>CARD THICKNESS</b>	<b>PLATING OPTION</b>	<b>DV</b>	<b>A</b>	<b>PE</b>	<b>OTHER OPTIONS</b>	<b>"X"R</b>
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10, 13, 20

**-01**  
= (1.60 mm) .062" thick card

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact area, Matte Tin on tail

**-S**  
= 30 μ" (0.76 μm)  
Gold on contact area, Matte Tin on tail

**-K**  
= (5.50 mm) .217" DIA Polyimide Film Pick & Place Pad

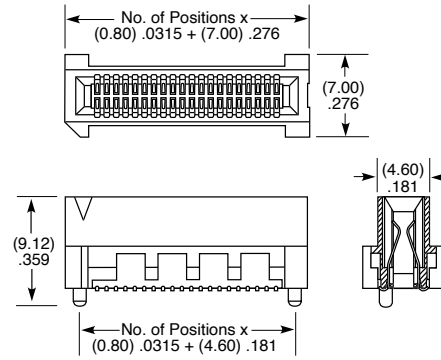
Leave blank for Tray Packaging

**-TR**  
=Tape & Reel Packaging

**-FR**  
= Full Reel Tape & Reel Packaging (Must order max. quantities per reel. Contact Samtec for parts per reel)

**HSEC8-PE**

**Card Mates:**  
(1.60 mm) .062" thick card, HSC8



**ALSO AVAILABLE**

1.00 mm High-Speed Micro Plane Socket. View complete specifications at [samtec.com?SAL1](http://samtec.com?SAL1)

View complete specifications at: [samtec.com?HSEC8-DV](http://samtec.com?HSEC8-DV)

<b>HSEC8</b>	<b>1</b>	<b>SIGNAL POSITIONS</b>	<b>CARD THICKNESS</b>	<b>PLATING OPTION</b>	<b>PV</b>	<b>POWER POSITIONS</b>	<b>POWER TAIL</b>	<b>OTHER OPTION</b>
--------------	----------	-------------------------	-----------------------	-----------------------	-----------	------------------------	-------------------	---------------------

20, 30, 40  
(Signal positions per row)

**-01**  
= (1.60 mm) .062" thick card

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact area, Matte Tin on tail

**-S**  
= 30 μ" (0.76 μm)  
Gold on contact area, Matte Tin on tail

**-2, -4**  
(Total, 2 per power bank)

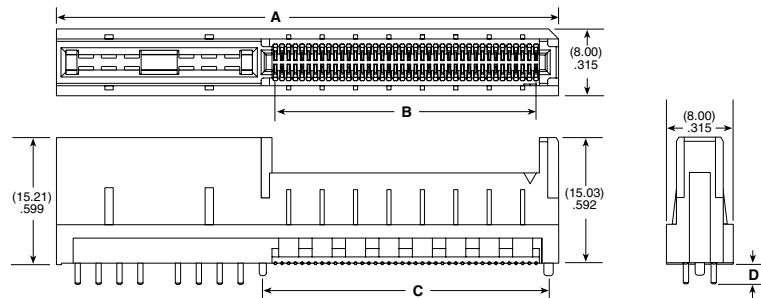
**-1**  
= Use with (1.60 mm) .062" Thick PCB

**-2**  
= Use with (2.36 mm) .093" Thick PCB

**-WT**  
= Weld Tab

**HSEC8-PV**

**Card Mates:**  
(1.60 mm) .062" thick card



SIGNAL POSITIONS	POWER POSITIONS					
	A (-2)	B (-2)	C (-2)	A (-4)	B (-4)	C (-4)
20	(32.10) 1.264	(15.20) .598	(18.20) .717	(44.10) 1.736	(15.20) .598	(18.20) .717
30	(40.10) 1.579	(23.20) .913	(26.20) 1.031	(52.10) 2.051	(23.20) .913	(26.20) 1.031
40	(48.10) 1.894	(31.20) 1.228	(34.20) 1.346	(60.10) 2.366	(31.20) 1.228	(34.20) 1.346

POWER TAIL	D
-1	(2.35) .093
-2	(3.13) .123

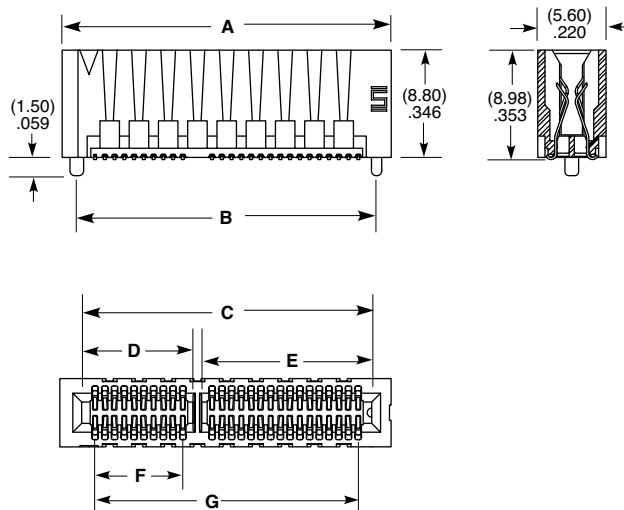
**Note:**  
Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?HSEC8-PV](http://samtec.com?HSEC8-PV)

**0.80 mm (.0315") PITCH • DIFFERENTIAL PAIR EDGE CARD**

<b>HSEC8</b>	<b>1</b>	<b>NUMBER OF PAIRS</b>	<b>01</b>	<b>PLATING OPTION</b>	<b>DP</b>	<b>A</b>	<b>OPTION</b>	<b>K</b>	<b>"X"R</b>
		<b>08, 12, 16, 20, 32, 56</b> (Total Pairs)		<b>-L</b> = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on tail			Leave blank for no weld tab <b>-WT</b> = Weld Tab	<b>-K</b> = (6.25 mm) .246" DIA Polyimide Film Pick & Place Pad	Leave blank for Tape & Reel <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**HSEC8-DP**  
Card Mates:  
(1.60 mm) .062" thick card



NUMBER OF PAIRS	A	B	C	D	E	F	G
08	(17.40) .685	(15.00) .591	(14.20) .559	(4.34) .171	(9.14) .360	(2.40) .094	(12.00) .472
12	(22.20) .874	(19.80) .780	(19.00) .748	(6.74) .265	(11.54) .454	(4.80) .189	(16.80) .661
16	(27.00) 1.063	(24.60) .969	(23.80) .937	(9.14) .360	(13.94) .549	(7.20) .283	(21.60) .850
20	(31.80) 1.252	(29.40) 1.157	(28.60) 1.126	(11.54) .454	(16.34) .643	(9.60) .378	(26.40) 1.039
32	(46.20) 1.819	(43.80) 1.724	(43.00) 1.693	(18.74) .738	(23.54) .927	(16.80) .661	(40.80) 1.606
56	(75.00) 2.953	(72.60) 2.858	(71.80) 2.827	(33.14) 1.305	(37.94) 1.494	(31.20) 1.228	(69.60) 2.740

**Note:**  
Some sizes, styles and options are non-standard, non-returnable.

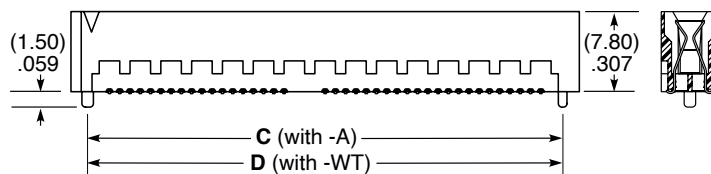
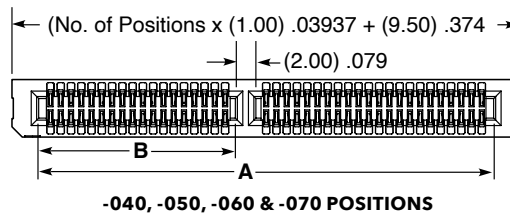
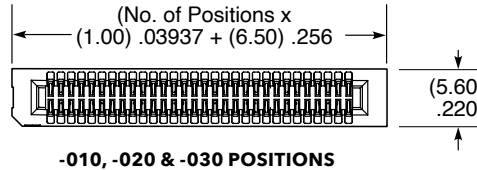
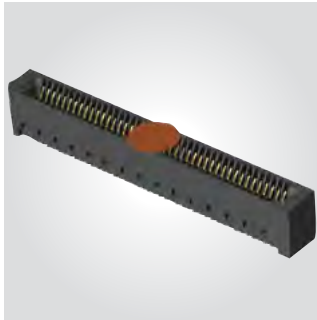
View complete specifications at: [samtec.com?HSEC8-DP](http://samtec.com?HSEC8-DP)



## 1.00 mm (.0394") PITCH • VERTICAL HIGH-SPEED EDGE CARD

HSEC1	POSITIONS PER ROW	CARD THICKNESS	PLATING OPTION	DV	OPTION	OTHER OPTION	"X"R
	-010, -020, -030, -040, -050, -060, -070	-01 =(1.60 mm) .062" thick card	-L = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on tail  -S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on tail		-A or -WT required in callout  -A =Alignment Pin (Not available with -WT)  -WT =Weld tab (Not available with -A)	-K =(7.01 mm) .276" DIA Polyimide Film Pick & Place Pad	-TR or -FR required for 10-60 positions. Leave blank for 70 positions.  -TR =Tape & Reel  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**HSEC1-DV**  
Card Mates:  
(1.60 mm) .062"  
thick card



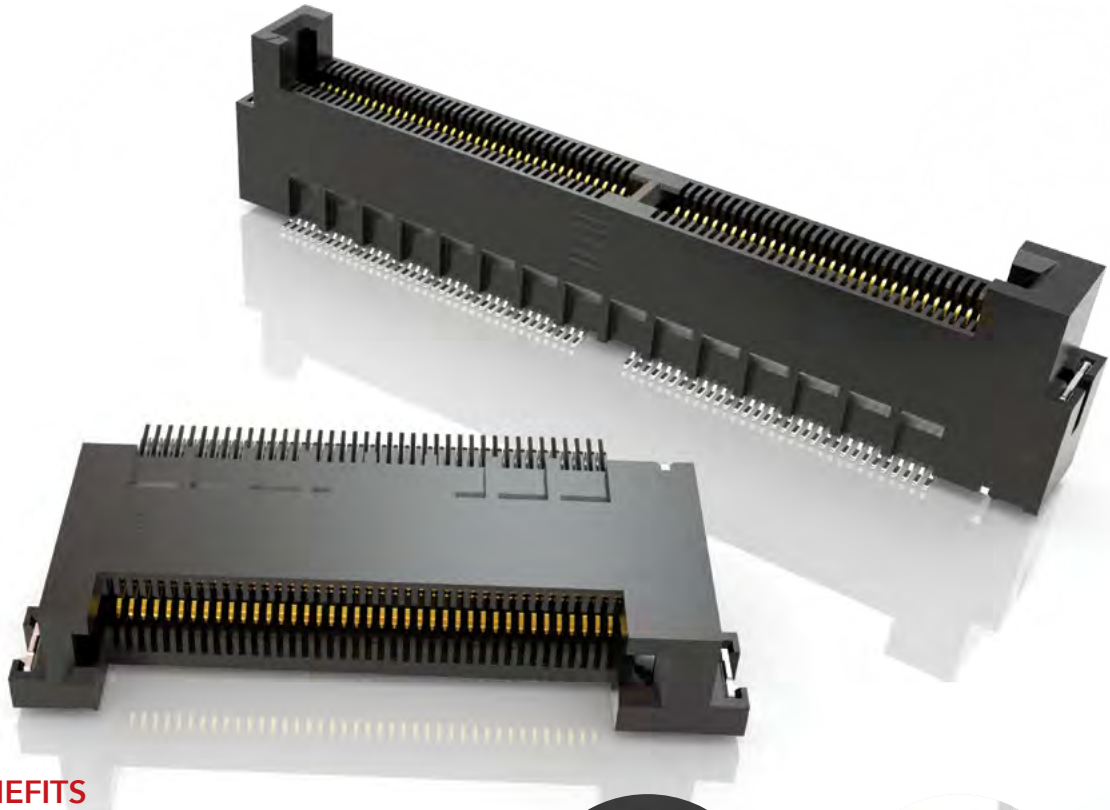
POSITIONS PER ROW	A	B	C (with -A)	D (with -WT)
-010	(11.30) .445	N/A	(13.25) .522	(14.50) .571
-020	(21.30) .839	N/A	(23.25) .915	(24.50) .965
-030	(31.30) 1.232	N/A	(33.25) 1.309	(34.50) 1.358
-040	(44.30) 1.744	(19.15) .754	(46.25) 1.821	(47.50) 1.870
-050	(54.30) 2.138	(24.15) .951	(56.25) 2.215	(57.50) 2.264
-060	(64.30) 2.531	(29.15) 1.148	(66.25) 2.608	(67.50) 2.657
-070	(74.30) 2.925	(34.15) 1.344	(76.25) 3.002	(77.50) 3.051

**Note:**  
Some sizes, styles and  
options are non-standard,  
non-returnable.

View complete specifications at: [samtec.com?HSEC1-DV](http://samtec.com?HSEC1-DV)

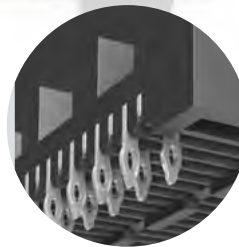
# MICRO EDGE CARD SYSTEMS

0.50 mm, 0.635 mm, 0.80 mm, 1.00 mm, 1.27 mm, 2.00 mm PITCH

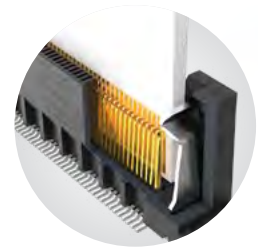


## FEATURES & BENEFITS

- Up to 56 Gbps PAM4
- PCI Express® 4.0 (MEC5 Series)
- Solutions for (1.60 mm) .062" and (2.36 mm) .093" thick cards
- Choice of pitch: 0.50 mm, 0.635 mm, 0.80 mm, 1.00 mm, 1.27 mm, 2.00 mm
- Vertical, right-angle and edge mount orientations
- Available in surface mount and through-hole



Staggered press-fit tails  
(MEC8-VP)



Justification beam ensures  
card and body are flush  
(MEC5)

## KEY SPECIFICATIONS

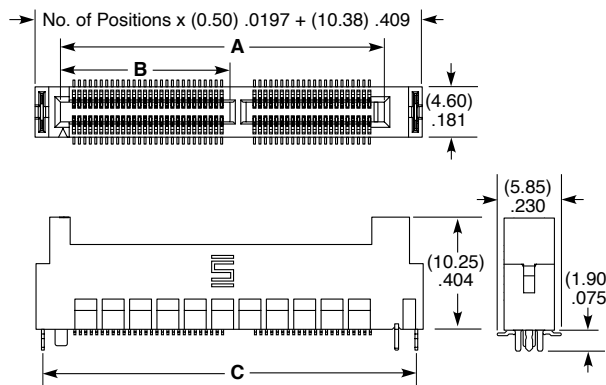
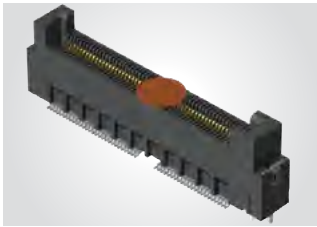
SERIES	PITCH	TOTAL POSITIONS	INSULATOR MATERIAL	CONTACT MATERIAL	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING	LEAD-FREE SOLDERABLE
MEC5	0.50 mm	60-200	Black LCP	Phosphor Bronze	-55 °C to +125 °C	1.5 A (2 pins)	125 VAC	Yes
MEC6	0.635 mm	20-140	Black LCP	Phosphor Bronze	-55 °C to +125 °C	2.4 A (2 pins)	185 VAC	Yes
MEC8	0.80 mm	20-140	Black LCP	Phosphor Bronze	-55 °C to +125 °C	2.3 A (2 pins)	180 VAC	Yes
MEC1	1.00 mm	20-140	Black LCP	Phosphor Bronze	-55 °C to +125 °C	2.2 A (2 pins)	250 VAC	Yes
MECF	1.27 mm	10-100	Black/Natural LCP	BeCu	-55 °C to +125 °C	3.5 A (2 pins)	280 VAC	Yes
MEC2	2.00 mm	10-100	Black/Natural LCP	BeCu	-55 °C to +125 °C	3.5 A (2 pins)	235 VAC	Yes

(0.50 mm) .0197" PITCH • MICRO EDGE CARD SOCKET

MEC5	POSITIONS PER ROW	01	PLATING OPTION	TAIL OPTION	WELD TAB OPTION	OTHER OPTION	"X"R
	-030, -040, -050, -060, -070, -080 (-RA & -DV)  -090, -100 (-DV only)		-L =10 μ" (0.25 μm) Gold on contact, Matte Tin on tail	-DV Vertical  -RA Right-angle	-W1 = Weld Tab Through-hole (Required for -DV option)  -W2 = Weld Tab Surface Mount (Not available for -DV)	-K = Polyimide Pick & Place Pad (Required for -DV) (Not available in -RA)	-TR = Tape & Reel  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**MEC5-DV**

**Card Mates:**  
(1.60 mm) .062"  
thick card with  
standard board  
tolerance



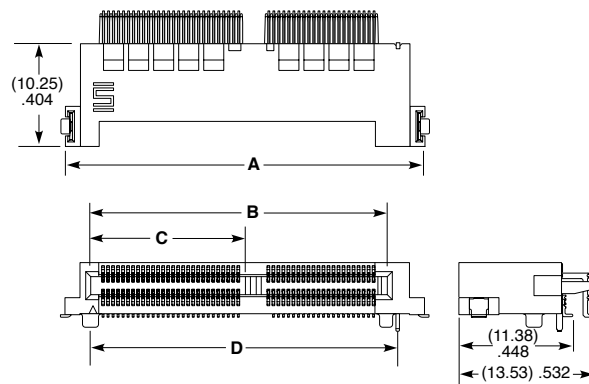
POSITIONS PER ROW	A	B	C
-030	(17.10) .673	N/A	(21.63) .852
-040	(22.10) .870	N/A	(26.63) 1.048
-050	(29.60) 1.165	(15.48) .609	(34.13) 1.344
-060	(34.60) 1.362	(17.98) .708	(39.13) 1.541
-070	(39.60) 1.559	(20.48) .806	(44.13) 1.737
-080	(44.60) 1.756	(22.98) .905	(49.13) 1.934
-090	(49.60) 1.953	(25.48) 1.003	(54.13) 2.131
-100	(54.60) 2.150	(27.98) 1.102	(59.13) 2.328

**Note:** Polarization rib is not present on -030 & -040 positions

View complete specifications at: [samtec.com?MEC5-DV](http://samtec.com?MEC5-DV)

**MEC5-RA**

**Card Mates:**  
(1.60 mm) .062"  
thick card with  
standard board  
tolerance



POSITIONS PER ROW	A	B	C	D
-30	(23.38) .920	(17.10) .673	N/A	(18.16) .715
-40	(28.38) 1.117	(22.10) .870	N/A	(23.16) .912
-50	(35.88) 1.413	(29.60) 1.165	(15.44) .608	(30.66) 1.207
-60	(40.88) 1.609	(34.60) 1.362	(17.94) .706	(35.66) 1.404
-70	(45.88) 1.806	(39.60) 1.559	(20.44) .805	(40.66) 1.601
-80	(50.88) 2.003	(44.60) 1.756	(22.94) .903	(45.66) 1.798

**Note:** Polarization rib is not present on -030 & -040 positions

View complete specifications at: [samtec.com?MEC5-RA](http://samtec.com?MEC5-RA)

**Note:**  
Some sizes, styles and  
options are non-standard,  
non-returnable.

(0.635 mm) .025" PITCH • VERTICAL AND RIGHT-ANGLE EDGE CARD SOCKET

**MEC6** - **1** POSITIONS PER ROW - **02** - PLATING OPTION - **DV** - **A** - OPTION - "X"R

10, 20, 30, 40,  
50, 60, 70

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact,  
Matte Tin on tail

**-K**  
= (5.50 mm) 2.17" DIA  
Polyimide Pick  
& Place Pad

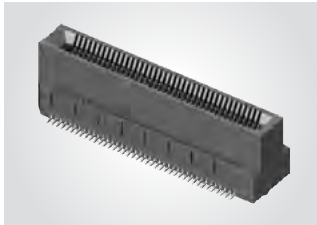
Leave blank  
for Tray Packaging

**-TR**  
= Tape & Reel

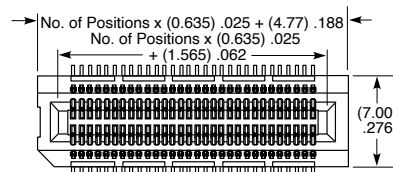
**-FR**  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)

**MEC6-DV**

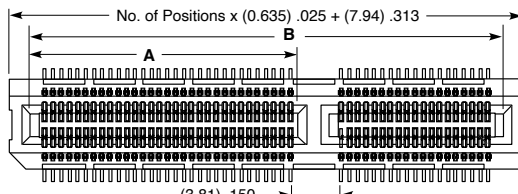
Card Mates:  
(1.60 mm) .062"  
thick card



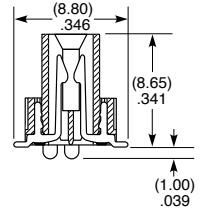
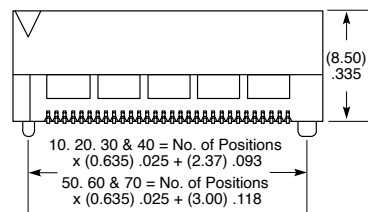
POSITIONS PER ROW	A	B
50	(21.06) .829	(36.49) 1.437
60	(24.87) .979	(42.84) 1.687
70	(28.68) 1.129	(49.19) 1.937



10, 20, 30 & 40 POSITIONS



50, 60 & 70 POSITIONS



View complete specifications at: [samtec.com?MEC6-DV](http://samtec.com?MEC6-DV)

**MEC6** - **1** POSITIONS PER ROW - **02** - PLATING OPTION - **D** - TAIL - OPTIONS

10, 20, 30,  
40, 50

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact,  
Matte Tin on tail

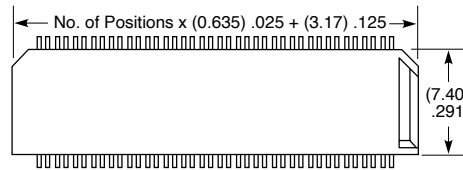
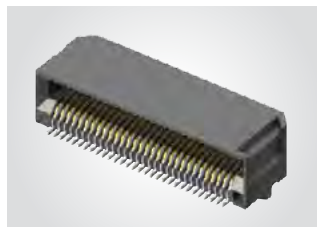
**-RA1**  
= Right-angle

**-TR**  
= Tape & Reel

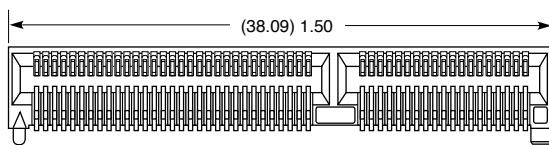
**-FR**  
= Full Reel Tape & Reel  
(must order max. quantity  
per reel; contact Samtec  
for quantity breaks)

**MEC6-RA**

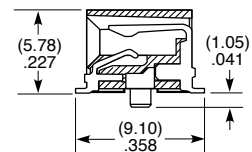
Card Mates:  
(1.60 mm) .062"  
thick card



10, 20, 30 & 40 POSITIONS



50 POSITIONS



**Note:**  
Some sizes, styles and  
options are non-standard,  
non-returnable.

View complete specifications at: [samtec.com?MEC6-RA](http://samtec.com?MEC6-RA)



**(0.80 mm) .0315" PITCH • VERTICAL AND PRESS-FIT EDGE CARD SOCKET**

**MEC8** - **1** POSITIONS PER ROW - **02** - PLATING OPTION - **DV** - OTHER OPTIONS - **"X"R**

10, 20, 30, 40,  
50, 60, 70

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact,  
Matte Tin on tail

**-A**  
= Alignment Pin

**-K**  
= (5.50 mm) 2.17" DIA  
Polyimide Pick  
& Place Pad

Leave blank for  
Tray Packaging

**-TR**  
= Tape & Reel

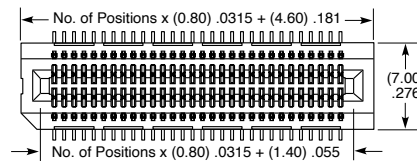
**-FR**  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)

**MEC8-DV**

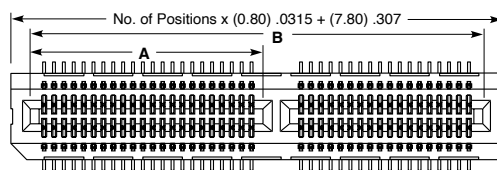
Card Mates:  
(1.60 mm) .062"  
thick card



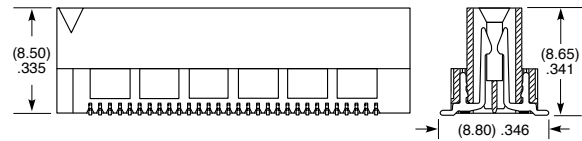
POSITIONS PER ROW	A	B
40	(18.90) .744	(36.60) 1.441
50	(22.90) .902	(44.60) 1.756
60	(26.90) 1.059	(52.60) 2.071
70	(30.90) 1.217	(60.60) 2.386



**25**  
Gbps



40, 50, 60 & 70 POSITIONS



View complete specifications at: [samtec.com?MEC8-DV](http://samtec.com?MEC8-DV)

**MEC8** - **1** POSITIONS PER ROW - CARD THICKNESS - PLATING OPTION - TAIL

10, 20, 30, 40

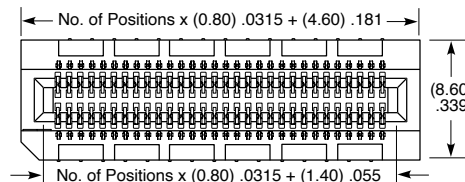
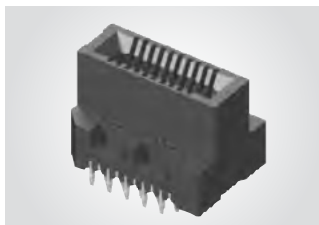
**-02**  
= (1.60 mm) .062"  
thick card

**-L**  
= 10 μ" (0.25 μm) Gold on contact,  
Matte Tin on tail

**-VP**  
= Press-fit

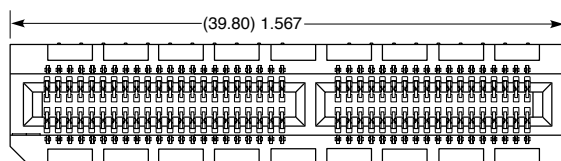
**MEC8-VP**

Card Mates:  
(1.60 mm) .062"  
thick card

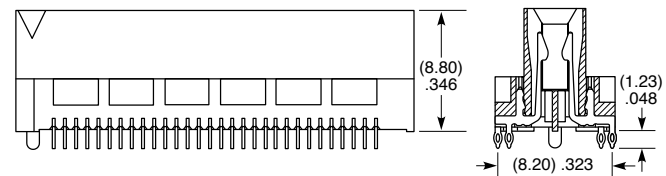


10, 20 & 30 POSITIONS

**14**  
Gbps



40 POSITIONS



**Note:**  
Some sizes, styles and  
options are non-standard,  
non-returnable.

View complete specifications at: [samtec.com?MEC8-VP](http://samtec.com?MEC8-VP)

(0.80 mm) .0315" PITCH • RIGHT-ANGLE/EDGE MOUNT EDGE CARD SOCKET

**MEC8** - **1** POSITIONS PER ROW - **02** - **PLATING OPTION** - **D** - **RA1** - **"X"R**

10, 13, 20,  
25, 30, 37, 40,  
49, 50

-L  
= 10 μm (0.25 μm)  
Gold on contact,  
Matte Tin on tail

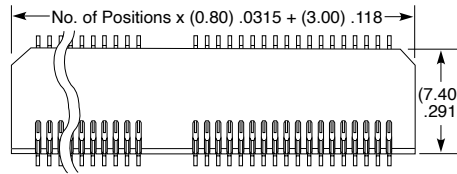
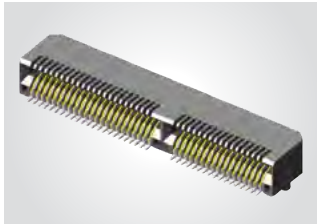
Leave blank  
for Tray Packaging

-TR  
= Tape & Reel

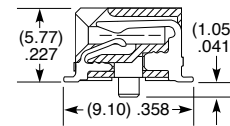
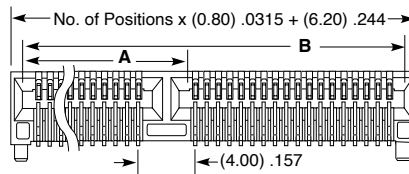
-FR  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)

**MEC8-RA**

Card Mates:  
(1.60 mm) .062"  
thick card



POSITIONS PER ROW	A	B
13	(6.10) .240	(15.00) .591
25		(24.60) .969
37	(18.10) .713	(34.20) 1.346
40	(18.90) .744	(36.60) 1.441
49		(43.80) 1.724
50	(22.90) .902	(44.60) 1.756



View complete specifications at: [samtec.com?MEC8-RA](http://samtec.com?MEC8-RA)

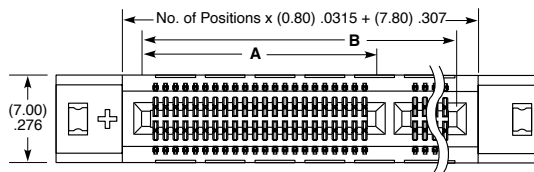
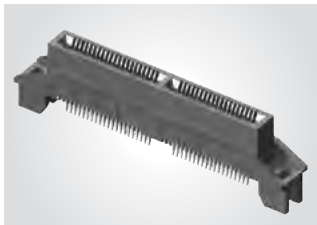
**MEC8** - **1** POSITIONS PER ROW - **02** - **PLATING OPTION** - **D** - **EM2**

10, 20, 30, 40, 50, 60, 70

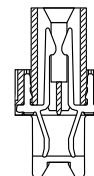
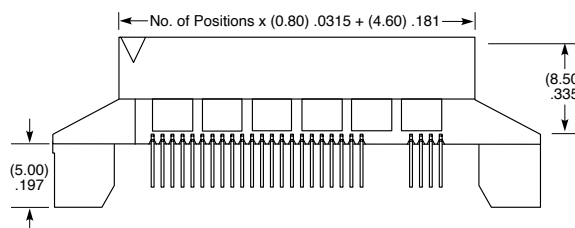
-L  
= 10 μm (0.25 μm) Gold on contact,  
Matte Tin on tail

**MEC8-EM**

Card Mates:  
(1.60 mm) .062"  
thick card



POSITIONS PER ROW	A	B
40	(18.90) .744	(36.60) 1.441
50	(22.90) .902	(44.60) 1.756
60	(26.90) 1.059	(52.60) 2.071
70	(30.90) 1.217	(60.60) 2.386



**Note:**  
Some sizes, styles and  
options are non-standard,  
non-returnable.

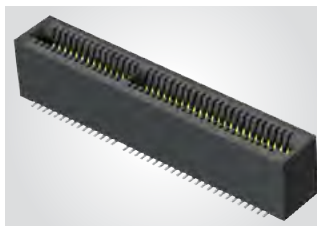
View complete specifications at: [samtec.com?MEC8-EM](http://samtec.com?MEC8-EM)

**(1.00 mm) .0394" PITCH • MINI EDGE CARD SOCKET**

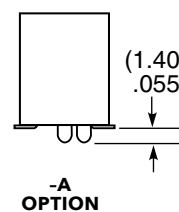
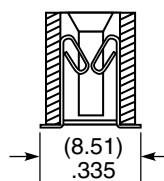
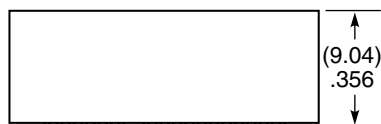
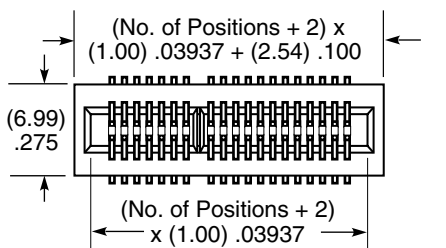
MEC1	1	POSITIONS PER ROW	02	PLATING OPTION	D	NP	OTHER OPTIONS	"X"R
		05, 08, 10, 20, 30, 40, 50, 60, 70		<p><b>-F</b> = Gold flash on contact, Matte Tin on tail</p> <p><b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail</p>		<p>Leave blank for polarization</p> <p><b>-NP</b> =No Polarization (05, 08, 20 &amp; 30 positions only)</p>	<p><b>-A</b> = Alignment Pin metal or plastic at Samtec discretion</p> <p><b>-K</b> = (7.87 mm) .310" DIA Polyimide film Pick &amp; Place Pad</p>	<p>Leave blank for Tube Packaging</p> <p><b>-TR</b> =Tape &amp; Reel (05-60 only)</p> <p><b>-FR</b> = Full Reel Tape &amp; Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (05-60 only)</p>

**MEC1**

**Card Mates:**  
(1.60 mm) .062" thick card



POSITIONS PER ROW	POLARIZED POSITIONS (No Contact)
05	3, 4
08	5, 6
10	13, 14,
20	15, 16,
30	21, 22
40	31, 32
50	41, 42
60	31, 32, 63 & 64
70	53, 54, 115 & 116



**Note:**  
Some sizes, styles and options are non-standard, non-returnable.

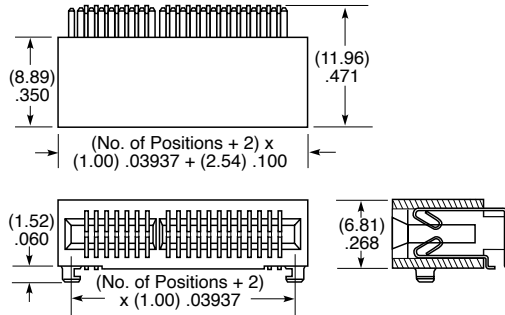
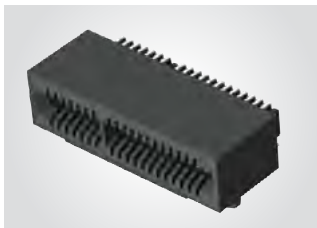
View complete specifications at: [samtec.com?MEC1](http://samtec.com?MEC1)

(1.00 mm) .0394" PITCH • RIGHT-ANGLE/EDGE MOUNT EDGE CARD SOCKET

<b>MEC1</b>	<b>1</b>	<b>POSITIONS PER ROW</b>	<b>02</b>	<b>PLATING OPTION</b>	<b>D</b>	<b>RA1</b>	<b>NP</b>	<b>SL</b>	<b>"X"R</b>
		05, 08, 20, 30, 40, 50, 60, 70		<b>-F</b> = Gold Flash on contact, Matte Tin on tail <b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail			Leave blank for polarization <b>-NP</b> = No Polarization (8 thru 30 positions only)		Leave blank for Tube Packaging <b>-TR</b> = Tape & Reel (not available with 70 positions) <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (not available with 70 positions)

**MEC1-RA**

Card Mates:  
(1.60 mm) .062" thick card



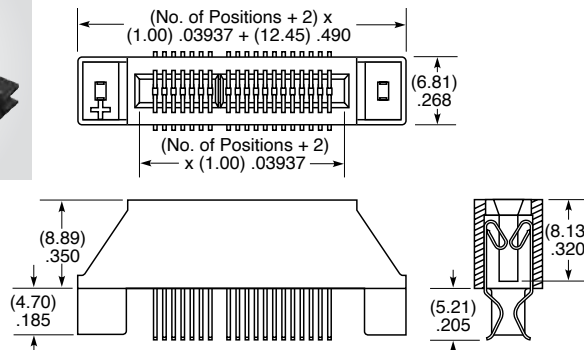
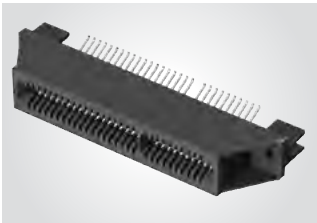
POSITIONS PER ROW	POLARIZED POSITIONS (No Contact)
05	3, 4
08	5, 6
20	15, 16
30	21, 22
40	31, 32
50	41, 42
60	31, 32, 63 & 64
70	53, 54, 115 & 116

View complete specifications at: [samtec.com?MEC1-RA](http://samtec.com?MEC1-RA)

<b>MEC1</b>	<b>1</b>	<b>POSITIONS PER ROW</b>	<b>02</b>	<b>PLATING OPTION</b>	<b>D</b>	<b>EM2</b>	<b>NP</b>	<b>"X"R</b>
		05, 08, 20, 30, 40, 50, 60, 70		<b>-F</b> = Gold Flash on contact, Matte Tin on tail <b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail			Leave blank for polarization <b>-NP</b> = No Polarization (8 thru 30 positions only)	Leave blank for Tray Packaging <b>-TR</b> = Tape & Reel (not available with 60 & 70 positions) <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (not available with 60 & 70 positions)

**MEC1-EM**

Card Mates:  
(1.60 mm) .062" thick card



POSITIONS PER ROW	POLARIZED POSITIONS (No Contact)
05	3, 4
08	5, 6
20	15, 16
30	21, 22
40	31, 32
50	41, 42
60	31, 32, 63 & 64
70	53, 54, 115 & 116

View complete specifications at: [samtec.com?MEC1-EM](http://samtec.com?MEC1-EM)

**Note:**  
Some sizes, styles and options are non-standard, non-returnable.

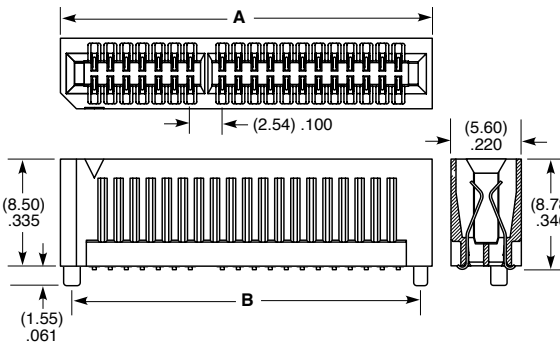


## (1.27 mm) .050" PITCH • MINI EDGE CARD SOCKET

MECF	POSITIONS PER ROW	CARD THICKNESS	PLATING OPTION	DV	OPTION	"X"R
	-05, -08, -20, -30, -40, -50	-01 = (1.60 mm) .062" thick card  -02 = (2.36 mm) .093" thick card	-L =10 μm (0.25 μm) Gold on contact, Matte Tin on tail		-WT = Weld Tabs (Standard on -02 card thickness, optional on -01 card thickness)  -K Polyimide film pick & place pad (-"X"R only)	Leave blank for Tube Packaging  -TR = Tape & Reel  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

### MECF

**Card Mates:**  
(1.60 mm) .062"  
thick card  
(2.36 mm) .093"  
thick card



POSITIONS PER ROW	A	B
-05	(10.46) .412	(8.64) .340
-08	(14.27) .562	(12.45) .490
-20	(29.51) 1.162	(27.69) 1.090
-30	(42.21) 1.662	(40.39) 1.590
-40	(54.91) 2.162	(53.09) 2.090
-50	(67.61) 2.662	(65.79) 2.590

POSITIONS PER ROW	POLARIZED POSITIONS (No Contact)
-05	3, 4
-08	5, 6
-20	15, 16
-30	21, 22
-40	31, 32
-50	41, 42

View complete specifications at: [samtec.com?MECF-DV](http://samtec.com?MECF-DV)

## (2.00 mm) .0787" PITCH • MINI EDGE CARD SOCKET

MEC2	POSITIONS PER ROW	CARD THICKNESS	PLATING OPTION	TAIL OPTION	OPTION	"X"R
	-05, -08, -20, -30, -40, -50	-01 = (1.60 mm) .062" thick card  -02 = (2.36 mm) .093" thick card (-DV option only)	-L =10 μm (0.25 μm) Gold on contact, Matte Tin on tail	-DV Vertical Surface Mount  -TH1 Through-hole	-WT = Weld Tabs (standard on -02 card, optional on -01 card)  -K = Polyimide film pick & place pad (-"X"R & -DV only)	Leave blank for Tube Packaging  -TR = Tape & Reel (05 thru 30 positions only) (Not available with -TH1)  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (05 thru 30 positions only) (Not available with -TH1)

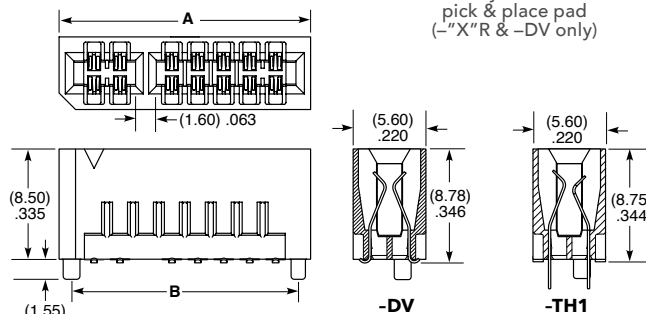
### MEC2-DV

**Card Mates:**  
(1.60 mm) .062"  
thick card  
(2.36 mm) .093"  
thick card



### MEC2-TH

**Card Mates:**  
(1.60 mm) .062"  
thick card



POSITIONS PER ROW	A	B	POSITIONS PER ROW	POLARIZED POSITIONS (No Contact)
-05	(13.40) .528	(11.50) .453	-05	3, 4
-08	(19.40) .764	(17.50) .689	-08	5, 6
-20	(43.40) 1.709	(41.50) 1.634	-20	15, 16
-30	(63.40) 2.496	(61.50) 2.421	-30	21, 22
-40	(83.40) 3.283	(81.50) 3.209	-40	31, 32
-50	(103.40) 4.071	(101.50) 3.996	-50	41, 42

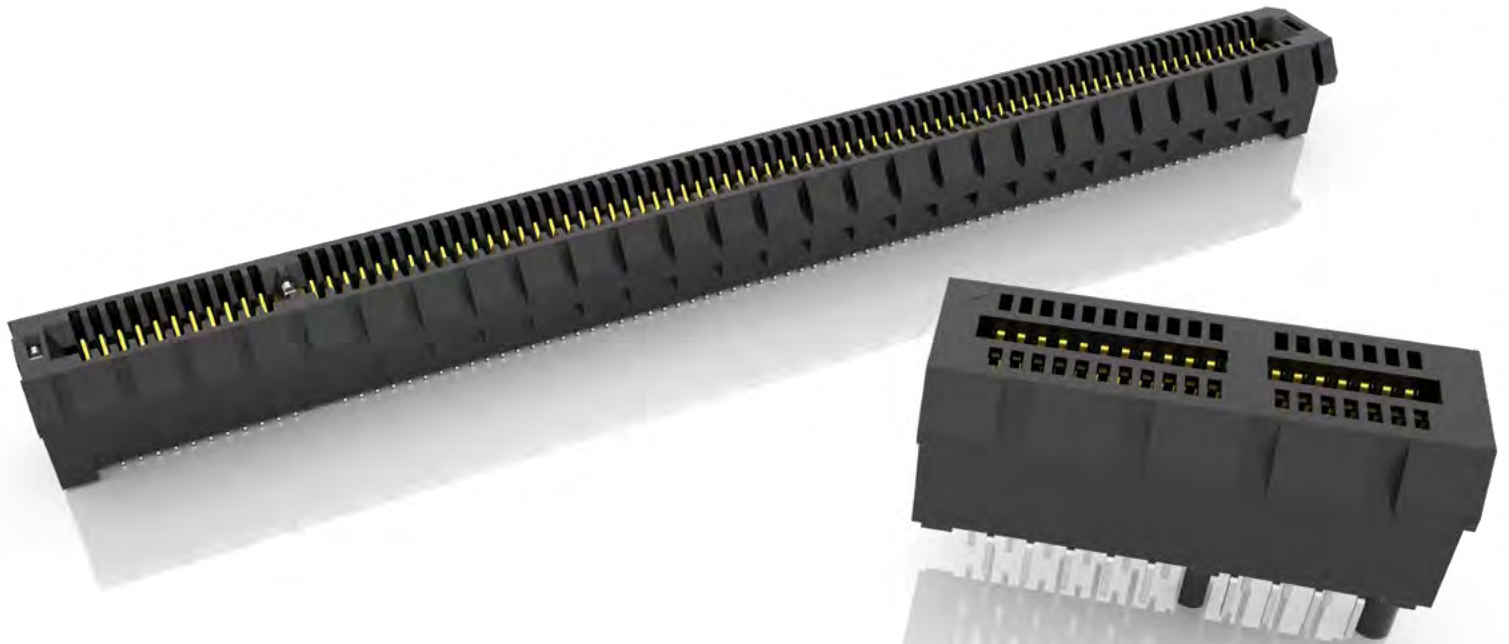
**Note:**  
Some sizes, styles and  
options are non-standard,  
non-returnable.

View complete specifications at: [samtec.com?MEC2-DV](http://samtec.com?MEC2-DV) & [samtec.com?MEC2-TH](http://samtec.com?MEC2-TH)



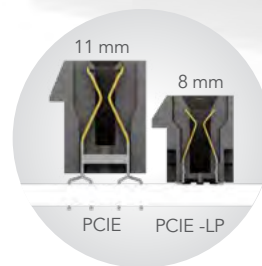
# PCI EXPRESS® EDGE CARD SOCKETS

(1.00 mm) .0394" PITCH



## FEATURES & BENEFITS

- 1.00 mm pitch
- Supports 1, 4, 8 and 16 PCI Express® links
- PCIe® 3.0 Solution (PCIe)
- PCIe® 4.0 Solution with low profile design for space savings (PCIe-LP)
- PCIe® 4.0 with slim body design (PCIe-G4)
- PCIe® 5.0 Solution with differential pair signaling (PCIe-G5)
- Vertical, right-angle and edge mount
- Mates with .062" (1.60 mm) thick cards
- Alignment pin and weld tab options



PCIe® 3.0 & 4.0  
Edge Card  
connectors



PCIe® 4.0 slim body  
socket with Edge Rate®  
contacts (PCIe-G4)

## KEY SPECIFICATIONS

SERIES	TOTAL PINS (LANES)	INSULATOR MATERIAL	CONTACT MATERIAL	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING	PCIe® COMPATIBILITY
PCIe	36 (x1), 64 (x4), 98 (x8), 164 (x16)	-TH = Black Nylon -EMS2 & -TH = LCP	Phosphor Bronze	-55 °C to +125 °C	2.4 A (2 pins)	215 VAC	3.0
PCIe-LP	36 (x1), 64 (x4), 98 (x8), 164 (x16)	LCP	Phosphor Bronze	-55 °C to +125 °C	2.1 A (2 pins)	215 VAC	4.0
PCIe-G4	36 (x1), 64 (x4), 98 (x8), 164 (x16)	LCP	Copper Alloy	-55 °C to +125 °C	2.2 A (2 pins)	300 VAC	4.0
PCIe-G5	36 (x1), 64 (x4), 98 (x8), 164 (x16)	LCP	Copper Alloy	-55 °C to +125 °C	3.2 A (2 pins)	235 VAC	5.0

**(1.00 mm) .0394" PITCH • PCI EXPRESS® CARD SOCKETS**

**PCIE** - **NUMBER OF POSITIONS** - **02** - **PLATING OPTION** - **D** - **TAIL OPTION**

**-036, -064, -098, -164**

**-F**  
= Gold flash on contact,  
Tin on tail

**-EMS2**  
= Edge Mount

**-TH**  
= Through-hole

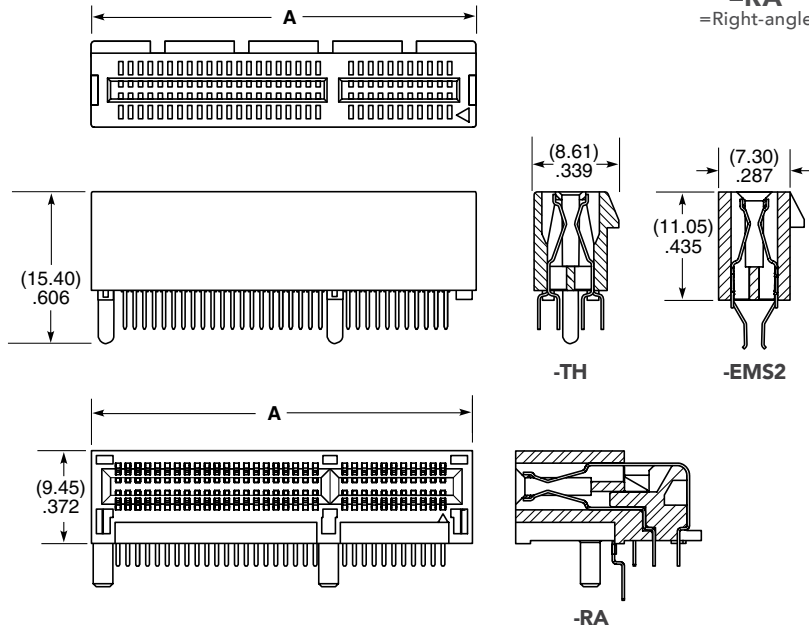
**-RA**  
= Right-angle

**PCIE**

**Card Mates:**  
(1.60 mm)  
.062" card  
**Cable Mates:**  
PCIEC



POSITIONS	A
-036 (x1)	(25.00) .984
-064 (x4)	(39.00) 1.535
-098 (x8)	(56.00) 2.205
-164 (x16)	(89.00) 3.504



View complete specifications at: [samtec.com?PCIE](http://samtec.com?PCIE)

**PCIE** - **LP** - **NUMBER OF LANES** - **01** - **PLATING OPTION** - **DV** - **A** - **OPTION** - **PACKAGING**

**-01, -04,  
-08, -16**

**-F**  
= Gold Flash on  
contact, Matte  
Tin on tail

**-S**  
= 30 μ" (0.75 μm)  
Gold on contact,  
Matte Tin on tail

**-WT**  
= Weld Tab

**-K**  
= Polyimide film  
Pick & Place Pad

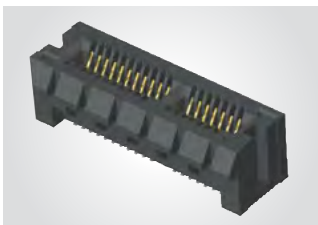
(For -16 lanes  
only leave blank for  
Tray Packaging)

**-TR**  
= Tape & Reel  
("X"R required with  
-01, -04, -08 lanes)

**-FR**  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)  
("X"R required with  
-01, -04, -08 lanes)

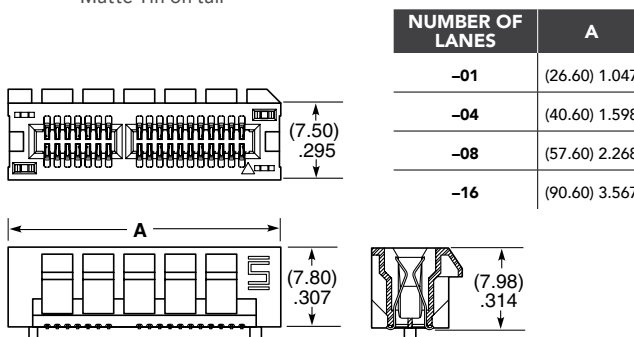
**PCIE-LP**

**Card Mates:**  
(1.60 mm)  
.062" card  
**Cable Mates:**  
PCIEC



PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.

**Note:**  
Some lengths, styles and options are non-standard, non-returnable.



NUMBER OF LANES	A
-01	(26.60) 1.047
-04	(40.60) 1.598
-08	(57.60) 2.268
-16	(90.60) 3.567

View complete specifications at: [samtec.com?PCIE-LP](http://samtec.com?PCIE-LP)

**(1.00 mm) .0394" PITCH • PCI EXPRESS® 4.0 SOCKET**

PCIE	G4	NUMBER OF LANES	01	PLATING OPTION	DV	OPTION 1	OPTION 2	PACKAGING
------	----	-----------------	----	----------------	----	----------	----------	-----------

-01, -04,  
-08, -16

**-F**  
= Gold flash on contact, Matte Tin on tail

**-S**  
= 30 μ" (0.76 μm) Gold on contact, Matte Tin on tail

**-A**  
= Alignment Pin (Not available with -WT)

**-WT**  
= Weld Tab (Not available with -A)

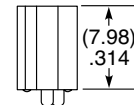
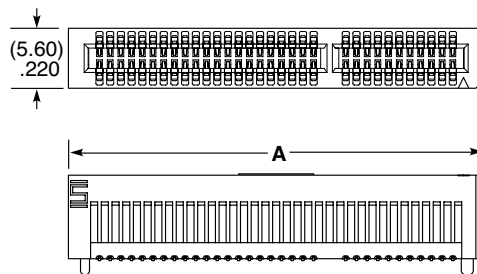
**-K**  
= (7.00 mm) .275" DIA Polyimide Pick & Place Pad

(For -16 lanes only leave blank for Tray Packaging)

**-TR**  
= Tape & Reel ("X"R required with -01, -04, -08 lanes)

**-FR**  
= Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) ("X"R required with -01, -04, -08 lanes)

**PCIE-G4**  
Card Mates:  
(1.60 mm)  
.062" card



NUMBER OF LANES	A
-01	(24.80) .976
-04	(38.80) 1.528
-08	(55.80) 2.197
-16	(88.80) 3.496

View complete specifications at: [samtec.com?PCIE-G4](http://samtec.com?PCIE-G4)

**(1.00 mm) .0394" PITCH • PCI EXPRESS® 5.0 SOCKET**

PCIE	G5	NUMBER OF LANES	01	PLATING OPTION	TYPE	OPTION	PACKAGING
------	----	-----------------	----	----------------	------	--------	-----------

-01, -04,  
-08, -16

**-F**  
= Gold flash on contact, Matte Tin on tail

**-S**  
= 30 μ" (0.76 μm) Gold on contact, Matte Tin on tail

**-DP-A**  
= Vertical

**-EM**  
= Edge Mount

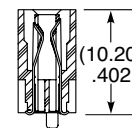
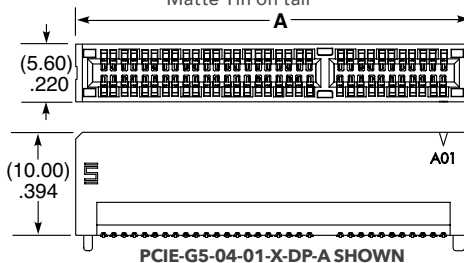
**-WT**  
= Weld Tab

(For -16 lanes only leave blank for Tray Packaging)

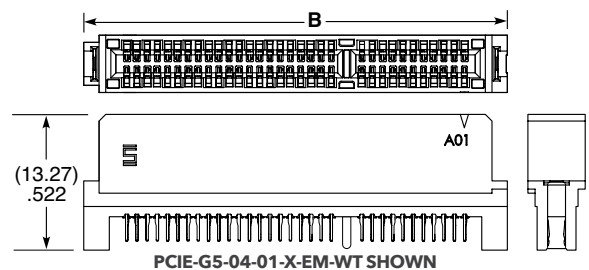
**-TR**  
= Tape & Reel ("X"R required with -01, -04, -08 lanes)

**-FR**  
= Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) ("X"R required with -01, -04, -08 lanes)

**PCIE-G5**  
Card Mates:  
(1.60 mm)  
.062" card



NUMBER OF LANES	A	B
-01	(24.40) .961	(27.40) 1.079
-04	(38.40) 1.512	(41.40) 1.630
-08	(55.40) 2.181	(58.40) 2.299
-16	(88.40) 3.480	(91.40) 3.598



PCIE-G5-04-01-X-EM-WT SHOWN

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**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?PCIE-G5](http://samtec.com?PCIE-G5)



# HIGH-SPEED BACKPLANE SYSTEMS

HIGH-DENSITY • DESIGN FLEXIBILITY • HIGH RELIABILITY



**82-83**

**NovaRay®**

Micro Rugged Backplane Header and Socket (NVBF, NVBM)..... 83

**84-89**

**ExaMAX®**

ExaMAX® Vertical & Right-Angle Headers (EBTM) ..... 85  
 ExaMAX® Right-Angle Receptacles (EBTF-RA) ..... 86  
 ExaMAX® Direct-Mate Orthogonal Headers (EBDM-RA) ..... 86  
 Power Modules for ExaMAX® (EPTT, EPTS) ..... 87  
 Guidance Modules for ExaMAX® (EGBM, EGBF) ..... 87  
 ExaMAX® Cable Systems (EBCM, EBCF, EBCB, EBCL) ..... 88-89

**90-92**

**XCede® HD**

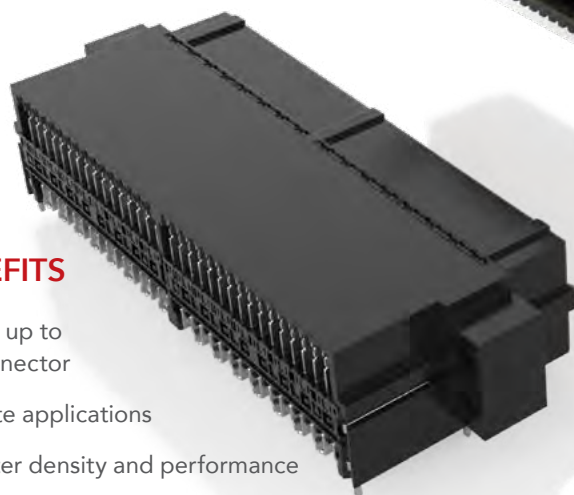
XCede® HD Backplane Headers & Receptacles (HDTM, HDTF) ..... 91-92  
 XCede® HD Power Modules (HPTS, HPTT) ..... 92

## MICRO RUGGED BACKPLANE SYSTEM

(0.80 mm) .0315" x (1.80 mm) .071" PITCH

PAM4

112  
Gbps

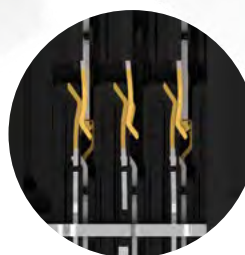


### FEATURES & BENEFITS

- Ultra-high density with up to 128 DPs in a single connector
- Designed for blind mate applications
- Surface mount for better density and performance
- Innovative wafer design eliminates intra-pair skew
- Configurable signal banks for design flexibility
- Offset footprint for optimal signal integrity performance
- Large continuous ground blades between and surrounding the differential pairs eliminates resonances
- Optional guidance and keying
- Standard weld tabs for a secure connection to the board



Ultra-high density; single-ended or differential pair wafers



Precision insert molded contact system with 2.50 mm wiper



IN DEVELOPMENT: Flyover® cable assembly for extended signal reach

### KEY SPECIFICATIONS (NVBM/NVBF)

INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING
Black LCP	Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	Testing Now!	Testing Now!	Testing Now!

0.80 mm x 1.80 mm PITCH • MICRO RUGGED BACKPLANE HEADER & SOCKET

SERIES	STYLE	NO. OF COLUMNS	ORIENTATION	PLATING OPTION	SOLDER TYPE	GUIDANCE	KEYING	"X"R
--------	-------	----------------	-------------	----------------	-------------	----------	--------	------

**NVBF**  
Socket  
**NVBM**  
Terminal

**-DP**  
= 4 Pairs  
per wafer

**-32**

**-VT**  
= Vertical  
(NVBF)

**-RA**  
= Right-Angle  
(NVBM)

**-S**  
= 30 μ"  
(0.76 μm)  
Gold on  
contact  
area, Matte  
Tin on  
solder tail

**-2**  
= Lead-Free  
Solder Charge

(Leave Blank for  
no Guidance)

**-L**  
= Left  
Guidance

**-R**  
= Right  
Guidance

**-B**  
= Both

**-N**  
= No Key

**-A thru -H**  
= Position of  
flat on Key  
(See Table)  
(Only available  
with Guidance)

**-TR**  
= Tape & Reel

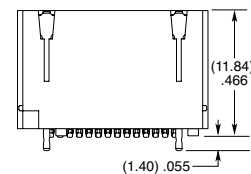
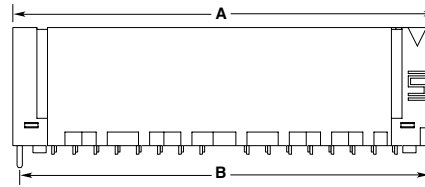
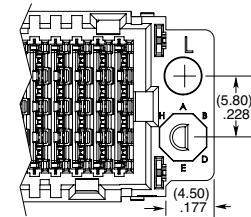
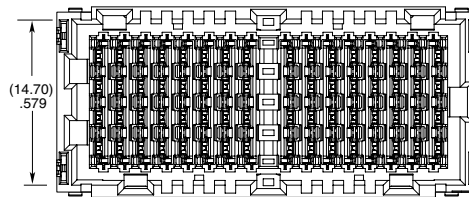
**-FR**  
= Full Reel  
Tape & Reel  
(must order  
maximum  
quantity  
per reel;  
contact  
Samtec for  
quantity  
breaks)

PRELIMINARY

**NVBF-VT**  
Board Mates:  
NVBM-RA



NO. OF COLUMNS	A	B
-32	(72.00) 2.835	(71.75) 2.825



KEYING (-VT)								
-L / -R / -B	-A	-B	-C	-D	-E	-F	-G	-H

**Notes:**  
Some sizes, styles and  
options are non-standard,  
non-returnable

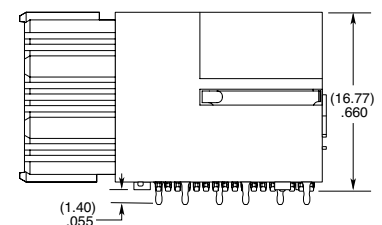
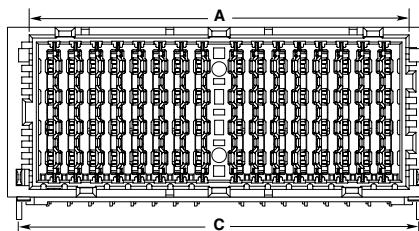
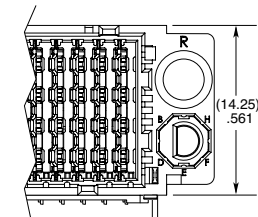
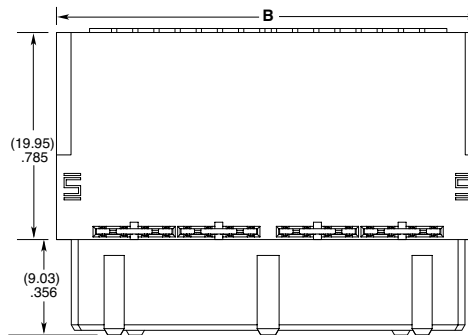
View complete specifications at: [samtec.com?NVBF](http://samtec.com?NVBF)

**NVBM-RA**  
Board Mates:  
NVBF-VT



PRELIMINARY

NO. OF COLUMNS	A	B	C
-32	(67.90) 2.673	(72.00) 2.835	(69.80) 2.748



KEYING (-RA)								
-L / -R / -B	-A	-B	-C	-D	-E	-F	-G	-H

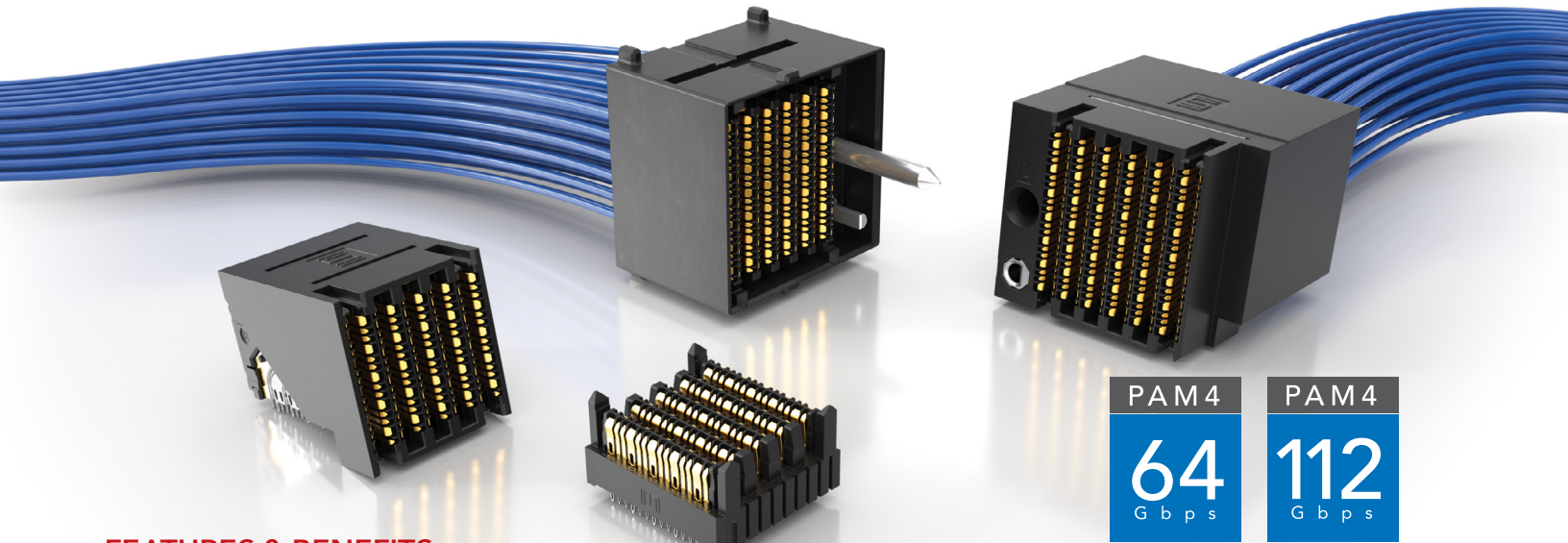
View complete specifications at: [samtec.com?NVBM](http://samtec.com?NVBM)



# ExaMAX<sup>®</sup>

## HIGH-SPEED BACKPLANE CONNECTOR & CABLE SYSTEMS

(2.00 mm) .0787" PITCH



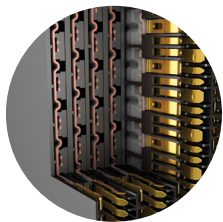
### FEATURES & BENEFITS

#### ExaMAX<sup>®</sup> High-Speed Backplane System

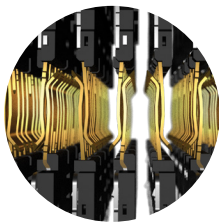
- Meets a variety of industry specifications
- Exceeds OIF CEI-28G-LR specification for 28 Gbps standards
- 24 - 72 pair designs (4 and 6 pairs; 6, 8, 10 and 12 columns)
- Wafer design includes one sideband signal per column
- Press-fit tails provide a reliable electrical connection
- PCIe<sup>®</sup> 6.0/CXL<sup>™</sup> 3.1 capable

#### ExaMAX<sup>®</sup> High-Speed Backplane Cable Assemblies

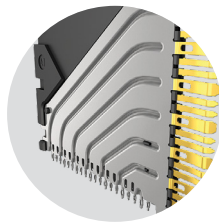
- 30 & 34 AWG Eye Speed<sup>®</sup> Ultra Low Skew Twinax Cable offers improved signal integrity, increased flexibility and routability
- Highly customizable with modular flexibility
- Reduce costs due to lower layer counts
- PCIe<sup>®</sup> 6.0/CXL<sup>™</sup> 3.1 capable
- Eye Speed<sup>®</sup> Thinax<sup>™</sup> ultra performance twinax cable version in development



Staggered Differential Pair Design



Two Reliable Points of Contact with a 2.4 mm Wipe



Shielded Wafer Design Reduces Crosstalk



Traditional, Coplanar and Direct Mate Orthogonal



In Development: 8 Pairs for Greater Design Flexibility

### KEY SPECIFICATIONS

SERIES	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING	LEAD-FREE SOLDERABLE
EBTM/EBTF/EBDM	Liquid Crystal Polymer	Copper Alloy	Sn or Au over 50 μ" (1.27 μm) Ni	-55 °C to +105 °C	4 A per pin	150 VAC	Yes
EPTT/EPTS	High Temperature Thermoplastic	Copper Alloy	Sn or Au over 50 μ" (1.27 μm) Ni	-55 °C to +105 °C	14.1 A per pin	150 VAC	Yes
EBCM/EBCF	Liquid Crystal Polymer	Copper Alloy	Au over 50 μ" (1.27 μm) Ni	-40 °C to +105 °C	3.6 A per pin	125 VAC	N/A

PCI-SIG<sup>®</sup>, PCI Express<sup>®</sup> and the PCIe<sup>®</sup> design marks are registered trademarks and/or service marks of PCI-SIG.

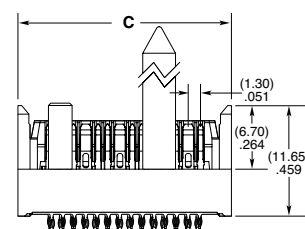
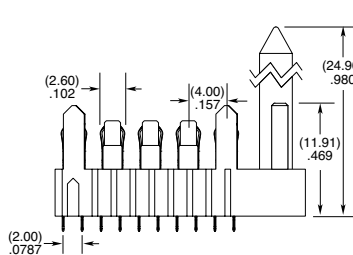
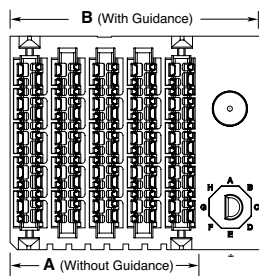
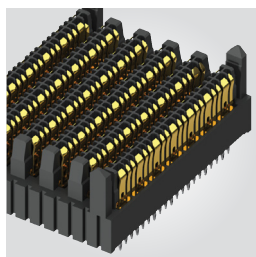


## (2.00 mm) .0787" PITCH • VERTICAL & RIGHT-ANGLE HEADERS

EBTM	NO. OF PAIRS PER COLUMN	COLUMNS	COLUMN PITCH	PLATING	ORIENTATION	1	GUIDANCE	KEYING
	-4 = 4 Pairs	-06, -08, -10, -12 (-12 column only available in -6 pairs)	-2.0 = (2.0 mm) .0787"	-S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on tail	-VT = Vertical		(Leave Blank for no Guidance)	(Only available with -L or -R Guidance) (Leave Blank for no Keying)
	-6 = 6 Pairs				-RA = Right-Angle		-L = Left Guidance	
							-R = Right Guidance	-A thru -H = Position of flat on Key (See Table)

**EBTM-VT**  
Board Mates:  
EBTF-RA

Cable Mates:  
EBCF



KEYING (-VT)								
-L / -R	-A	-B	-C	-D	-E	-F	-G	-H

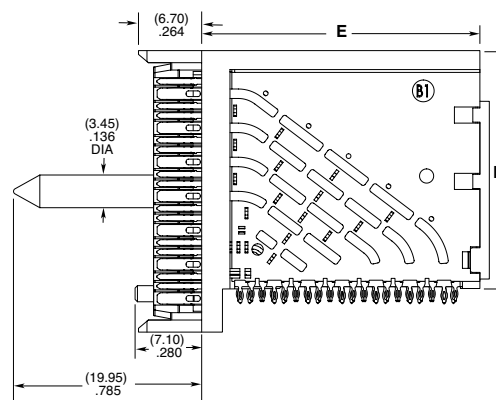
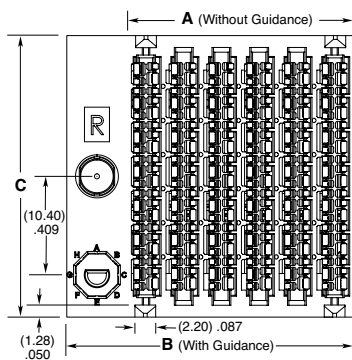
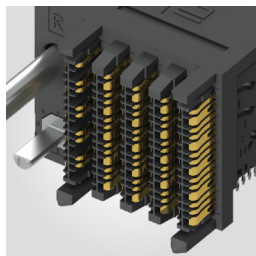
COLUMNS	A	B
-06	(11.90) .469	(18.35) .722
-08	(15.90) .626	(22.35) .880
-10	(19.90) .783	(26.35) 1.037
-12	(23.90) .941	(30.35) 1.195

NO. OF PAIRS PER COLUMN	C
-4	(22.50) .886
-6	(29.70) 1.169

View complete specifications at: [samtec.com?EBTM](http://samtec.com?EBTM)

**EBTM-RA**  
Board Mates:  
EBTF-RA

Cable Mates:  
EBCF



KEYING (-RA)								
-L / -R	-A	-B	-C	-D	-E	-F	-G	-H

COLUMNS	A	B
-06	(11.90) .469	(18.35) .722
-08	(15.90) .626	(22.35) .880
-10	(19.90) .783	(26.35) 1.037
-12	(23.90) .941	(30.35) 1.195

NO. OF PAIRS PER COLUMN	C	D	E
-4	(22.50) .886	(17.90) .705	(23.30) .917
-6	(29.70) 1.169	(25.10) .988	(30.50) 1.201

**Notes:**  
Some lengths, styles and options are non-standard, non-returnable.

ExaMAX<sup>®</sup> is a registered trademark of AFCI.

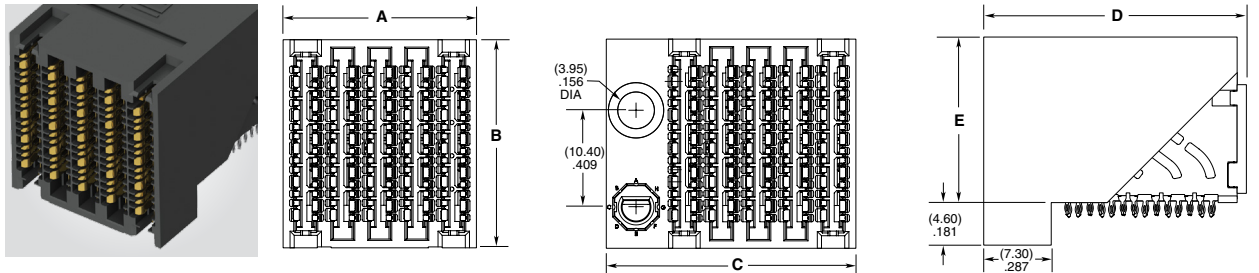
View complete specifications at: [samtec.com?EBTM-RA](http://samtec.com?EBTM-RA)

(2.00 mm) .0787" PITCH • RIGHT-ANGLE SOCKET & DIRECT-MATE ORTHOGONAL

EBTF	NO. OF PAIRS PER COLUMN	COLUMNS	COLUMN PITCH	PLATING	RA	1	GUIDANCE	KEYING
	-4 = 4 Pairs  -6 = 6 Pairs	-06, -08, -10, -12 (-12 column only available in -6 pairs)	-2.0 = (2.0 mm) .0787"	-S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on tails			(Leave Blank for no Guidance)  -L = Left Guidance  -R = Right Guidance	(Only with -L or -R Guidance; Leave Blank for no Keying)  -A thru -H = Position of Flat on Key (See Table)

**EBTF-RA**  
Board Mates:  
EBTM,  
EBDM-RA

Cable Mates:  
EBCM



KEYING (-RA)								
-L / -R	-A	-B	-C	-D	-E	-F	-G	-H

NO. OF COLUMNS	A	C
-06	(12.90) .508	(18.85) .742
-08	(16.90) .665	(22.85) .900
-10	(20.90) .823	(26.85) 1.057
-12	(24.90) .980	(30.85) 1.215

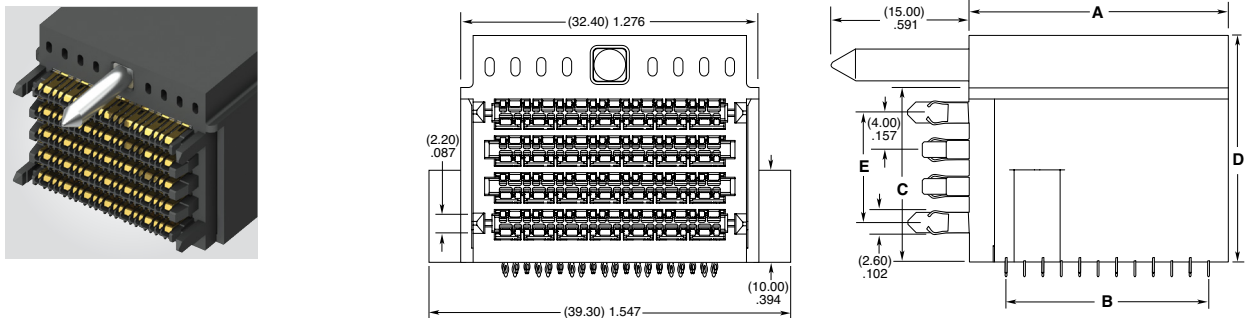
NO. OF PAIRS PER COLUMN	B	D	E
-4	(22.50) .886	(28.40) 1.118	(17.90) .705
-6	(29.70) 1.169	(35.60) 1.402	(25.10) .988

View complete specifications at: [samtec.com?EBTF-RA](http://samtec.com?EBTF-RA)

EBDM	PAIRS	COLUMNS	2.0	PLATING	RA	1	GUIDANCE	SCREW MOUNT
	-6 = 6 Pairs	-06, -08, -10, -12		-S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on tails			(Leave Blank for no Pin)  -G = Guide Pin	(Leave Blank for no Screw Mount)  -S = Screw Mount

**EBDM-RA**  
Board Mates:  
EBTF-RA

Cable Mates:  
EBCF



COLUMNS	A	B	C (without -G)	D (with -G)	E
-06	(16.15) .636	(10.00) .394	(15.00) .591	(20.65) .813	(8.00) .315
-08	(20.15) .793	(14.00) .551	(19.00) .748	(24.65) .970	(12.00) .472
-10	(24.15) .951	(18.00) .709	(23.00) .906	(28.65) 1.128	(16.00) .630
-12	(28.15) 1.108	(22.00) .866	(27.00) 1.063	(32.65) 1.285	(20.00) .787

**Notes:**  
Some lengths, styles and options are non-standard, non-returnable.

ExaMAX<sup>®</sup> is a registered trademark of AFCI.

View complete specifications at: [samtec.com?EBDM-RA](http://samtec.com?EBDM-RA)

## ExaMAX<sup>®</sup> POWER MODULES

### (2.00 mm) .0787" PITCH TERMINAL POWER MODULES



**EPTT**  
Mates with:  
EPTS

EPTT	POSITIONS PER ROW	PLATING	HEIGHT	D	ORIENTATION
	-2 = 4 Positions	-P = Palladium with flash Gold on contacts, Matte Tin on tails	-11.5 = (11.50 mm) .453"		-RA = Right-Angle

### (2.00 mm) .0787" PITCH SOCKET POWER MODULES



**EPTS**  
Mates with:  
EPTT

EPTS	POSITIONS PER ROW	PLATING	D	ORIENTATION	PIN STAGING
	-2 = 4 Positions	-P = Palladium with flash Gold on contacts, Matte Tin on tails		-VT = Vertical  -RA = Right-Angle	-01 thru -06 (-RA available with -04 only. Visit website for dimensions.)

View complete specifications at: [samtec.com?EPTT](http://samtec.com?EPTT) & [samtec.com?EPTS](http://samtec.com?EPTS)

## ExaMAX<sup>®</sup> GUIDE MODULES

### TERMINAL GUIDE MODULES



**EGBM**  
Mates with:  
EGBF  
Insulator Material:  
Zinc Alloy

EGBM	ORIENTATION	THREADING	LENGTH	CARD SPACING
	-VT = Vertical  -RA = Right-Angle	Leave Blank for -RA  -1 = External  -2 = Internal (25.3 Length only)	Leave Blank for -RA  -18.3 = 18.30 mm (.720")  -25.3 = 25.30 mm (.996")	-20 = 20 mm (.787")

### SOCKET GUIDE MODULES



**EGBF**  
Mates with:  
EGBM  
Insulator Material:  
Zinc Alloy

EGBF	ORIENTATION	CARD SPACING
	-RA = Right-Angle	-20 = 20 mm (.787")

**Notes:**

Some lengths, styles and options are non-standard, non-returnable.

ExaMAX<sup>®</sup> is a registered trademark of AFCL.

View complete specifications at: [samtec.com?EGBM](http://samtec.com?EGBM) & [samtec.com?EGBF](http://samtec.com?EGBF)

(2.00 mm) .0787" PITCH • BACKPLANE CABLES


EBCM	GAUGE/ SIG. MAP	PAIRS PER COLUMN	COLUMNS	END 1 PIN	END 1 GUIDE	END 1 KEY	CABLE LENGTH	END 2 PIN	END 2	END 2 KEY
Cable Header	-1 = 34 AWG/Tx to Rx Sig. Map  -2 = 30 AWG/Tx to Rx Sig. Map  -3 = 34 AWG/1:1 Sig. Map  -4 = 30 AWG/1:1 Sig. Map	-4 = 4 Pairs  -6 = 6 Pairs	-04, -06, -08, -10, -12, -14, -16	-1 = Standard	-L = Left Guidance  -R = Right Guidance	-A thru -H = Position of Flat on Key (See Table)  -N = No Key	"-XX" = Length in Inches 06" (152.4 mm) minimum	-1 = Standard	-L = Male, Left Guidance  -R = Male, Right Guidance  -FL = Female, Right-angle Left Guidance (-3 & -4 Signal Map only)  -FR = Female, Right-angle Right Guidance (-3 & -4 Signal Map only)  -FV = Female, Vertical (-3 & -4 Signal Map only)	(Leave Blank for -FV End 2)  -A thru -H = Position of Flat on Key (See Table)  -N = No Key

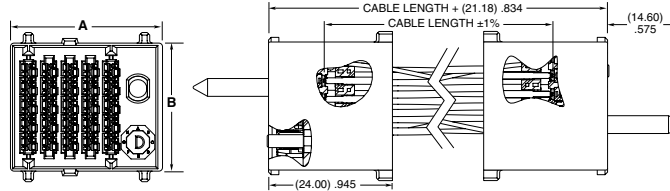
NO. OF COLUMNS	A
-04	(17.45) .687
-06	(21.45) .845
-08	(25.45) 1.002
-10	(29.45) 1.159
-12	(33.45) 1.317
-14	(37.45) 1.474
-16	(41.45) 1.632

PAIRS PER COLUMN	B
-4	(24.80) .976
-6	(32.00) 1.260

**EBCM**  
Mates with:  
EBCF, EBTB  
Retention  
Bracket:  
EBCB



END 1: -L-G SHOWN      END 2

View complete specifications at: [samtec.com?EBCM](http://samtec.com?EBCM)

EBCF	GAUGE/ SIG. MAP	PAIRS / COLUMN	COLUMNS	END 1	END 1 PIN	CABLE LENGTH	END 2 OPTION	END 2 PIN	END 2 GUIDE	END 2 KEY
Cable Socket	-1 = 34 AWG/ Tx to Rx Sig. Map  -2 = 30 AWG/ Tx to Rx Sig. Map  -3 = 34 AWG/1:1 Sig. Map  -4 = 30 AWG/1:1 Sig. Map	-4 = 4 Pairs  -6 = 6 Pairs	-04, -06, -08, -10, -12, -14, -16	-V = Vertical Latch	-1 = Standard	"-XX" = Length in Inches 06" (152.4 mm) minimum	-V = Vertical Latch  -R = Right- Angle	-1 = Standard	(-R End Only)  -L = Left Guidance  -R = Right Guidance	(Leave Blank for no Key; -R End Only)  -A thru -H = Position of Flat on Key (See Table)


NO. OF COLUMNS	A	C	E
-04	(10.60) .417	(14.85) .585	(19.15) .754
-06	(14.60) .575	(18.85) .742	(23.15) .911
-08	(18.60) .732	(22.85) .900	(27.15) 1.069
-10	(22.60) .890	(26.85) 1.057	(31.15) 1.226
-12	(26.60) 1.047	(30.85) 1.530	(35.15) 1.699
-14	(30.60) 1.205	(34.85) 1.372	(39.15) 1.541
-16	(34.60) 1.362	(38.85) 1.530	(43.15) 1.699

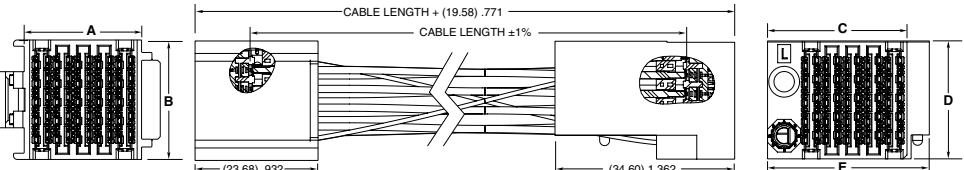
PAIRS PER COLUMN	B	D
-4	(23.00) .906	(22.70) .894
-6	(30.20) 1.189	(29.90) 1.177

KEYING								
-L / -R	-A	-B	-C	-D	-E	-F	-G	-H

**EBCF**  
Mates with:  
EBCM, EBTM  
Latching  
Shroud:  
EBCL



END 1: -V SHOWN      END 2: -L-G SHOWN

**Notes:**  
Some lengths, styles and options are non-standard, non-returnable.

ExaMAX<sup>®</sup> is a registered trademark of AFCEI.

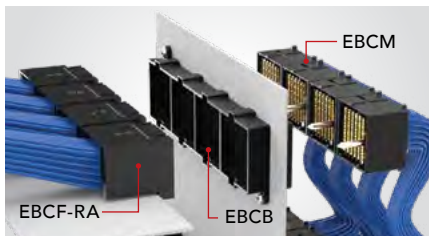
View complete specifications at: [samtec.com?EBCF](http://samtec.com?EBCF)



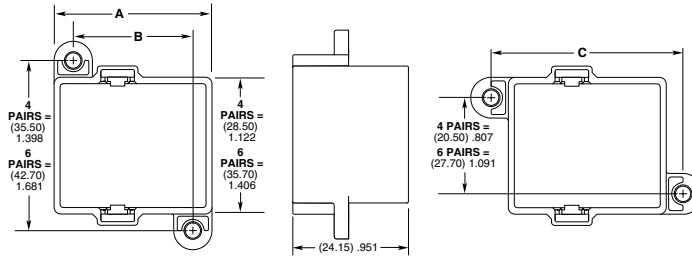
## PANEL RETENTION BRACKETS & LATCHING SHROUDS

EBCB	NO. OF PAIRS	NO. OF COLUMNS	NO. OF BANKS	MOUNTING OPTION
Panel Retention Bracket	<b>-4</b> = 4 Pairs  <b>-6</b> = 6 Pairs	<b>-04, -06, -08, -10, -12, -14, -16</b> (-04, -06 only available with -1-S)	<b>-1, -2, -4</b> (-2 & -4 banks available with -08, -10, -12, -14, -16 columns only)	(Leave Blank for Standard)  <b>-S</b> = Side Lugs (-1 Bank Only)

**EBCB**  
Use with:  
EBCF, EBCM, EBTf-RA



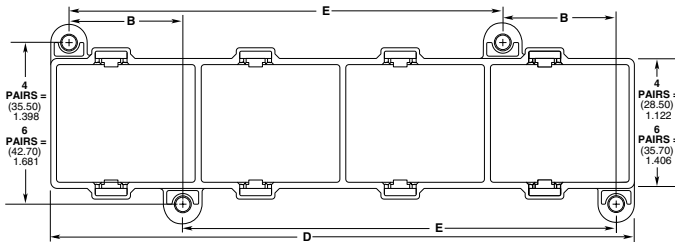
EBCM Cable Assembly Locks into EBCB Retention Bracket



EBCB-X-XX-1 SHOWN

EBCB-X-XX-1-S SHOWN

NO. OF COLUMNS	C
-04	(27.95) 1.100
-06	(31.95) 1.258
-08	(35.95) 1.415
-10	(39.95) 1.573
-12	(43.95) 1.730
-14	(47.95) 1.888
-16	(51.95) 2.045



EBCB-X-XX-4 SHOWN

NO. OF COLUMNS	A		B		D 4 Bank	E 4 Bank
	1 Bank	2 Bank	1 or 4 Bank	2 Bank		
-04	(20.95) .825	N/A	N/A	N/A	N/A	N/A
-06	(24.95) .982	N/A	N/A	N/A	N/A	N/A
-08	(28.95) 1.140	(56.65) 2.230	(20.95) .825	(48.65) 1.915	(112.05) 4.411	(83.10) 3.272
-10	(32.95) 1.297	(64.65) 2.545	(24.95) .982	(56.65) 2.230	(128.05) 5.041	(95.10) 3.744
-12	(36.95) 1.455	(72.65) 2.860	(28.95) 1.140	(64.65) 2.545	(144.05) 5.671	(107.10) 4.217
-14	(40.95) 1.612	(80.65) 3.175	(32.95) 1.297	(72.65) 2.860	(160.05) 6.301	(119.10) 4.689
-16	(44.95) 1.770	(88.65) 3.490	(36.95) 1.455	(80.65) 3.175	(176.05) 6.931	(131.10) 5.161

View complete specifications at: [samtec.com?EBCB](http://samtec.com?EBCB)

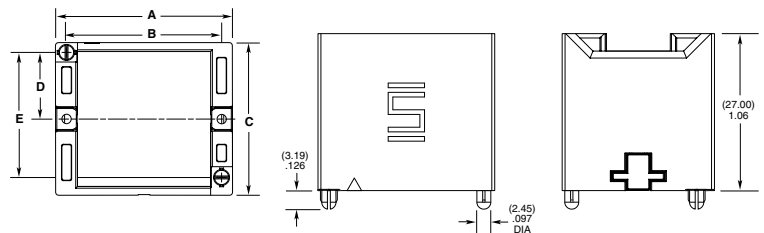
EBCL	NO. OF PAIRS	NO. OF COLUMNS
Vertical Latching Shroud	<b>-4, -6</b>	<b>-06, -08, -10, -12</b> (-12 column only available in -6 pairs)

**EBCL**  
Use with:  
EBCF, EBTM



NO. OF COLUMNS	A	B
-06	(22.40) .882	(18.66) .734
-08	(26.40) 1.039	(22.66) .892
-10	(30.40) 1.197	(26.66) 1.050
-12	(34.40) 1.354	(30.66) 1.207

NO. OF PAIRS	C	D	E
-4	(26.20) 1.031	(11.45) .451	(21.50) .846
-6	(33.40) 1.315	(15.05) .593	(28.70) 1.130



**Notes:**  
Some lengths, styles and options are non-standard, non-returnable.

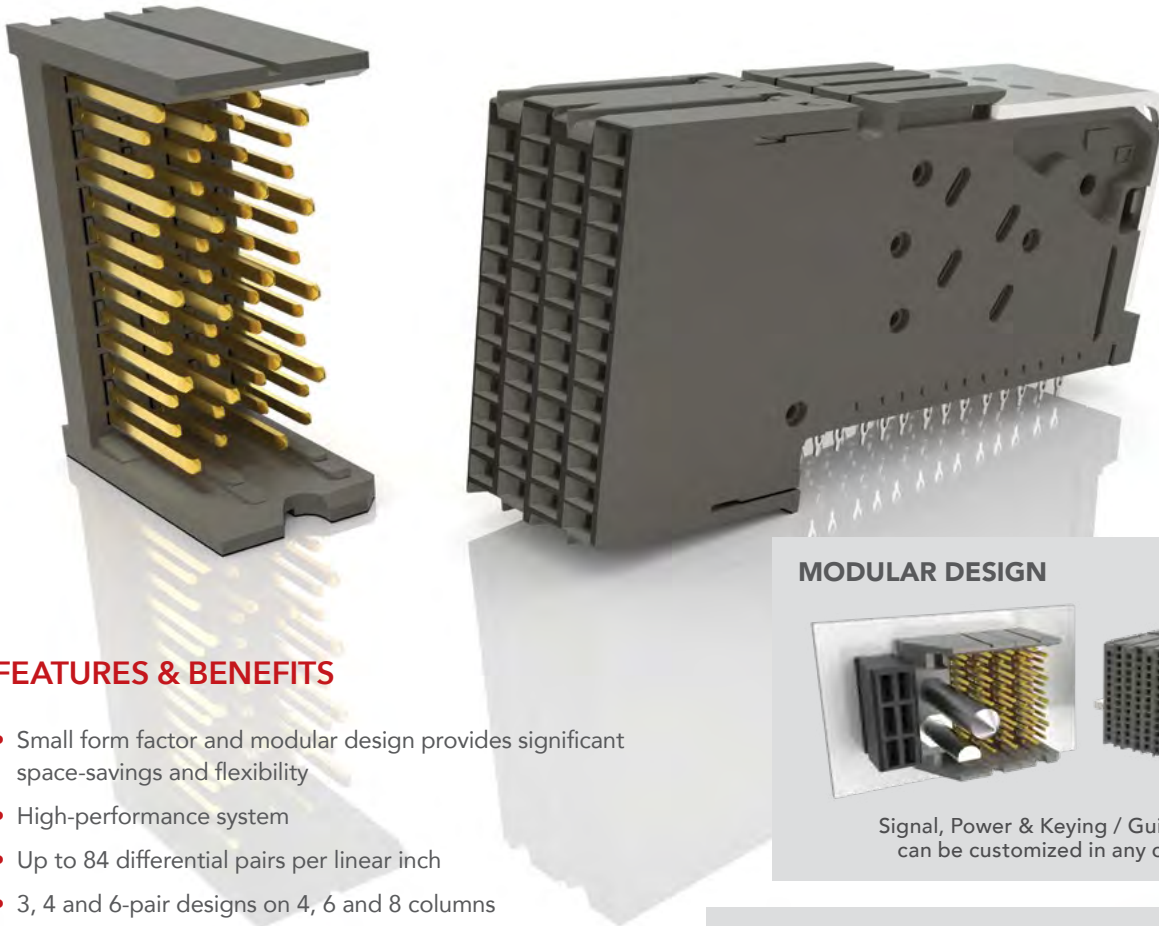
ExaMAX<sup>®</sup> is a registered trademark of AFCI.

View complete specifications at: [samtec.com?EBCL](http://samtec.com?EBCL)

## HIGH-DENSITY BACKPLANE HEADERS & SOCKETS

(1.80 mm) .071" PITCH

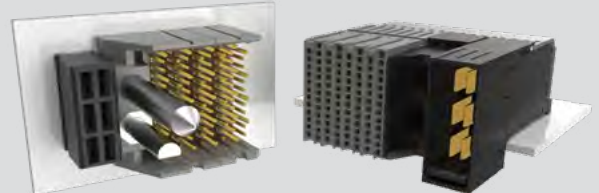
16  
Gbps



### FEATURES & BENEFITS

- Small form factor and modular design provides significant space-savings and flexibility
- High-performance system
- Up to 84 differential pairs per linear inch
- 3, 4 and 6-pair designs on 4, 6 and 8 columns
- Integrated power, guidance, keying and side walls available
- 85 Ω and 100 Ω options
- Combine any configuration of modules to create one integrated receptacle (BSP Series); corresponding terminal modules are individually mounted to the backplane. Visit [samtec.com?BSP](http://samtec.com?BSP) or contact [HSBP@samtec.com](mailto:HSBP@samtec.com)
- Press-fit extraction and insertion tool options; please visit [samtec.com/tooling](http://samtec.com/tooling) for details

### MODULAR DESIGN



Signal, Power & Keying / Guidance options can be customized in any configuration

### HIGH-DENSITY, SMALL FORM FACTOR



**XCede<sup>®</sup> HD**  
Up to 84 pairs per linear inch



**Traditional Backplane**  
Up to 76 pairs per linear inch

(Both shown with six 4-pair, 8 column receptacles)

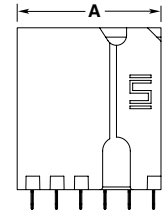
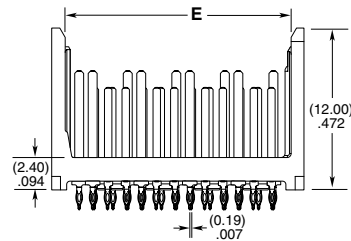
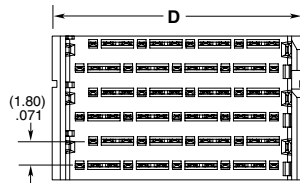
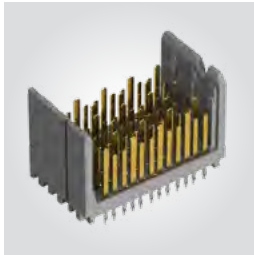
### KEY SPECIFICATIONS

SERIES	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING
HDTM/HDTF	LCP	Phosphor Bronze (HDTM) Copper Alloy (HDTF)	Au or Sn over 50 μ" (1.27 μm) Ni	-40 °C to + 105 °C	1.5 A per contact	48 VAC
HPTS/HPTT	LCP	Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	-40 °C to + 105 °C	10 A per blade	48 VAC

**(1.80 mm) .071" PITCH • HIGH-DENSITY BACKPLANE HEADER**

HDTM	PAIRS	NO. OF COLUMNS	TAIL SIZE	S	VT	SIDE WALLS	GUIDANCE	STAGE COMBO	KEYING
	-3, -4, -6 =Pairs Per Column	-04, -06, -08	-1 =(.4495 mm) .0177" Drill  -2 =(.5511 mm) .0217" Drill			-0 = Open (No Walls)  -1 = Left  -2 = Right  -4 = Left Polarizing with left guidance (-4 Pairs N/A)  -5 = Right Polarizing with right guidance (-4 Pairs N/A)	-4 or -5 Polarizing Only; Leave Blank for No Guidance  -L = Left Side Guide Pin (-4 Pairs N/A)  -R = Right Side Guide Pin (-4 Pairs N/A)	-1 = 3 mm Wipe Signal / 4 mm Wipe Ground  -2 = 2 mm Wipe Signal / 4 mm Wipe Ground  -3 = 3 mm Wipe Signal / 3 mm Wipe Ground  -4 = 2 mm Wipe Signal / 3 mm Wipe Ground  -5 = 2 mm Wipe Signal / 2 mm Wipe Ground	-4 or -5 Polarizing Only; Leave Blank for No Keying  -A thru -H = Position of Flat on Key (See Table)

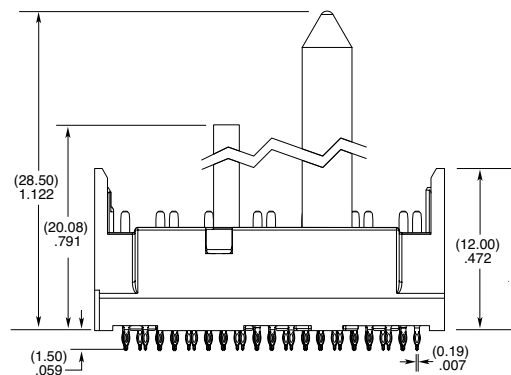
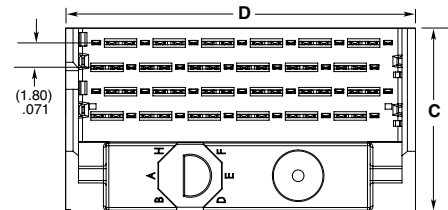
**HDTM Board Mates:**  
HDTF, BSP



**HDTM-4-06-1-S-VT-0-1 SHOWN**

NO. OF COLUMNS	A			C	
	No Walls	Left Wall	Right Wall	Left Polarize	Right Polarize
-04	(7.06) .278	(8.20) .323	(8.06) .317	N/A	N/A
-06	(10.66) .420	(11.80) .465	(11.66) .459	(17.14) .675	(16.65) .656
-08	(14.26) .561	(15.40) .606	(15.26) .600	(20.74) .817	(20.25) .797

PAIRS PER COLUMN	D	E
	Standard Wall	
-03	(15.10) .594	(13.15) .518
-04	(18.70) .736	(16.75) .659
-06	(25.90) 1.020	(23.95) .943



**HDTM-6-04-X-X-VT-4-L-X-A SHOWN**

KEYING								
-L / -R	-A	-B	-C	-D	-E	-F	-G	-H

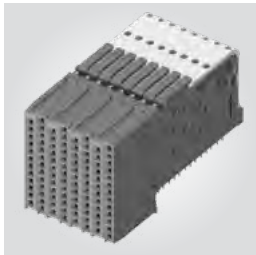
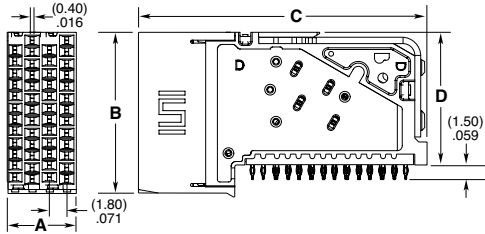
**Notes:**  
Some lengths, styles and options are non-standard, non-returnable.  
XCede® is a registered trademark of Amphenol.

View complete specifications at: [samtec.com?HDTM](http://samtec.com?HDTM)

## (1.80 mm) .071" PITCH • HIGH-DENSITY BACKPLANE RECEPTACLE

HDTF	PAIRS PER COLUMN	NO. OF COLUMNS	PLATING	RA	WAFERS	IMPEDANCE
	-3, -4, -6	-04, -06, -08	-S = 30 μ" (0.76 μm) Gold on Contact Area, Matte Tin on Tail		-LC = Standard  -HS = High-Speed	-100 = 100 Ω  -085 = 85 Ω

**HDTF Board Mates:**  
HDTM


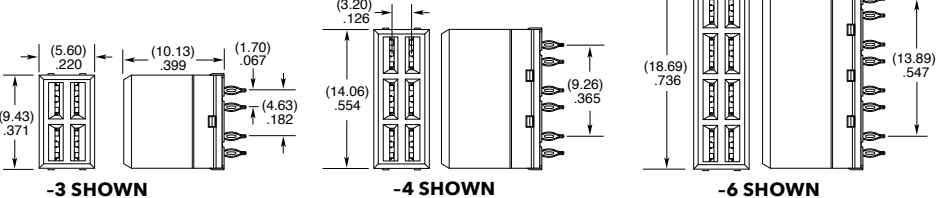
View complete specifications at: [samtec.com?HDTF](http://samtec.com?HDTF)

NO. OF COLUMNS	A	PAIRS PER COLUMN	B	C	D
-04	(7.2) .283	-3	(12.8) .504	(26.0) 1.02	(9.9) .390
-06	(10.8) .425	-4	(16.4) .646	(29.4) 1.16	(13.5) .531
-08	(14.4) .567	-6	(23.6) .929	(36.6) 1.44	(20.7) .815

## (3.20 mm) .126" PITCH • POWER MODULES

HPTS	BODY HEIGHT	PLATING	D	ORIENTATION
= Socket	Based on Pair Count of Signal Modules (HDTM)	-S = Standard Gold on Contact Area, Matte Tin on Tail		-VT = Vertical


**HPTS Mates with:**  
HPTT, BSP

View complete specifications at: [samtec.com?HPTS](http://samtec.com?HPTS)

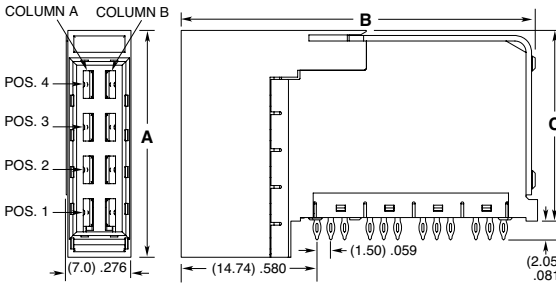
HPTT	BODY HEIGHT	PLATING	POSITION NO. 1	POSITION NO. 2	POSITION NO. 3	POSITION NO. 4	D	ORIENTATION
= Terminal	Based on Pair Count of Signal Modules (HDTF, BSP)	-S = Standard Gold on Contact Area, Matte Tin on Tail	Contact Wipe Column A & B	Contact Wipe Column A & B	Contact Wipe Column A & B (-4 & -6 Height Only)	Contact Wipe Column A & B (-6 Height Only)		-RA = Right-angle
	-3, -4, -6		-3 = (4.5 mm) 0.18"  -6 = (5.5 mm) 0.22"	-3 = (4.5 mm) 0.18"  -6 = (5.5 mm) 0.22"	-3 = (4.5 mm) 0.18"  -6 = (5.5 mm) 0.22"	-3 = (4.5 mm) 0.18"  -6 = (5.5 mm) 0.22"		

**HPTT Mates With:**  
HPTS



**Notes:**  
Some lengths, styles and options are non-standard, non-returnable. XCede® is a registered trademark of Amphenol.

View complete specifications at: [samtec.com?HPTT](http://samtec.com?HPTT)





# HIGH-SPEED CABLE PANEL ASSEMBLIES

FLYOVER® TECHNOLOGY • UP TO 112 Gbps PAM4 PER CHANNEL • VARIETY OF END OPTIONS

96-99

FLYOVER® QSFP CABLE SYSTEMS  
(FQSFP-D8, FQSFP-DD, FQSFP)

**FLYOVER®**



100-103

NOVARAY® I/O EXTREME  
PERFORMANCE SYSTEMS  
(NVACP, NVC, NVACE, NVA3E, NVA3P)

**NOVARAY® I/O**



104-105

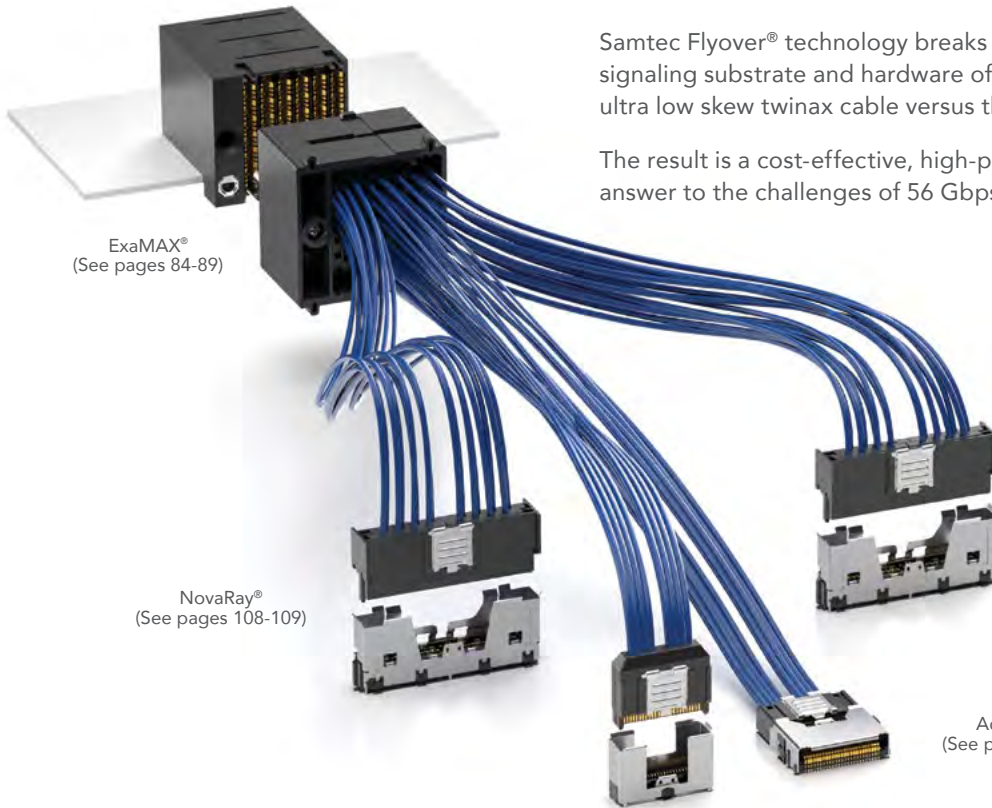
EXAMAX® I/O SHIELDED CABLE SYSTEM (EBTC, EBCE)

**ExaMAX®**





# FLYOVER® TECHNOLOGY



ExaMAX®  
(See pages 84-89)

NovaRay®  
(See pages 108-109)

AcceleRate®  
(See pages 112-113)

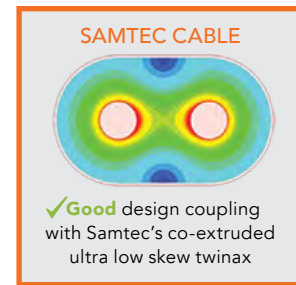
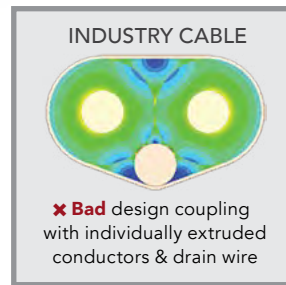
Samtec Flyover® technology breaks the constraints of traditional signaling substrate and hardware offerings by routing signals via ultra low skew twinax cable versus through lossy PCB.

The result is a cost-effective, high-performance and heat efficient answer to the challenges of 56 Gbps bandwidths and beyond.

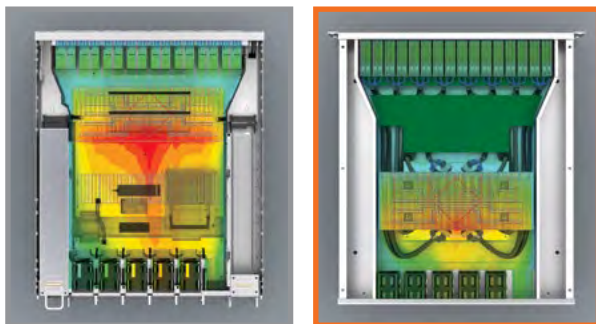
NRZ	PAM4
28 Gbps	56 Gbps
NRZ	PAM4
56 Gbps	112 Gbps

## EYE SPEED® TWINAX CABLE TECHNOLOGY

- Ideal for 28 – 112+ Gbps applications
- Tight coupling between signal conductors
- Ultra low skew twinax < 3.5 ps/meter (intra-pair)
- Improved signal integrity and eye pattern opening
- Increased bandwidth and reach
- 40% smaller cross-sectional area (Thinax™)
- In Development: Eye Speed® AIR™ foamed twinax for significantly improved signal integrity and even lower intra-pair skew



## THERMAL IMPROVEMENT



Standard Network Switch vs. Samtec Flyover® Technology

## PERFORMANCE & COST ADVANTAGES

- 28 - 56 Gbps NRZ and beyond
- Simplified board layout
- Less expensive PCB materials, fewer PCB layers
- Eliminates expensive re-timers

## SUPPORT

Fully integrated technology teams for full system optimization from Silicon-to-Silicon, including Samtec's High-Speed Cable Plants.

# CABLE SPECIFICATIONS



## ULTRA LOW SKEW TWINAX CABLE

Samtec's proprietary co-extruded Eye Speed® twinax cable technology eliminates the performance limitations and inconsistencies of individually extruded dielectric twinax cabling, improving signal integrity, bandwidth and reach for high-performance system architectures.

- Micro cellular dielectric extrusion
- Critical dimensions measured at every dielectric spool
- Inline laser and CAPAC devices for capacitance monitoring and diameter control
- In-process stats summary sheet for Cpk acceptance

NOMINAL PERFORMANCE SPECIFICATIONS			28 AWG	30 AWG	32 AWG	34 AWG	36 AWG
14 GHz (28G NRZ/ 56G PAM4)	0.25 m	IL (dB)	-1.0	-1.2	-1.5	-1.8	-2.2
	1.00 m		-4.1	-4.7	-5.9	-7.5	-8.9
28 GHz (56G NRZ/ 112G PAM4)	0.25 m		-1.5	-1.8	-2.2	-2.7	-3.2
	1.00 m		-6.1	-7.1	-8.7	-10.9	-13.0
Density/Flexibility			Good	Good	Better	Best	Best



\* Eye Speed® Ultra Low Skew Twinax Cable is available in engineered impedance configurations of 85 Ω, 92 Ω and 100 Ω.

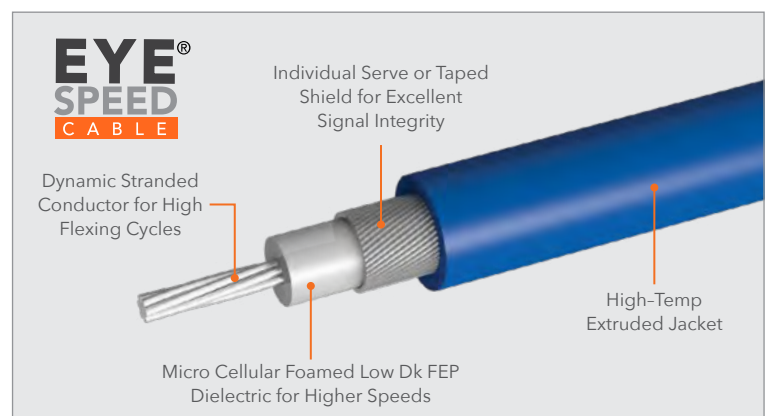
## THINAX™ ULTRA PERFORMANCE TWINAX CABLE

- 40% smaller cross-sectional area
- 112 Gbps PAM4 performance
- Taped jacket miniaturizes the cable to match smaller, more dense connectors
- Allows for a smaller pitch within a row
- Achieving a smaller row-to-row pitch is dependent upon stack-up and BOR; customizable per application needs



## MICRO COAX CABLE

- Foaming introduces air voids for signal to travel faster
- Solid extrusion of foamed dielectric provides a constant and more durable construction
- Lighter weight and smaller size with higher bandwidth capabilities at longer lengths
- 26 - 38 AWG cable available
- Choice of signal conductor, shield and FEP dielectric to meet performance and cost specifications



# FLYOVER® QSFP CABLE ASSEMBLIES



## FEATURES & BENEFITS

QSFP, QSFP-DD and QSFP-D8 systems utilize Samtec Flyover® technology to route data above lossy PCB, simplifying board layout and extending signal reach. The modular design enables optimized systems that improve heat management, increase signal integrity performance, build in scalability for future upgrades and reduce costs by creating a multifunction board.

NRZ	PAM4
56 Gbps	112 Gbps

## FLYOVER® QSFP SYSTEM

- 4 Channels (x4 bidirectional, 8 differential pairs)
- Up to 400 Gbps aggregate (112 Gbps PAM4)
- Compatible with all MSA QSFP pluggables
- Multiple heat sink options available for optimal dissipation
- Eye Speed® 30 or 34 AWG twinax cable
- Multiple end 2 options for design flexibility
- Evaluation Kits available (REF-205303-X.XX-XX), visit [samtec.com/kits](http://samtec.com/kits)



Localized press-fit control and power contacts eliminate the need for a secondary cable and connector



High-speed contacts directly soldered to Eye Speed® ultra low skew twinax

## FLYOVER® QSFP DOUBLE DENSITY

- 8 Channels (x8 bidirectional, 16 differential pairs)
- Up to 400 Gbps aggregate (56 Gbps PAM4)
- Belly-to-belly mating for maximum density
- Backward compatible with QSFP modules
- Multiple heat sink options available for optimal dissipation
- Variety of end 2 options
- Evaluation Kits available (REF-205605-X.XX-XX and REF-203424-X.XX-XX), visit [samtec.com/kits](http://samtec.com/kits)

## 800G FLYOVER® DOUBLE DENSITY

- 8 Channels (x8 bidirectional, 16 differential pairs)
- Up to 800 Gbps aggregate (112 Gbps PAM4)
- Belly-to-belly mating for maximum density
- Backward compatible with QSFP & QSFP-DD modules
- Multiple heat sink options available for optimal dissipation
- Variety of end 2 options



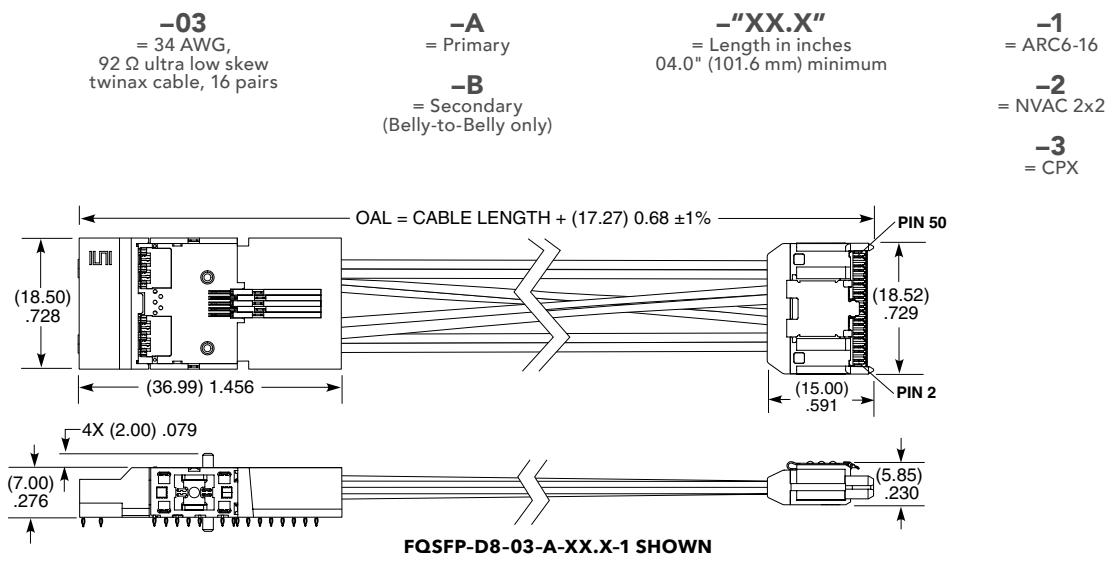
# 800G FLYOVER® QSFP DOUBLE DENSITY CABLE ASSEMBLY

FQSFP	D8	CABLE TYPE	FOOTPRINT	CABLE LENGTH	END 2 OPTION
-------	----	------------	-----------	--------------	--------------

## FQSFP-D8



**PRESS-FIT TOOLING**  
 CAT-PF-FQSFP-DD-01  
 For more information, visit [www.samtec.com/tooling](http://www.samtec.com/tooling)



QSFP	D8	STACK	NO. OF PORTS	OPTION	STYLE
------	----	-------	--------------	--------	-------

## QSFP-D8



**-1**  
= Single Stack

**-1**  
= One Port

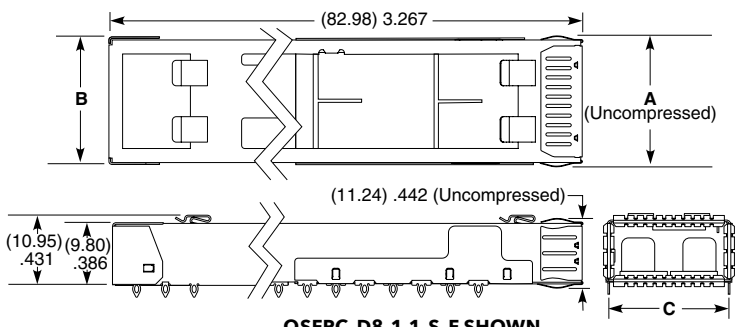
**-S**  
= Spring Fingers

**-F**  
= Flyover

**-2**  
= Two Ports

**PRESS-FIT TOOLING**  
 CAT-PT-FQSFP-03-XX  
 For more information, visit [www.samtec.com/tooling](http://www.samtec.com/tooling)

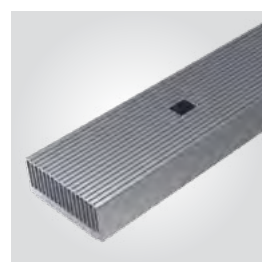
NO. OF PORTS	A	B	C
-1	(20.96) .825	(19.87) .782	(19.00) .748
-2	(39.96) 1.573	(38.87) 1.530	(38.00) 1.496



**Note:**  
 Some sizes, styles and options are non-standard, non-returnable.

HS-QSFP	D8	HEAT SINK HEIGHT
---------	----	------------------

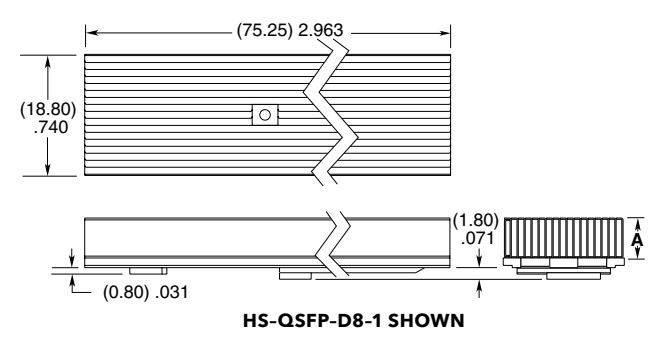
## HS-QSFP-D8



**-1**  
= (6.20 mm) .244" height

**-2**  
= (12.00 mm) .472" height

HEAT SINK HEIGHT	A
-1	(6.29) .248
-2	(12.00) .472



# FLYOVER® QSFP DOUBLE DENSITY CABLE ASSEMBLY

**FQSFP** - **DD** - **LEAD STYLE** - **FOOTPRINT** - **CABLE LENGTH** - **END 2 OPTION**

## FQSFP-DD



**-01**  
= 20 Low-Speed,  
16 Pairs High-Speed

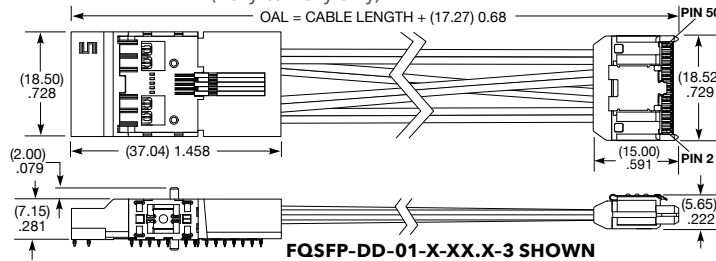
**-A**  
= Primary

**-B**  
= Secondary  
(Belly-to-Belly only)

**-"XX.X"**  
= Length in inches  
04.0" (101.6 mm) minimum

**-3**  
= ARC6-16

Additional end options  
such as NovaRay®  
available; contact  
HDR@samtec.com



### PRESS-FIT TOOLING

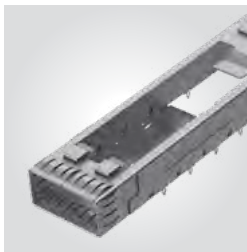
CAT-PF-FQSFP-DD-01  
For more information, visit  
www.samtec.com/tooling

**Note:**  
Some sizes, styles and options are  
non-standard, non-returnable.

View complete specifications at: [samtec.com?FQSFP-DD](http://samtec.com?FQSFP-DD)

**QSFP** - **DD** - **STACK** - **NUMBER OF PORTS** - **EMI PANEL OPTION** - **FLYOVER**

## QSFP-DD



**-1**  
= Single Stack

**-1**  
= One Port

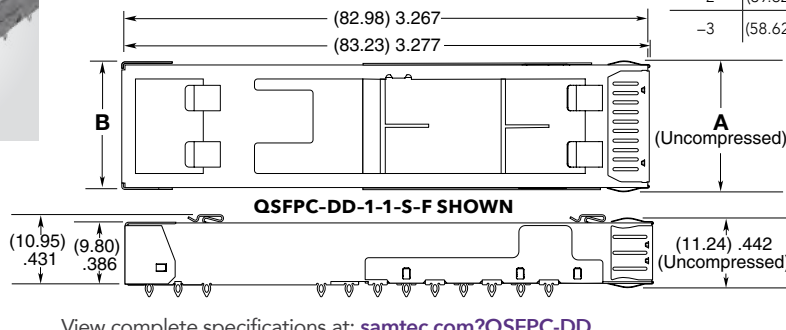
**-S**  
= Spring Fingers

**-F**  
= Flyover

**-2**  
= Two Ports

**-3**  
= Three Ports

NO OF PORTS	A	B	C
-1	(20.62) .812	(19.87) .782	(19.00) .748
-2	(39.62) 1.560	(38.87) 1.530	(38.60) 1.496
-3	(58.62) 2.308	(57.87) 2.278	(57.00) 2.244



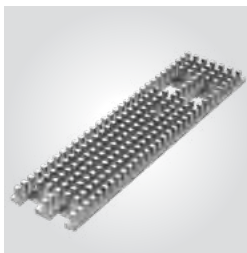
### PRESS-FIT TOOLING

CAT-PF-FQSFP-DD-02-01 (1 Port)  
CAT-PF-FQSFP-DD-02-02 (2 Port)  
CAT-PF-FQSFP-DD-02-03 (3 Port)  
For more information, visit  
www.samtec.com/tooling

View complete specifications at: [samtec.com?QSFP-DD](http://samtec.com?QSFP-DD)

**HS-QSFP** - **DD** - **HEAT SINK STYLE** - **HEAT SINK HEIGHT**

## HS-QSFP-DD

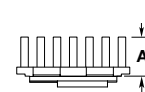
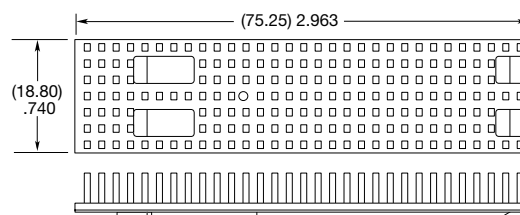


**-P1**  
= Pin (Aluminum)

**-1**  
= (4.20 mm) .165" height

**-2**  
= (6.50 mm) .256" height

**-3**  
= (13.50 mm) .531" height



HEAT SINK HEIGHT	A
-1	(4.20) .165
-2	(6.50) .256
-3	(13.50) .531

**Note:**  
Some sizes, styles and options are  
non-standard, non-returnable.

View complete specifications at: [samtec.com?HS-QSFP-DD](http://samtec.com?HS-QSFP-DD)

## FLYOVER® QSFP CABLE ASSEMBLY

FQSFP	LEAD STYLE	CABLE LENGTH	PLATING	CONTACT TYPE	END OPTION
-------	------------	--------------	---------	--------------	------------

**-01**  
= 10 Low-Speed,  
8 Pairs High-Speed

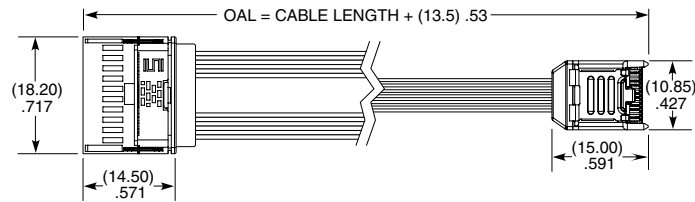
**-"XX.X"**  
= Length in inches  
04.0" (101.6 mm)  
minimum

**-L**  
= 10 μ" (0.25 μm)  
Gold over  
50 μ" (1.27 μm)  
Ni on contact area,  
Matte Tin on tail

**-PF**  
= Press-fit

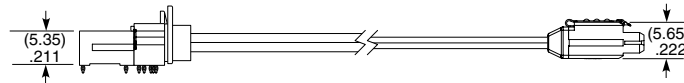
**-3**  
= ECUE  
**-4**  
= ARC6-8

### FQSFP



### PRESS-FIT TOOLING

CAT-PT-FQSFP-01  
For more information, visit  
[www.samtec.com/tooling](http://www.samtec.com/tooling)



**FQSFP-01-XX.X-L-PF-4 SHOWN**

QSFP	CAGE OPTION	NUMBER OF PORTS	EMI PANEL OPTION	OPTION	FLYOVER
------	-------------	-----------------	------------------	--------	---------

**-1**  
= Single Stack

**-1**  
= One Port

**-S**  
= Spring  
Fingers

(Leave blank for no Light Pipe)

(Leave blank for no flyover)

**-2**  
= Two Ports

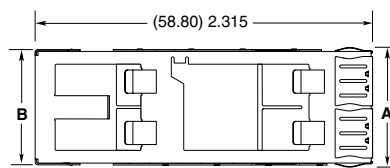
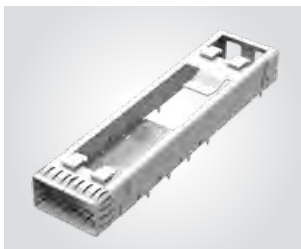
**-LP**  
= Light Pipe  
(1 & 4 ports only)

**-F**  
= Flyover

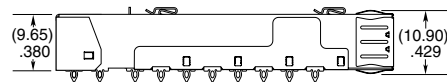
**-4**  
= Four Ports

**-N**  
= No heat sink closed top  
(Not available with -LP)

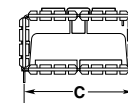
### QSFP



NO. OF PORTS	A	B	C
-1	(20.62) .812	(19.85) .781	(19.00) .748
-2	(39.62) 1.560	(38.85) 1.530	(38.00) 1.496
-4	(77.62) 3.056	(76.85) 3.026	(76.00) 2.992



**QSFP-1-1-S-F SHOWN**



### PRESS-FIT TOOLING

CAT-PT-FQSFP-03-XX  
For more information, visit  
[www.samtec.com/tooling](http://www.samtec.com/tooling)

### HEAT SINKS

PART NUMBER	HEAT SINK HEIGHT
HS-QSFP-P1-01	(4.20 mm) .165"
HS-QSFP-P1-02	(6.50 mm) .256"
HS-QSFP-P1-03	(13.50 mm) .531"
HS-QSFP-P1-04	(1.50 mm) .059"

For Light Pipe, add -LP to the end of part number.  
View complete specifications at [samtec.com?HS-QSFP](http://samtec.com?HS-QSFP)

### LIGHT PIPES

PART NUMBER	NO. OF PORTS
LP-FQSFP-01	1 pipe
LP-FQSFP-02	2 pipes
LP-FQSFP-04	4 pipes

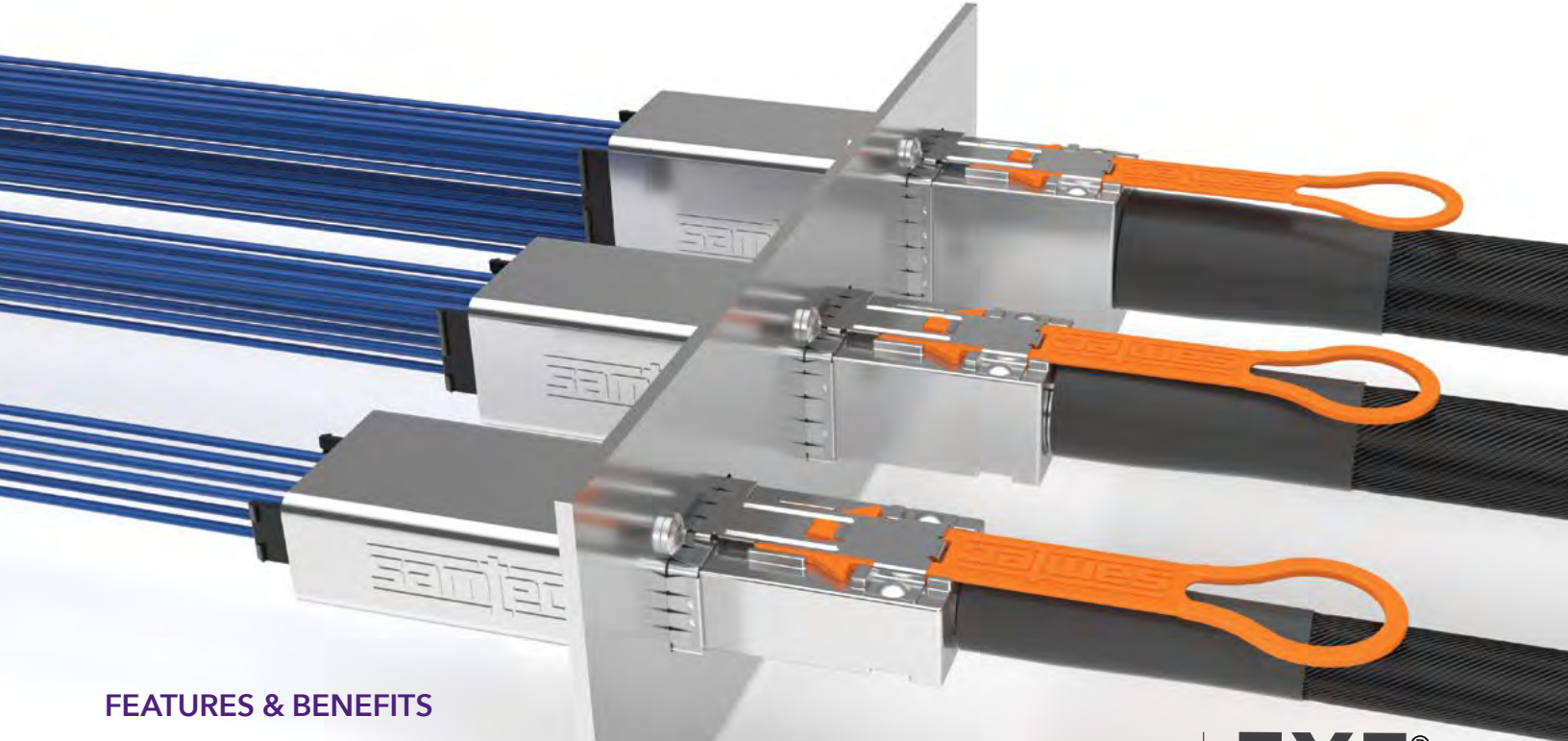
View complete specifications at [samtec.com?LP-FQSFP](http://samtec.com?LP-FQSFP)

**Notes:**  
Some sizes, styles and  
options are non-standard,  
non-returnable.

View complete specifications at: [samtec.com?FQSFP](http://samtec.com?FQSFP) & [samtec.com?QSFP](http://samtec.com?QSFP)

# NOVARAY<sup>®</sup> I/O

## EXTREME PERFORMANCE PANEL MOUNT I/O ASSEMBLIES



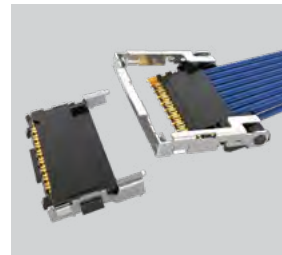
### FEATURES & BENEFITS

- 16 & 32 differential pair configurations  
– Accommodates x4 or x8 plus sidebands
- Cable-to-Cable bulkhead panel connection using Flyover<sup>®</sup> Cable Technology
- External Cable: 28 or 34 AWG twinax
- Internal Cable: 34 AWG twinax
- Single-Ended coax options also available
- Full external EMI shielding
- Multiple end 2 high-speed connector options on internal cable
- Available in a rugged 38999 shell for salt fog resistance to 48 hours and IP67 rated for dust and water applications

NOVARAY<sup>®</sup> I/O

EYE<sup>®</sup>  
SPEED  
CABLE

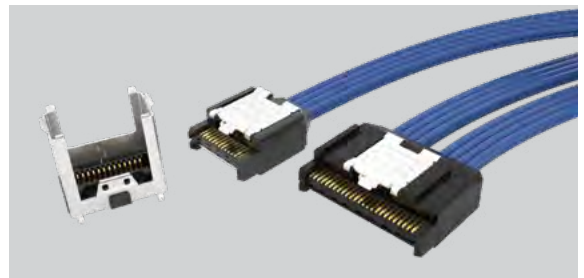
### VARIOUS END 2 OPTIONS AVAILABLE



Si-Fly<sup>™</sup>



NovaRay<sup>®</sup>



AcceleRate<sup>®</sup>

PAM 4  
112  
Gbps

TARGETED CONFIGURATIONS	AGGREGATE DATA RATE
8 Pair (In Development)	896 Gbps
16 Pair	1792 Gbps
32 Pair	3584 Gbps
x4 (8 Pair + PCIe <sup>®</sup> Sidebands)	512 Gbps
x8 (16 Pair + PCIe <sup>®</sup> Sidebands)	1024 Gbps

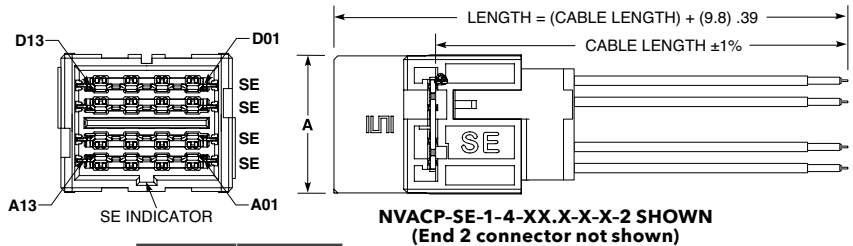
PCI EXPRESS<sup>®</sup>  
GEN 6 COMPATIBLE



## EXTREME PERFORMANCE PANEL MOUNT CABLE

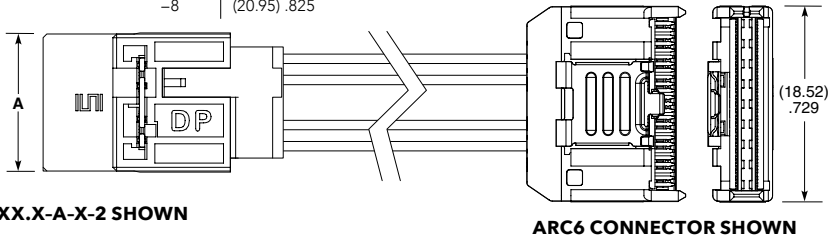
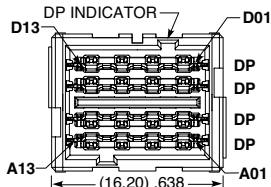
NVACP	SIGNAL TYPE	CABLE STYLE	ROWS	CABLE LENGTH	END 2	PIN OUT	SPEED
	-DP = Differential (twinax pairs only)	-1 = 34 AWG 100 Ω ultra low skew twinax	-4 = 4 rows	-XX.X = Length in inches 06.0" (152.4 mm) minimum	-A = 1 ARC6	-1 = Pin A01 to Pin A01	(Differential twinax pairs only)
	-SE = Single ended (coax signals only)		-8 = 8 rows		-B = 1 NVAC	-4 = Pin A01 to Pin AN (N equals last position)	-1 = 56G PAM4 -2 = 112G PAM4

**NVACP**  
Cable Mates:  
NVACE  
Panel Cage:  
NVC



ROW	A
-4	(12.95) .510
-8	(20.95) .825

**Notes:**  
Cable lengths longer than 40.00" (1 meter) are not supported with S.I. test data.  
Some sizes, styles and options are non-standard, non-returnable.



## DIE CAST PANEL CAGE

View complete specifications at: [samtec.com?NVACP](http://samtec.com?NVACP)

NVC	NO. OF PORTS	ROWS	PACKAGING
-----	--------------	------	-----------

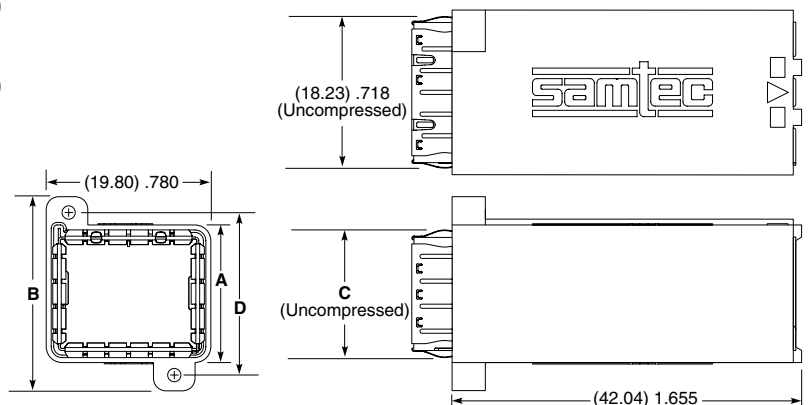
**NVC**  
Use with:  
NVACP, NVACE



-1 = 1 Port	-04 = 4 rows	-TY = Trays
-2 = 2 Ports (8 row only)	-08 = 8 rows	
-4 = 4 Ports (8 row only)		

ROW	A	B	C	D
-04	(16.55) .652	(23.35) .919	(15.36) .605	(19.56) .770
-08	(24.55) .967	(31.35) 1.234	(23.36) .920	(27.56) 1.085

**Note:**  
Some sizes, styles and options are non-standard, non-returnable.



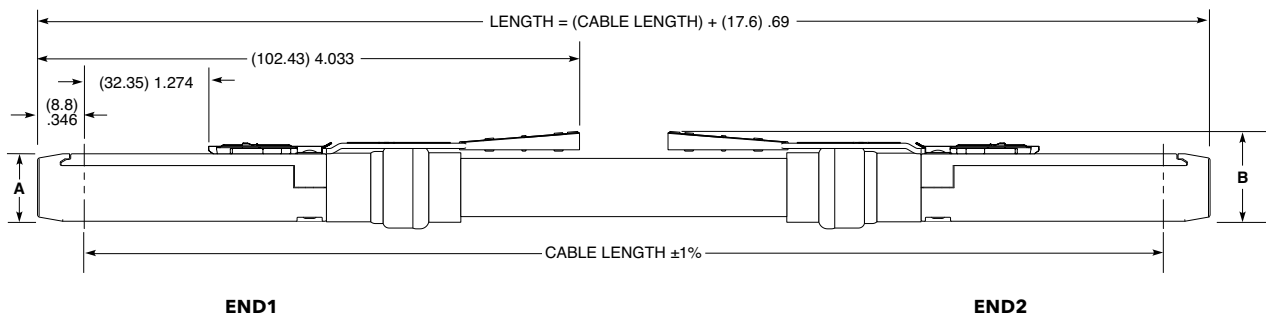
View complete specifications at: [samtec.com?NVC](http://samtec.com?NVC)

## EXTREME PERFORMANCE I/O CABLE

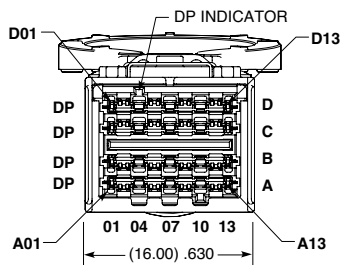
NVACE	SIGNAL TYPE	CABLE TYPE	ROWS	CABLE LENGTH	END 2	PIN OUT	SPEED
	-DP = Differential (twinax pairs only)	-1 = 34 AWG, 100 Ω ultra low skew twinax	-4 = 4 rows	-X.X = Length in meters 0.5 meters (19.69") minimum	-A = NVACE	-1 = Pin A01 to Pin A01	(Differential twinax pairs only)
	-SE = Single ended (coax signals only)	-5 = 28 AWG, 100 Ω ultra low skew twinax	-8 = 8 rows			-4 = Pin A01 to Pin N	-1 = 56G PAM4
		-6 = 34 AWG, 50 Ω coax (-SE only)					-2 = 112G PAM4

### NVACE

Cable Mates:  
NVACP  
Panel Cage:  
NVC

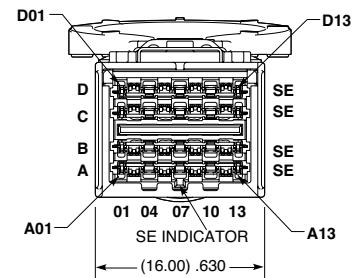


NVACE-XX-X-4-X-X-A-X-2 SHOWN



-DP SHOWN

ROW	A	B
-4	(12.75) .502	(17.00) .669
-8	(20.75) .817	(25.00) .984



-SE SHOWN

**Notes:**  
Cable lengths longer than 3 meters (118") are not supported with S.I. test data.

Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?NVACE](http://samtec.com?NVACE)

## RUGGED 38999 I/O CABLE

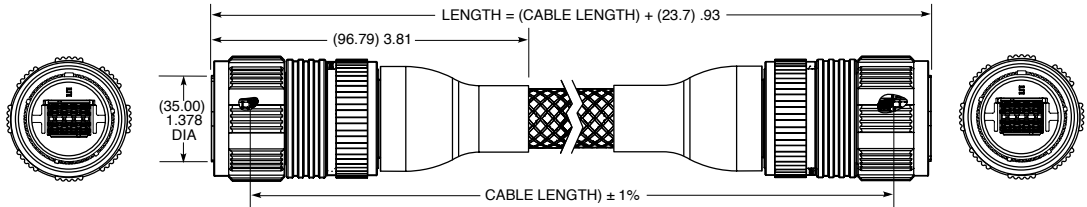
NVA3E	SIGNAL TYPE	CABLE TYPE	SHELL SIZE	CABLE LENGTH	END 2	PIN OUT	SPEED	FINISH	IP SEALING
	<b>-DP</b> = Differential (twinax pairs only)	<b>-1</b> = 34 AWG, 100 Ω ultra low skew twinax	<b>-19</b> = 4 rows	(Standard lengths in meters) <b>-00.5</b> = (0.5 m) 19.69" Cable <b>-01.0</b> = (1.0 m) 39.37" Cable <b>-02.0</b> = (2.0 m) 78.74" Cable <b>-03.0</b> = (3.0 m) 118.11" Cable	<b>-A</b> = NVA3E	<b>-1</b> = Pin A01 to Pin A01 <b>-4</b> = Pin A01 to Pin N	<b>-1</b> = 56G PAM4 <b>-2</b> = 112G PAM4	<b>-Z</b> = Black Zinc Nickel	(Leave blank for no sealed) <b>-S</b> = Sealed

**NVA3E**  
Cable Mate:  
NVA3P



**Notes:**  
Cable lengths longer than 3 meter (118.00") are not supported with S.I. test data.

Some sizes, styles and options are non-standard, non-returnable.



**NVA3E-DP-X-19-XX.X-A-X-1-Z-S SHOWN**

View complete specifications at: [samtec.com?NVA3E](http://samtec.com?NVA3E)

## RUGGED 38999 PANEL MOUNT CABLE

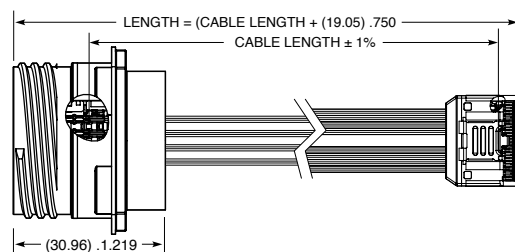
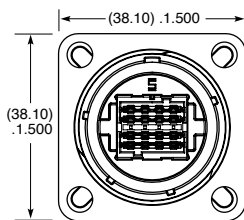
NVA3P	SIGNAL TYPE	CABLE TYPE	SHELL SIZE	CABLE LENGTH	END 2	PIN OUT	SPEED	FINISH	IP SEALING
	<b>-DP</b> = Differential (twinax pairs only)	<b>-1</b> = 34 AWG, 100 Ω ultra low skew twinax	<b>-19</b> = 4 rows	(Standard lengths in inches) <b>-06.0</b> = (152.4 mm) 6.0" Cable <b>-10.0</b> = (254.0 mm) 10.0" Cable <b>-12.0</b> = (304.8 mm) 12.0" Cable <b>-20.0</b> = (508.0 mm) 20.0" Cable	<b>-A</b> = ARC6 <b>-B</b> = NVAC	<b>-1</b> = Pin A01 to Pin A01 <b>-4</b> = Pin A01 to Pin AN (N equals last position)	<b>-1</b> = 56G PAM4 <b>-2</b> = 112G PAM4	<b>-Z</b> = Black Zinc Nickel	(Leave blank for no sealed) <b>-S</b> = Sealed

**NVA3P**  
Cable Mate:  
NVA3E



**Notes:**  
Cable lengths longer than 1 meter (40.00") are not supported with S.I. test data.

Some sizes, styles and options are non-standard, non-returnable.



**NVA3P-DP-1-19-XX.X-A-X-1-Z-S SHOWN**

View complete specifications at: [samtec.com?NVA3P](http://samtec.com?NVA3P)

# ExaMAX<sup>®</sup>

## SHIELDED, HIGH-DENSITY I/O CABLE SYSTEM

(2.00 mm) .0787" PITCH

PAM4

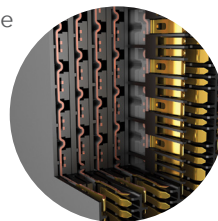
64  
Gbps

### FEATURES & BENEFITS

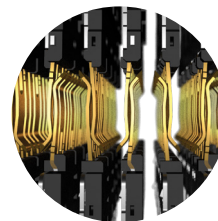
- Fully shielded external cable and cage for EMI protection
- Supports 64 Gbps PAM4 (32 Gbps NRZ) applications
- PCIe<sup>®</sup> 6.0/CXL™ 3.1 capable
- Rugged pull latch for mating/unmating
- Single port cage designed for use with ExaMAX<sup>®</sup> right-angle board connector (EBTM-RA)
- 30 and 34 AWG ultra low skew twinax
- 24 to 72 pairs (4 and 6 pairs; 6, 8, 10 and 12 columns)
- In Development: Cable-to-cable bulkhead panel connection for increased performance to 112 Gbps PAM4



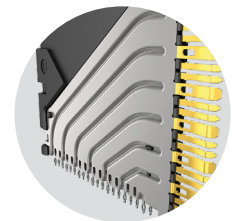
Cable to right-angle panel mount



Staggered Differential Pair Design



Two Reliable Points of Contact at All Times



Wafer Design Reduces Crosstalk

### KEY SPECIFICATIONS (EBCE/EBTC)

CABLE	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING
30 & 34 AWG ultra low skew twinax	LCP	Copper Alloy	Au over 50 μ" (1.27 μm) Ni	Testing Now!	Testing Now!	Testing Now!

PCI-SIG<sup>®</sup>, PCI Express<sup>®</sup> and the PCIe<sup>®</sup> design marks are registered trademarks and/or service marks of PCI-SIG.

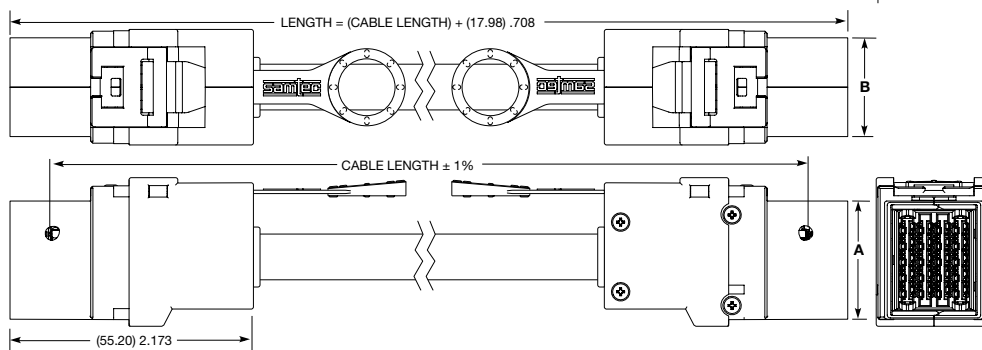
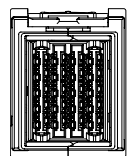


## (2.00 mm) .0787" PITCH • SHIELDED PANEL MOUNT CABLE

EBCE	GAUGE/ SIGNAL MAP	PAIRS PER COLUMN	COLUMNS	END 1 PIN	CABLE LENGTH	END 2 PIN
	-1 = 34 AWG 100 Ω, Tx to Rx Signal Map	-4 = 4 Pairs	-06, -08, -10, -12 (6 pair only)	-1 = Standard	-"XX" = Length in Inches 12" (304.8 mm) minimum	-1 = Standard
	-2 = 30 AWG 100 Ω, Tx to Rx Signal Map	-6 = 6 Pairs				
	-3 = 34 AWG 100 Ω, 1:1 Signal Map					
	-4 = 30 AWG 100 Ω, 1:1 Signal Map					

NO. OF COLUMNS	B
-06	(18.40) .724
-08	(22.40) .882
-10	(26.40) 1.039
-12	(30.40) 1.197

**EBCE**  
Mates With:  
EBTM-RA/EBTC



EBCE-X-4-08-1-XX-1 SHOWN

PAIRS	A
-4	(26.80) 1.055
-6	(34.00) 1.339

**Notes:**  
Cable lengths longer than 40.00" (1 meter)  
are not supported with S.I. test data.

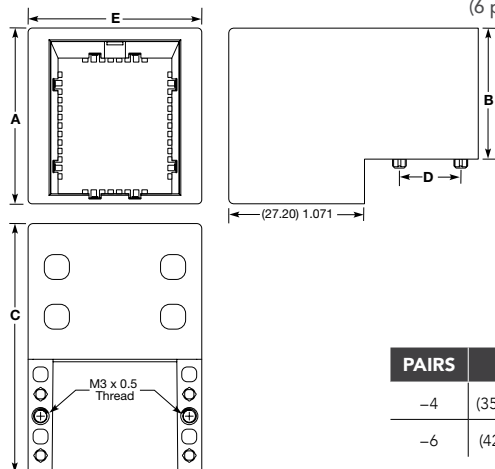
Some sizes, styles and options  
are non-standard, non-returnable.

View complete specifications at: [samtec.com?EBCE](http://samtec.com?EBCE)

## DIE CAST PANEL CAGE

EBTC	PAIRS PER COLUMN	COLUMNS	PORT SIZE
	-4 = 4 Pairs -6 = 6 Pairs	-06, -08, -10, -12 (6 pair only)	-1

**EBTC**  
Use With:  
EBTM-RA, EBCE



NO. OF COLUMNS	E
-06	(30.80) 1.213
-08	(34.80) 1.370
-10	(38.80) 1.528
-12	(42.80) 1.685

PAIRS	A	B	C	D
-4	(35.20) 1.386	(26.25) 1.033	(50.00) 1.969	(12.30) .484
-6	(42.40) 1.669	(33.45) 1.317	(57.20) 2.252	(19.50) .768

EBTC-4-08-1 SHOWN

**Note:**  
Some sizes, styles and  
options are non-standard,  
non-returnable.

View complete specifications at: [samtec.com?EBTC](http://samtec.com?EBTC)



# IN DEVELOPMENT: FLYOVER® PANEL ASSEMBLIES

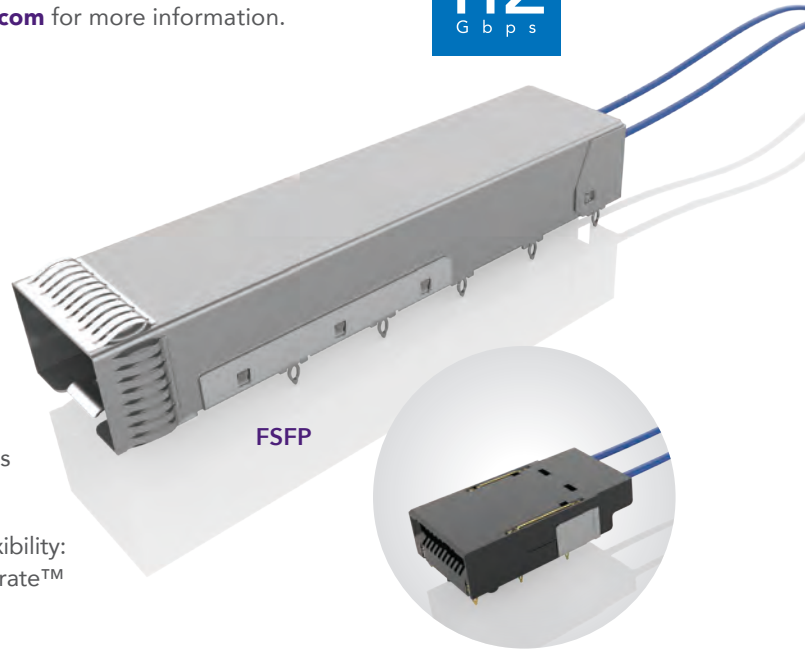
## 112 GBPS PAM4 FLYOVER® SFP & OSFP CABLE SYSTEMS

Next gen panel assemblies utilize Samtec's Flyover® technology to route critical high-speed signals through Eye Speed® ultra low skew twinax and Thinax™ ultra performance twinax cable, simplifying board layout and extending signal reach. Contact [HDR@samtec.com](mailto:HDR@samtec.com) for more information.



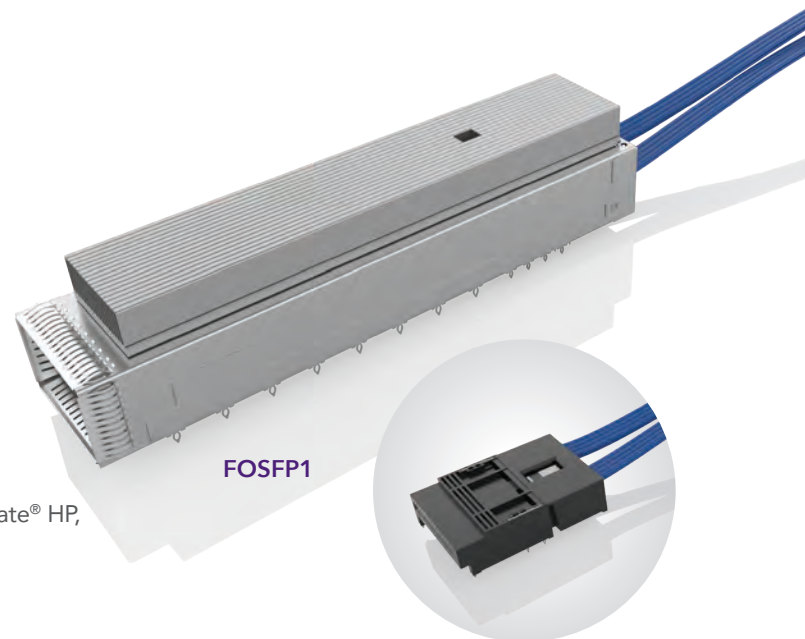
### FLYOVER® SFP112

- 112 Gbps per channel performance
- Ideal for next gen higher speed applications including DataCom, Medical, Industrial and Instrumentation
- Optimized cage and heatsink design for excellent thermal and signal integrity performance
- Accepts all MSA compliant SFP pluggable modules
- Press-fit tails
- Light pipes available for front panel indication of operational status
- Single and multi-port cage options
- Multiple end 2 ASIC adjacent connectors for maximum design flexibility: AcceleRate®, Si-Fly™, NovaRay®, AcceleRate® HP, FireFly™, Generate™ (GC6), AcceleRate® Mini



### FLYOVER® OSFP 112 Gbps PAM4

- 112 Gbps per channel performance
- 8 channels (x8 bidirectional, 16 differential pairs)
- Optimized cage and heatsink design for excellent thermal and signal integrity performance
- Direct attach contacts soldered to Thinax™ ultra performance twinax cable eliminates long signal traces in transition board, improving signal integrity
- Sideband signaling via press-fit contacts for increased airflow
- Multiple end 2 options: AcceleRate®, Si-Fly™, NovaRay®, AcceleRate® HP, FireFly™, Generate™ (GC6), FireFly™, AcceleRate® Mini
- 224 Gbps solution in development (FOSFP2)



# HIGH-SPEED CABLE MID-BOARD SYSTEMS

FLYOVER® TECHNOLOGY • UP TO 112 Gbps PAM4 PER CHANNEL • VARIETY OF END OPTIONS

108-109

NOVARAY® EXTREME DENSITY & PERFORMANCE SYSTEM (NVAC, NVAM-CT)

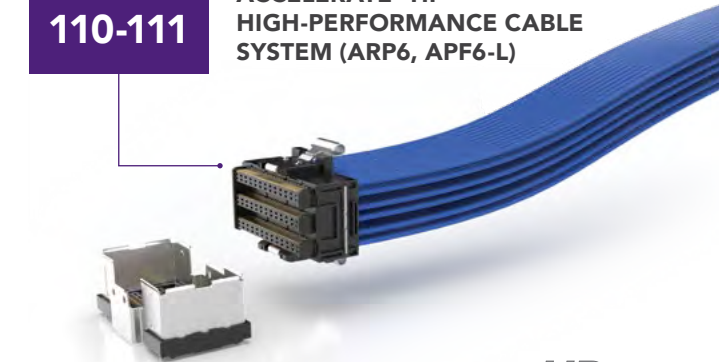
NOVARAY®



110-111

ACCELERATE® HP HIGH-PERFORMANCE CABLE SYSTEM (ARP6, APF6-L)

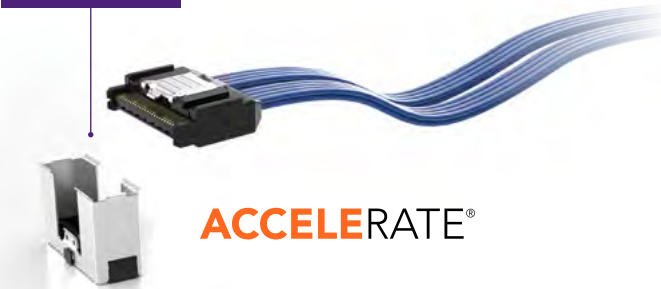
ACCELERATE® HP



112-113

ACCELERATE® SLIM CABLE SYSTEM (ARC6, ARF6)

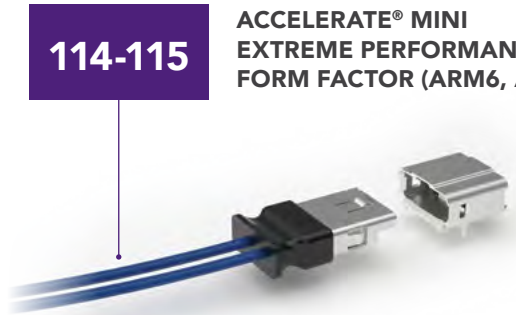
ACCELERATE®



114-115

ACCELERATE® MINI EXTREME PERFORMANCE MINI FORM FACTOR (ARM6, AMF6)

ACCELERATE® mini



116-117

SI-FLY™ LOW PROFILE, HIGH-DENSITY CABLE SYSTEM (CPC, CPI)

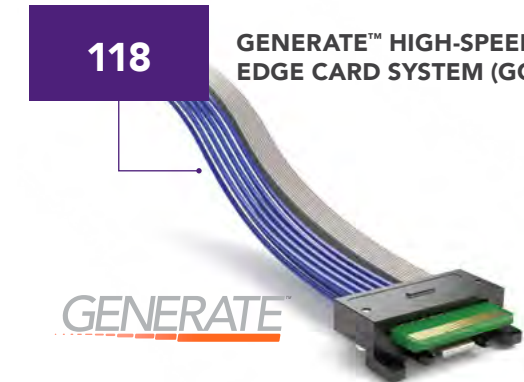
SI-FLY™ LP



118

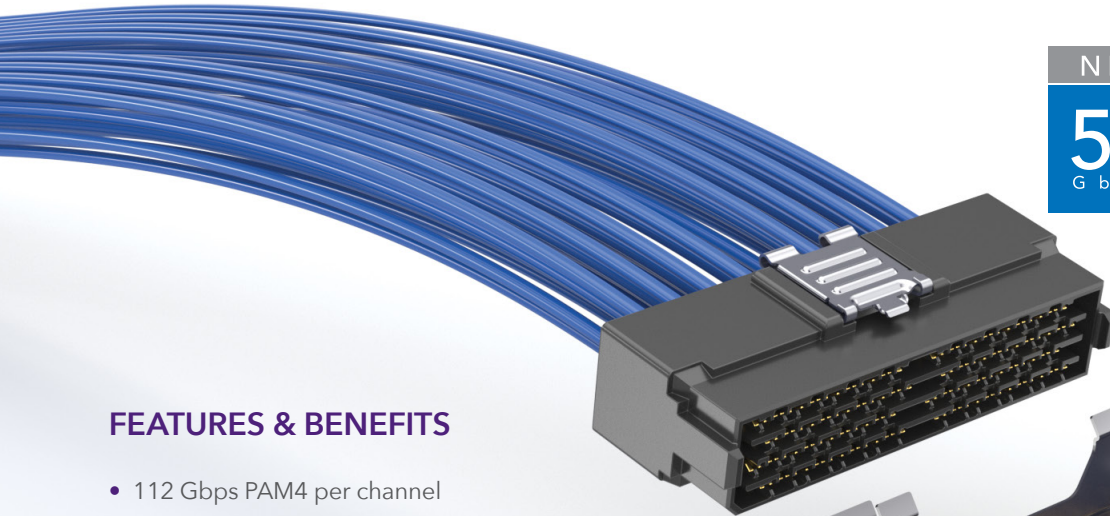
GENERATE™ HIGH-SPEED EDGE CARD SYSTEM (GC6)

GENERATE™



# NOVARAY®

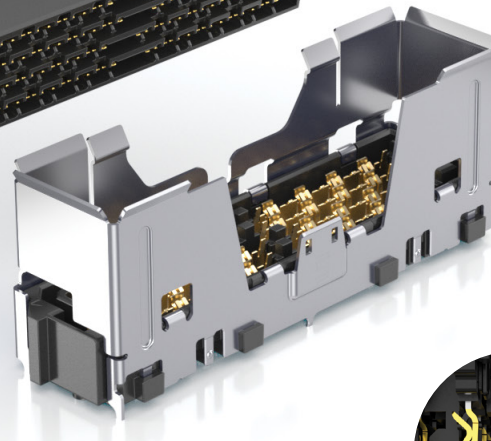
## EXTREME HIGH-SPEED, HIGH-DENSITY CABLE



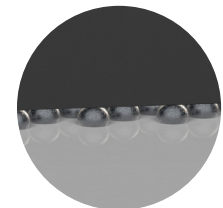
NRZ	PAM4
56 Gbps	112 Gbps

### FEATURES & BENEFITS

- 112 Gbps PAM4 per channel
- 4.0 Tbps aggregate data rate - 9 IEEE 400G channels
- PCIe® 6.0/CXL™ 3.1 capable
- Innovative, fully shielded differential pair design enables extremely low crosstalk (beyond 40 GHz) and tight impedance control
- 48 differential pairs per square inch
- Industry leading aggregate data rate density - 2x the data rate in 60% of the space
- 8 to 32 differential pairs; up to 72+ pairs in development
- Panel I/O solution available with extended EMI shielding (NVACE/NVACP) or rugged 38999 shell (NVA3E/NVA3P); see page 100-103
- Eye Speed® Thinax™ ultra performance twinax cable version in development



Two reliable points of contact guaranteed



BGA attach for density and optimized trace breakout region

Aggregate Data Rate (NRZ)						
448 Gbps	672 Gbps	896 Gbps		1344 Gbps	1792 Gbps	4032 Gbps*
1 Bank			2 Bank			3 Bank*
2 Row	3 Row	4 Row	2 Row	3 Row	4 Row	6 Row*
8 Pairs	12 Pairs	16 Pairs		24 Pairs	32 Pairs	72 Pairs*
*In development						

### KEY SPECIFICATIONS (NVAC/NVAM-CT)

CABLE	SIGNAL ROUTING	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE
34 AWG ultra low skew twinax	92 Ω & 100 Ω	LCP	Copper Alloy	Au over 50 μ" (1.27 μm) Ni	-40 °C to +125 °C

PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.



## EXTREME PERFORMANCE & DENSITY SYSTEM

NVAC	STYLE	CABLE STYLE	NO. OF ROWS	NO. OF BANKS	CABLE LENGTH	01	PIN OUT	OPTION
------	-------	-------------	-------------	--------------	--------------	----	---------	--------

**-DP**  
= 4 pairs  
per wafer

**-1**  
= 34 AWG,  
100 Ω ultra low  
skew twinax

**-3**  
= 34 AWG,  
92 Ω ultra low  
skew twinax

**-02**  
= 2 Rows

**-03**  
= 3 Rows

**-04**  
= 4 Rows

**-1**  
= 1 Bank

**-2**  
= 2 Banks

**-“XX.X”**  
= Length in inches  
(152.4 mm) 06.0”  
minimum

**-1**  
= Pin A01  
to Pin AN  
(N equals last  
position)

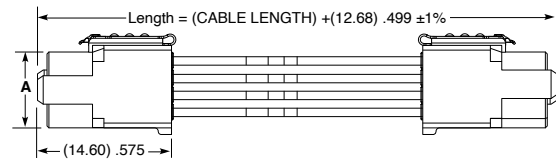
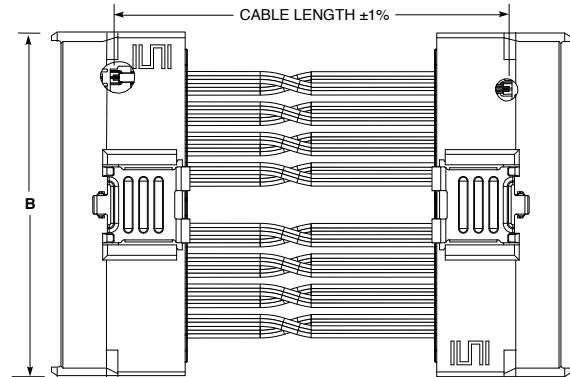
**-L**  
= Latch

**NVAC**  
Board Mates:  
NVAM-CT



NO. OF BANKS	N	B
-1	16	(20.25) .797
-2	32	(36.25) 1.427

ROWS	A
-02	(4.40) .173
-03	(6.20) .244
-04	(8.00) .315



**Notes:**  
Cable lengths longer than  
40.00" (1 meter) are not  
supported with S.I. test data.

View complete specifications at: [samtec.com?NVAC](http://samtec.com?NVAC)

NVAM	STYLE	NO. OF ROWS	NO. OF BANKS	02.0	PLATING OPTIONS	SOLDER TYPE	CT	“X”R
------	-------	-------------	--------------	------	-----------------	-------------	----	------

**-DP**  
= 4 pairs  
per wafer

**-02**  
= 2 Rows

**-03**  
= 3 Rows

**-04**  
= 4 Rows

**-1**  
= 1 Bank

**-2**  
= 2 Banks

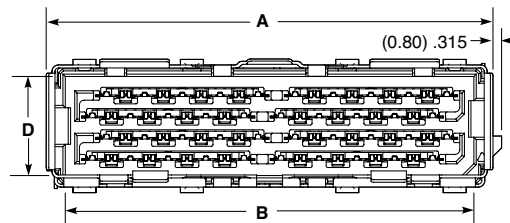
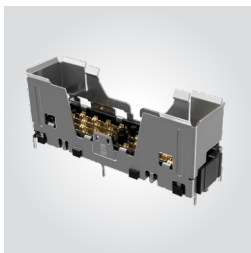
**-S**  
= 30 μ"  
(0.76 μm)  
Gold on  
contact area,  
Matte Tin on  
solder tail

**-2**  
= Lead-Free  
Solder Charge

**-TR**  
= Tape & Reel

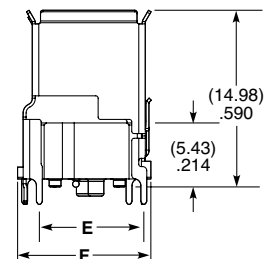
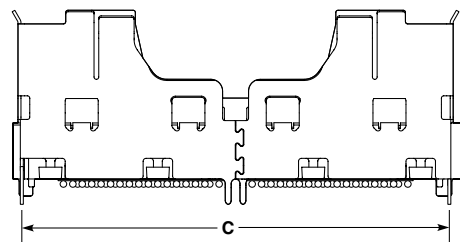
**-FR**  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)

**NVAM-CT**  
Board Mates:  
NVAC



NO. OF BANKS	A	B	C
-1	(21.89) .862	(18.65) .734	(20.25) .797
-2	(37.89) 1.492	(34.65) 1.364	(36.25) 1.427

NO. OF ROWS	D	E	F
-02	(4.80) .189	(5.26) .207	(7.70) .303
-03	(6.60) .260	(7.06) .278	(9.50) .374
-04	(8.40) .331	(8.86) .348	(11.30) .445



**Note:**  
Some sizes, styles and  
options are non-standard,  
non-returnable.

View complete specifications at: [samtec.com?NVAM-CT](http://samtec.com?NVAM-CT)

# ACCELERATE<sup>®</sup>HP

## EXTREME DENSITY CABLE SYSTEM

(0.635 mm) .025" PITCH

PAM4

112  
G b p s



### FEATURES & BENEFITS

- Industry's highest density 112G PAM4 cable system
- BGA solder ball attach for simplified board processing
- 0.635 mm contact pitch; 2.20 x 2.40 mm row-to-row pitch
- 4 to 6 rows (8 rows in development); 8 or 12 pairs per row
- Up to 96 twinax cables in development
- Single-ended micro coax configuration
  - 34 AWG ThinSE™ coax
  - 12 or 18 coax per row
  - Dedicated G-S-G-S-G layout for reduced crosstalk
- Right-angle mating connector in development
- 112 Gbps PAM4 Gen 2 on-package system with up to 144 differential pairs and Eye Speed® Thinax™ ultra performance twinax cable (ART6/ATF6); contact [HDR@samtec.com](mailto:HDR@samtec.com) for information



Locking for maximum density  
(removal tool required)



Squeeze latching for quick  
disconnect

### KEY SPECIFICATIONS (ARP6/ARF6-L)

PITCH	CABLE	SIGNAL ROUTING	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE
(0.635 mm) .025"	34 AWG ultra low skew twinax	92 Ω Differential	Black LCP	Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	-40 °C to +125 °C

**(0.635 mm) .025" • HIGH-DENSITY/PERFORMANCE CABLE**

ARP6	STYLE	NO. OF POSITIONS	NO. OF ROWS	CABLE LENGTH	END 2 ORIENTATION	END 1 OPTION	END 2 OPTION
	<p><b>-DP</b> = 92 Ω Ultra low skew twinax cable</p> <p><b>-SE</b> = 50 Ω ThinSE™ coax cable</p> <p><b>-DS</b> = Mixed -DP &amp; -SE</p>	Specify NO. OF POSITIONS from chart	<p><b>-04</b> = Four Rows</p> <p><b>-06</b> = Six Rows</p>	<p><b>-"XX.X"</b> = Length in Inches 05.0" (127 mm) minimum</p>	<p><b>-T</b> = Top</p> <p><b>-B</b> = Bottom</p>	<p><b>-L</b> = Squeeze Latch</p> <p><b>-T</b> = Locking Tool</p>	<p><b>-L</b> = Squeeze Latch</p> <p><b>-T</b> = Locking Tool</p>

**ARP6 Board Mates:**  
APF6-L

**ARP6-DP-037-06-XX.X-B-L-L SHOWN**

NO. OF POSITIONS PER ROW	A	NO. OF ROWS	B	C
-025	(20.34) .801	-04	(12.54) .494	(18.58) .731
-037	(27.96) 1.101	-06	(17.14) .675	(23.39) .921

STYLE	NO. OF POSITIONS PER ROW	PINOUT ARRANGEMENT
-DP	-025	8 Differential Pairs Per Row
-DP	-037	12 Differential Pairs Per Row
-SE	-025	12 Single-ended Signals Per Row
-SE	-037	18 Single-ended Signals Per Row
-DS	-025	2 Rows of 12 SE, Remaining Rows 8 DP Each
-DS	-037	2 Rows of 18 SE, Remaining Rows 12 DP Each

View complete specifications at: [samtec.com?ARP6](http://samtec.com?ARP6)

APF6	NO. OF POSITIONS	LEAD STYLE	PLATING	ROW	SOLDER TYPE	OPTION	"X"R
	<b>-025, -037</b> (Per Row)	<b>-03.5</b> = (3.5 mm) .138"	<p><b>-L</b> = 10 μ" (0.25 μm) Gold on contact area, Matte Tin on tail</p> <p><b>-S</b> = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on tail</p>	<p><b>-04</b> = Four Rows</p> <p><b>-06</b> = Six Rows</p>	<p><b>-2</b> = Lead-Free Solder Balls</p>	<p><b>-L</b> = Squeeze Latch</p> <p><b>-T</b> = Locking Tool</p>	<p><b>-TR</b> = Tape &amp; Reel</p> <p><b>-FR</b> = Full Reel Tape &amp; Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)</p>

**APF6-L/ APF6-T Cable Mates:**  
ARP6

**APF6-025-03.5-X-04-2-L SHOWN**

NO. OF POSITIONS PER ROW	A	C
-025	(22.39) .881	(17.59) .693
-037	(30.01) 1.181	(25.21) .993

NO. OF ROWS	B	D
-04	(13.50) .531	(9.90) .390
-06	(18.10) .713	(14.50) .571

**Note:**  
Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?APF6-L](http://samtec.com?APF6-L) & [samtec.com?APF6-T](http://samtec.com?APF6-T)

# ACCELERATE®

## SLIM, DIRECT ATTACH CABLE ASSEMBLIES

(0.635 mm) .025" PITCH

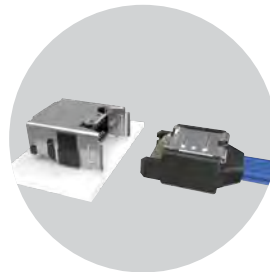


PAM 4

64  
G b p s

### FEATURES & BENEFITS

- Slimmest cable assembly in the industry - 7.6 mm width
- High-density 2-row design
- 8, 16 and 24 differential pair configurations
- 34 AWG, 100 Ω Eye Speed® ultra low skew twinax cable
- Multiple wiring options including reverse polarity
- Mating board level socket (ARF6 Series) features standard rugged weld tabs for increased stability on the PCB
- Rugged metal latching and shielding
- Supports 64 Gbps PAM4 (32 Gbps NRZ) applications
- PCIe® 6.0/CXL™ 3.1 capable
- Utilizes Samtec's Flyover® Technology to simplify board layout and extend signal reach



Right-angle available.  
Visit [samtec.com?ARF6-RA](https://www.samtec.com?ARF6-RA)  
for specifications.



Contacts directly  
soldered to the twinax for  
improved signal integrity

### KEY SPECIFICATIONS (ARC6/ARF6)

PITCH	CABLE	SIGNAL ROUTING	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE
(0.635 mm) .025"	34 AWG Eye Speed® ultra low skew twinax	100 Ω Differential	Black LCP	Copper Alloy	Au over 50 μ" (1.27 μm) Ni	-40 °C to +125 °C

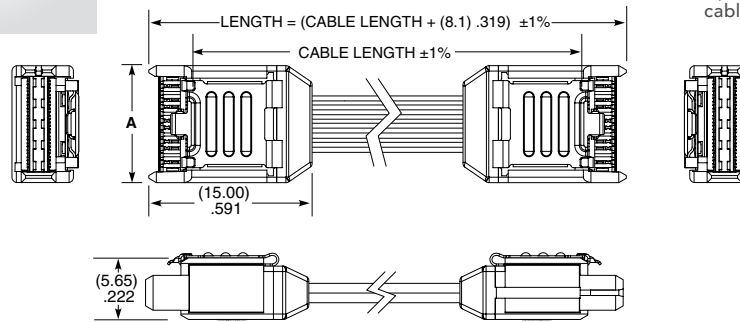
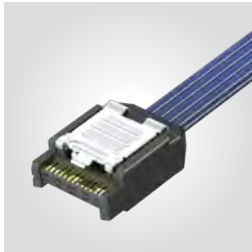
PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.



**(0.635 mm) .025" • SLIM CABLE & SOCKET**

ARC6	NO OF PAIRS	CABLE LENGTH	END 1	END 2	WIRING OPTION	CABLE TYPE
	-08 -16 -24	-"XX.X" = Length in Inches 03.0" (76.2 mm) minimum	-LU = Latch Up	-LU = Latch Up  -LD = Latch Down	-2 = Pin 1 to Pin 2 (End 2 -LD option only)  -3 = Pin 1 to Pin N-1 (End 2 -LU option only)  -2R = Pin 1 to Pin 2 Reversed Polarity (End 2 -LD option only) 06.0" (152.4 mm) min. cable length  -3R = Pin 1 to Pin N-1 Reversed Polarity (End 2 -LU option only) 06.0" (152.4 mm) min. cable length	-1 = 34 AWG 100 Ω Eye Speed® Ultra low skew twinax

**ARC6**  
Board Mates:  
ARF6



**ARC6-08-XX.X-LU-LU-3-X SHOWN**

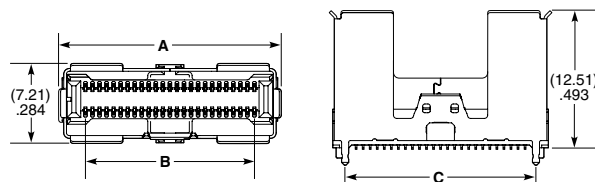
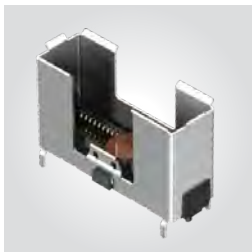
NO. OF PAIRS	A	N	N-1
-08	(10.90) .429	26	25
-16	(18.52) .729	50	49
-24	(26.14) 1.029	74	73

**Notes:**  
Cable lengths longer than 40.00" (1 meter) are not supported with S.I. test data.

View complete specifications at: [samtec.com?ARC6](http://samtec.com?ARC6)

ARF6	NO. OF PAIRS	PLATING	ROW	A	K	"X"R
	-08 -16 -24	-S = 30 μ" (0.76 μm) Gold on contact area, Matte Tin on tail  -STL = 30 μ" (0.76 μm) Gold on contact area, Matte Tin/Lead on tail	-D = Double Row	-A = Alignment Pin	-K = Polyimide film Pick & Place Pad	-TR = Tape & Reel  -FR = Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks)

**ARF6**  
Cable Mates:  
ARC6



**ARF6-16-S-D-A SHOWN**

NO. OF PAIRS	A	B	C
-08	(12.46) .491	(7.62) .300	(9.59) .378
-16	(20.08) .791	(15.24) .600	(17.21) .678
-24	(27.70) 1.091	(22.86) .900	(24.83) .978

**Notes:**  
Tape & Reel packaging and K-Dot are standard.

Some sizes, styles and options are non-standard, non-returnable.

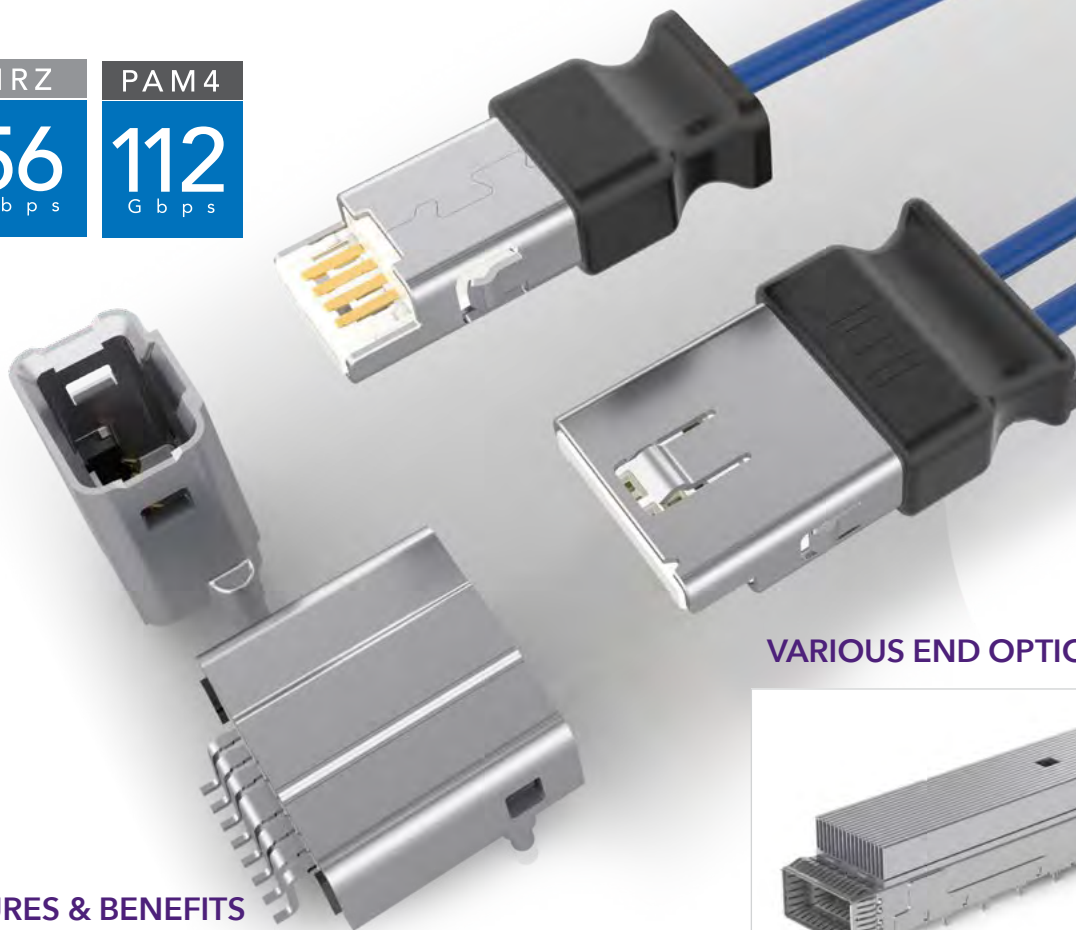
View complete specifications at: [samtec.com?ARF6](http://samtec.com?ARF6)

# ACCELERATE<sup>®</sup> mini

## EXTREME PERFORMANCE, MINI FORM FACTOR CABLE

(0.635 mm) .025" PITCH

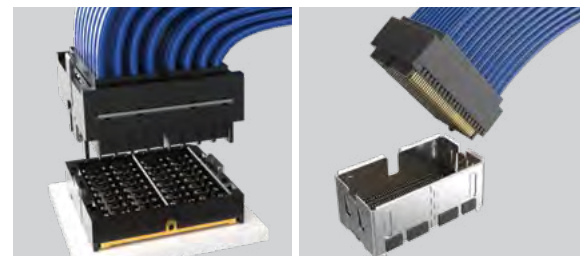
NRZ	PAM4
56 Gbps	112 Gbps



### VARIOUS END OPTIONS AVAILABLE



800G Flyover<sup>®</sup> QSFP Double Density



Si-Fly<sup>™</sup> HD

AcceleRate<sup>®</sup> HP Gen 2

### FEATURES & BENEFITS

- 112 Gbps PAM4 performance
- Eye Speed<sup>®</sup> 34 AWG, 92  $\Omega$  Thinax<sup>™</sup> ultra performance twinax cable
- One or two differential pairs
- Vertical and right-angle mating board connector
- Design flexibility as an End 2 option for Flyover<sup>®</sup> assemblies
- Friction retention latching
- Standard alignment pins

### KEY SPECIFICATIONS

CABLE	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING
34 AWG, 92 $\Omega$ Thinax <sup>™</sup> ultra performance twinax	LCP	Copper Alloy	Au or Sn over 50 $\mu$ " (1.27 $\mu$ m) Ni	Testing Now!	Testing Now!	Testing Now!

**(0.635 mm) .025" • MINI FORM FACTOR CABLE ASSEMBLY**

ARM6	NO. OF PAIRS	CABLE LENGTH	END 1	END 2	WIRING OPTION	CABLE STYLE
------	--------------	--------------	-------	-------	---------------	-------------

-01, -02

-“XX.X”  
= Length in Inches  
03.0” (76.2 mm)  
minimum

-LU  
= Latch up

-LU  
= Latch up  
  
-LD  
= Latch down

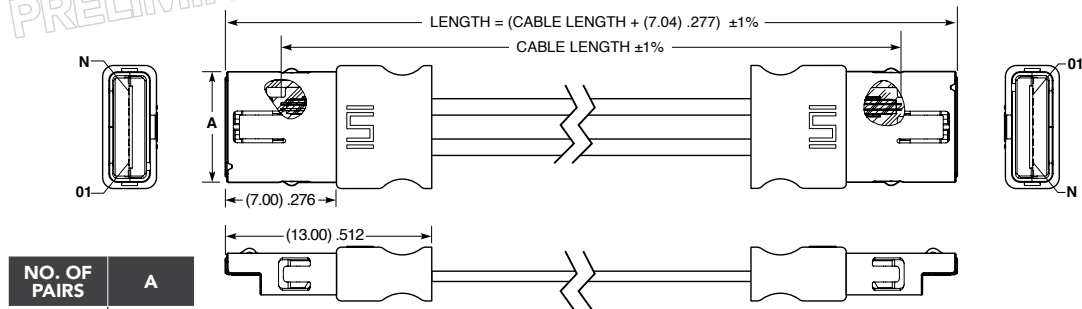
-1  
= Pin 1 to Pin 1  
(End 2 -LD only)  
  
-4  
= Pin 1 to Pin N  
(End 2 -LU only)

-1  
= 34 AWG  
92 Ω  
Eye Speed®  
Thinax™

**ARM6**  
Board Mates:  
AMF6



PRELIMINARY



**ARM6-02-XX.X-LU-LU-4-X SHOWN**

**Note:**  
Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?ARM6](http://samtec.com?ARM6)

AMF6	NO. OF PAIRS	PLATING	ROW OPTION	OPTION	“X”R
------	--------------	---------	------------	--------	------

-01, -02

-S  
= 30 μ" (0.76 μm)  
Gold on contact area,  
Matte Tin on tail

(Leave blank for vertical)

(Leave blank for Right-angle)

-TR  
= Tape & Reel

**AMF6**  
Cable Mates:  
ARM6

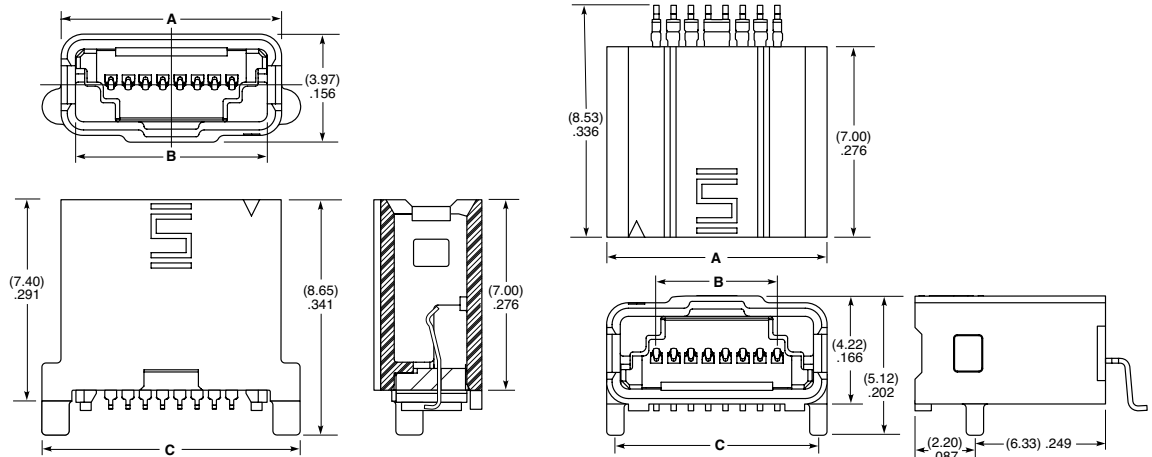
PRELIMINARY

NO. OF PAIRS	A	B	B (-RA)	C	C (-RA)
-01	(5.56) .219	(4.51) .176	(1.91) .075	(6.96) .274	(4.92) .194
-02	(8.10) .319	(7.05) .278	(4.75) .175	(9.50) .374	(7.46) .294

-RA  
= Right-angle

-K  
= (5.00 mm) .197" DIA  
Polyimide film  
Pick & Place Pad

-FR  
= Full Reel Tape & Reel  
(must order maximum quantity per reel; contact Samtec for quantity breaks)



**AMF6-02-S-K-XR SHOWN**

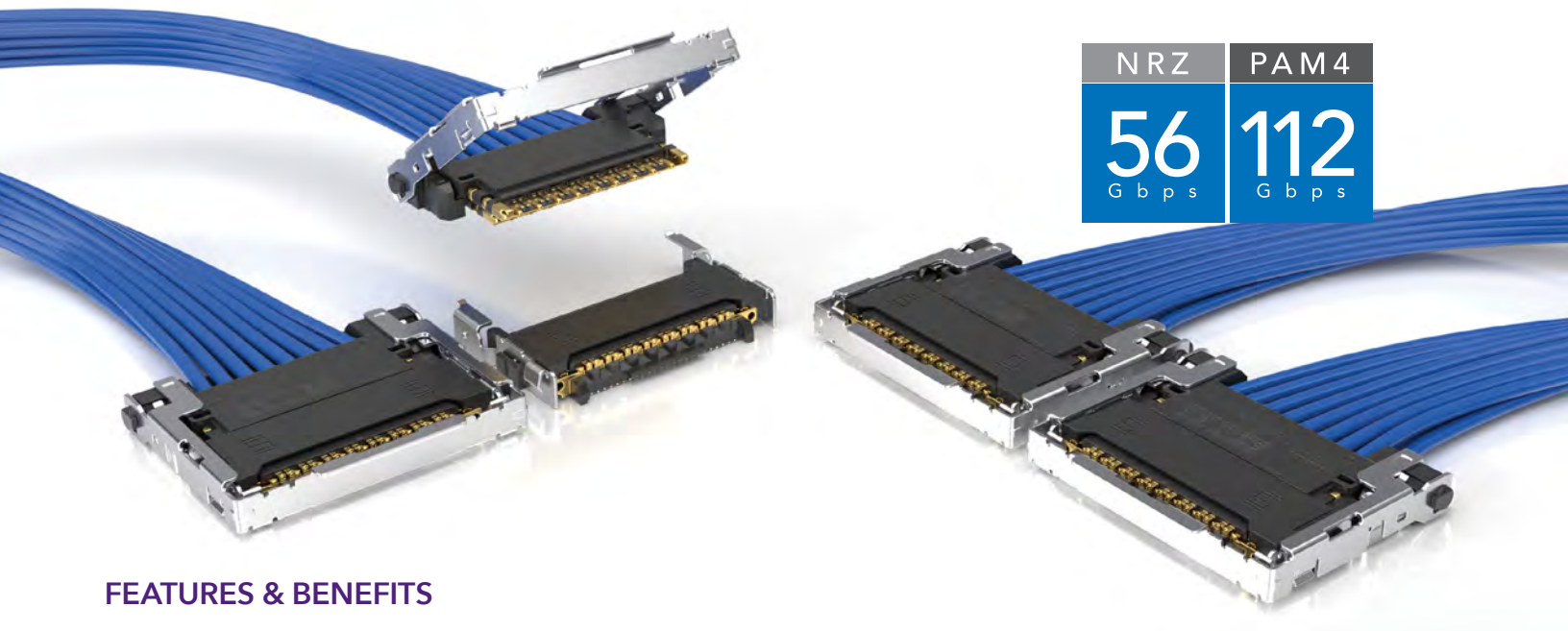
**AMF6-02-S-RA-XR SHOWN**

**Note:**  
Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?AMF6](http://samtec.com?AMF6)



# 112 Gbps PAM4, LOW PROFILE HIGH-DENSITY CABLE SYSTEM



NRZ	PAM4
56 Gbps	112 Gbps

## FEATURES & BENEFITS

- Ultra low profile interconnect for placement adjacent to the IC package, under heat sinks or other cooling hardware
- Up to 16 pairs in an incredibly low 4 mm profile
- 112 Gbps PAM4 per lane enabling 25.6 TB aggregate with a path to 51.2 TB
- Si-Fly™ HD is the highest density on-package system with 224 Gbps PAM4 performance, routing signals from the silicon package through Eye Speed® AIR™ ultra performance twinax cable (HPC/HPI). Contact [HDR@samtec.com](mailto:HDR@samtec.com) for additional information.
- PCIe® 6.0/CXL™ 3.1 capable



Si-Fly™ HD features 64 pairs in an incredibly small 14 mm x 14 mm footprint



In development: Rugged latching configuration provides a secure connection directly adjacent to the IC package for increased signal integrity performance

## KEY SPECIFICATIONS (CPC/CPI)

CABLE	SIGNAL ROUTING	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING
34 AWG ultra low skew twinax	92 Ω & 100 Ω	Black LCP	Copper Alloy	Au over 50 μ" (1.27 μm) Ni

PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.



## 0.6 mm LOW PROFILE CABLE & INTERCONNECT

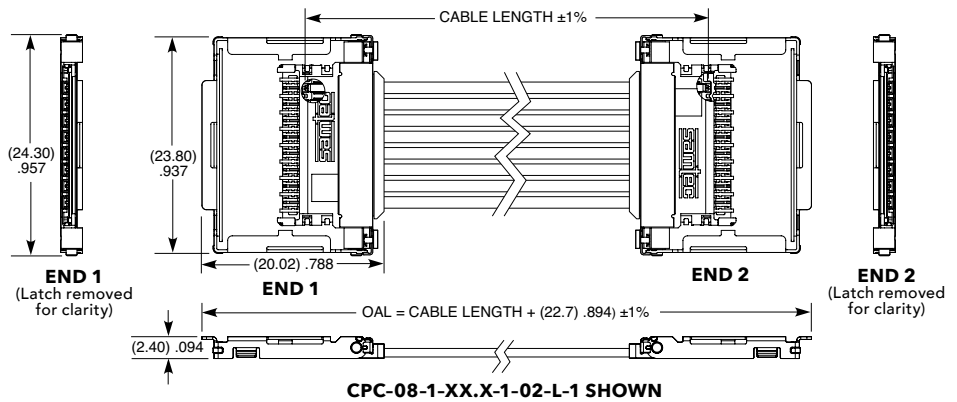
CPC	NO. OF PAIRS	CABLE STYLE	CABLE LENGTH	ROW	END 2	L	WIRING OPTION
	-08, -16	-1 = 92 Ω 34 AWG ultra low skew twinax cable  -2 = 100 Ω 34 AWG ultra low skew twinax cable	-"XX.X" = Wire Length in Inches 06.0" (152.4 mm) minimum	-1 = 1 Row (-08 pairs only)  -2 = 2 Row (-16 Pairs only)	-02 = CPC		Specify WIRING OPTION from chart

WIRING OPTION	ROW	CONFIGURATION
-1	Single	Pin A1 to A25
	Double	Pin A1 to A25 Pin B1 to B25
-2	Single	Pin A1 to A1
	Double	Pin A1 to B1 Pin B1 to A1

**CPC**  
Board Mates:  
CPI



PRELIMINARY

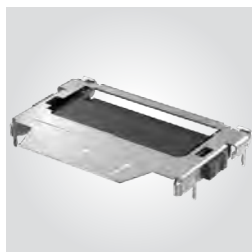


**Note:**  
Cable lengths longer than 40.00" (1 meter) are not supported with S.I. test data.

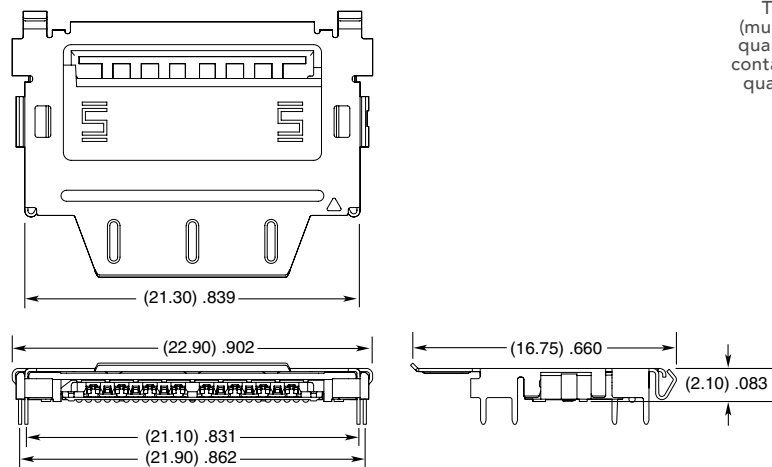
View complete specifications at: [samtec.com?CPC](http://samtec.com?CPC)

CPI	NO. OF PAIRS	LEAD STYLE	ROW	PLATING OPTION	RA	SOLDER TYPE	L	"X"R
	-08, -16	-01 = Surface Mount	-1 = 1 Row, 8 Pairs  -2 = 2 Row, 16 Pairs	-S = 30 μ" (0.76 μm) Gold on contact area, Tin on tail		-2 = Lead-Free Solder Ball		-TR = Tape & Reel  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**CPI**  
Cable Mates:  
CPC



PRELIMINARY



**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?CPI](http://samtec.com?CPI)

## EDGE CARD CABLE ASSEMBLIES

(0.60 mm) .024" PITCH • GC6 SERIES

PAM4  
**64**  
Gbps

### GC6

**Mates:**  
HSEC6-DV  
(Shield (-S) option  
required for mating)

### SPECIFICATIONS

**Cable:**  
34 AWG Eye Speed®  
ultra low skew twinax

**Signal Routing:**  
100 Ω Differential

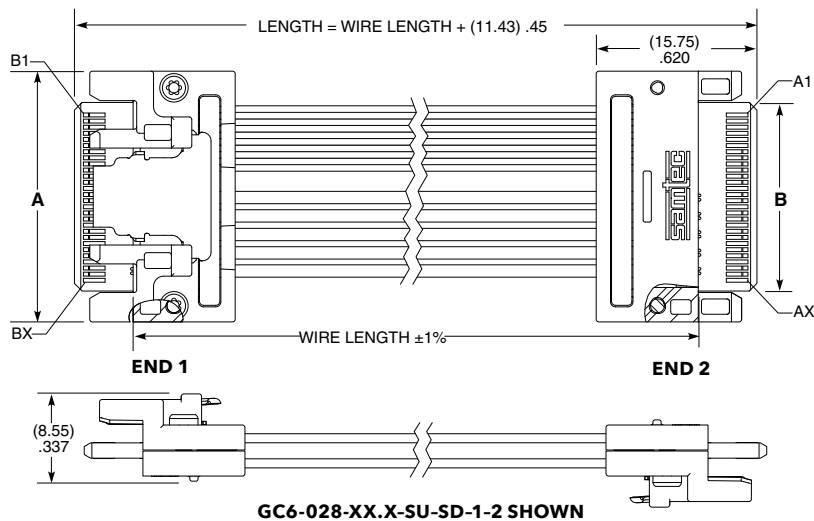
**Plating:**  
Au over 50 μ" (1.27 μm) Nickel

**Operating Temp Range:**  
Testing Now!

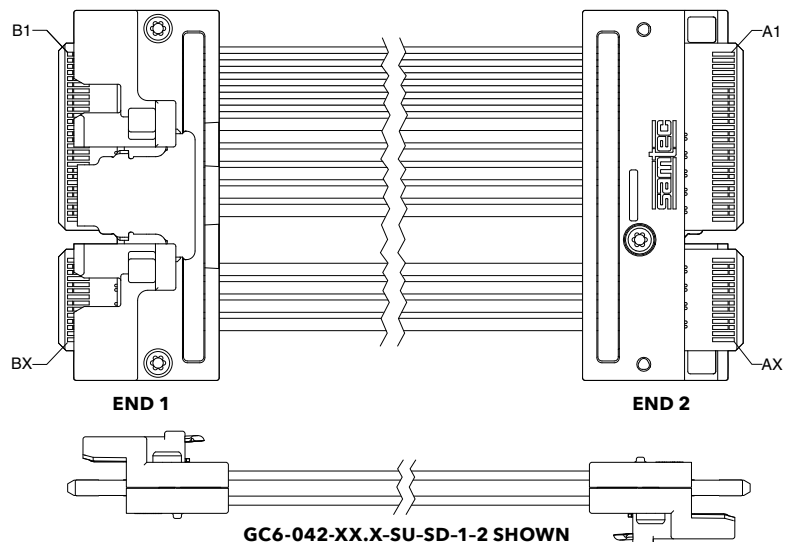
**Current Rating:**  
Testing Now!

**Protocols:**  
SFF-TA-1002 Compatible

GC6	NO. OF POSITIONS	WIRE LENGTH	END NO. 1	END NO. 2	WIRE MAPPING	CABLE TYPE
	-028 = 28 positions (1C)	-"XX.X" = Wire Length in Inches 06.0" (152.4 mm) minimum	-SU = Straight, Latch Up	-SD = Straight, Latch Down	-1 = Pin A1 to Pin A1	-2 = 34 AWG 100 Ω ultra low skew twinax cable
	-042 = 42 positions (2C)		-RU = Right- angle, Latch Up	-RD = Right- angle, Latch Down (Not available with -SU option)		
	-070 = 70 positions (4C)					



POSITIONS PER ROW	A	B	X
-028	(24.57) .967	(18.480) .728	28
-042	(36.29) 1.429	(30.170) 1.188	42
-070	(57.71) 2.272	(51.280) 2.019	70



**Notes:**  
Cable lengths longer than  
40.00" (1 meter) are not  
supported with S.I. test data.

Design your full cable assembly  
with Samtec's High-Speed  
Cable Solutionator® at  
[www.samtec.com/cablebuilder](http://www.samtec.com/cablebuilder)

Some lengths, styles and  
options are non-standard,  
non-returnable.

# HIGH-SPEED CABLE ASSEMBLIES

MIX-AND-MATCH FLEXIBILITY • MICRO COAX & TWINAX CABLE • PCI EXPRESS® 2.0/3.0/4.0/5.0

122-123

SEARAY™ HIGH-SPEED,  
HIGH-DENSITY CABLE SYSTEM  
(SEAC)



124

COPPER FIREFLY™  
MICRO FLYOVER SYSTEM™  
(ECUE, PCUE)



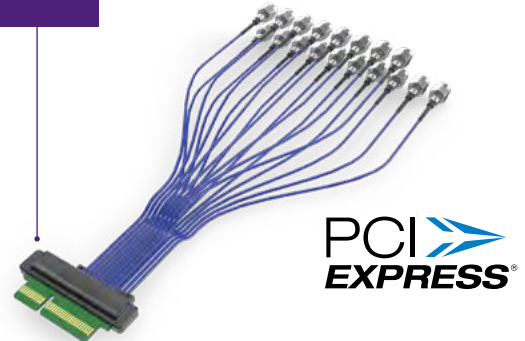
125

PCI EXPRESS® EDGE CARD SYSTEMS  
(PCIEC-G4, PCIEC-G5)



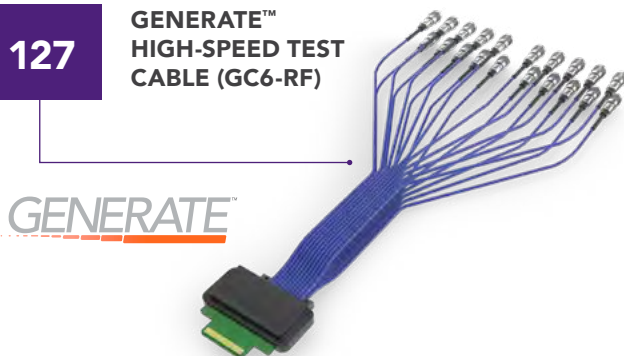
126

PCI EXPRESS® HIGH-SPEED TEST  
CABLES (PCRF-G4, PCRF-G5)



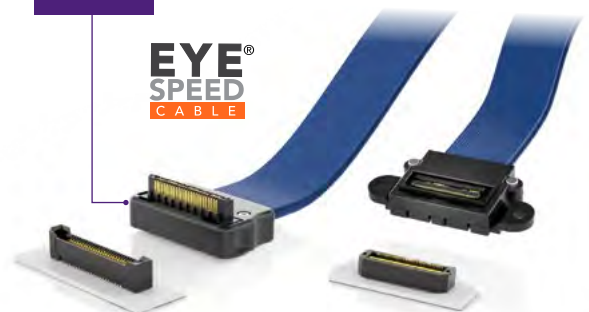
127

GENERATE™  
HIGH-SPEED TEST  
CABLE (GC6-RF)



128

ADDITIONAL HIGH-SPEED  
CABLE SOLUTIONS



# HIGH-SPEED CABLE ASSEMBLIES

MICRO COAX & TWINAX ASSEMBLIES • EYE SPEED® CABLE TECHNOLOGY • DESIGN FLEXIBILITY  
EASY CUSTOMS & EXPRESS MODIFICATIONS • WILLINGNESS, SUPPORT & EXPERTISE

## MICRO COAX & TWINAX CABLE ASSEMBLIES

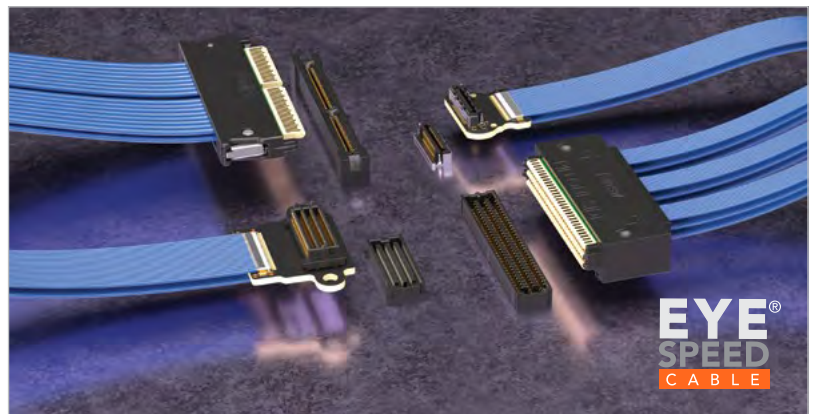
- Ability to mix-and-match end options for application-specific requirements with extensive customizing capabilities
- Single-ended 50  $\Omega$  & differential 100  $\Omega$  standards
- Rugged features and options including strain relief, plastic housings, screw downs, latches, locks, etc.
- Many non-cataloged standards available including 75  $\Omega$  micro coax and high-density twinax solutions

14  
G b p s



## EYE SPEED® CABLE TECHNOLOGY

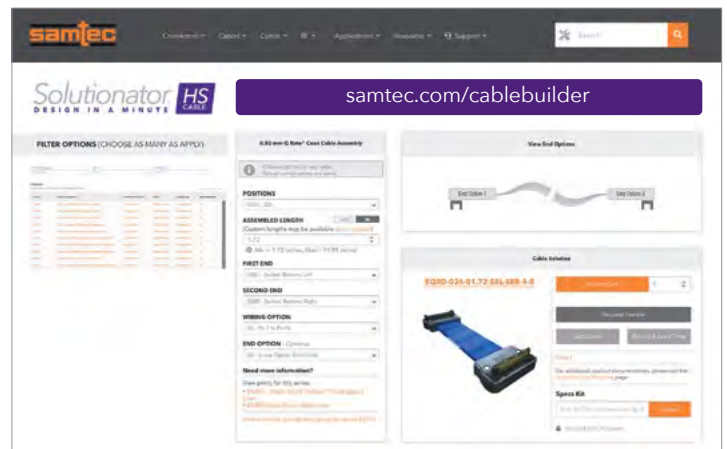
- Samtec's Eye Speed® cable supports a wide variety of assemblies and applications
- Excellent signal integrity performance with individual copper serve or copper tape shielding
- Stranded conductor for small bend radii and dynamic high flexing cycle applications
- Cost-effective ribbonizing eliminates discrete wires
- 26 – 38 AWG coax and twinax construction; 20  $\Omega$ , 50  $\Omega$ , 85  $\Omega$  & 100  $\Omega$



## HIGH-SPEED CABLE SOLUTIONATOR® ONLINE DESIGN TOOL

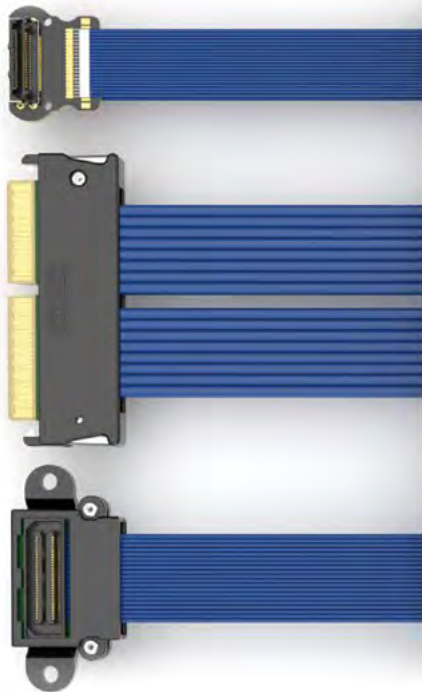
Quickly design full cable assemblies using a wide variety of user-defined search parameters and filters, view models and specifications, request samples and pricing, or place an order – all in Samtec's Solutionator® online design tool.

Visit [samtec.com/cablebuilder](http://samtec.com/cablebuilder) to get started!





## DESIGN FLEXIBILITY



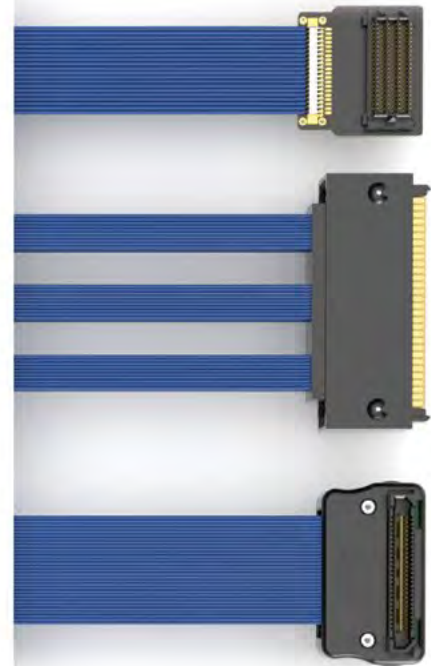
ANY  
high-speed **connector**

ANY  
break-out **configuration**

ANY  
high-speed **precision cable**

... to create a solution for  
any specific application.

[HDR@samtec.com](mailto:HDR@samtec.com)



## CUSTOMS & EXPRESS MODIFICATIONS

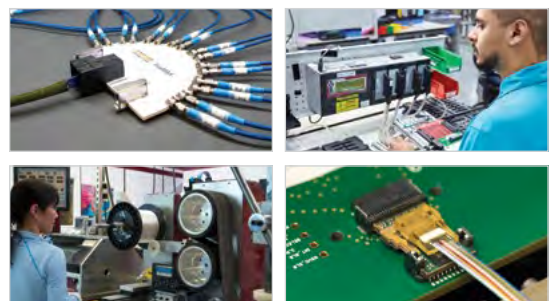
Samtec is able to support new and custom designs, as well as simple modifications to cable assemblies and board-to-board products – often with low or no NRE charges, short lead times, quick-turn samples, and low or no MOQ's. Visit [samtec.com/customs](http://samtec.com/customs) for additional details.

- Wiring
- Molding
- Plating
- Polarization
- Contacts
- Bodies
- Stamping
- Ruggedizing features
- Packaging
- Labeling
- Ink printing
- Shielding modifications



## WILLINGNESS, SUPPORT & EXPERTISE

- Engineering, design and prototype support
- Design simulation and processing assistance
- Global Operations, including multiple cable fabrication/assembly facilities
- Quotes and samples turned around in 24 hours
- Flexible, quick-turn manufacturing
- Dedicated Application Specific Product engineers and technicians



# SEARAY™

## HIGH-SPEED, HIGH-DENSITY CABLE ASSEMBLY

(1.27 mm) .050" PITCH



**14**  
Gbps

### FEATURES & BENEFITS

- 14 Gbps performance
- Up to 240 I/Os (1/2 of pins are dedicated to ground)
- 4, 6, 8 and 10 row designs
- Choice of Eye Speed® 36 AWG 50 Ω micro coax or 32 AWG 100 Ω twinax cable
- Positive latching when mated to SEAFC with latching post option
- Supports PCIe® 2.0 and 3.0 protocols



Guide post latching available for more rugged applications



Vertical board level mate (SEAFC); [samtec.com?seafc](http://samtec.com?seafc)



Eye Speed® cable for excellent signal integrity performance

### KEY SPECIFICATIONS (SEAC)

CABLE	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING
36 AWG 50 Ω micro coax or 32 AWG 100 Ω twinax cable	Black LCP	Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	-40 °C to +125 °C (coax) -25 °C to +105 °C (twinax)	0.4 A Specified Cable Rating	120 VAC

**(1.27 mm) .050" PITCH • HIGH DENSITY CABLE**

SEAC	NO. OF POSITIONS PER ROW	NO. OF ROWS	CABLE LENGTH	TU	TU	CABLE TYPE	LATCH OPTION
	<b>-020</b> (-04, -06, -08 & -10 row only)	<b>-04, -06, -08, -10</b>	<b>-"XX.X"</b> = Cable Length in Inches (101.6 mm) 04.0" minimum			Leave Blank for 36 AWG 50 Ω coax	Leave Blank for latch post
	<b>-030</b> (-04, -06 & -08 row only)						<b>-N</b> = No Latch
	<b>-040</b> (-04 & -06 row only)						
	<b>-050</b> (-04 row only)					<b>-2</b> = 32 AWG 100 Ω twinax	

**SEAC**  
Mates:  
SEAF8



**SIGNAL ROUTING**

Product has some lines dedicated to ground. For single-ended and differential pair signal/ground assignments see signal routing information on the assembly print at [www.samtec.com?seac](http://www.samtec.com?seac) Design your High-Speed Cable with Samtec's High-Speed Cable Solutionator<sup>®</sup> at [www.samtec.com/cablebuilder](http://www.samtec.com/cablebuilder)

**OTHER SOLUTIONS**

Other end options  
Mixed SEAC end types  
300 positions or greater

**Notes:**  
Mixed latch styles not available

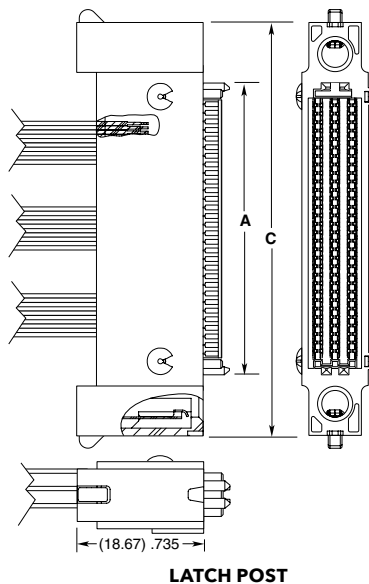
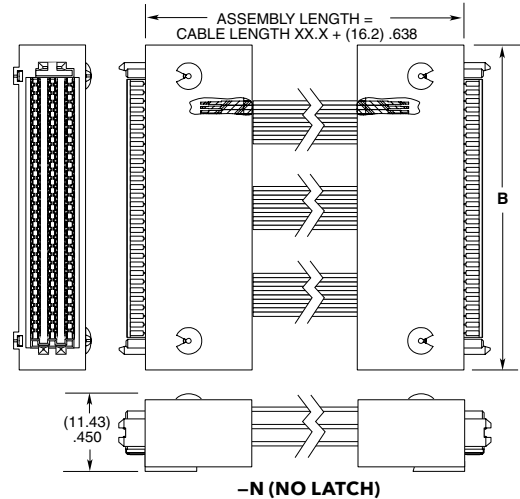
Cable lengths longer than 40.00" (1 meter) are not supported with S.I. test data.

PCIe<sup>®</sup> 2.0 & 3.0 capable

PCI-SIG<sup>®</sup>, PCI Express<sup>®</sup> and the PCIe<sup>®</sup> design marks are registered trademarks and/or service marks of PCI-SIG.

Some lengths, styles and options are non-standard, non-returnable.

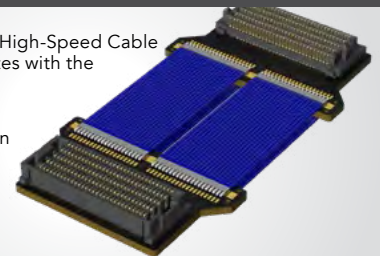
POSITIONS PER ROW	A	B	C
-020	(30.38) 1.196	(33.53) 1.320	(48.26) 1.900
-030	(43.08) 1.696	(46.23) 1.820	(60.96) 2.400
-040	(55.78) 2.196	(58.93) 2.320	(73.66) 2.900
-050	(68.48) 2.696	(71.63) 2.820	(86.36) 3.400



**SEARAY™ 0.80 mm CABLE ASSEMBLY**

(0.80 mm) .0315" pitch High-Speed Cable in 8 to 10 rows that mates with the SEAM8/SEAF8 Series.

For more information on the ESCA Series, visit [samtec.com?ESCA](http://samtec.com?ESCA)





# COPPER MICRO FLYOVER SYSTEM™

28  
Gbps

ECUE/PCUE SERIES



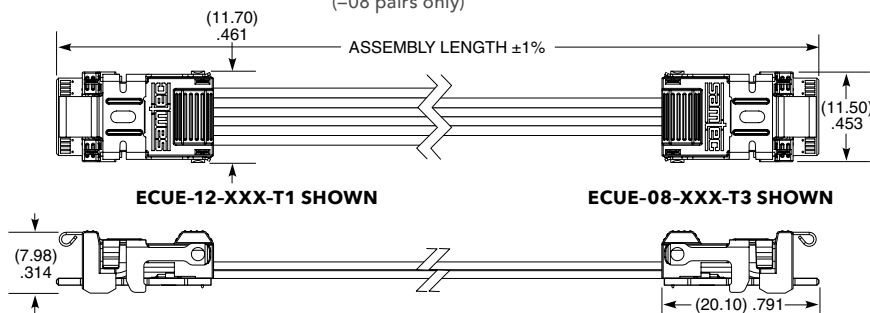
## ECUE

Mates:  
UEC5, UCC8

### SPECIFICATIONS

**Cable:**  
36 AWG twinax cable  
34 AWG twinax cable  
34 AWG ultra low skew twinax cable  
**Signal Routing:**  
100 Ω Differential  
**Bend Radius:**  
(3.18 mm) .125"

SERIES	NO OF PAIRS	ASSEMBLY LENGTH	CABLE TYPE	END 2 OPTION	WIRING OPTION	DATA RATE	OPTION
<b>ECUE</b> = Rugged FireFly™ Cable Assembly	<b>-08</b> = Eight Pair (-T2 & -T3 cable only)	<b>-“XXX”</b> = Assembly Length in Centimeters (007 cm to 999 cm)	<b>-T1</b> = 36 AWG twinax (-12 pairs only)	<b>-FF</b> = FireFly™ (Mates with UEC5/UCC8)	<b>-01</b> = Pin A1 to Pin A19	<b>-1</b> = 14 Gbps (-T1 or -T2 only)	Leave blank for standard FireFly™
	<b>-12</b> = Twelve Pair (-T1 cable only)		<b>-T2</b> = 34 AWG twinax (-08 pairs only)		<b>-02</b> = Pin A1 to Pin B1	<b>-2</b> = 28 Gbps (-T3 only)	<b>-D1</b> = Decoupling Capacitors (only available with -02 & -B4 wire options)
			<b>-T3</b> = 34 AWG ultra low skew twinax (-08 pairs only)		<b>-B4</b> = Pin A1 to Pin B19 (-08 pair only)		



**Notes:**  
All FireFly™ designs, specifications and components are subject to change without notice.

Cable lengths longer than 150 cm (59.06") are not supported with S.I. test data.

View complete specifications at: [samtec.com?ECUE](http://samtec.com?ECUE)

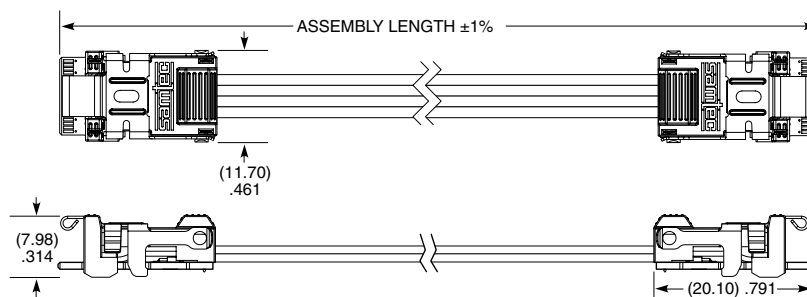
## PCUE

Mates:  
UEC5, UCC8

### SPECIFICATIONS

**Cable:**  
34 AWG ultra low skew twinax  
**Signal Routing:**  
100 Ω  
**Bend Radius:**  
(3.18 mm) .125"

SERIES	DATA RATE	NO. OF CHANNELS	ASSEMBLY LENGTH	END 2
<b>PCUE</b> = PCIe®-over-FireFly™ Copper Cable Assembly	<b>-G4</b> = 4.0 Speed	<b>-04</b> = 8 pairs	<b>-“XXX”</b> = Assembly Length in Centimeters (010 cm to 999 cm)	<b>-FF</b> = FireFly™ (Mates with UEC5/UCC8)



**Notes:**  
Supports PCIe® sideband signals

Decoupling capacitors in-line with signals on PCB.

PCI-SIG® PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.

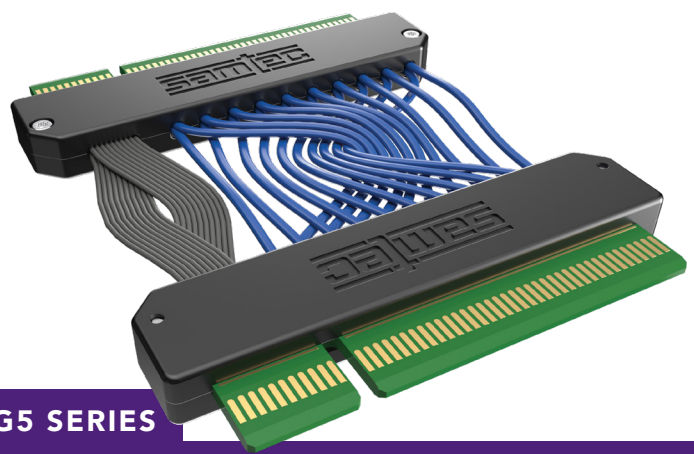
Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?PCUE](http://samtec.com?PCUE)



# PCI EXPRESS® CABLE ASSEMBLY

(1.00 mm) .0394" PITCH • PCIEC-G4/PCIEC-G5 SERIES



## PCIEC-G4

Mates:  
PCIE-G4

## PCIEC-G5

Mates:  
PCIE-G5

### SPECIFICATIONS

**Cable:**  
Eye Speed® 34 AWG Twinax;  
30 AWG insulated ribbon

**Operating Temp:**  
-25 °C to +105 °C

**Contact:**  
Copper Alloy

**Plating:**  
Au or Sn over 50 μ" Ni

**Performance:**  
Supports PCIe® 4.0 & 5.0

**Bend Radius:**  
(3.18 mm) .125"

PCIEC	GENERATION	NO. OF POSITIONS	WIRE LENGTH	END NO. 2	CABLE OPTION	IMPEDANCE
-------	------------	------------------	-------------	-----------	--------------	-----------

-G4  
= PCIe® 4.0

-036 (x1),  
-064 (x4),  
-098 (x8),  
-164 (x16)

-"XXXX"  
= Wire Length in millimeters  
0076 mm minimum

-C1  
= PCIe® Edge Card (Tx to Tx extender)

Leave blank for no power

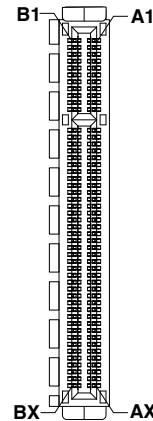
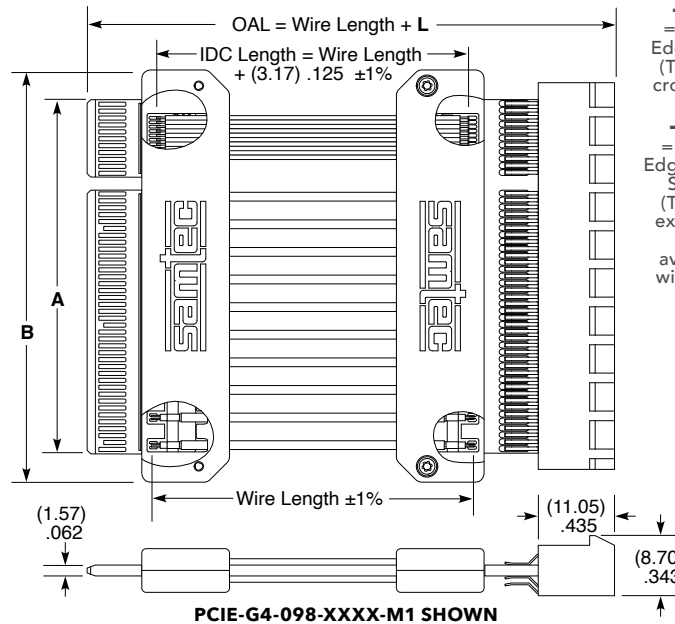
Leave blank for 100 Ω

-G5  
= PCIe® 5.0/6.0

-C2  
= PCIe® Edge Card (Tx to Rx crossover)

-P  
= Power

-M1  
= PCIeC Edge Mount Socket (Tx to Tx extender) (Not available with -G5)

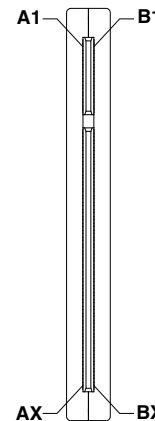
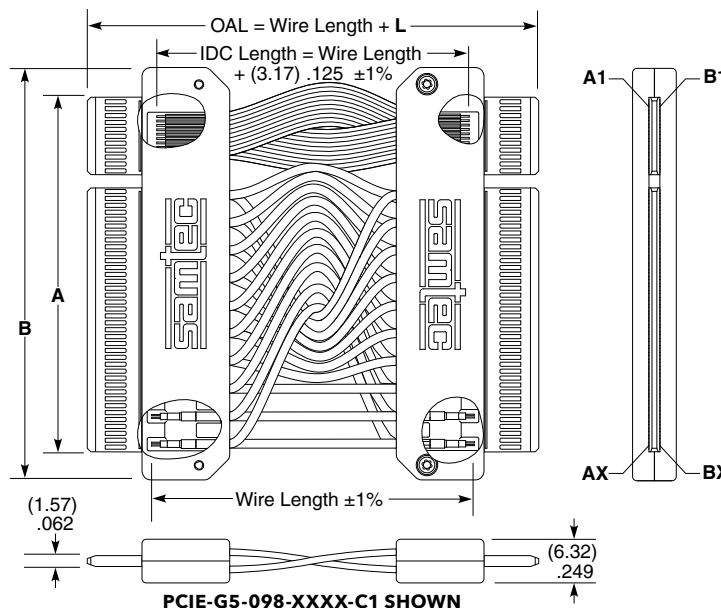


CABLE OPTION	IMPEDANCE	
	85 Ω	100 Ω
BLANK	34 AWG Taped Shield	
-P (With Power Lines)	34 AWG Taped Shield	

\* Contact [hdr@samtec.com](mailto:hdr@samtec.com) for information

END TO END	L
-C1 to -C1	(18.60) .732
-C1 to -C2	(42.69) 1.68
-C1 to -M1	(29.64) 1.167

NO. OF POSITIONS	X	A	B
-036 (x1)	18	(20.30) .799	(28.69) 1.13
-064 (x4)	32	(34.30) 1.35	(42.69) 1.68
-098 (x8)	49	(51.30) 2.02	(59.69) 2.35
-164 (x16)	82	(84.30) 3.32	(92.69) 3.65



### ALSO AVAILABLE

For speeds of PCIe® 2.0 & 3.0, visit [www.samtec.com?PCIEC](http://www.samtec.com?PCIEC)

**Notes:**  
Cable lengths longer than 1015 millimeters are not supported with S.I. test data.

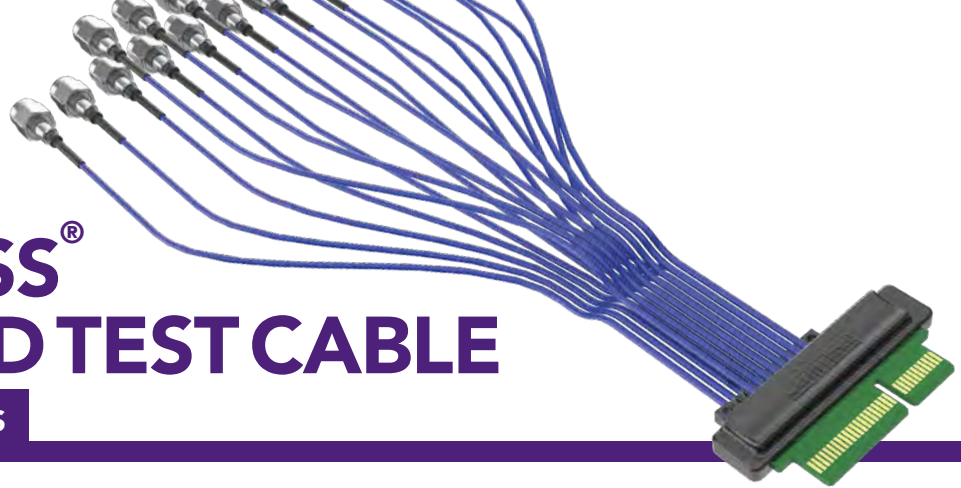
Design your full cable assembly with Samtec's High-Speed Cable Solutionator® at [www.samtec.com/cablebuilder](http://www.samtec.com/cablebuilder)

PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.

This Series is non-standard, non-returnable.

# PCI EXPRESS® HIGH-SPEED TEST CABLE

## PCRF-G4/PCRF-G5 SERIES



### PCRF

Mates:  
PCIE-G4, PCIE-G5, 292

### SPECIFICATIONS

#### Card:

**Conductor:**  
1/2 oz. Copper  
**Contact Area:**  
Hard Gold  
**Insulator:**  
Megtron 6

#### Cable:

**Type:**  
Low Loss Microwave Coax  
**Gauge:**  
29 AWG Silver Plated Copper  
**Signal Conductor:**  
(.287) .0113" DIA  
**Overall Shield Diameter:**  
(1.17 mm) .046" DIA  
**Jacket Material:**  
FEP  
**Impedance:**  
50 Ω  
**Bend Radius:**  
10.0 Min  
**Capacitance:**  
29 pF/foot  
**Operating Temp:**  
-65 °C to 150 °C  
**Frequency Range:**  
DC to 110 GHz

PCRF	GENERATION	NO. OF POSITIONS	WIRE LENGTH	END OPTION	RF CONNECTOR	RF GENDER	COAX
	<b>-G4</b> = PCIe® 4.0	<b>-036,</b> <b>-064,</b> <b>-098,</b> <b>-164</b> (Per Row)	<b>-"XXXX"</b> = Wire Length in millimeters 0152 mm (06.0") MIN 1000 mm (39.4") MAX	<b>-EC</b> = PCIe® Edge Card  <b>-EM</b> = PCIe® Edge Mount (-G4 only)	<b>-292</b> = 2.92 mm Connector	<b>-P</b> = Plug  <b>-J</b> = Jack	<b>-1</b> = 31 AWG

NO. OF POSITIONS	A	B	N	NO. OF COAX
-036	(20.30) .800	(35.54) 1.40	18	6
-064	(34.30) 1.35	(49.54) 1.95	32	18
-098	(51.30) 2.02	(66.54) 2.62	49	34
-164	(84.30) 3.32	(99.54) 3.92	82	66

### ALSO AVAILABLE

PCI Express® cable with SMAs for debug; visit [samtec.com?PCRF](http://samtec.com?PCRF)

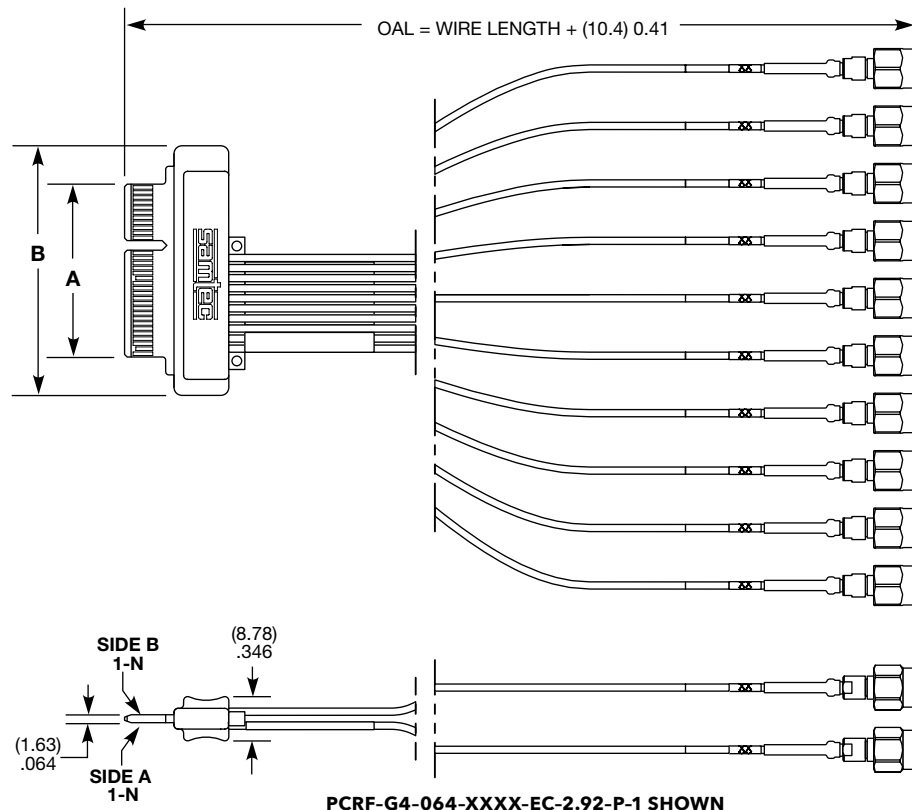
#### Notes:

Cable lengths longer than 40.00" (1 meter) are not supported with S.I. test data.

Design your full cable assembly with Samtec's High-Speed Cable Solutionator® at [www.samtec.com/cablebuilder](http://www.samtec.com/cablebuilder)

PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG

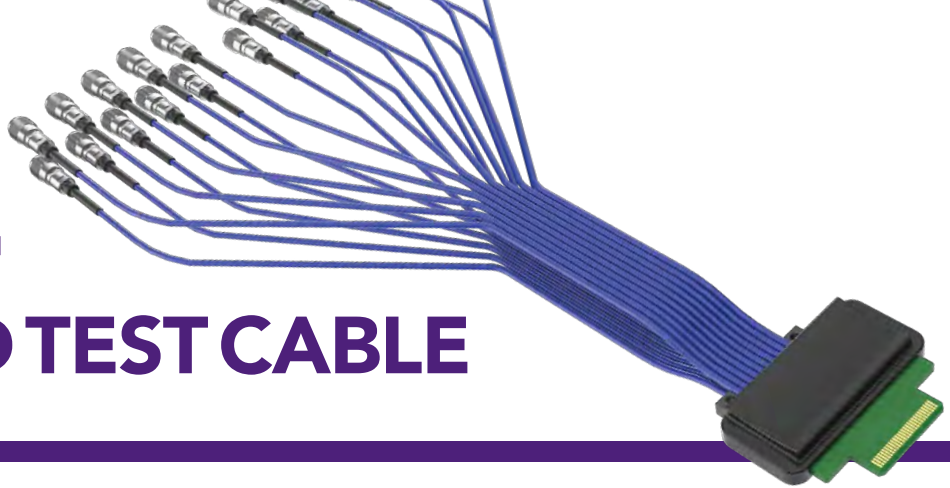
This Series is non-standard, non-returnable.



# GENERATE™

# GENERATE™ HIGH-SPEED TEST CABLE

## GC6-RF SERIES



### GC6

Mates:  
HSEC6-DV, 292

### SPECIFICATIONS

#### Card:

**Conductor:**  
1/2 oz. Copper  
**Contact Area:**  
Hard Gold  
**Insulator:**  
Megtron 6

#### Cable:

**Type:**  
Low Loss Microwave Coax  
**Gauge:**  
29 AWG Silver Plated Copper  
**Signal Conductor:**  
(.287) .0113" DIA  
**Overall Shield Diameter:**  
(1.17 mm) .046" DIA  
**Jacket Material:**  
FEP  
**Impedance:**  
50 Ω  
**Bend Radius:**  
10.0 Min  
**Capacitance:**  
29 pF/foot  
**Operating Temp:**  
-65 °C to 150 °C  
**Frequency Range:**  
DC to 110 GHz

GC6	RF	NO. OF POSITIONS	WIRE LENGTH	END OPTION	RF CONNECTOR	RF GENDER	COAX
-----	----	------------------	-------------	------------	--------------	-----------	------

-028 (1C),  
-042 (2C),  
-070 (4C)  
(Per Row)

-"XXXX"  
= Wire Length  
in millimeters  
0152 mm  
(06.0") MIN  
1000 mm  
(39.4") MAX

-EC  
= Edge  
Card

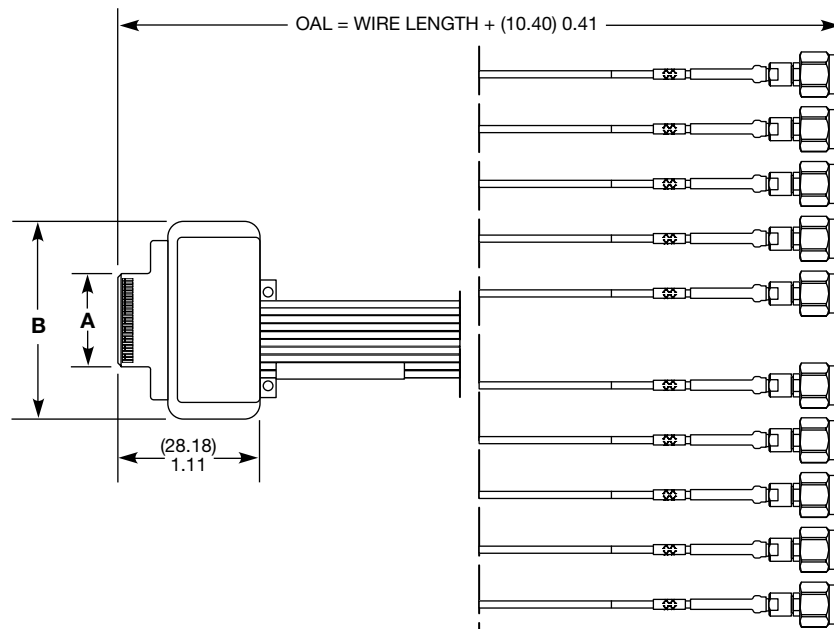
-292  
= 2.92 mm  
Connector

-P  
= Plug  
  
-J  
= Jack

-1  
= 31 AWG

PRELIMINARY

NO. OF POSITIONS	A	B	N	NO. OF COAX
-028	(18.48) .728	(39.18) 1.54	28	20
-042	(30.17) 1.19	(50.87) 2.00	42	36
-070	(51.28) 2.02	(71.98) 2.83	70	68



#### Notes:

Cable lengths longer than 40.00" (1 meter) are not supported with S.I. test data.

Design your full cable assembly with Samtec's High-Speed Cable Solutionator® at [www.samtec.com/cablebuilder](http://www.samtec.com/cablebuilder)

This Series is non-standard, non-returnable.

GC6-RF-028-XXXX-EC-292-P-1 SHOWN

# ADDITIONAL HIGH-SPEED CABLE ASSEMBLIES

## Ground Plane Assemblies

- Integral power/ground plane
- 34 and 38 AWG coax; 30 and 32 AWG twinax
- 0.50 mm pitch (HQCD/HQDP) and 0.80 mm pitch (EQCD/EQDP) assemblies with rugged screw mount or retention pin options
- 0.80 mm pitch (EQRD) assembly with Edge Rate® contacts for reduced broadside coupling
- Mates with Q Series® and Q Rate® connectors



View complete specifications at:

[samtec.com?HQCD](http://samtec.com?HQCD) | [samtec.com?HQDP](http://samtec.com?HQDP) | [samtec.com?EQCD](http://samtec.com?EQCD) | [samtec.com?EQDP](http://samtec.com?EQDP) | [samtec.com?EQRD](http://samtec.com?EQRD)

## Edge Card Assemblies

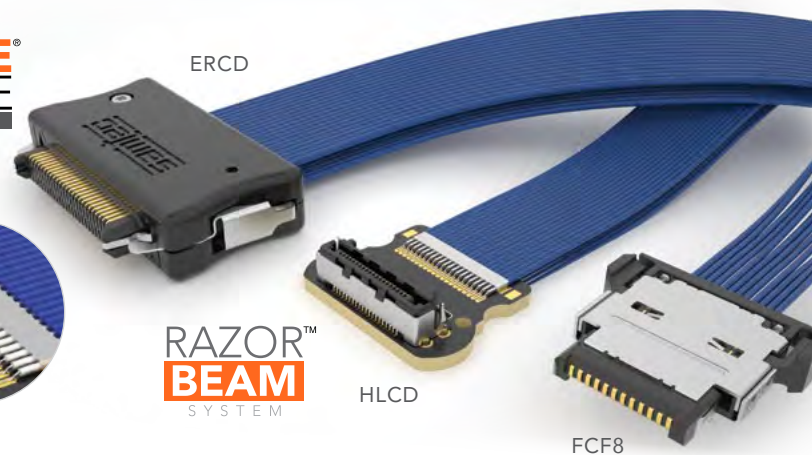
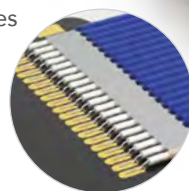
- 30 AWG twinax (ECDP); mates with Generate™ 0.80 mm pitch edge cards (HSEC8)
- Available without housing for cost savings
- 34 AWG ultra low skew twinax (FEDP); mates with 0.50 mm pitch edge card (FCDP)
- 16 Gbps NRZ performance, to 56 Gbps PAM4 when paired with FQSFP Series or FQSFP-DD Series



View complete specifications at: [samtec.com?ECDP](http://samtec.com?ECDP) | [samtec.com?FEDP](http://samtec.com?FEDP)

## High-Speed Assemblies

- Ultra-micro hermaphroditic Razor Beam™ coax assemblies with rugged shielding (HLCD)
- Mates with 0.50 mm pitch Razor Beam™ connectors
- 0.80 mm pitch Edge Rate® coax and twinax assemblies (ERCD, ERDP)
- Low-cost 0.80 mm pitch coax cable system in a compact form factor (FCF8/FCS8)
- 38 AWG coax & 30 AWG twinax assemblies



View complete specifications at:

[samtec.com?HLCD](http://samtec.com?HLCD) | [samtec.com?ERCD](http://samtec.com?ERCD) | [samtec.com?ERDP](http://samtec.com?ERDP) | [samtec.com?FCF8](http://samtec.com?FCF8) | [samtec.com?FCS8](http://samtec.com?FCS8)



# OPTICS

FUTURE PROOF • HIGH PERFORMANCE • PCI EXPRESS® • END OPTION FLEXIBILITY

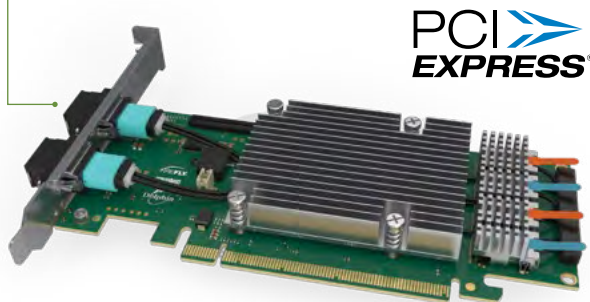
**130-133** FIREFLY™ MICRO FLYOVER SYSTEM™  
(ECUO, ETUO, ETMO)



**134** PCI EXPRESS®-OVER-FIBER FIREFLY™  
SYSTEM (PCUO, PTUO)



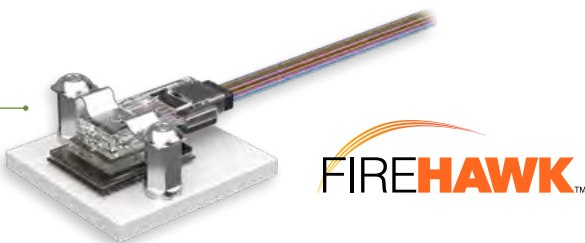
**136** PCI EXPRESS®-OVER-FIBER FIREFLY™  
ADAPTOR CARD (PCOA)



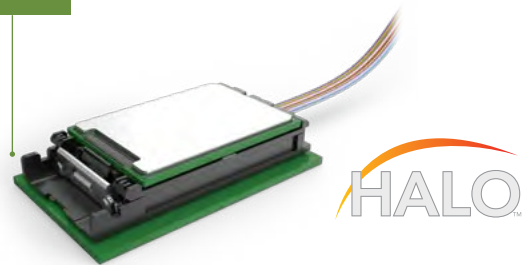
**137** OPTICAL PATCH CABLE & ADAPTOR  
(FOPC, OPA)



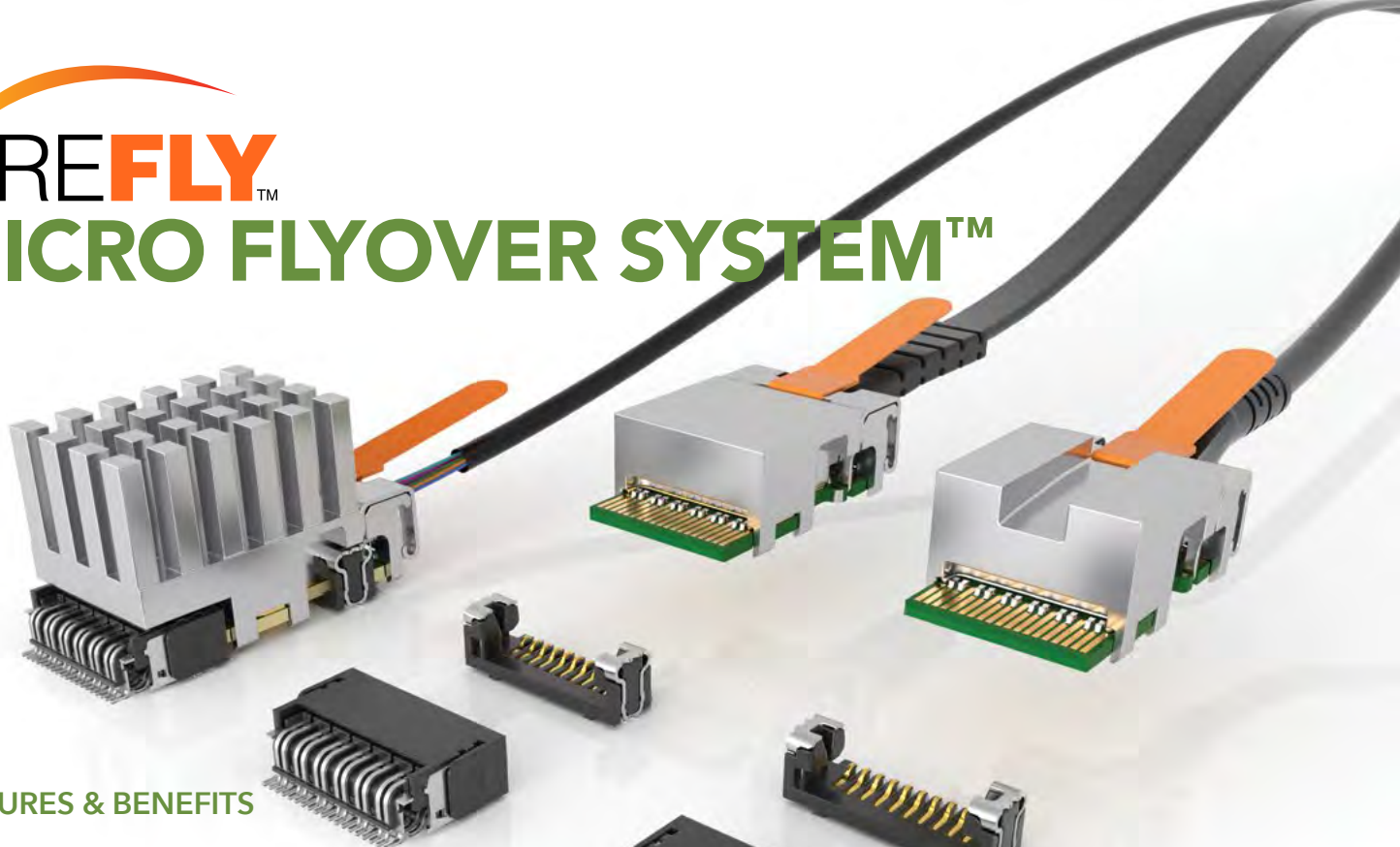
**138** FIREHAWK™ RUGGEDIZED OPTICAL  
TRANSCEIVERS (RVCN, CSPO, CSSO)



**139** HALO™ NEXT GEN OPTICAL (HALO)



# FIREFLY™ MICRO FLYOVER SYSTEM™

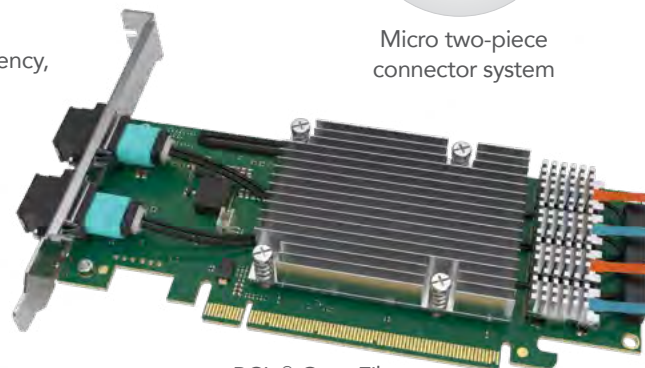


## FEATURES & BENEFITS

- Data connection taken “off board” simplifies board layout
- Industry leading miniature footprint allows for higher density close to data source
- Performance up to 28 Gbps per lane with a path to 112 Gbps PAM4 via optical cable for greater reach
- Simple assembly process with easy insertion/removal and trace routing, no through-holes
- Interchangeability of copper and optical cable using the same two-piece surface mount connector
- PCIe®-Over-Fiber (PCUO/PTUO) supports PCIe® protocol for low latency, power savings and guaranteed transmission; 3.0 and 4.0 solutions
- -40 °C to +85 °C extended temperature system (ETUO) for military, aerospace and industrial applications
- Extreme Environment FireFly™ sealed and parylene-coated for exposed applications (ETMO)
- Multiple end options available: MTP®, MCX®, MT, VITA 66.X and other common interfaces
- Variety of integral heat sinks for conduction and convection cooling



Micro two-piece connector system



PCIe®-Over-Fiber Adaptor Card

## PRODUCT ROADMAP

### Advanced Optics

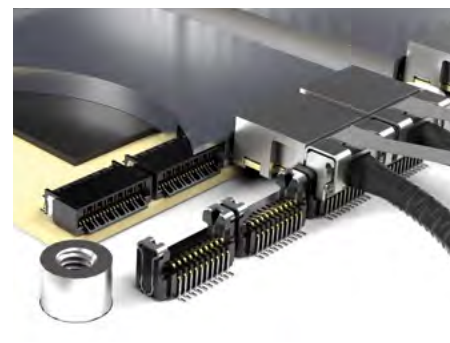
Samtec is focused on bringing to market 112 Gbps PAM4 solutions that are scalable, manufacturable and cost-efficient.

### Immersion Cooling

Capable of immersion for liquid cooled systems.

### Direct Connect™

On-package interconnect enables 56 Gbps PAM4 performance, eliminates distortion through the BGA region and improves density.



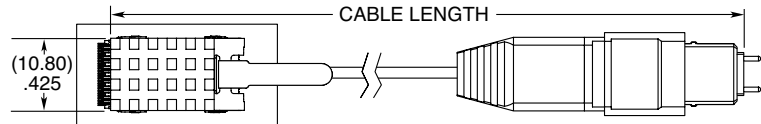
PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.



OPTICAL MICRO FLYOVER SYSTEM™

ECUO	WIDTH	DATA RATE	CABLE LENGTH	0	HEAT SINK	1	FIBER TYPE	END 2 OPTIONS
	<b>-B04</b> = 4 Tx + 4 Rx  <b>-T12</b> = 12 Tx  <b>-R12</b> = 12 Rx  <b>-Y12</b> = 12 Tx + 12 Rx  <b>-U12</b> = 12 Channel AOC (Unidirectional)	<b>-14</b> = 14 Gbps per lane  <b>-16</b> = 16.1 Gbps per lane (N/A -B04)  <b>-25</b> = 25.7 Gbps per lane  <b>-28</b> = 28.1 Gbps per lane (-B04 only)	<b>-"XXX"</b> = Overall Length in Centimeters		<b>-1</b> = Flat  <b>-2</b> = Pin-fin (-14 & -16 only)  <b>-3</b> = Flat with groove  <b>-4</b> = PCIe® Pin-fin (-14 & -16 only)  <b>-5</b> = 1.75 cm tall Pin-fin (-B04 only)		<b>-4</b> = Aqua loose tube with boot  <b>-5</b> = Jacketed ribbon with boot  <b>-6</b> = Jacketed ribbon  <b>-7</b> = Black loose tube with boot  <b>-8</b> = Black loose tube	(Leave blank for -U12) -Y12 requires -2X end option  <b>12 Fibers</b> -01 = MTP® Male -02 = MTP® Female -07 = MXC® Internal Plug* -0E = MPO Plus®, Male, bayonet  <b>24 Fibers</b> -21 = MTP® Male -22 = MTP® Female -27 = MXC® Internal Plug* -2E = MPO Plus®, Male, bayonet

**ECUO**  
Mates with:  
UEC5, UCC8,  
OPA



**FEATURES**

- Supports data center and HPC protocols, including: Ethernet, InfiniBand™, Fibre Channel
- Customizable optical connectors
- Integrated coupling capacitors
- Standard temperature range 0 °C to +70 °C
- Evaluation & Development boards available

**CLASS 1 LASER PRODUCT**  
per IEC 60825-1 Ed. 3 (2014)

Applies to all end 2 options except MXC®

**TOOLING**

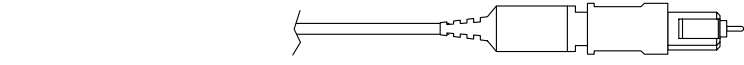
Insertion Tool: CAT-IN-ECUO-02

**Notes:**  
MTP® is a registered trademark of US Conec Ltd.

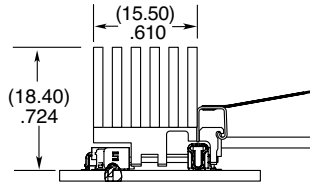
PCI-SIG®, PCI Express® and PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.

All FireFly™ designs, specifications and components are preliminary and subject to change without notice.

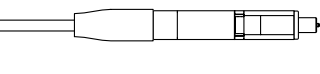
Some lengths, styles and options are non-standard, non-returnable.



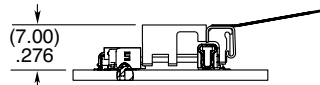
-01 (MTP® MALE SHOWN)



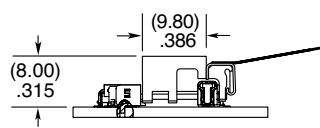
-2 PIN-FIN HEAT SINK



-07 (MXC® INTERNAL PLUG SHOWN)



-1 FLAT HEAT SINK



-3 FLAT WITH GROOVE HEAT SINK (MULTI-ROW CONFIGURATION)

**\*CLASS 3R LASER PRODUCT**  
Laser Radiation. Avoid Direct Eye Exposure.



Applies to MXC® end option only.

View complete specifications at: [samtec.com?ECUO](http://samtec.com?ECUO)



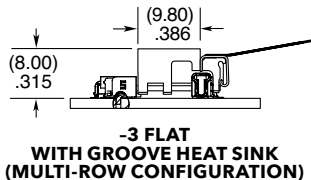
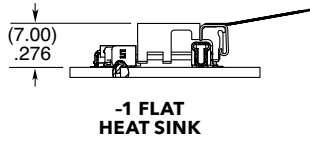
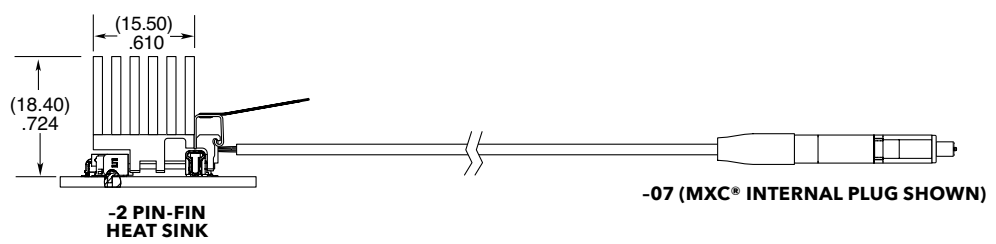
**EXTENDED TEMP OPTICAL MICRO FLYOVER SYSTEM™**

ETUO	WIDTH	DATA RATE	CABLE LENGTH	0	HEAT SINK	1	FIBER TYPE	END 2 OPTIONS
	<b>-B04</b> = 4 Tx + 4 Rx  <b>-T12</b> = 12 Tx  <b>-R12</b> = 12 Rx  <b>-Y12</b> = 12 Tx + 12 Rx  <b>-U12</b> = 12 Channel AOC (Unidirectional)	<b>-10</b> = 10.3125 Gbps  <b>-25</b> = 25.7 Gbps (-B04 only)	<b>"XXX"</b> = Overall Length in Centimeters		<b>-1</b> = Flat  <b>-2</b> = Pin-fin  <b>-3</b> = Flat with groove  <b>-4</b> = PCIe® Pin-fin (-10 only)  <b>-5</b> = 1.75 cm tall Pin-fin (-B04 only)		<b>-5</b> = Jacketed ribbon with boot  <b>-6</b> = Jacketed ribbon  <b>-7</b> = Black loose tube with boot  <b>-8</b> = Black loose tube	(Leave blank for -U12) -Y12 requires -2X end option  <b>12 Fibers</b> -01 = MTP® Male -02 = MTP® Female -07 = MXC® Internal Plug* -0A = VITA 66.X Ready -0C = MT38999 Male -0E = MPO Plus®, Male, bayonet  <b>24 Fibers</b> -21 = MTP® Male -22 = MTP® Female -27 = MXC® Internal Plug* -2A = VITA 66.X Ready -2C = MT38999 Male -2E = MPO Plus®, Male, bayonet

**ETUO**  
Mates with:  
UEC5, UCC8,  
OPA

**FEATURES**

- Optimized for SWaP
- Extended temperature range from -40 °C to +85 °C
- Demonstrated error free transmission during applied external vibrations and shock test, to methods specified in MIL-STD-810G
- Micro rugged board level connector system with positive latching, weld tabs and loading guides for secure connection
- Pigtailed cable for maximum link budget
- Customizable optical connectors
- Integrated coupling capacitors
- Integral heat sink provides optimal cooling for thermal operating conditions
- Evaluation and Development boards available



**CLASS 1 LASER PRODUCT**  
per IEC 60825-1 Ed. 3 (2014)

Applies to all end 2 options except MXC®

**Notes:**  
MTP® is a registered trademark of US Conec Ltd.

PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.

All FireFly™ designs, specifications and components are preliminary and subject to change without notice.

Some lengths, styles and options are non-standard, non-returnable.

**\*CLASS 3R LASER PRODUCT**  
Laser Radiation. Avoid Direct Eye Exposure.



Applies to MXC® end option only.

View complete specifications at: [samtec.com?ETUO](http://samtec.com?ETUO)





**EXTREME ENVIRONMENT OPTICAL MICRO FLYOVER SYSTEM™**

ETMO	B04	DATA RATE	CABLE LENGTH	0	HEAT SINK	FIRMWARE	FIBER TYPE	END 2 OPTIONS
		-10 = 10.3125 Gbps	-“XXX” = Overall Length in Centimeters		-1 = Flat	-1 = Standard	-5 = Black Jacketed ribbon with boot	(Leave blank for AOC)
		-25 = 25.7 Gbps			-2 = Pin-fin	-3 = Dual Power	-6 = Black Jacketed ribbon	-01 = MTP® Male
					-3 = Flat with groove		-7 = Black loose tube with boot	-02 = MTP® Female
					-4 = PCIe® Pin-fin (-10 Data Rate only)		-8 = Black loose tube	-07* = MXC® Internal Plug
								-0A = VITA 66.1/66.4 READY
								-0C = MT38999 Male

PRELIMINARY

**ETMO**

Mates with:  
UEC5, UCC8, OPA

**FEATURES**

- Dual power mode for interoperability with legacy optical modules
- Extended temp range of -40 °C to +85 °C
- Micro rugged board level connector system with positive latching, weld tabs and loading guides for a secure connection
- Customizable optical end connectors including MT Elite®, MTP Elite®, and low loss MXC®
- Integral heat sink provides optimal cooling for thermal operating conditions
- Sealed and parylene-coated for exposed military, aerospace and submersible applications
- Ruggedized for tin whisker mitigation and fungal resistance; operates in harsh environments including salt fog, blowing sand and dust, jet fuel exposure, altitudes up to 65,000 feet

**CLASS 1 LASER PRODUCT**  
per IEC 60825-1 Ed. 3 (2014)

Applies to all end 2 options except MXC®

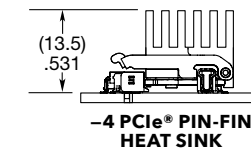
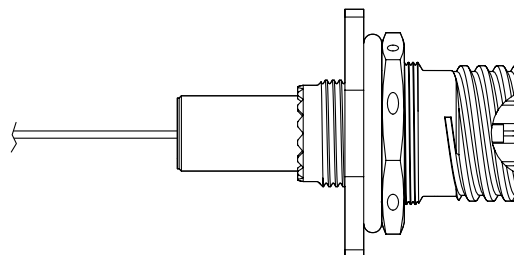
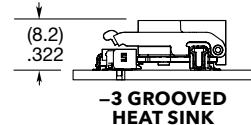
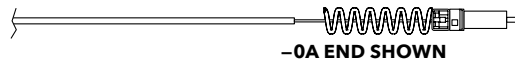
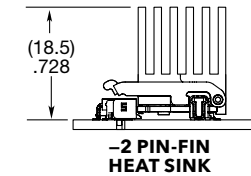
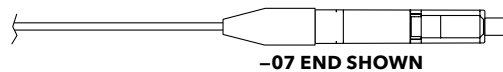
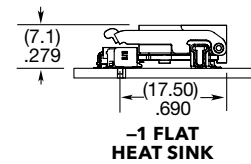
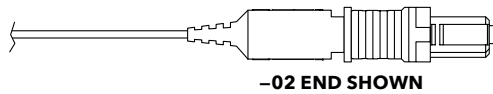
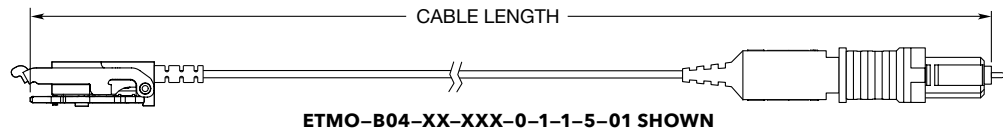
**Notes:**

MT Elite®, MTP Elite®, and MXC® are registered trademarks of US Connetc Ltd.

PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.

All FireFly™ designs, specifications and components are preliminary and subject to change without notice.

Some lengths, styles and options are non-standard, non-returnable.

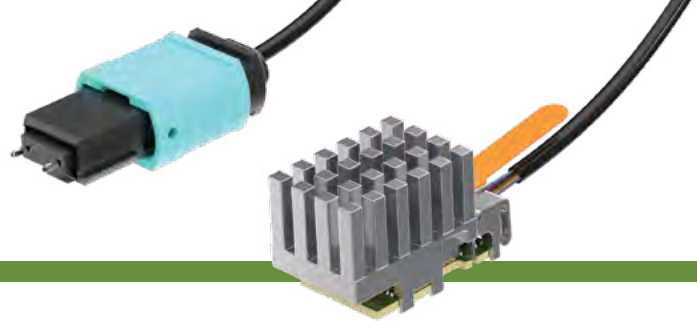


**\*CLASS 3R LASER PRODUCT**  
Laser Radiation. Avoid Direct Eye Exposure.



Applies to MXC® end option only.

View complete specifications at: [samtec.com?ETMO](http://samtec.com?ETMO)

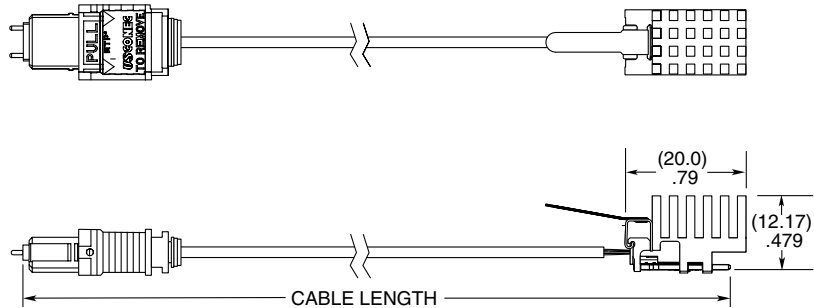


## PCIe®-OVER-FIBER FLYOVER®

PCUO	WIDTH	DATA RATE	CABLE LENGTH	0	HEAT SINK	1	FIBER TYPE	END 2 OPTIONS
<b>PCUO</b> Mates with: UEC5, UCC8, OPA	<b>-04</b> = x4 Lanes <b>-08</b> = x8 Lanes	<b>-G4</b> = 4.0 Speed	<b>-"XXX"</b> = Overall Length in Centimeters	<b>0</b>	<b>-1</b> = Flat <b>-4</b> = PCIe® Pin-fin	<b>1</b>	<b>-7</b> = Black loose tube with boot <b>-8</b> = Black loose tube	(-04 width requires -01 option; -08 width requires -21 option) <b>-01/-21</b> = MTP® Male

### FEATURES

- PCIe® 4.0 x4, scalable to x8 and x16 widths
- Duplex auxiliary signals allow both transparent and non-transparent bridging
- High-performance signal quality with BER better than 1E<sup>-12</sup>
- Enables links up to 100 m
- Allows nontraditional FPGA/ASIC end points
- Standard temperature range 0 °C to +70 °C



PCUO-04-G4-XXX-0-4-1-8-01 SHOWN

**CLASS 1 LASER PRODUCT**  
per IEC 60825-1 Ed. 3 (2014)

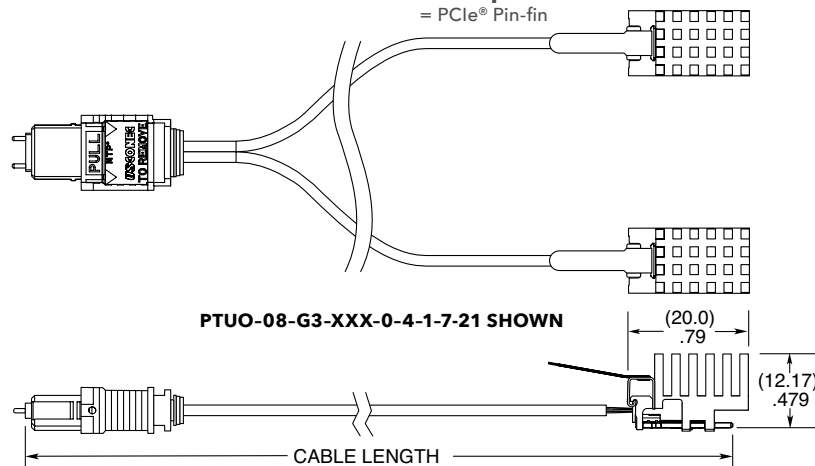
View complete specifications at: [samtec.com?PCUO](http://samtec.com?PCUO)

## EXTENDED TEMP PCIe®-OVER-FIBER

PTUO	WIDTH	DATA RATE	CABLE LENGTH	0	HEAT SINK	1	FIBER TYPE	END 2 OPTIONS
<b>PTUO</b> Mates with: UEC5, UCC8, OPA	<b>-04</b> = x4 Lanes <b>-08</b> = x8 Lanes	<b>-G3</b> = 3.0 Speed	<b>-"XXX"</b> = Overall Length in Centimeters	<b>0</b>	<b>-1</b> = Flat <b>-2</b> = Pin-fin <b>-3</b> = Flat with groove <b>-4</b> = PCIe® Pin-fin	<b>1</b>	<b>-7</b> = Black loose tube with boot <b>-8</b> = Black loose tube	(-04 width requires -0X option; -08 width requires -2X option) <b>-01/-21</b> = MTP® Male <b>-02/-22</b> = MTP® Female <b>-0A/-2A</b> = VITA 66.1/66.4 Ready <b>-0C/-2C</b> = MT38999 Male

### FEATURES

- Extended temperature range from -40 °C to +85 °C
- PCIe® 3.0 x4, scalable to x8 and x16 widths
- Duplex auxiliary signals allow both transparent and non-transparent bridging
- High-performance signal quality with BER better than 1E<sup>-12</sup>
- Enables links up to 100 m
- Allows nontraditional FPGA/ASIC end points
- Additional heat sink and end options available
- PCIe® 4.0 version in development



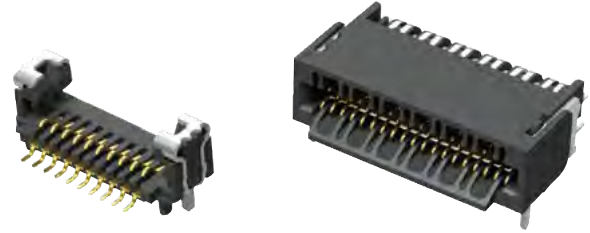
PTUO-08-G3-XXX-0-4-1-7-21 SHOWN

PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.

**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

**CLASS 1 LASER PRODUCT**  
per IEC 60825-1 Ed. 3 (2014)

View complete specifications at: [samtec.com?PTUO](http://samtec.com?PTUO)



## RUGGED MICRO FLYOVER® SOCKET SYSTEM

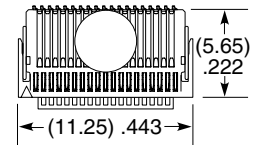
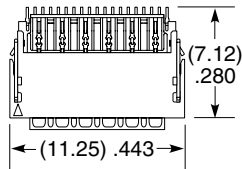
UEC5	NO. OF POSITIONS	DATA RATE	PLATING OPTION	D	RA	WELD TAB	OPTION	PACKAGING
	-019 (Per Row)	-1 = Up to 16 Gbps -2 = 28 Gbps+	-H = 30 μ" (0.76 μm) Gold on contact, Gold flash on tail (-1 Data Rate only) -H = 30 μ" (0.76 μm) Gold on contact, Matte Tin on tail (-2 Data Rate only)			-1 = Through-hole -2 = Surface Mount (Data Rate -1 only)	Leave blank for -2 Data Rate -A = Alignment Pin (Available with Data Rate -1 only)	Leave blank for Tape & Reel -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

### UEC5

**Cable Mates:**  
ECUE, ECUO,  
PCUO, PTUO, PCUE,  
ETUO, ETMO

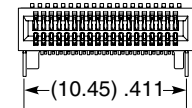
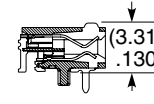
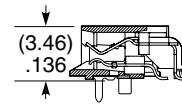
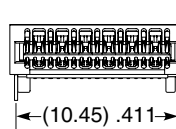
### SPECIFICATIONS

**Insulator Material:**  
Black LCP  
**Contact Material:**  
BeCu  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Operating Temp Range:**  
-55 °C to +125 °C



### PROCESSING

**SMT Lead Coplanarity:**  
(0.10 mm) .004" max.



UEC5-019-2-X-D-RA-1

UEC5-019-1-X-D-RA-1-A

**Note:**  
PCB footprints are not interchangeable for -1 and -2 data rate versions.

View complete specifications at: [samtec.com?UEC5-1](http://samtec.com?UEC5-1) & [samtec.com?UEC5-2](http://samtec.com?UEC5-2)

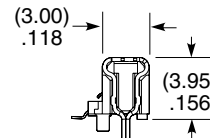
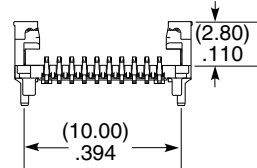
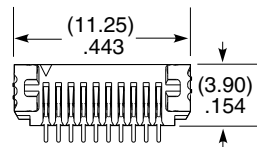
UCC8	NO. OF POSITIONS	1	PLATING OPTION	S	WELD TAB	A	PACKAGING
	-010		-H = 30 μ" (0.76 μm) Gold on contact, Gold flash on tail		-1 = Through-hole		Leave blank for Tape & Reel -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

### UCC8

**Cable Mates:**  
ECUE, ECUO,  
PCUO, PTUO, PCUE,  
ETUO, ETMO

### SPECIFICATIONS

**Insulator Material:**  
Black LCP  
**Contact Material:**  
BeCu  
**Weld Tab:**  
Copper Alloy  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Operating Temp Range:**  
-55 °C to +125 °C



### PROCESSING

**SMT Lead Coplanarity:**  
(0.10 mm) .004" max.

**Note:**  
Some sizes, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?UCC8](http://samtec.com?UCC8)



**PCI EXPRESS**  
4.0 SOLUTIONS



**PCIe®-OVER-FIBER ADAPTOR CARD**

PCOA	DATA RATE	WIDTH	CONFIGURATION
------	-----------	-------	---------------

**-G3**  
= 3.0 Speed  
**-G4**  
= 4.0 Speed

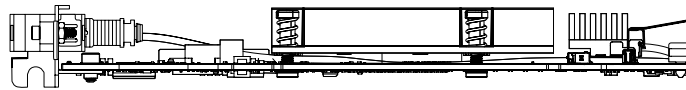
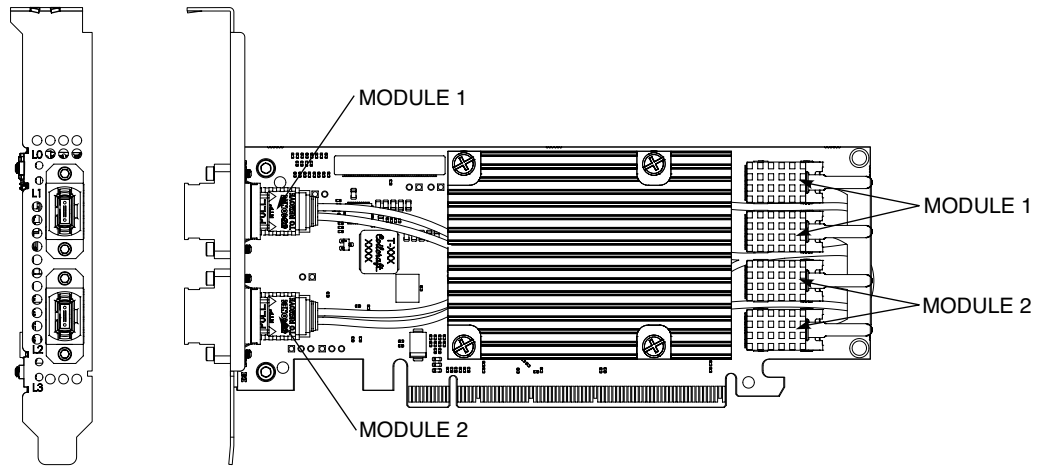
**-S4**  
= Single x4  
**-D4**  
= Dual x4  
**-Q4**  
= Quad x4  
**-S8**  
= Single x8  
**-D8**  
= Dual x8 or Single x16

**-0A**  
= Transparent Bridge Host  
(For non-transparent bridging support, contact Samtec)

**FEATURES**

- Uses PCUO FireFly™ optical cable for clear signal transmissions with increased reach and cost optimization
- PCIe® x16 edge card connector
- Scalable configurations for cost optimized performance
- Transparent or non-transparent bridging for system flexibility and multi-processor support
- Reconfigurable host or target operation
- Ideal for high-performance and applications requiring robust data transmission

PRELIMINARY



PCOA-G4-D8-0A SHOWN

**CLASS 1 LASER PRODUCT**  
per IEC 60825-1 Ed. 3 (2014)

-G3 Data Rate only (- G4 in testing)

**Notes:**  
Some lengths, styles and options are non-standard, non-returnable.  
PCI-SIG®, PCI Express® and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.

View complete specifications at: [samtec.com?PCOA](http://samtec.com?PCOA)



## OPTICAL PATCH CABLE AND ADAPTOR

FOPC	END 1	END 2	CABLE LENGTH	FIBERS	CONSTRUCTION
	-01 = MTP® Male	-01 = MTP® Male	-003 = 3 Meters	-12, -24	-01 = 3 mm Round Jacket
	-02 = MTP® Female	-02 = MTP® Female	-010 = 10 Meters		
			-100 = 100 Meters (Other lengths available as custom parts)		

OVERALL LENGTH = CABLE LENGTH ±5%

**FOPC-01-01-XXX-12-01**

**FOPC-02-02-XXX-24-01**

**12 FIBER**

**24 FIBER**

**SPECIFICATIONS**

**Compliant Specifications:**  
TIA-604-5-D (FOCIS 5)  
TIA-568-C.3  
IEC-61754-7-1

View complete specifications at: [samtec.com?FOPC](http://samtec.com?FOPC)

OPA	PORTS	KEY	FLANGE
	-S = Single	-1 = Opposed	-F = Full
	-D = Double	-2 = Aligned	

**-S**

**-D**

**-F**

**SPECIFICATIONS**

**Compliant Specifications:**  
TIA-604-5-D (FOCIS 5)  
IEC-61754-7

**Recommended Panel Thickness:**  
(1.75 mm) .069"  
(The OPA can be installed with any panel thickness but mounting hardware is needed for any thickness that is not (1.75 mm) .069". Contact the Optics Group at FireFly@samtec.com for questions about panel thickness and mounting hardware.)

View complete specifications at: [samtec.com?OPA](http://samtec.com?OPA)

**Notes:**  
MTP® is a registered trademark of US ConneC Ltd.

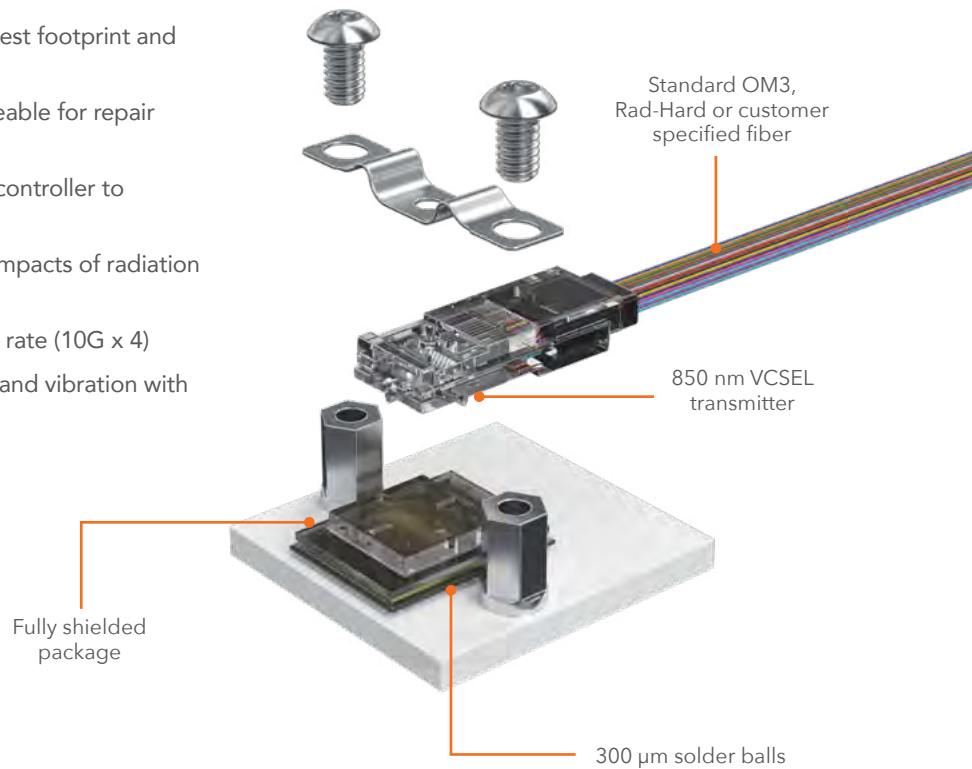
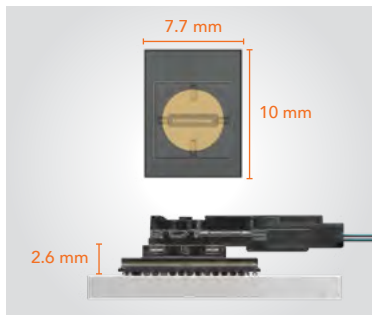
Some lengths, styles and options are non-standard, non-returnable



# FIREHAWK™ RUGGEDIZED OPTICAL TRANSCEIVERS

## FEATURES & BENEFITS

- Chip Scale Package (CSP) with the industry's smallest footprint and lowest profile, weighing less than 0.4 grams
- RVCON® optical cables are removable and replaceable for repair or reconfiguration
- FireHawk™ for Mil/Aero with an integrated microcontroller to automate key functions (CSPO)
- FireHawk™ for Space designed to withstand the impacts of radiation without the need for a microcontroller (CSSO)
- Extreme performance with up to 40 Gbps transfer rate (10G x 4)
- Rugged BGA board attach withstands high shock and vibration with the shortest possible thermal path
- Development Kit available, visit [samtec.com/kits](http://samtec.com/kits)



## FIREHAWK™ RVCON® OPTICAL CABLES

**RVCN**

**END 1 OPTION**

**END 2 OPTION**

**FIBER TYPE**

**CABLE CONFIGURATION**

**CABLE LENGTH**

**-1**  
= 1 RVCON®

**-3**  
= MT Ferrule

**-MM**  
= Multi Mode

**-2**  
= Jacketed Ribbon

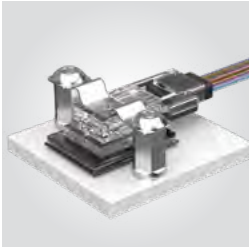
**-XXXX**  
= Total length in millimeters (mm)



- RVCON® connector transfers the vertical output from the transceiver into optical fibers
- Attaches to the CSP after surface mount processing of the PCB board
- Designed for harsh environments and wide temperature ranges
- Design flexibility: ribbon, tubed and breakout fiber options; MUX/DMUX input and output configurations; CSP to multiple ends; single input to multiple CSPs (1:1, 1:2, 1:3)
- Variety of end 2 options including standard and mil/aero connectors, pins and shells

## FIREHAWK™ CSPO FOR MIL/AERO APPLICATIONS

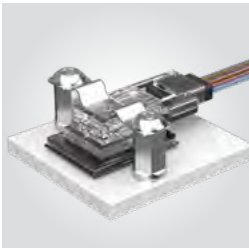
<b>CSPO</b>	<b>WIDTH</b>	<b>DATA RATE</b>	<b>ENVIRONMENT TYPE</b>	<b>0</b>	<b>FIRMWARE</b>	<b>1</b>	<b>BALL TYPE</b>
	<b>-B04</b> = 4 channel, bidirectional	<b>-10G</b> = 10 Gbps	<b>-3</b> = Military		<b>-1</b> = Standard		<b>-2</b> = Tin Lead



- Integrated microcontroller automates key functions: calibration, temperature compensation, register configuration, converts analog BIT into calibrated digital
- 10G x 4 data rate (10 Mbps to 10 Gbps per channel)
- -40 °C to +85 °C temperature range (+95 °C available)
- 3.3 V supply voltage; 1.2 W (total power 4 Tx and 4 Rx active)
- Roadmap: 25G x 4 system (up to 25 Gbps per channel) in the same 10G connector footprint

## FIREHAWK™ CSSO FOR SPACE APPLICATIONS

<b>CSSO</b>	<b>WIDTH</b>	<b>DATA RATE</b>	<b>ENVIRONMENT TYPE</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>BALL TYPE</b>
	<b>-B04</b> = 4 channel, bidirectional	<b>-10G</b> = 10 Gbps	<b>-4</b> = Space				<b>-2</b> = Tin Lead



- 0.4 grams total weight for optimal SWaP (Size, Weight and Power)
- No microcontroller needed
- Radiation tolerant circuitry
- Optical cabling reduces weight and size for longer connections in satellites
- Module management, controls and diagnostics through a Serial Peripheral Interface (SPI)
- Robust performing ASIC for use in radiation environments

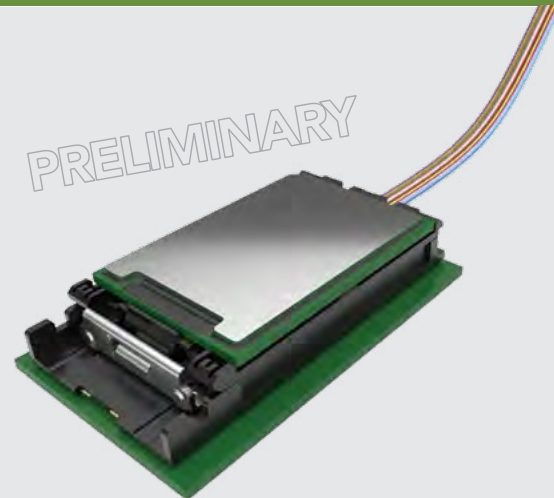
## HALO™ NEXT GEN OPTICAL

- Capable of up to 112 Gbps PAM4 per lane
- Up to 16 channels (8 channel bidirectional)
- Low 6.5 mm profile with a 2-piece contact system
- Designed to withstand high shock and vibration
- Features a low center of gravity for a stable connection to the board
- Optically pluggable for easy replacement and increased uptime

HALO™

PAM4  
112  
Gbps

PRELIMINARY



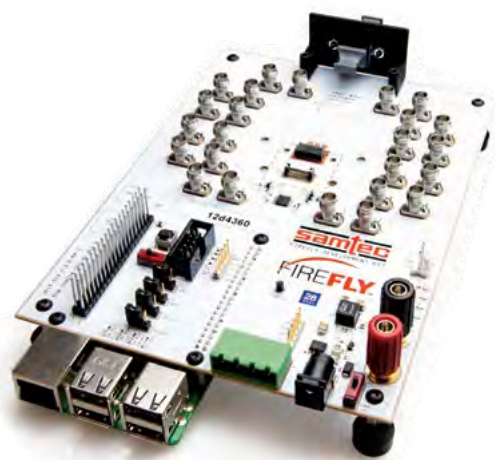
<b>HALO</b>	<b>ENVIRONMENTAL</b>	<b>WIDTH</b>	<b>DATA RATE</b>	<b>1</b>	<b>1</b>
	<b>-C</b>	<b>-B08</b> = 8 Tx + 8 Rx	<b>-3</b> = 56 Gbps PAM4		

## OPTICS EVALUATION & DEVELOPMENT KITS

From concept and prototype to development and production, Samtec-designed and Partner-designed kits and boards featuring FireFly™ Micro Flyover System™ simplify design and reduce time to market. For more information, please visit [samtec.com/kits](http://samtec.com/kits) or contact [KitsAndBoards@samtec.com](mailto:KitsAndBoards@samtec.com).

### 28 Gbps FireFly™ Evaluation Kit

Samtec's 28 Gbps FireFly™ Evaluation Kit offers an easy-to-use platform for testing and real-time evaluation of the FireFly™ Micro Flyover System™. The kit supports copper or optical FireFly™ in x4 or x12 configurations. (Samtec P/N: REF-209623-01)



### 14 Gbps FireFly™ FMC Development Kit

Samtec's 14 Gbps FireFly™ FMC Development Kit is VITA 57.1 electrically compliant and provides up to 140 Gbps full-duplex bandwidth over 10 channels from an FPGA to an industry-standard multi-mode fiber optic cable. (Samtec P/N: REF-193429-01)



### 25/28 Gbps FireFly™ FMC+ Development Kit

Samtec's 25/28 Gbps FireFly™ FMC+ Module is VITA 57.4 electrically compliant and provides up to 400/448 Gbps full-duplex bandwidth over 16 channels from an FPGA to an industry-standard multi-mode fiber optic cable. (Samtec P/N: REF-200772-XXX-XX-01)



### 10 Gbps FireHawk™ Evaluation Kits

Samtec's FireHawk™ Evaluation Kits offer real-time evaluation of FireHawk™ rugged optical transceivers in a lab or benchtop setting. Rated to 10 Gbps per lane in a x4 configuration, the transceivers combine extreme density with extreme performance to meet the harshest environments.



KIT NAME	SAMTEC KIT PN	ULTRA COMMUNICATIONS KIT PN	APPLICATIONS
FireHawk™ CSSO 10 Gbps Evaluation Kit	REF-230448-01	X80S-0103-EVK-003	Space
FireHawk™ CSPO 10 Gbps Evaluation Kit	REF-230449-01	X80SC-0102-EVK-003	Mil/Aero



# RF/PRECISION RF

CABLE ASSEMBLIES • CONNECTORS • ORIGINAL SOLUTIONS • TECHNICAL SUPPORT

## CABLE ASSEMBLIES

**144-167**

Precision RF 50 Ω  
(18 GHz to 110 GHz)

**168-181**

Standard RF 50 Ω & 75 Ω  
(Sub-6 GHz & 12G-SDI)



## CABLE CONNECTORS

**148-161**

Precision RF 50 Ω  
(18 GHz to 110 GHz)

**170-180**

Standard RF 50 Ω & 75 Ω  
(Sub-6 GHz & 12G-SDI)



## BOARD CONNECTORS

**148-161**

Precision RF 50 Ω  
(18 GHz to 110 GHz)

**170-181**

Standard RF 50 Ω & 75 Ω  
(Sub-6 GHz & 12G-SDI)



## ADAPTORS

**162-163**

Precision RF 50 Ω  
(In-Series & Between-Series)



## ORIGINAL RF SOLUTIONS

**147**

Precision RF

**181**

Low Frequency



Magnum RF™ Solutions for Ganged Cable-to-Board or Board-to-Board Applications .....	156-157
Bulls Eye® Solutions for 40 GHz, 50 GHz, 70 GHz & 90 GHz .....	164-166
Flexible Waveguide Technology for Frequencies up to 90 GHz (E-band) .....	167
Customs & Tech Support .....	182

# COMPLETE RF INTERCONNECT SOLUTIONS

PRECISION 50  $\Omega$  (18 to 110 GHz) • STANDARD 50  $\Omega$  & 75  $\Omega$  (SUB-6 GHz & 12G-SDI) • TECH SUPPORT

Samtec offers complete RF interconnect solutions supporting traditional sub-6 GHz frequencies to 110 GHz microwave/mmWave frequencies (sub-Terahertz spectrum). Products include end-to-end RF cable assemblies, board connectors, cable connectors, adaptors and Samtec Original RF solutions.

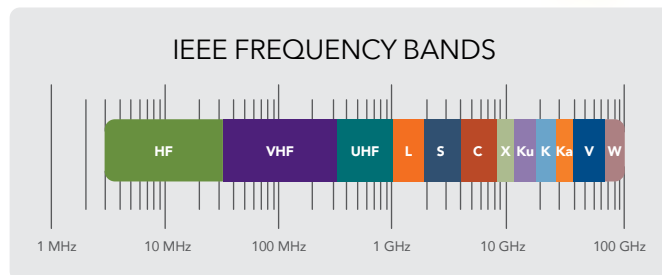
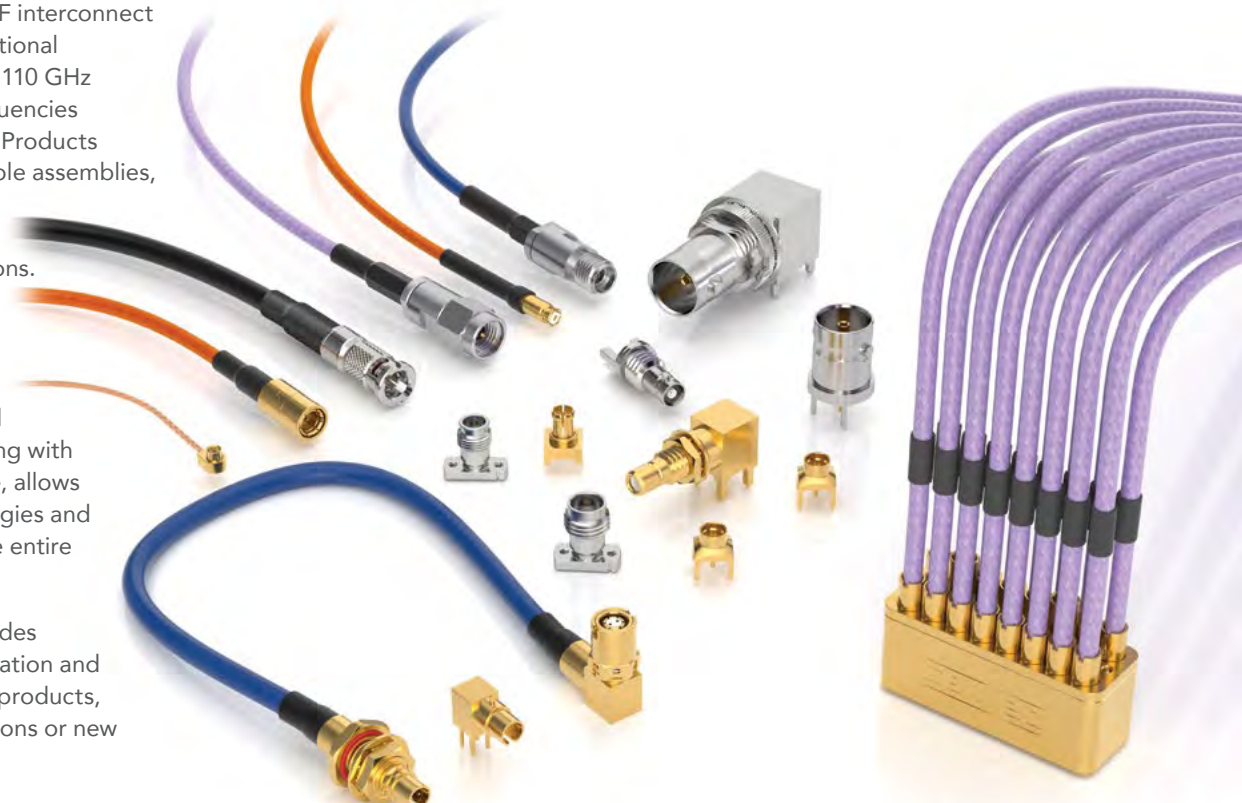
## Technical Support

High-level design and development of advanced interconnect systems, along with industry leading expertise, allows us to offer effective strategies and support for optimizing the entire signal channel.

RF technical support includes launch optimization, simulation and testing. Customization of products, both quick-turn modifications or new designs, is also available.

## Applications

- Test and Measurement
- Military, Aerospace, Satellite, Radar
- 5G/6G, Low Latency Wireless Communications
- Automotive, Telematics
- Broadcast & 12G-SDI
- Industrial, Monitoring, Instrumentation



## PRECISION RF, 50 $\Omega$

Interface	1.00 mm	1.35 mm	1.85 mm	2.40 mm	2.92 mm	3.50 mm	SSMA	SMA	Ganged SMPM	SMPM	SMP	N Type	TNCA
Frequency	110 GHz	90 GHz	65 GHz	50 GHz	40 GHz	34 GHz	34 GHz	18/26.5 GHz	65 GHz	65 GHz	40 GHz	18 GHz	18 GHz

## STANDARD RF, 50 $\Omega$ & 75 $\Omega$

Interface	MHF	SMA	MCX	MMCX	TNC	BNC (50 $\Omega$ )	SMB (50 & 75 $\Omega$ )	Ganged (50 & 75 $\Omega$ )	BNC (75 $\Omega$ )	HD BNC (75 $\Omega$ )	DIN 1.0/2.3 (75 $\Omega$ )
Frequency	6 GHz	6 GHz	6 GHz	6 GHz	6 GHz	4 GHz	4 GHz	5 GHz	12 GHz	12 GHz	12 GHz

## CABLE ASSEMBLIES

- Precision, high frequency or standard, low frequency
- Assemblies available with the following cable types:
  - Low-loss microwave/millimeter wave from .047 to .277, semi-flexible
  - **Orange Cable!** Phase and insertion loss stable, high-performance cable assemblies optimized for next gen frequency targets
  - RG type (316, 174, 178, 58, 179, 6)
  - 12G-SDI optimized
  - 0.81 mm and 1.13 mm Micro High Frequency (MHF)
- Discrete and ganged solutions
- Cable lengths standard up to 10 meters (> 10 meters as custom RSP)
- Phase matching in pairs down to 1 ps
- Cable management available
- **Mix & Match Solutions for Any Application:** Samtec offers a variety of end options for each product series; this blends application-specific customization with the simplicity and lead-time efficiencies of an off-the-shelf assembly



## BOARD CONNECTORS, CABLE CONNECTORS & ADAPTORS

- Precision, high frequency or standard, low frequency solutions
- Board-to-board or cable-to-board applications
- Threaded, bulkhead, push-on or bayonet coupling
- Solderless compression mount: vertical & edge launch
- Soldered: through-hole, surface mount, edge mount or mixed technology
- Balanced connectors for high-volume pick-and-place automation
- 12G-SDI optimized broadcast video solutions (BNC, high-density BNC, DIN 1.0/2.3)
- Cable connectors for use with industry standard cables: offer the flexibility to terminate to an industry-standard cable specified for your application
- Adaptors for 50  $\Omega$  precision RF applications: in-series and between-series



Ganged Solutions



Complete Mated Sets



50  $\Omega$ , 75  $\Omega$  & 12G-SDI Solutions



Precision Interconnects



# PRECISION RF

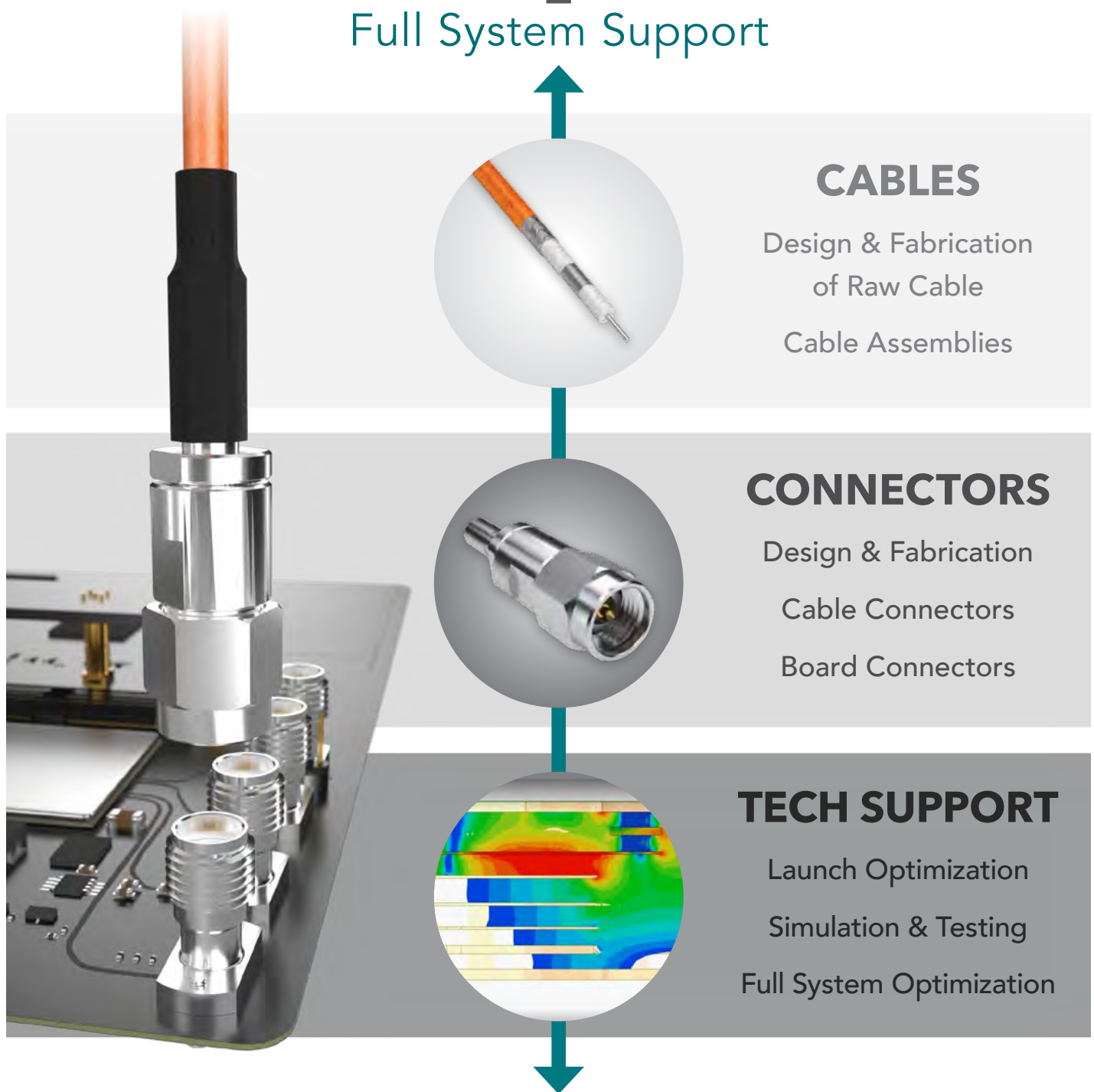
## MICROWAVE / MILLIMETER WAVE CABLE ASSEMBLIES & INTERCONNECTS

The Samtec RF product line includes 18 to 110 GHz High Frequency, Precision RF solutions for microwave and mmWave applications, including full cable assemblies, cable connectors and board level interconnects. Our focus is on delivering high-quality RF products that meet precision and performance expectations, blended with industry-leading system-level signal integrity expertise.

### Vertical Integration

=

### Full System Support





# ORANGE IS THE NEW CABLE!

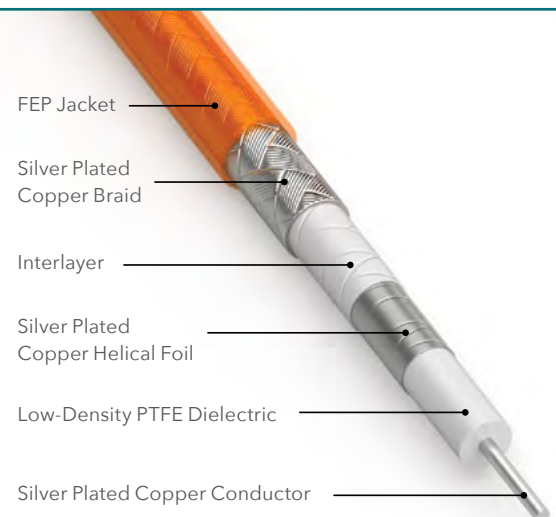


## PHASE & INSERTION LOSS STABLE HIGH FREQUENCY CABLE ASSEMBLIES

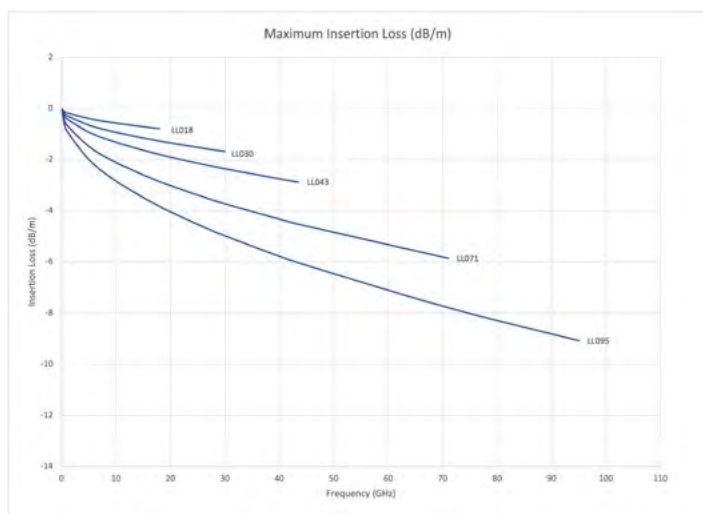
Samtec's next generation of RF coaxial cable offers improved stability with temperature and flexure over time. The coaxial structure—with an outer jacket colored in distinctive Samtec orange—is designed to meet increased demands placed on the aerospace, defense, datacom, computer/semiconductor and instrumentation markets. Performance is optimized at frequencies that go beyond traditional industry targets to support emerging applications.

### LOW-LOSS CABLE CONSTRUCTION (VS. TYPICAL PTFE CABLES)

Series	LL018	LL030	LL043	LL071	LL095
Impedance ( $\Omega$ )	50				
Max Frequency (GHz)	18	30	43.5	71	95
Outer Dia. (inches)	0.306	0.192	0.143	0.096	0.078
Min Static Bend Radius (to inside of cable) (inches)	1.25	0.375	0.25	0.25	0.125
Velocity of Propagation (%)	77				
Min Shielding Effectiveness (dB)	-90				
Temp Range ( $^{\circ}\text{C}$ )	-65 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$				
Insertion Loss	See Chart Below				

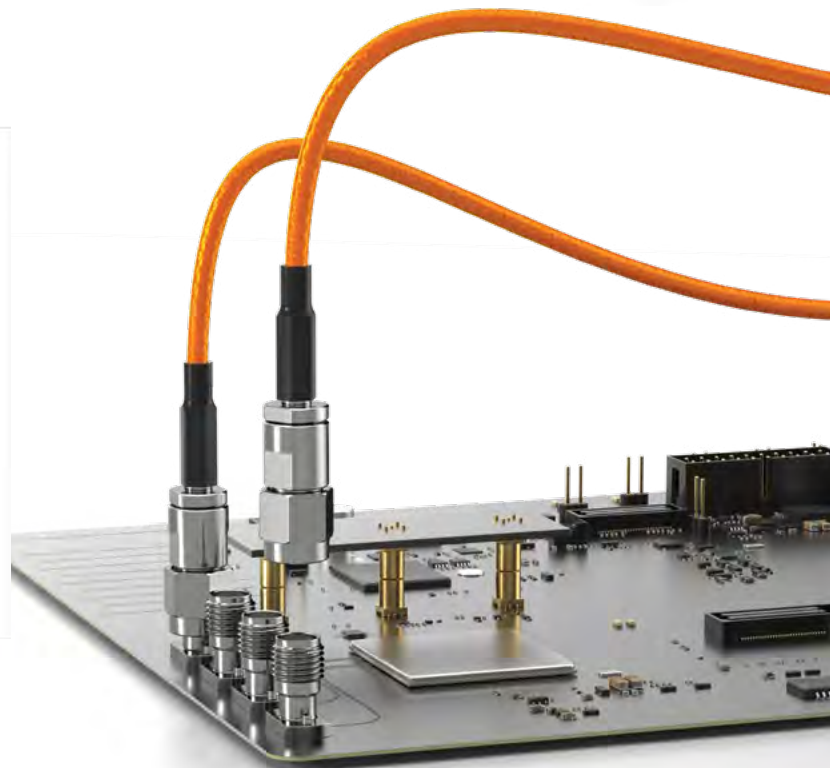


### INSERTION LOSS (dB/m)



### FREQUENCY FOR EMERGING APPLICATIONS

18 GHz, 30 GHz, 43.5 GHz,  
71 GHz, 95 GHz



# 50 Ω μWAVE/mmWAVE CABLE SPECIFICATIONS

## STANDARD OFF-THE-SHELF ASSEMBLIES

SERIES	RF047-A, GC47	RF25S	RF40S	RF08S	RF086, GC86	RF23C	RF23S	RF402	RF180	RF280	
TYPE	.047 (29 AWG), low loss flexible	Samtec 25 AWG, flexible	RG 40S, .086, (24 AWG), semi- flexible	.085 (24 AWG), low loss flexible	.086 (23 AWG), low loss flexible	Samtec 23 AWG, flexible, copper shield	Samtec 23 AWG, flexible	RG 402, .141 (19 AWG), semi- flexible	.178 (16 AWG), low loss flexible	.277 (11 AWG), low loss flexible	
<b>ELECTRICAL</b>											
Max. Frequency (GHz)	65	40	20	50	65	50	35	20	27	18	
Max. Insertion Loss (dB/m)	1 GHz	1.21	0.79	0.72	0.69	0.65	0.68	0.72	0.40	0.27	0.17
	26 GHz	7.43	3.80 @ 20 GHz	4.26 @ 20 GHz	4.28	3.90	4.27	3.71 @ 20 GHz	2.30 @ 20 GHz	1.23 @ 18 GHz	0.79 @ 18 GHz
	40 GHz	9.68	–	–	5.59	5.06	5.59	–	–	–	–
	50 GHz	11.14	–	–	6.47	5.81	6.46	–	–	–	–
Propagation Delay (ns/m)	4.76		4.79	4.75	4.20	4.76	4.72	4.79	4.17	4.02	
Velocity of Propagation	70%				80%	70%		70%	80%	83%	
Capacitance (pF/m)	95.00	96.80	104.97	88.20	83.37	97.80	95.45	98.07	82.00		
<b>CONSTRUCTION</b>											
Center Conductor	Material	Solid Silver Plated Copper									
	AWG (mm/in.)	29 (.2870 / .0113)	25 (.4570 / .0180)	24 (.5100 / .0200)		23 (.5740 / .0226)			19 (.9200 / .0362)	16 (1.3000 / .0512)	11 (2.2600 / .0889)
Dielectric	Material	PFA	Solid FEP	PTFE	Solid PTFE	Foam FEP	FEP	Solid FEP	PTFE	PTFE Tape	
	Dia. (mm/in.)	.9220 / .0363	1.4700 / .0578	1.6800 / .0660	1.6300 / .0640	1.6150 / .0636	1.8470 / .0727	1.8470 / .0727	2.9800 / .1170	3.6800 / .1450	6.3500 / .2500
Shield	Material	1) Ag Plated Cu 2) Ag Plated Cu		Tinned Cu	Spiral Strip Ag Plated Cu	1) Ag Plated Cu 2) Ag Plated Cu	1) Ag Plated Cu 2) Cu Tape 3) Ag Plated Cu	1) Ag Plated Cu 2) Ag Plated Cu	Tinned Cu	1) Flat Ag Plated Cu 2) Al Polyester 3) Round Ag Plated Cu	
Outer Braid	Dia. (mm/in.)	1.1700 / .0460	1.8600 / .0735	2.2000 / .0860	2.1300 / .0840	2.1080 / .0830	2.2730 / .0895	2.2480 / .0885	3.5800 / .1410	4.5200 / .1780	7.0400 / .2770
Jacket	Material	FEP		–	FEP			–	FEP		
	Dia. (mm/in.)	1.4200 / .0560	2.0600 / .0810	3.2000 / .1260	2.6400 / .1040	2.5400 / .1000	2.6670 / .1050	2.5900 / .1020	4.5800 / .1803	4.9500 / .1950	7.6200 / .3000
<b>MECHANICAL</b>											
Operating Temp	-65° C to 125° C	-40° C to 200° C	-40° C to 125° C	-65° C to 125° C	-55° C to 125° C	-65° C to 125° C	-40° C to 200° C	-40° C to 150° C	-55° C to 200° C		
Min. Bend Radius	5.00 mm	9.00 mm	6.35 mm	13.20 mm	8.90 mm	3.18 mm	8.89 mm	10.90 mm	24.80 mm	38.10 mm	
Connector Options	1.00 mm, 1.35 mm, 1.85 mm, 2.40 mm, 2.92 mm, SMA, SMP, SMPM, Ganged SMPM (Magnum RF™)	SMA, SMP		2.92 mm, 2.40 mm	1.85 mm, 2.40 mm, 2.92 mm, SMA, SMP, SMPM, Ganged SMPM (Magnum RF™)	2.40 mm, 2.92 mm, SMA, SMP, SMPM	3.50 mm	SMA	SMA, TNCA, N Type	SMA, TNCA, N Type	

For complete specifications, visit [samtec.com](http://samtec.com) or contact [RFGroup@samtec.com](mailto:RFGroup@samtec.com)

# ORIGINAL SOLUTIONS PRECISION RF

## PRECISION ALIGNMENT FEATURES

- Eliminates misalignment that can occur during board assembly
- Ensures repeatable peak connector performance
- Available on 135, 185, 240, 292 & GPPC Series

## DIFFERENTIAL PAIR TEST & MEASUREMENT

- Two-port SMPM ganged solution (GPPC Series)
- Solderless compression mount design
- Saves board real estate (2x the spacing savings)
- Cable-to-board or board-to-board

## RIGHT-ANGLE, LOW PROFILE, GANGED SMPM

- Extremely low profile, high-density, right-angle connector (GPPC Series, -RA-SM option)
- Belly-to-belly, surface mount PCB connection for maximum density
- Body height: 3.94 mm (.155")

## COUNTERWEIGHT SOLUTIONS

- Enables efficient board assembly (eliminates hand soldering)
- Balanced for automated, high-volume pick-and-place automation
- Edge mount SMA (26.5 GHz) or 2.92 mm (40 GHz)

## ANALOG OVER ARRAY™ CONNECTORS

- Enhanced open-pin-field arrays simultaneously run analog, digital, and power signals
- Reference designs and evaluation kits
- Industry-leading crosstalk and return loss performance

DC TO  
**90**  
GHz

DC TO  
**65**  
GHz

DC TO  
**65**  
GHz

DC TO  
**40**  
GHz

DC TO  
**15**  
GHz



**MAGNUMRF™**  
GANGED RF ASSEMBLIES

SERIES	135/185/240/292/GPPC	GPPC (-CMM)	GPPC (-RA-SM)	RSP (SMA/2.92 mm)	ANALOG OVER ARRAY™
Application	Precision Alignment	Differential Pair Testing	Extremely Low Profile	Balanced Edge Mount	Analog, Digital & Power
URL	<a href="http://samtec.com/alignment">samtec.com/alignment</a>	<a href="http://samtec.com?GPPC">samtec.com?GPPC</a>	<a href="http://samtec.com?GPPC">samtec.com?GPPC</a>	Contact: <a href="mailto:RFGroup@samtec.com">RFGroup@samtec.com</a>	<a href="http://samtec.com/AOA">samtec.com/AOA</a>

PRODUCT FAMILY	BULLS EYE®	FLEXIBLE WAVEGUIDE	VNX+	MAGNUM RF™
URL	<a href="http://samtec.com/BullsEye">samtec.com/BullsEye</a>	<a href="http://samtec.com/Waveguide">samtec.com/Waveguide</a>	<a href="http://samtec.com/VNX-plus">samtec.com/VNX-plus</a>	<a href="http://samtec.com/magnumRF">samtec.com/magnumRF</a>

# 1.00 mm TO 110 GHz

## 1.00 mm Cable Assemblies RF047-A



SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RF047-A</b> = (1.2 mm) .047" overshield DIA 29 AWG millimeter wave cable	<b>-10BJ</b> = 1.00 mm Bulkhead Straight Jack  <b>-10SP</b> = 1.00 mm Straight Plug		<b>-"XXXX"</b> = Overall Length in millimeters -0100 (100 mm) 3.94" minimum

### VSWR

1.40 max. (DC to 90 GHz)  
1.50 max. (90 GHz to 110 GHz)

### ALSO AVAILABLE

1.35 mm, 1.85 mm, 2.40 mm, 2.92 mm,  
SMPM, SMP, SMA = RF047-A

## 1.00 mm Cable Connectors PRF10



CONNECTORS FOR INDUSTRY STANDARD CABLES	
PRF10-J-C-VP-047D-SS	.047 Semi-Rigid
PRF10-P-C-VP-047D-SS	.047 Semi-Rigid

For a complete list of 1.00 mm cable connectors, visit [www.samtec.com?PRF10](http://www.samtec.com?PRF10)

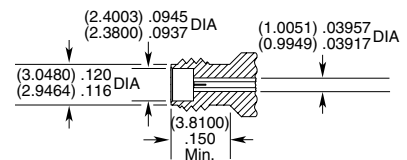
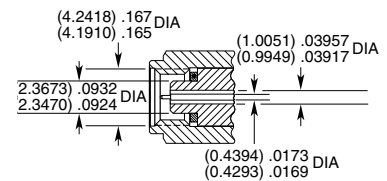
J-C = Cable Jack

P-C = Cable Plug

VP = Plating (75 μ" Gold center contact, passivated outer contact)

SS = Straight, Solder Clamp

### INTERFACE STANDARD





## 1.35 mm TO 90 GHz

### 1.35 mm Cable Assemblies RF047-A



SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RF047-A</b> = (1.2 mm) .047" overshield DIA 29 AWG millimeter wave cable	<b>-13BJ</b> = 1.35 mm Bulkhead Straight Jack  <b>-13SP</b> = 1.35 mm Straight Plug		<b>-"XXXX"</b> = Overall Length in millimeters  -0100 (100 mm) 3.94" minimum

#### ALSO AVAILABLE

1.00 mm, 1.85 mm, 2.40 mm, 2.92 mm,  
SMPM, SMP, SMA = RF047-A

#### VSWR

RF047-A: 1.40 max.

### 1.35 mm Board Connectors 135

Cable Mates:  
RF047-A



135	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION	OPTION	PACKAGING
	<b>-J</b> = Jack	<b>-P</b> = PCB Mount	<b>-VP</b> = 50 μ" (1.27 μm) Gold center contact, Passivated outer contact	<b>-ST</b> = Straight	<b>-CM</b> = Compression Mount Stripline  <b>-CMM</b> = Compression Mount Microstrip	<b>-1</b> = Without screws  <b>-2</b> = With screws	Leave blank for individually bagged.  <b>-B</b> = Bulk packaged

**-CMM**

**-CM**

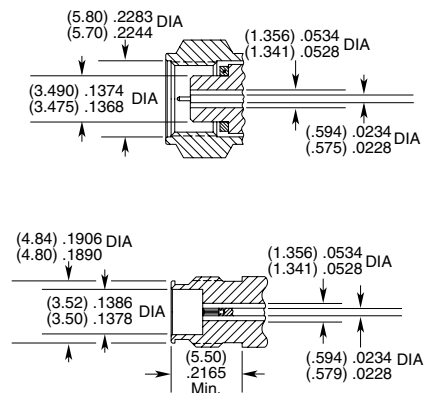
### 1.35 mm Cable Connectors PRF13



CONNECTORS FOR INDUSTRY STANDARD CABLES	
PRF13-P-C-VP-047A-SS	Temp-Flex 1000671047
PRF13-J-C-VP-047A-BS	Temp-Flex 1000671047

For a complete list of 1.35 mm cable connectors, visit [www.samtec.com?PRF13](http://www.samtec.com?PRF13)  
P-C = Cable Plug  
J-C = Cable Jack  
VP = Plating (75 μ" Gold center contact, passivated outer contact)  
SS = Straight, Solder Clamp  
BS = Bulkhead, Solder Clamp

#### INTERFACE STANDARD



# 1.85 mm TO 65 GHz

## 1.85 mm Cable Assemblies

RF047-A, RF086



### VSWR

RF047-A: 1.40 max.  
RF086: 1.40 max.

SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
--------	-----------------	-----------------	----------------

**RF047-A**  
= (1.2 mm) .047" overshield DIA 29 AWG millimeter wave cable

**RF086**  
= (2.18 mm) .086" overshield DIA 23 AWG millimeter wave cable

**-18SJ**  
= 1.85 mm Straight Jack

**-18SP**  
= 1.85 mm Straight Plug

**-"XXXX"**  
= Overall Length in millimeters

-0100 (100 mm) 3.94" minimum

### ALSO AVAILABLE

1.00 mm, 1.35 mm, 2.40 mm,  
2.92 mm, SMPM, SMP, SMA = RF047-A

2.40 mm, 2.92 mm, SMPM, SMP, SMA = RF086

## 1.85 mm Board Connectors

185

Cable Mates:  
RF047-A, RF086



185	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION	OPTION	PACKAGING
-----	--------	------	---------	-------------	-------------	--------	-----------

**-J**  
= Jack

**-P**  
= PCB Mount

**-EP**  
= 50 μ" (1.27 μm) Gold center contact, Passivated outer contact

**-ST**  
= Straight

**-CM**  
= Compression Mount Stripline

**-CMM**  
= Compression Mount Microstrip

**-EL**  
= Edge Launch

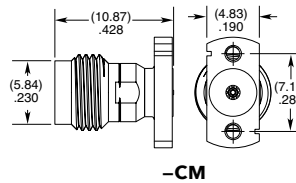
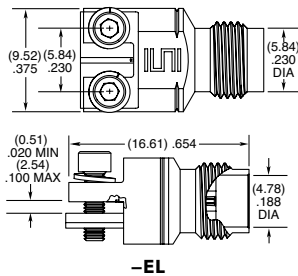
**-1**  
= Without Screws (-CM & -CMM only)

**-2**  
= With Screws (-CM & -CMM only)

**-01**  
= .040" to .100" PCB thickness (-EL only)

Leave blank for individually bagged.

**-B**  
= Bulk packaged



## 1.85 mm Cable Connectors

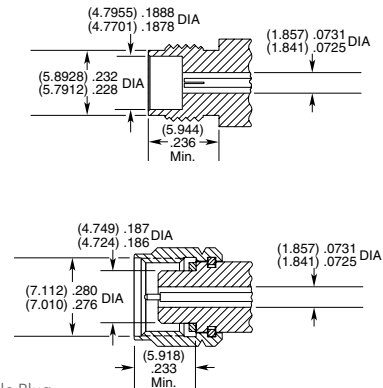
PRF18



CONNECTORS FOR INDUSTRY STANDARD CABLES	
PRF18-J-C-EP-085-BS	Harbour SS405
PRF18-P-C-EP-085-SS	Harbour SS405
PRF18-P-C-EE-085-SD	Harbour SS405
PRF18-J-C-EP-086-SS	Temp-Flex 1001935086
PRF18-J-C-EP-047A-SS	Temp-Flex 1000671047
PRF18-P-C-EP-047A-SS	Temp-Flex 1000671047
PRF18-J-C-EP-047D-SS	.047 Semi-Rigid
PRF18-P-C-EP-047D-SS	.047 Semi-Rigid
PRF18-P-C-EE-047D-SD	.047 Semi-Rigid
PRF18-P-C-EE-047H-SD	EZ-47-LA Semi-Rigid
PRF18-P-C-EP-070-SD	EZ-70-LA Semi-Rigid
PRF18-J-C-EE-405-SD	RG 405 Semi-Rigid
PRF18-P-C-EE-405-SD	RG 405 Semi-Rigid
PRF18-P-C-EP-086E-SS	Dynawave DF165

For a complete list of 1.85 mm cable connectors, visit [www.samtec.com?PRF18](http://www.samtec.com?PRF18)

### INTERFACE STANDARD



P-C = Cable Plug  
J-C = Cable Jack  
EE = Plating (50 μ" gold center contact, & outer contact)  
EP = Plating (50 μ" gold center contact, passivated outer contact)  
SS = Straight, Solder Clamp  
SD = Straight, Direct Solder  
BS = Bulkhead, Solder Clamp

## 2.40 mm TO 50 GHz

### 2.40 mm Cable Assemblies

RF047-A, RF085, RF086, RF23C



#### VSWR

**RF047-A:** 1.35 max.  
**RF086:** 1.40 max.  
**RF085:** 1.40 max.  
**RF23C:** 1.40 max.

#### SERIES

##### RF047-A

= (1.2 mm) .047" overshield DIA 29 AWG millimeter wave cable

##### RF086

= (2.18 mm) .086" overshield DIA 23 AWG millimeter wave cable

##### RF085

= (2.16 mm) .085" overshield DIA 24 AWG millimeter wave cable

##### RF23C

= MWC-2350CU-01 millimeter wave cable with copper foil shield

#### END 1 CONNECTOR

##### -24SJ

= 2.40 mm Straight Jack

##### -24SP

= 2.40 mm Straight Plug

#### END 2 CONNECTOR

#### OVERALL LENGTH

**-“XXXX”**  
 = Overall Length in millimeters

-0100 (100 mm)  
 3.94" minimum  
 (RF047-A, RF085, RF086)

-0152 (152 mm)  
 5.984" minimum  
 (RF23C)

#### ALSO AVAILABLE

1.00 mm, 1.35 mm, 1.85 mm,  
 2.92 mm, SMPM, SMP, SMA = RF047-A

1.85 mm, 2.92 mm, SMPM, SMP, SMA = RF086

2.92 mm = RF085

2.92 mm, SMPM, SMP, SMA = RF23C

### 2.40 mm Board Connectors

240

#### Cable Mates:

RF047-A, RF086, RF085, RF23C



#### 240 - GENDER - TYPE - PLATING - ORIENTATION - TERMINATION - OPTION - PACKAGING

##### -J

= Jack

##### -P

= PCB Mount

##### -EP

= 50 μ" (1.27 μm) Gold center contact, Passivated outer contact

##### -ST

= Straight

##### -CM

= Compression Mount Stripline

##### -CMM

= Compression Mount Microstrip

##### -EL

= Edge Launch

##### -1

= Without Screws (-CM & -CMM only)

##### -2

= With Screws (-CM & -CMM only)

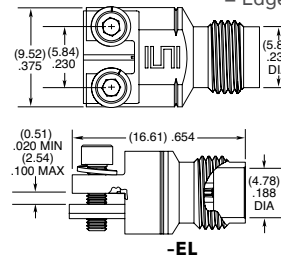
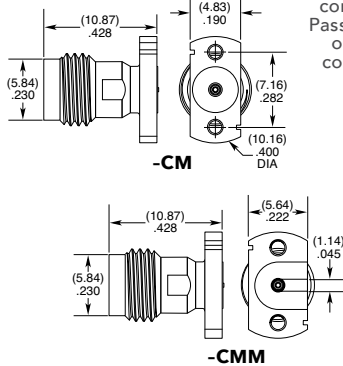
##### -01

= .040" to .100" PCB thickness (-EL only)

Leave blank for tray packaging

##### -B

= Individually bagged



### 2.40 mm Cable Connectors

PRF24



#### CONNECTORS FOR INDUSTRY STANDARD CABLES

PRF24-J-C-EP-085-SS	Harbour SS405
PRF24-J-C-EP-405-BS	RG 405
PRF24-P-C-EE-085-SS	Harbour SS405
PRF24-P-C-EP-120A-SD	Semflex HP120
PRF24-J-C-EP-160-SS	Semflex HP160
PRF24-P-C-EP-160-SS	Semflex HP160
PRF24-J-C-EP-140B-SS	IW 1401
PRF24-P-C-EP-140B-SS	IW 1401
PRF24-J-C-EP-150B-SS	IW 1501
PRF24-J-C-EP-150-SS	Dynawave DF150
PRR24-J-C-EP-086-SS	Temp-Flex 1001935086
PRF24-P-C-EP-086-SS	Temp-Flex 1001935086

For a complete list of 2.40 mm cable connectors, visit [www.samtec.com?PRF24](http://www.samtec.com?PRF24)

P-C = Cable Plug

J-C = Cable Jack

EE = Plating (50 μ" gold center contact & outer contact)

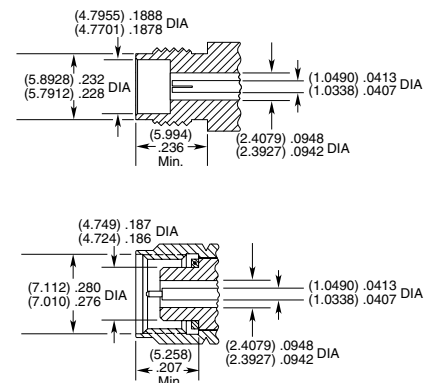
EP = Plating (50 μ" gold center contact, passivated outer contact)

SS = Straight, Solder Clamp

SD = Straight, Direct Solder

BS = Bulkhead, Solder Clamp

#### INTERFACE STANDARD



## 2.92 mm TO 40 GHz

### 2.92 mm Cable Assemblies

RF047-A, RF086, RF085, RF23C



#### VSWR

**RF047-A:** 1.35 max.  
**RF086:** 1.40 max.  
**RF085:** 1.40 max.  
**RF23C:** 1.40 max.

SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RF047-A</b> = (1.2 mm) .047" overshield DIA 29 AWG millimeter wave cable	<b>-92SJ</b> = 2.92 mm Straight Jack		<b>-"XXXX"</b> = Overall Length in millimeters  -0100 (100 mm) 3.94" minimum (RF047-A, RF085, RF086)  -0152 (152 mm) 5.984" minimum (RF23C)
<b>RF086</b> = (2.18 mm) .086" overshield DIA 23 AWG millimeter wave cable	<b>-92SP</b> = 2.92 mm Straight Plug		
<b>RF085</b> = (2.16 mm) .085" overshield DIA 24 AWG millimeter wave cable			
<b>RF23C</b> = MWC-2350CU-01 millimeter wave cable with copper foil shield			
<b>ALSO AVAILABLE</b>			
1.00 mm, 1.35 mm, 1.85 mm, 2.40 mm, SMPM, SMP, SMA = RF047-A			
1.85 mm, 2.40 mm, SMPM, SMP, SMA = RF086			
2.40 mm = RF085			
2.40 mm, SMPM, SMP, SMA = RF23C			

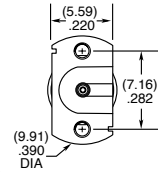
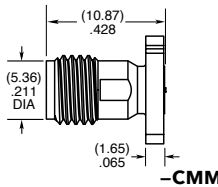
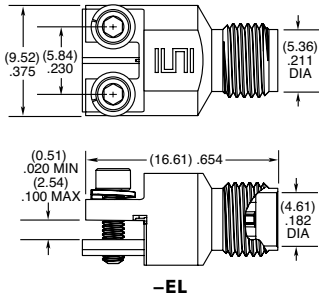
### 2.92 mm Board Connectors

292

**Cable Mates:**  
 RF047-A, RF085,  
 RF086, RF23C



292	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION	OPTION	PACKAGING
	<b>-J</b> = Jack	<b>-P</b> = PCB Mount	<b>-EP</b> = 50 μ" (1.27 μm) Gold center contact, Passivated outer contact	<b>-ST</b> = Straight	<b>-CM</b> = Compression Mount Stripline  <b>-CMM</b> = Compression Mount Microstrip	<b>-1</b> = Without Screws (-CM & -CMM only)  <b>-2</b> = With Screws (-CM & -CMM only)  <b>-01</b> = .040" to .100" PCB thickness (-EL only)	Leave blank for individually bagged.  <b>-B</b> = Bulk packaged
					<b>-EL</b> = Edge Launch		



### 2.92 mm Cable Connectors

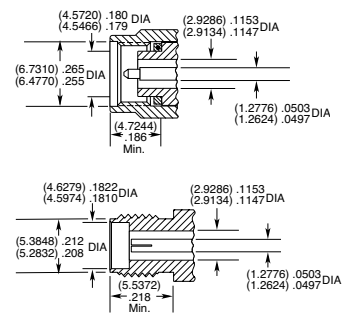
PRF92



CONNECTORS FOR INDUSTRY STANDARD CABLES	
PRF92-P-C-EE-405-SD	RG 405 Semi-Rigid
PRF92-P-C-EE-085A-SD	.085 Semi-Rigid
PRF92-P-C-EP-160-SS	Semflex HP160
PRF92-P-C-EP-150B-SS	IW 1501
PRF92-P-C-EP-142-SS	Harbour LL142
PRF92-J-C-EP-085-SS	Harbour SS405
PRF92-J-C-EP-085-BS	Harbour SS405
PRF92-P-C-EP-085-SS	Harbour SS405
PRF92-P-C-EE-402-SD	RG 402
PRF92-P-C-EP-190-SS	Semflex HP190
PRF92-J-C-EP-160-SS	Semflex HP160
PRF92-P-C-EP-120A-SS	Semflex HP120
PRF92-P-C-EP-140-SS	Dynawave DF140
PRF92-P-C-EP-047D-SS	.047 Semi-Rigid
PRF92-J-C-EP-047D-SS	.047 Semi-Rigid
PRF92-P-C-EP-150-SS	Dynawave DF150
PRF92-P-C-EE-118-SD	Haverhill HC35004
PRF92-J-C-EP-402-SS	RG 402
PRF92-J-C-EP-047D-4S	.047 Semi-Rigid
PRF92-P-C-EP-086-SS	Temp-Flex 1001935086
PRF92-P-C-EP-200-SS	Times Max Gain 200

For a complete list of 2.92 mm cable connectors, visit [www.samtec.com?PRF92](http://www.samtec.com?PRF92)

#### INTERFACE STANDARD



P-C = Cable Plug

J-C = Cable Jack

EE = Plating (50 μ" Gold center contact & outer contact)

EP = Plating (50 μ" Gold center contact, passivated outer contact)

SS = Straight, Solder Clamp

SD = Straight, Direct Solder

BS = Bulkhead, Solder Clamp

4S = 4-hole flange, Solder Clamp



## 3.50 mm TO 34 GHz

### 3.50 mm Cable Assemblies RF235



#### VSWR

RF235: 1.30 max

#### SERIES

**RF235**  
= MWC-2350-01 microwave cable with 23 AWG solid FEP Dielectric

#### END 1 CONNECTOR

**-35SJP**  
= 3.50 mm Straight Jack  
**-35SPP**  
= 3.50 mm Straight Plug

#### END 2 CONNECTOR

#### OVERALL LENGTH

**-"XXXX"**  
= Overall Length in millimeters  
-0100 (100 mm) 3.94" min.

### 3.50 mm Cable Connectors PRF35



#### CONNECTORS FOR INDUSTRY STANDARD CABLES

PRF35-P-C-EP-405-SS	RG 405, Semi-Rigid
PRF35-J-C-EP-402-SS	RG 402, .141, Semi-Rigid
PRF35-J-C-EP-402-BS	RG 402, .141, Semi-Rigid
PRF35-P-C-EP-402-SS	RG 402, .141, Semi-Rigid
PRF35-P-C-EP-120A-SS	Semflex HP120
PRF35-J-C-EP-160-SS	Semflex HP160
PRF35-P-C-EP-160-SS	Semflex HP160
PRF35-P-C-EP-210A-SS	Micro-Coax UFA210A

For a complete list of 3.50 mm cable connectors, visit [www.samtec.com?PRF35](http://www.samtec.com?PRF35)

P-C = Cable Plug

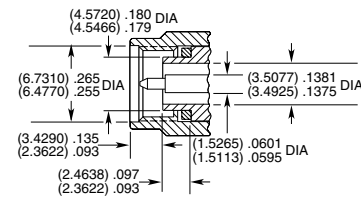
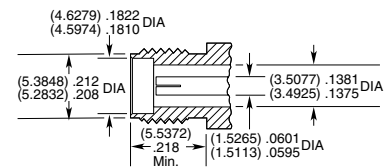
J-C = Cable Jack

EP = Plating (50 μ" Gold center contact, passivated outer contact)

SS = Straight, Solder Clamp

BS = Bulkhead, Solder Clamp

#### INTERFACE STANDARD



## SSMA TO 34 GHz

### SSMA Cable Connectors PRFS1

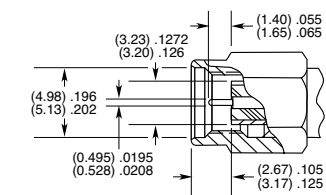
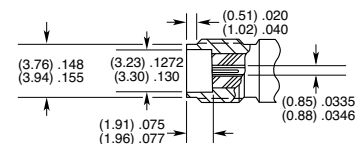


#### CONNECTORS FOR INDUSTRY STANDARD CABLES

PRFS1-J-C-EE-405-BD	RG 405, Semi-Rigid
PRFS1-P-C-EE-405-SD	RG 405, Semi-Rigid
PRFS1-P-C-EP-141A-SS	Harbour SS402

For a complete list of SSMA cable connectors, visit [www.samtec.com?PRFS1](http://www.samtec.com?PRFS1)

#### INTERFACE STANDARD



# SMA TO 26.5 GHz

## SMA Cable Assemblies

RF047-A, RF086, RF23C, RF25S, RF402, RF405, RF180, RF280



### VSWR

**RF047-A:** 1.30 max.  
**RF086:** 1.30 max.  
**RF23C:** 1.30 max.  
**RF180:** 1.35 max.  
**RF280:** 1.35 max.

Additional connector options available. Contact RFGroup@samtec.com

SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RF047-A</b> = (1.2 mm) .047" overshield DIA 29 AWG millimeter wave cable	<b>-01SP1*</b> = SMA Straight Plug		<b>-“XXXX”</b> = Overall Length in millimeters
<b>RF086</b> = (2.18 mm) .086" overshield DIA 23 AWG millimeter wave cable	<b>-01RP1*</b> = SMA Right-angle Plug (RF047-A, RF086, RF23C & RF25S not available)		-0100 (100 mm) 3.94" minimum (RF047-A, RF086, RF25S, RF402, & RF405)
<b>RF23C</b> = MCW-2350CU-01 millimeter wave cable with copper foil shield	<b>-01BJ1*</b> = SMA Bulkhead Jack (RF402 & RF405 not available)		-0152 (152 mm) 5.984" minimum (RF23C & RF180)
<b>RF25S</b> = MWC-2550-01 microwave cable with 25 AWG solid FEP dielectric	<b>-01SB</b> = Straight Bulkhead Jack, Sealed (RF047-A, RF086 & RF23C only)		-0200 (200 mm) 7.87" minimum (RF280)
<b>RF402</b> = RG 402 (.141") 19 AWG semi-flexible microwave cable	*Remove last "1" from end connector when specifying RF047-A, RF086, RF23C, RF180 & RF280.		
<b>RF405</b> = RG 405 (.086") 24 AWG semi-flexible microwave cable			
<b>RF180</b> = (4.52 mm) .178" overshield DIA, 16 AWG microwave cable			
<b>RF280</b> = (7 mm) .277" overshield DIA, 11 AWG microwave cable			

### ALSO AVAILABLE

1.00 mm, 1.35 mm, 1.85 mm, 2.40 mm, 2.92 mm, SMPM, SMP = RF047-A

1.85 mm, 2.40 mm, 2.92 mm, SMPM, SMP = RF086

2.40 mm, 2.92 mm, SMPM, SMP = RF23C

SMP = RF25S, RF405

TNCA, N Type = RF180

TNCA, N Type = RF280

## SMA Board Connectors

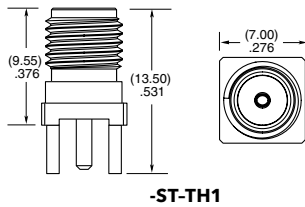
SMA-TH, SMA-SM, SMA-MT, SMA-EM

### Cable Mates:

RF047-A, RF086, RF23C, RF25S, RF402, RF405, RF180, RF280



SMA	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION
	<b>-J</b> = Jack	<b>-P</b> = PCB Mount	<b>-H</b> = 30 μ" (0.76 μm) Gold center contact, 3 μ" (0.08 μm) Gold outer contact	<b>-ST</b> = Straight	<b>-TH1</b> = Through-hole
			<b>-GF</b> = 10 μ" (0.25 μm) Gold center contact, 3 μ" (0.08 μm) Gold outer contact (-SM1 only)	<b>-RA</b> = Right-angle	<b>-SM1</b> = Surface Mount (-GF-RA only)
					<b>-EM1</b> = Edge Mount (-ST only)
					<b>-EM3</b> = Drop-in Edge Mount (-ST only)
					<b>-MT1</b> = Mixed Technology (-ST only)



## SMA Cable Connectors

PRF01

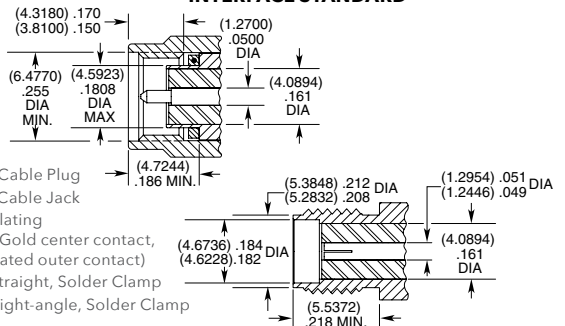


### CONNECTORS FOR INDUSTRY STANDARD CABLES

PRF01-P-C-EP-120C-SS	Harbour LL120
PRF01-J-C-EP-142-SS	Harbour LL142
PRF01-P-C-EP-142-SS	Harbour LL142
PRF01-P-C-EP-142-RS	Harbour LL142
PRF01-P-C-EP-142A-SS	Harbour SB142
PRF01-P-C-EP-335-SS	Harbour LL335
PRF01-P-C-EP-335A-SS	Harbour LL335i
PRF01-P-C-EP-190-SS	Semflex HP190
PRF01-P-C-EP-190-RS	Semflex HP190
PRF01-P-C-EP-305-SS	Semflex HP305
PRF01-P-C-EP-290-SS	Semflex LA290

For a complete list of SMA cable connectors, visit [www.samtec.com?PRF01](http://www.samtec.com?PRF01)

### INTERFACE STANDARD



P-C = Cable Plug  
 J-C = Cable Jack

EP = Plating

(50 μ" Gold center contact, passivated outer contact)

SS = Straight, Solder Clamp

RS = Right-angle, Solder Clamp

## SMMP TO 65 GHz

### SMMP Cable Assemblies

RF047-A, RF086, RF23C



#### VSWR

**RF047-A:** 1.40 max.  
**RF086:** 1.40 max.  
**RF23C:** 1.20 max. (DC to 26.5 GHz)  
 1.40 max. (26.5 GHz to 50 GHz)

SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RF047-A</b> = (1.2 mm) .047" overshield DIA 29 AWG millimeter cable  <b>RF086</b> = (2.18 mm) .086" overshield DIA 23 AWG millimeter cable  <b>RF23C</b> = MWC-2350CU-01 millimeter wave cable with copper foil shield	<b>-MOSP</b> = SMMP Straight Plug, Full Detent  <b>-MOSJ</b> = SMMP Straight Jack  <b>-MORJ</b> = SMMP Right-angle Jack (RF047-A only)  <b>-MOBJ</b> = SMMP Straight Bulkhead Jack (RF047-A only)	<b>-"XXXX"</b> = Overall Length in millimeters  -0100 (100 mm) 3.94" minimum (RF047-A, RF086)  -0152 (152 mm) 5.984" minimum (RF23C)	

#### ALSO AVAILABLE

1.00 mm, 1.35 mm, 1.85 mm, 2.40 mm,  
 2.92 mm, SMP, SMA = RF047-A  
 1.85 mm, 2.40 mm, 2.92 mm, SMP, SMA = RF086  
 2.40 mm, 2.92 mm, SMP, SMA = RF23C

### SMMP Board Connectors

SMPM-SM, SMPM-TH,  
 SMPM-RA, SMPM-MT,  
 SMPM-EM

#### Cable Mates:

RF047-A, RF086, RF23C



SMMP	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION	1
	<b>-PF</b> = Full Detent  <b>-PS</b> = Smooth Bore  <b>-PC</b> = Catcher's Mitt (-ST-TH, -ST-MT & -ST-SM only)	<b>-P</b> = PCB Mount	<b>-HG</b> = 30 μ" (0.76 μm) Gold center contact, 10 μ" (0.25 μm) Gold outer contact (-ST only)  <b>-HF</b> = 30 μ" (0.76 μm) Gold center contact, 3 μ" (0.08 μm) Gold outer contact (-RA only)  <b>-EG</b> = 50 μ" (1.27 μm) Gold center contact and outer body (-MT & -SM only)	<b>-ST</b> = Straight  <b>-RA</b> = Right-angle (-TH required)	<b>-EM</b> = Drop-in Edge Mount (-ST only)  <b>-TH</b> = Through-hole  <b>-SM</b> = Surface Mount (-ST only)  <b>-MT</b> = Mixed Technology (-ST only)	
	 -ST-TH-1	 -RA-TH-1	 -ST-SM-1	 -ST-EM-1		

### SMMP Cable Connectors

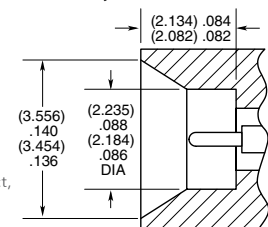
PRFM0



CONNECTORS FOR INDUSTRY STANDARD CABLES	
PRFM0-J-C-EE-085-BD	Harbour SS405
PRFM0-J-C-EE-047A-BD	Temp-Flex 1000671047
PRFM0-J-C-HG-047A-SD	Temp-Flex 1000671047
PRFM0-J-C-EE-047A-RD	Temp-Flex 1000671047
PRFM0-P-C-HG-047A-SD	Temp-Flex 1000671047
PRFM0-J-C-EE-047B-SD	Temp-Flex 1001935047
PRFM0-J-C-EE-086-SD	Temp-Flex 1001935086
PRFM0-P-C-EE-086-SD	Temp-Flex 1001935086

For a complete list of SMMP cable connectors, visit [www.samtec.com?PRFM0](http://www.samtec.com?PRFM0)

#### INTERFACE STANDARD (CATCHER'S MITT)

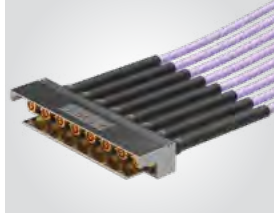


P-C = Cable Plug  
 J-C = Cable Jack  
 EE = Plating  
 (50 μ" Gold center contact,  
 & outer contact)  
 HG = Plating  
 (30 μ" Gold center contact,  
 10 μ" Gold outer contact)  
 SD = Straight, Direct Solder  
 BD = Bulkhead, Direct Solder  
 RD = Right-angle, Direct Solder

## SMPM TO 65 GHZ

### SMPM Ganged Cable: GC47, GC86

Mates With: GPPC



SERIES	NO. OF ROWS	NO. OF POSITIONS	ASSEMBLY LENGTH
--------	-------------	------------------	-----------------

**GC47**  
= Ganged SMPM with (1.2 mm) .047" overshield DIA 29 AWG millimeter wave cable

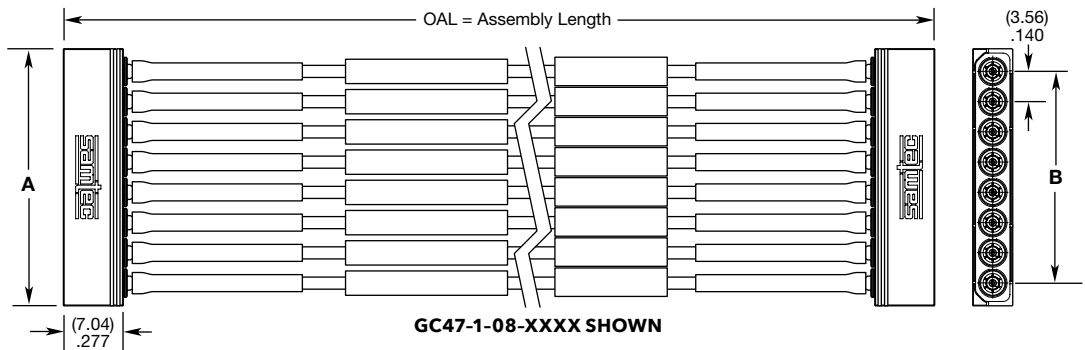
**GC86**  
= Ganged SMPM with (2.18 mm) .086" overshield DIA 23 AWG millimeter wave cable

-1

-02, -04, -06, -08, -10

-"XXXX"  
= Assembly Length in millimeters -0100 (100 mm) 3.94" minimum

NO. OF POSITIONS	A	B
-02	(8.89) .350	(3.56) .140
-04	(16.00) .630	(10.67) .420
-06	(22.10) .870	(17.78) .700
-08	(30.23) 1.190	(24.89) .980
-10	(37.34) 1.470	(32.00) 1.260



### ALSO AVAILABLE

Other RF options for end 2  
Contact [RFGroup@samtec.com](mailto:RFGroup@samtec.com)

**Notes:**  
Cable lengths longer than 1000 mm (39.37") are not supported with S.I. test data.

Some sizes, styles and options are non-standard, non-returnable.

### SMPM Ganged Block: GPPC

Mates With: GC47, GC86



GPPC	GENDER	1	NO. OF POSITIONS	PLATING	ORIENTATION	TERMINATION	1N
------	--------	---	------------------	---------	-------------	-------------	----

**-PF**  
= Plug Full Detent

**-PS**  
= Plug Smooth Bore

**-PC**  
= Catcher Mitt (-ST-SL & -RA-SM only)

-02, -04, -06, -08, -10 (Per Row)

**-EG**  
= 50 μm (1.27 μm) heavy Gold center contact, 10 μm (0.25 μm) extra Gold outer body (-EM only)

**-HG**  
= 30 μm (0.76 μm) Gold center contact, 10 μm (0.25 μm) Gold outer body (-SL & -SM only)

**-ST**  
= Straight

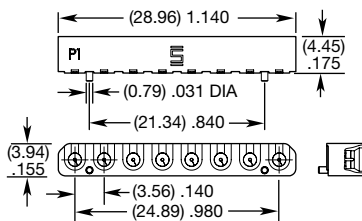
**-RA**  
= Right-angle (-SM only)

**-SM**  
= Surface Mount (Right-angle only)

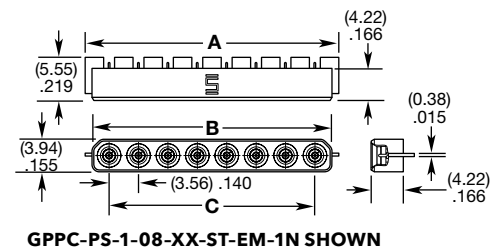
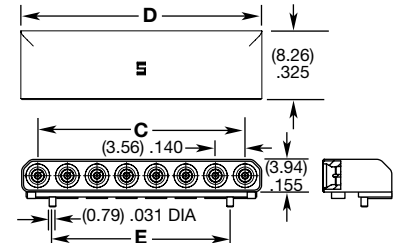
**-EM**  
= Edge Mount

**-SL**  
= Stub Launch

Leave blank for -SL & -SM



NO. OF POSITIONS	A	B	C	D	E
-02	(9.35) .368	(7.70) .303	(3.56) .140	(7.62) .300	N/A
-04	(16.46) .648	(14.81) .583	(10.67) .420	(14.73) .580	(7.11) .280
-06	(23.57) .928	(21.92) .863	(17.78) .700	(21.84) .860	(14.22) .560
-08	(30.68) 1.208	(29.03) 1.143	(24.89) .980	(28.96) 1.140	(21.34) .840
-10	(37.80) 1.488	(36.14) 1.423	(32.00) 1.260	(36.07) 1.420	(28.45) 1.120



**Notes:**  
Some sizes, styles and options are non-standard, non-returnable.



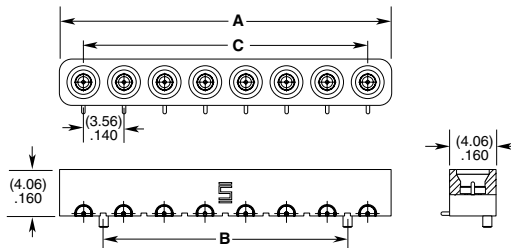
**SMPM TO 65 GHz**

**SMPM Ganged Block:**  
GPPB

**Mates With:**  
PRFIA



GPPB	GENDER	NO. OF ROWS	NO. OF POSITIONS	PLATING	ST	SM	CHANNEL PITCH
	-PF = Plug Full Detent  -PS = Plug Smooth Bore  -PC = Catcher's Mitt	-1	-02, -04, -06, -08, -10	-EG = 50 μ" (1.27 μm) heavy Gold center contact, 10 μ" (0.25 μm) Gold outer body			-1N = 3.56 mm (.140") Pitch



**GPPB-PF-1-08-EG-ST-SM-1N SHOWN**

NO. OF POSITIONS	A	B	C
-02	(7.62) .300	N/A	(3.56) .140
-04	(14.73) .580	(7.11) .280	(10.67) .420
-06	(21.84) .860	(14.22) .560	(17.78) .700
-08	(28.96) 1.14	(21.34) .840	(24.89) .980
-10	(36.07) 1.42	(28.45) 1.12	(32.00) 1.26

**ALSO AVAILABLE**

(8.33 mm) .328" Pitch  
(5.08 mm) .200" Pitch  
Edge Mount termination  
Contact: [RFGroup@samtec.com](mailto:RFGroup@samtec.com)

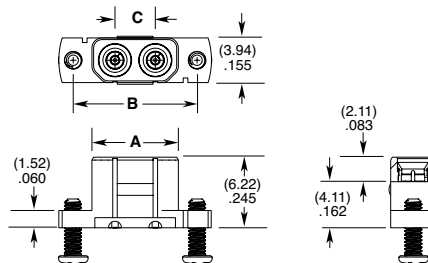
**DUAL POSITION SOLDERLESS COMPRESSION MOUNT**

**SMPM Ganged Block:**  
GPPC

**Mates With:**  
GC47, GC86, PRFIA



GPPC	GENDER	1	2	PLATING	ORIENTATION	TERMINATION	PACKAGING
	-PF = Plug Full Detent  -PS = Plug Smooth Bore			-EP = 50 μ" (1.27 μm) heavy Gold center contact, Passivated outer body	-ST = Straight	-CMM = Compression Mount	Leave blank for individually bagged  -B = Bulk Package



**GPPC-PX-1-2-EP-ST-CMM-X SHOWN**

NO. OF POSITIONS	A	B	C
-02	(7.62) .300	(10.92) .430	(3.56) .140

# SMP TO 40 GHz

## SMP Cable Assemblies

RF047-A, RF086, RF23C, RF25S, RF405



### VSWR

**RF047-A:** 1.50 max.  
**RF086:** 1.50 max.  
**RF23C:** 1.50 max.  
**RF25S:** Contact Samtec  
**RF405:** Contact Samtec

SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RF047-A</b> = (1.2 mm) .047" overshield DIA 29 AWG millimeter wave cable	<b>-00SJ</b> = SMP Straight Jack (RF047-A, RF086 & RF23C only)		<b>-"XXXX"</b> = Overall Length in millimeters
<b>RF086</b> = (2.18 mm) .086" overshield DIA 23 AWG millimeter wave cable	<b>-00MJ</b> = SMP Right-angle Jack (RF047-A, RF086 & RF23C only)		-0100 (100 mm) 3.94" minimum (RF047-A, RF086, RF23C)
<b>RF23C</b> = MWC-2350CU-01 millimeter wave cable with copper foil shield	<b>-00BF</b> = SMP Bulkhead Jack, Full Detent (RF086 & RF23C only)		-0152 (152 mm) 5.984" minimum (RF23C)
<b>RF25S</b> = MWC-2550-01 microwave cable with 25 AWG solid FEP dielectric	<b>-00BL</b> = SMP Bulkhead Jack, Limited Detent (RF086 & RF23C only)		
<b>RF405</b> = RG 405 (.086") 24 AWG semi-flexible microwave cable	<b>-00BS</b> = SMP Bulkhead Jack, Smooth Bore (RF086 & RF23C only)		
	<b>-00BC</b> = SMP Bulkhead Jack, Catcher's Mitt (RF086 & RF23C only)		
	<b>-00SJ7</b> = SMP Straight Jack (RF25S & RF405 only)		
	<b>-00RJ7</b> = SMP Right-angle Jack (RF25S & RF405 only)		

### ALSO AVAILABLE

1.00 mm, 1.35 mm, 1.85 mm, 2.40 mm, 2.92 mm, SMPM, SMA = RF047-A  
 1.85 mm, 2.40 mm, 2.92 mm, SMPM, SMA = RF086  
 2.40 mm, 2.92 mm, SMPM, SMA = RF23C  
 SMA = RF25S  
 SMA = RF405

## SMP Cable Connectors

PRF00



CONNECTORS FOR INDUSTRY STANDARD CABLES	
PRF00-J-C-EE-047A-RD	Temp-Flex 1000671047
PRF00-J-C-EE-085A-SD	.086 Semi-Rigid
PRF00-PF-C-KK-047D-BD	.047 Semi-Rigid

For a complete list of SMP cable connectors, visit [www.samtec.com?PRF00](http://www.samtec.com?PRF00)

J-C = Cable Jack

EE = Plating (50 μ" Gold center contact & outer contact)

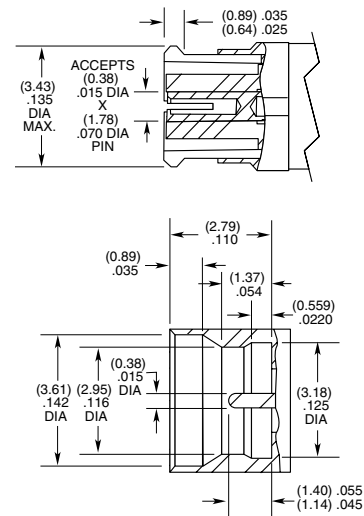
KK = Plating (100 μ" Gold over Nickel center contact, passivated outer contact)

BD = Bulkhead, Direct Solder

SD = Straight, Direct Solder

RD = Right-angle, Direct Solder

### INTERFACE STANDARD (FULL DETENT)



## SMP TO 40 GHz

### SMP Board Connectors

SMP-TH, SMP-EM,  
SMP-MT, SMP-SM

#### Cable Mates:

RF047-A, RF086,  
RF23C, RF405, RF25S



SMP	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION
-----	--------	------	---------	-------------	-------------

- PF**  
= Plug, Full Detent
- PL**  
= Plug, Limited Detent
- PS**  
= Plug, Smooth Bore
- PC**  
= Plug, Catcher's Mitt

- P**  
= PCB Mount
- HG**  
= 30  $\mu$ " (0.76  $\mu$ m)  
Gold center contact,  
10  $\mu$ " (0.25  $\mu$ m)  
Gold outer body

- ST**  
= Straight

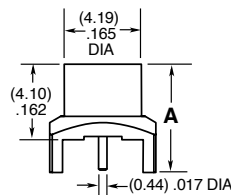
- SM**  
= Surface Mount  
(Not available with PS)

- TH"X"**  
= Through-hole  
(Specify "X"  
from chart)

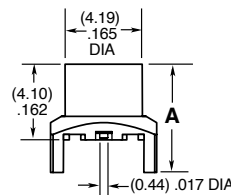
- MT"X"**  
= Mixed Technology  
(Specify "X"  
from chart)

- EM**  
= Edge Mount  
(-PL & -PS only)

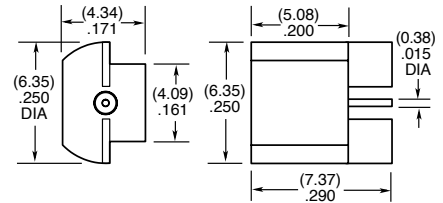
OPTION (X)	A (HEIGHT DIM.)	BOARD THICKNESS
1	(5.88) .2315	(1.60 mm) .062" PCB
2	(6.54) .2575	(2.36 mm) .093" PCB



**-PF/-PL/-PS-TH2**



**-MT(X)**



**-EM**

### ALSO AVAILABLE

Low Frequency options.  
Contact [RFGroup@samtec.com](mailto:RFGroup@samtec.com)

### SMP Bullet Adaptor

SMP-B



SMP	J	TYPE	PLATING	ORIENTATION	BULLET LENGTH
-----	---	------	---------	-------------	---------------

- B**  
= Bullet Adaptor

- HG**  
= 30  $\mu$ " (0.76  $\mu$ m)  
Gold center contact,  
10  $\mu$ " (0.25  $\mu$ m)  
Gold outer body

- ST**  
= Straight

- 0591**  
= (5.91 mm) .233"

- 0645**  
= (6.45 mm) .254"

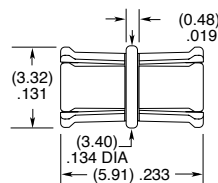
- 0690**  
= (6.90 mm) .272"

- 0795**  
= (7.95 mm) .313"

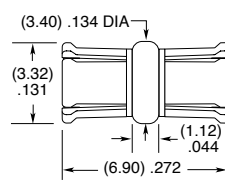
- 0896**  
= (8.96 mm) .353"

- 1305**  
= (13.05 mm) .514"

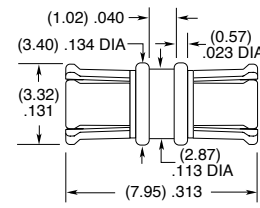
- 1450**  
= (14.50 mm) .571"



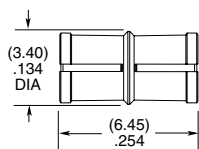
**-0591**



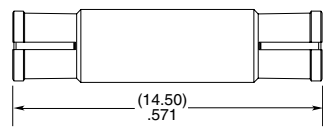
**-0690**



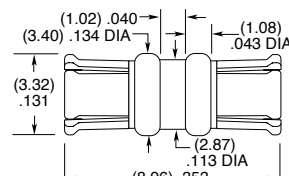
**-0795**



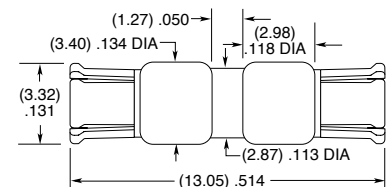
**-0645**



**-1450**



**-0896**



**-1305**

# N TYPE TO 18 GHz

## N Type Cable Assemblies

RF180, RF280



### VSWR

**RF 180:**  
1.35 max. (-06SP & -06BJ)  
1.45 max. (-06RP)

**RF 280:**  
1.35 max. (-06SP & -06BJ)  
1.35 max. (DC to 14 GHz) (-06RP)  
1.50 max. (14 GHz to 18 GHz)

SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RF180</b> = (4.52 mm) .178" overshield DIA, 16 AWG microwave cable	<b>-06SP</b> = N Type Straight Plug	<b>-06SP</b> = N Type Straight Plug	<b>-"XXXX"</b> = Overall length in millimeters
<b>RF280</b> = (7 mm) .277" overshield DIA, 11 AWG microwave cable	<b>-06RP</b> = N Type Right-angle Plug	<b>-06RP</b> = N Type Right-angle Plug	-0152 (152 mm) 5.984" minimum (RF180)
	<b>-06BJ</b> = N Type Straight Bulkhead Jack	<b>-06BJ</b> = N Type Straight Bulkhead Jack	-0200 (200 mm) 7.87" minimum (RF280)

### ALSO AVAILABLE

SMA, TNCA = RF180  
SMA, TNCA = RF280

## N Type Cable Connectors

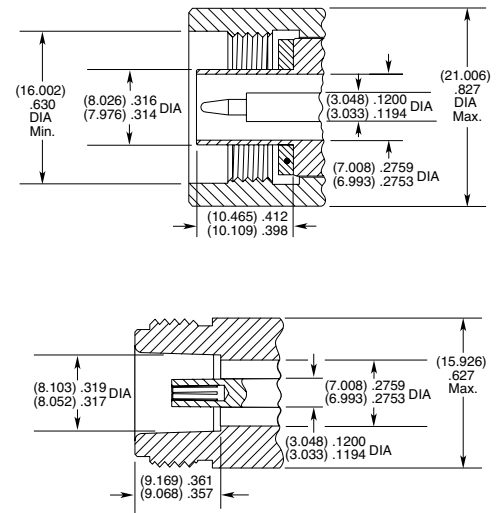
PRF06



CONNECTORS FOR INDUSTRY STANDARD CABLES	
PRF06-P-C-EP-141A-SS	Harbour SS402
PRF06-J-C-EP-142-BS	Harbour LL142
PRF06-P-C-EP-142-SS	Harbour LL142
PRF06-P-C-EP-142-RS	Harbour LL142
PRF06-P-C-EP-142A-SS	Harbour SB142
PRF06-J-C-EP-335-BS	Harbour LL335
PRF06-P-C-EP-335-SS	Harbour LL335
PRF06-P-C-EP-335-RS	Harbour LL335
PRF06-P-C-EP-335A-SS	Harbour LL335i
PRF06-P-C-EP-335A-SS	Harbour LL335i
PRF06-P-C-EP-335A-RS	Harbour LL335i
PRF06-J-C-EP-160A-BS	Harbour LL160
PRF06-P-C-EP-160A-SS	Harbour LL160
PRF06-P-C-EP-160A-RS	Harbour LL160
PRF06-P-C-EP-120A-SS	Semflex HP120
PRF06-J-C-EP-190-BS	Semflex HP190
PRF06-P-C-EP-190-SS	Semflex HP190
PRF06-P-C-EP-190-RS	Semflex HP190
PRF06-J-C-EP-290-BS	Semflex LA290
PRF06-P-C-EP-290-SS	Semflex LA290
PRF06-P-C-EP-290-RS	Semflex LA290
PRF06-P-C-EP-305-SS	Semflex HP305
PRF06-J-C-EP-402-4S	RG 402, .141, semi-rigid
PRF06-P-C-EP-300A-SS	Times Max Gain 300
PRF06-P-C-EP-180B-SS	IW 1801
PRF06-P-C-EP-135-SS	Dynawave DF440W
PRF06-P-C-EP-270A-RS	Dynawave DF218
PRF06-P-C-EP-160B-SS	ATM CF-210
PRF06-P-C-EP 135B-SS	Lab-Flex 160S
PRF06-P-C-EP-284-SS	Micro-Coax UFB311A

For a complete list of N Type cable connectors, visit [www.samtec.com?PRF06](http://www.samtec.com?PRF06)

### INTERFACE STANDARD



P-C = Cable Plug  
J-C = Cable Jack  
EP = Plating (50 μ" Gold center contact, passivated outer contact)  
SS = Straight, Solder Clamp  
RS = Right-angle, Solder Clamp  
BS = Bulkhead, Solder Clamp  
4S = 4-hole Flange, Solder Clamp



## TNCA TO 18 GHz

### TNCA Cable Assemblies

RF180, RF280



#### VSWR

**RF180:** 1.35 max. (-04SP & -04BJ)  
1.45 max. (-04RP)  
**RF280:** 1.35 max. (-04SP & -04BJ)

SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RF180</b> = (4.52 mm) .178" overshield DIA, 16 AWG microwave cable  <b>RF280</b> = (7 mm) .277" overshield DIA, 11 AWG microwave cable	<b>-04SP</b> = TNCA Straight Plug  <b>-04RP</b> = TNCA Right-angle Plug (RF180 only)  <b>-04BJ</b> = TNCA Straight Bulkhead Jack		<b>-"XXXX"</b> = Overall length in millimeters  -0100 (100 mm) 3.94" minimum (RF180)  -0200 (200 mm) 7.87" minimum (RF280)

#### ALSO AVAILABLE

SMA, N Type = RF180  
SMA, N Type = RF280

### TNCA Cable Connectors

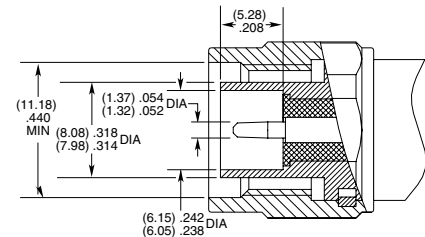
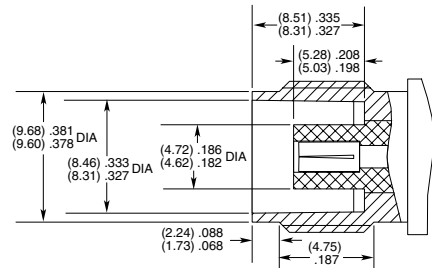
PRF04



CONNECTORS FOR INDUSTRY STANDARD CABLES	
PRF04-P-C-EP-142-RS	Harbour LL142
PRF04-J-C-EP-142-BS	Harbour LL142
PRF04-P-C-EP-142-SS	Harbour LL142
PRF04-P-C-EP-335-SS	Harbour LL335
PRF04-P-C-EP-290-SS	Semflex LA290
PRF04-J-C-EP-190-BS	Semflex HP190
PRF04-P-C-EP-190-RS	Semflex HP190
PRF04-P-C-EP-190-SS	Semflex HP190
PRF04-P-C-EP-335A-RS	Harbour LL335i
PRF04-J-C-EP-335A-BS	Harbour LL335i
PRF04-P-C-EP-300A-SS	Times Max Gain 300
PRF04-P-C-EP-200-SS	Times Max Gain 200
PRF04-P-C-EP-160A-SS	Harbour LL160
PRF04-J-C-EP-270A-BS	Dynawave DF218
PRF04-P-C-EP-135-SS	Dynawave DF440W
PRF04-P-C-EP-300A-SS	Times Max Gain 300
PRF04-J-C-EP-210A-BS	Micro-Coax UFA210A
PRF04-P-C-EP-210A-SS	Micro-Coax UFA210A
PRF04-P-C-EP-284-SS	Micro-Coax UFB311A
PRF04-J-C-EP-127-4S	Storm VSR150

For a complete list of TNCA cable connectors, visit [www.samtec.com?PRF04](http://www.samtec.com?PRF04)

#### INTERFACE STANDARD



P-C = Cable Plug  
J-C = Cable Jack  
EP = Plating (50 μ" Gold center contact, passivated outer contact)  
SS = Straight, Solder Clamp  
RS = Right-angle, Solder Clamp  
BS = Bulkhead, Solder Clamp  
4S = 4-Hole Flange

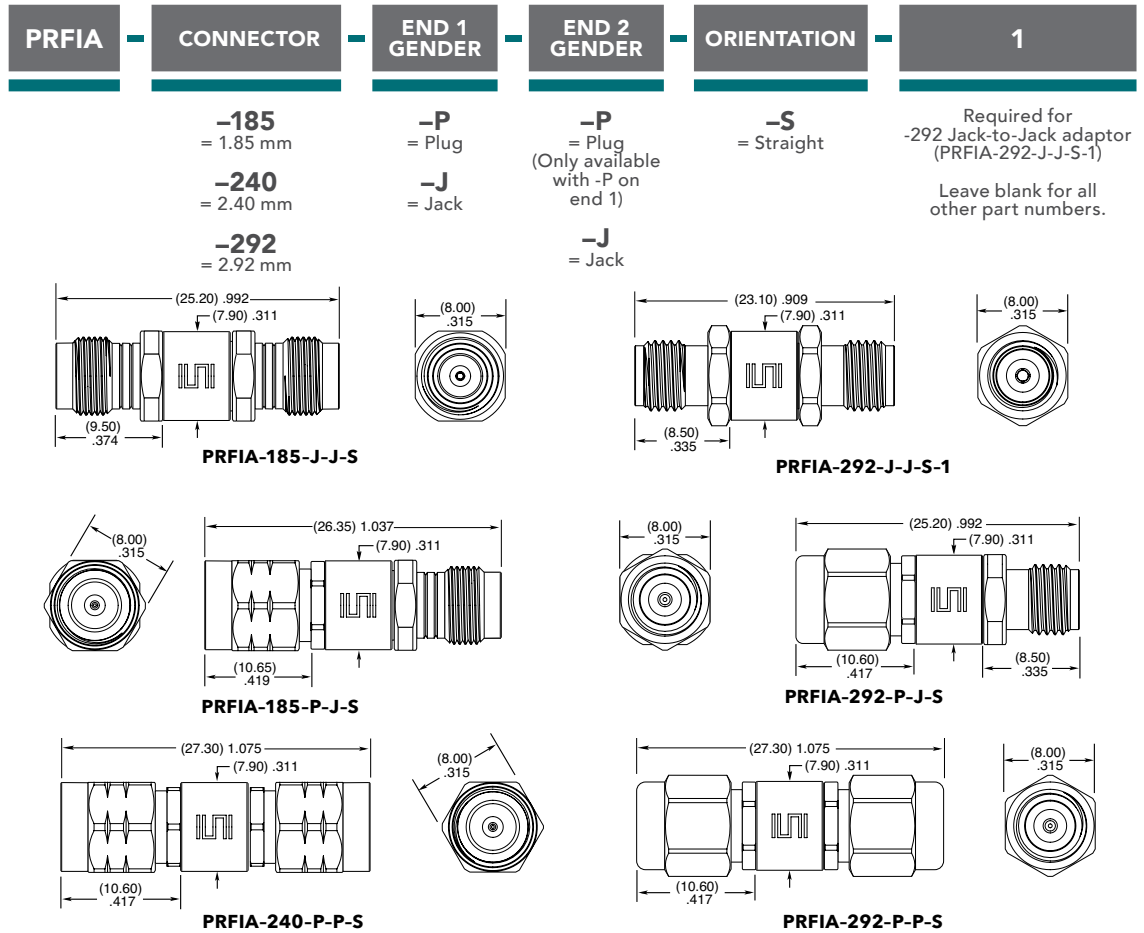
# IN-SERIES PRECISION RF ADAPTORS

**1.85 mm, 2.40 mm, 2.92 mm In-Series Adaptors**  
PRFIA



## VSWR

**-185:** 1.30 max.  
**-240:** 1.20 max.  
**-292:** 1.15 max.



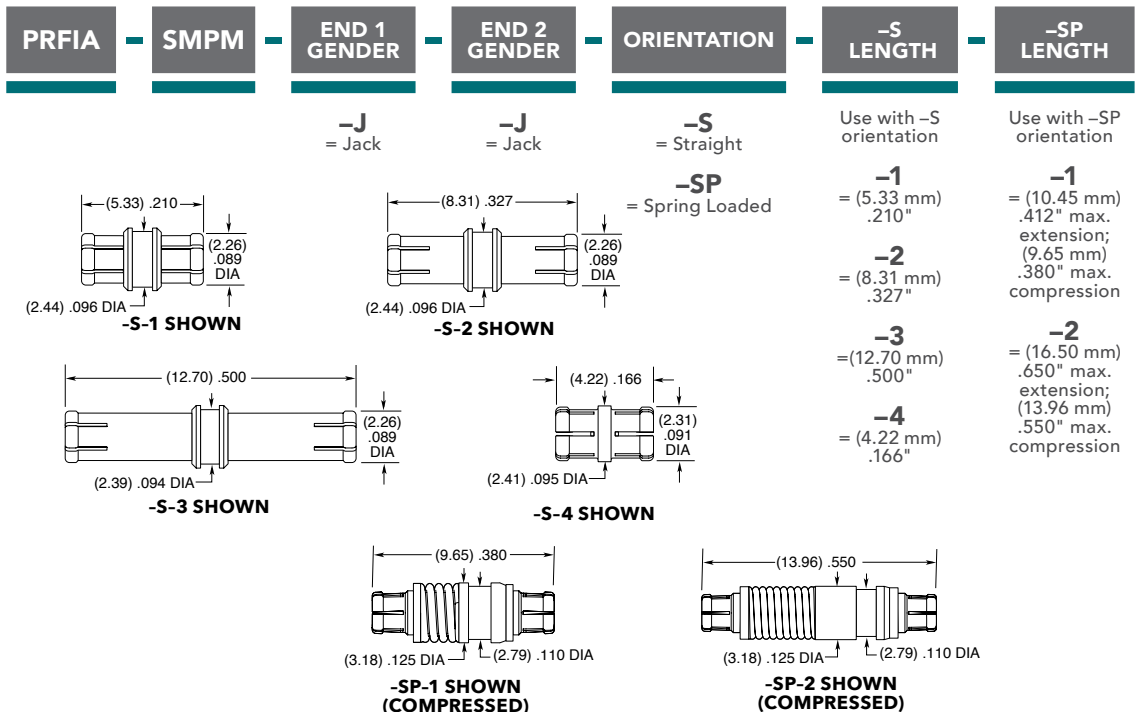
**SMPM In-Series Adaptor:**  
PRFIA

**Mates With:**  
SMPM, GPPB, GPPC



## VSWR

1.15 max. (DC to 26.5 GHz)  
1.35 max. (26.5 GHz to 40 GHz)  
1.50 max. (40 GHz to 65 GHz)



## BETWEEN-SERIES PRECISION RF ADAPTORS

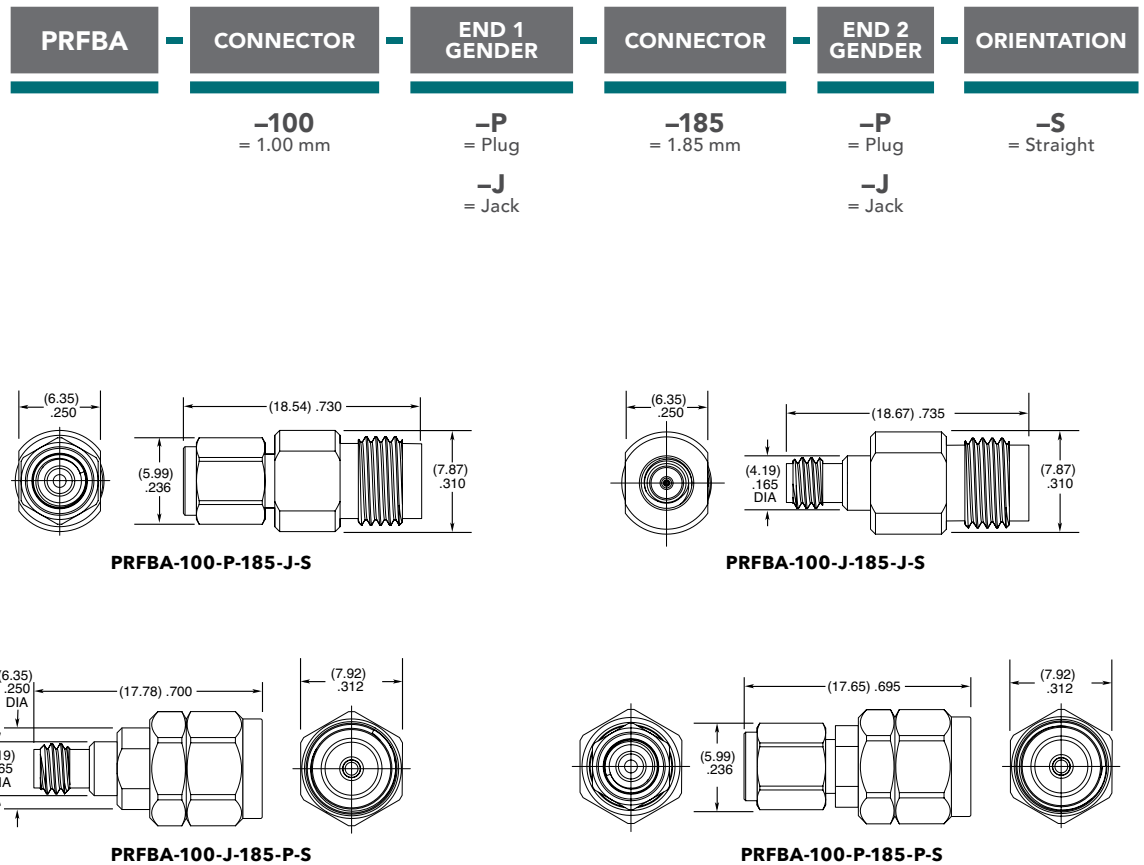
### 1.00 mm to 1.85 mm Adaptors

PRFBA



#### VSWR

1.12 max. (DC to 26.5 GHz)  
 1.25 max. (26.5 GHz to 40 GHz)  
 1.30 max. (40 GHz to 50 GHz)  
 1.35 max. (50 GHz to 67 GHz)



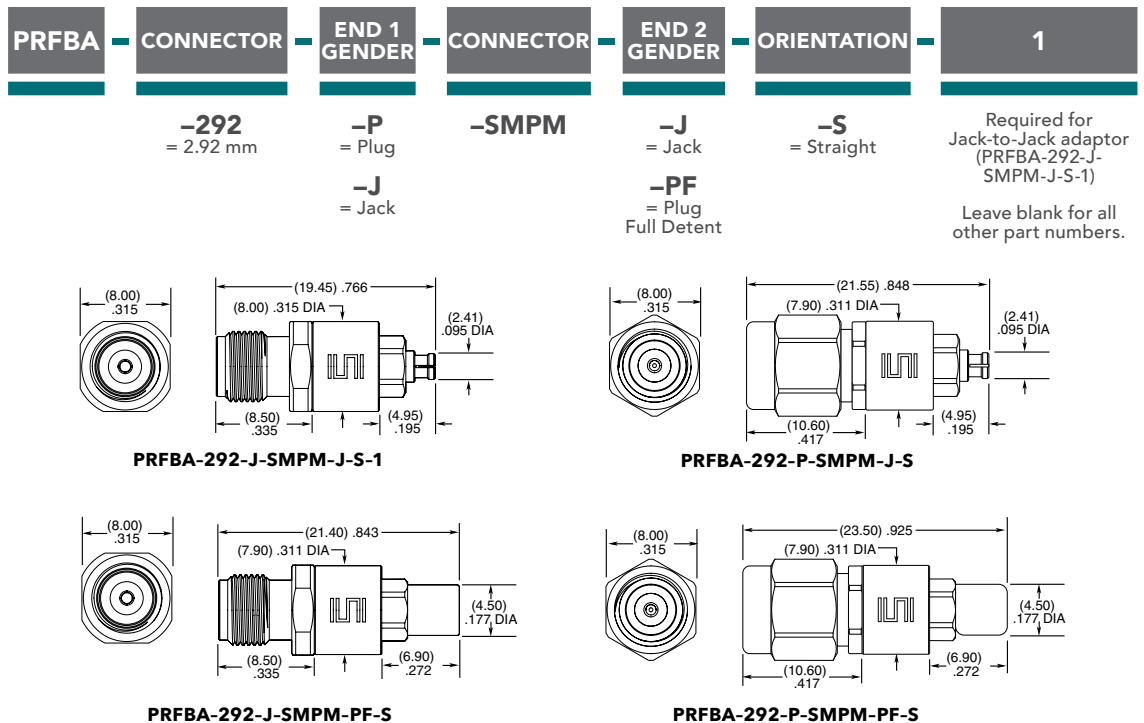
### 2.92 mm to SMPM Adaptors

PRFBA



#### VSWR

1.30 max. (DC to 40 GHz)

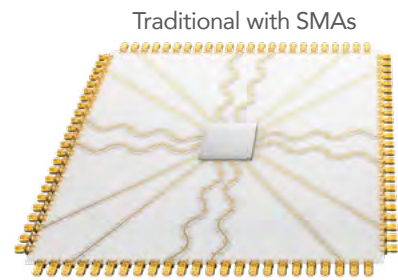


## HIGH-PERFORMANCE TEST ASSEMBLIES TO 90 GHz

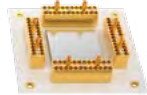
### FEATURES & BENEFITS

The Bulls Eye® high-performance test assembly features a high-density, space-saving design that enables smaller evaluation boards and shorter trace lengths in test and measurement applications to 90 GHz.

- Compression mounts to the board for placement directly adjacent to the SerDes being characterized
- Solderless design improves cost and is easy to use within a lab setting
- End 2 connection to instrumentation: 1.00 mm, 1.35 mm, 1.85 mm, 2.40 mm or 2.92 mm
- High-density, space-saving design
- Single row or double row
- Complete list of applications: SerDes characterization, clock/data recovery (CDR), mmWave radar, automated test equipment, FR2 5G networks



Bulls Eye®



DC TO  
**90**  
GHz

PAM 4  
**224**  
Gbps

### HIGH-DENSITY & SPACE-SAVING

Enables smaller evaluation boards and shorter trace lengths.



### PRODUCT FAMILY CROSS REFERENCE GUIDE

ASSEMBLY	90 GHz	70 GHz	50 GHz	40 GHz	TEST ASSEMBLY	SERDES CHARACTERIZATION
Block Bottom View					BE90A, 90 GHz	<b>PAM 4</b> <b>224</b> Gbps
End 2 Connector	1.00 & 1.35 mm	1.85 mm	2.40 mm	2.92 mm		
Samtec Series	BE90A	BE70A	BE40A			
Cable Type	.047	.086	MWC-2350CU-01		BE70A, 70 GHz	<b>PAM 4</b> <b>112</b> Gbps
Cable Management	Yes					
PCB Transition	Microstrip/CPW or Stripline					
Bulls Eye® Connector Design	Spring-Loaded Contact; 360° Grounding		Pogo-Pin for Signal & Ground			
No. of Rows	Single or Double		Double			
No. of Positions	<b>1x:</b> 2, 4, 8, 12 <b>2x:</b> 4, 8, 12, 16	<b>1x:</b> 2, 4, 8, 12 <b>2x:</b> 3, 4, 6, 8, 10, 12, 14, 16	<b>2x:</b> 3, 4, 6, 8, 10, 12, 14, 16		BE40A, 50 GHz	<b>PAM 4</b> <b>56</b> Gbps
Impedance	50 Ω					
FPGA Development Kit	-		Xilinx® Zynq® UltraScale+™ RFSoc ZCU1275			
SI Evaluation Kit	-	70 GHz: REF-213864-01	50 GHz: REF-213497-01			

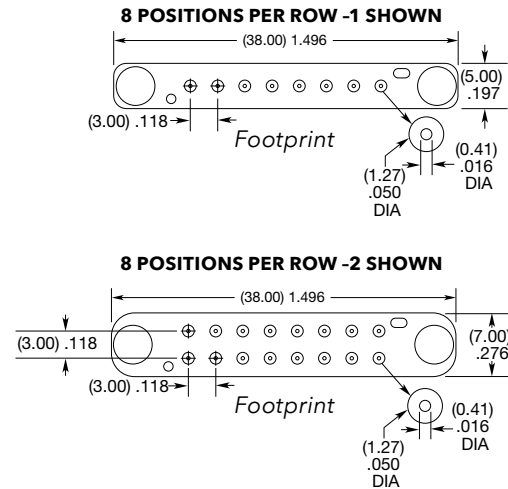


## 90 GHz ASSEMBLIES

BE90A	TRANSMISSION TYPE	END 2	PHASE MATCHING	ROW OPTION	POSITIONS PER ROW	OVERALL LENGTH
	<b>-S</b> = Stripline  <b>-M</b> = Microstrip	<b>-10BJ</b> = 1.00 mm Straight Jack  <b>-10SP</b> = 1.00 mm Straight Plug  <b>-13BJ</b> = 1.35 mm Straight Jack  <b>-13SP</b> = 1.35 mm Straight Plug	<b>-1</b> = 1.0 Pico-second  <b>-2</b> = 2.0 Pico-second  <b>-5</b> = 5.0 Pico-second  <b>-N</b> = No Phase Matching	<b>-1</b> = Single Row (-02, -04, -08 & -12 positions only)  <b>-2</b> = Double Row (-04, -08, -12 & 16 positions only)	<b>-02,</b> <b>-04, -08,</b> <b>-12, -16</b>	<b>-"XXXX"</b> = Overall length in millimeters  -0152 (152 mm) 5.984" minimum

### BE90A

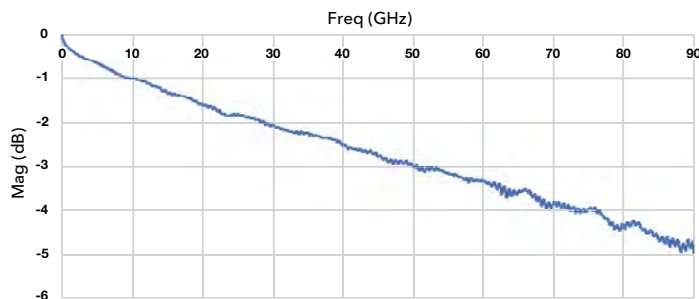
End 2 Connectors:  
1.00 mm, 1.35 mm



### BE90A, 2 X 4 FOOTPRINT

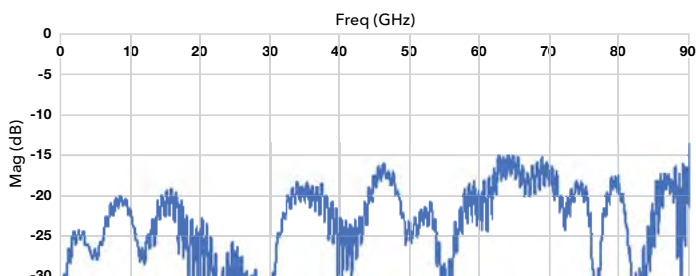
Performance was measured using 50 Ohm coplanar waveguide (CPW) transmission line and 6 layer PCB (Isola Tachyon). The BE90A DUT consisted of a 2 row x 4 position -M (CPW/microstrip) block, 6-inch (152 mm) low-loss microwave cable and 1.00 mm end 2 connectors. Results include the breakout region and BE90A cable assembly. All other effects have been removed by de-embedding (AFR technique).

#### Insertion Loss Performance



MEASURED: BREAKOUT REGION + BE90A

#### Return Loss Performance



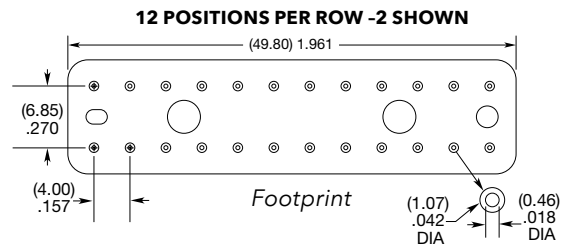
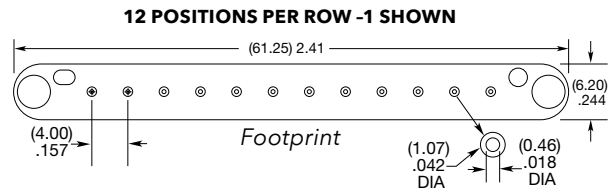
MEASURED: BREAKOUT REGION + BE90A

## 70 GHz ASSEMBLIES

BE70A	TRANSMISSION TYPE	END 2	PHASE MATCHING	ROW OPTION	POSITIONS PER ROW	OVERALL LENGTH
	<b>-S</b> = Stripline  <b>-M</b> = Microstrip	<b>-18SJ</b> = 1.85 mm Straight Jack  <b>-18SP</b> = 1.85 mm Straight Plug	<b>-2</b> = 2.0 Pico-second  <b>-5</b> = 5.0 Pico-second  <b>-N</b> = No Phase Matching	<b>-1</b> = Single Row (-02, -04, -08 & -12 positions only)  <b>-2</b> = Double Row (-03 through -16 positions only)	<b>-02,</b> <b>-03, -04,</b> <b>-06, -08,</b> <b>-10, -12,</b> <b>-14, -16</b>	<b>"XXXX"</b> = Overall length in millimeters  -0152 (152 mm) 5.984" minimum

DC TO **70** GHz  
PAM 4 **112** Gbps

**BE70A**  
End 2 Connectors:  
1.85 mm (70 GHz)

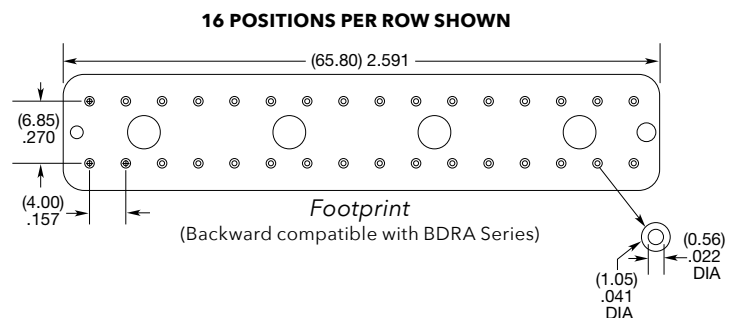


## 50 GHz & 40 GHz ASSEMBLIES

BE40A	TRANSMISSION TYPE	END 2	PHASE MATCHING	2	POSITIONS PER ROW	OVERALL LENGTH
	<b>-S</b> = Stripline  <b>-M</b> = Microstrip	<b>-92SJ</b> = 40 GHz, 2.92 mm Straight Jack  <b>-24SJ</b> = 50 GHz, 2.40 mm Straight Jack  <b>-92SP</b> = 40 GHz, 2.92 mm Straight Plug  <b>-24SP</b> = 50 GHz, 2.40 mm Straight Plug	<b>-2</b> = 2.0 Pico-second  <b>-5</b> = 5.0 Pico-second  <b>-N</b> = No Phase Matching		<b>-03, -04,</b> <b>-06, -08,</b> <b>-10, -12,</b> <b>-14, -16</b>	<b>"XXXX"</b> = Overall length in millimeters  -0152 (152 mm) 5.984" minimum

DC TO **50** GHz  
PAM 4 **56** Gbps

**BE40A**  
End 2 Connectors:  
2.40 mm (50 GHz)  
2.92 mm (40 GHz)



# NEXT GENERATION FLEXIBLE WAVEGUIDE

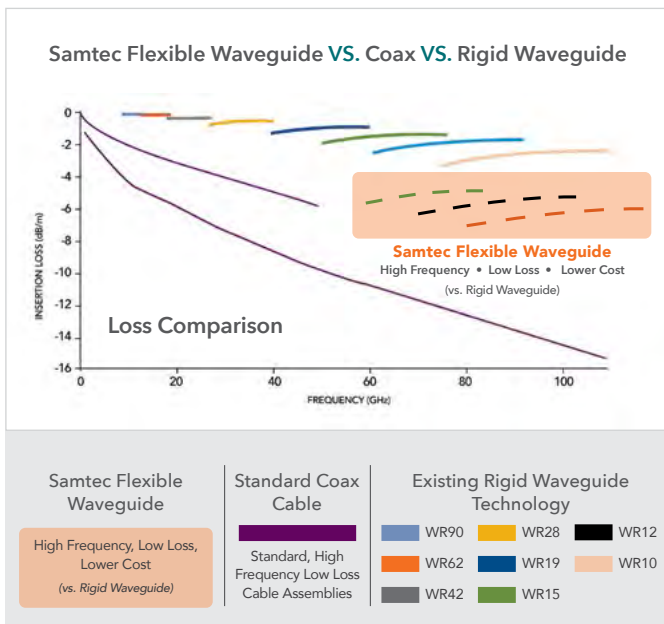


HIGH FREQUENCY • FLEXIBLE CABLE • SMALL FORM FACTOR • LOW LOSS

Samtec's new, high frequency micro waveguide technology is designed to support the demands of next generation millimeter wave systems. It uses a cable design allowing flexibility and a reduced size, and supports frequencies up to 90 GHz (E-band), but with a loss performance greatly improved over coaxial cables.

Due to loss requirements, higher frequencies often require the use of rigid, metallic waveguides. However, Samtec's innovative technology provides an alternative solution that is flexible, easier to use, and lower cost, while also maintaining the near-loss performance of a traditional rigid waveguide.

## LOSS COMPARISON



## E-BAND, FLEXIBLE WAVEGUIDE

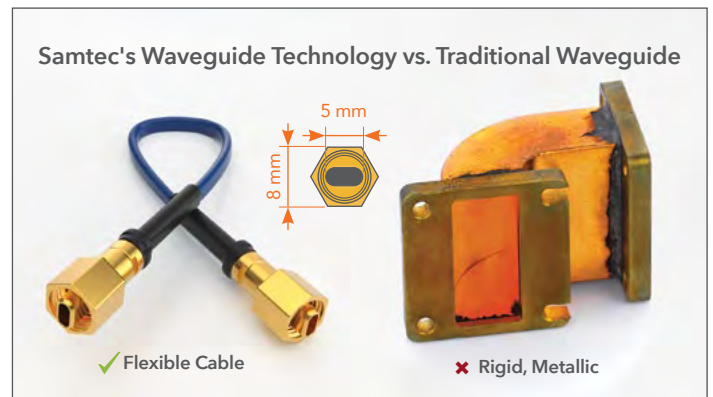
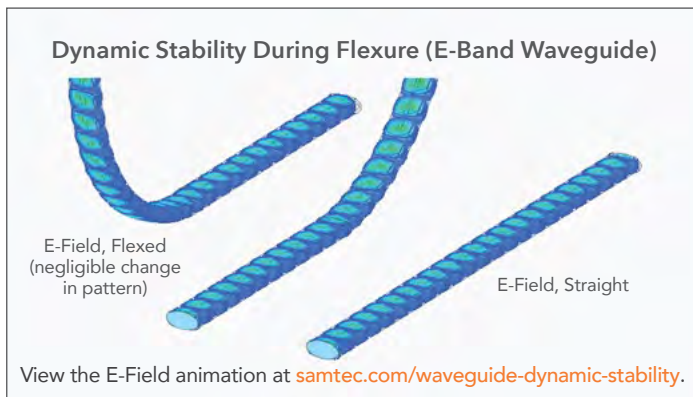
- 60 GHz to 90 GHz, E-band
- Low loss
- Flexible cable with dynamic stability
- Ultra-small form factor

PRODUCT	SERIES	FREQUENCY BAND	DIMENSIONS
Waveguide	WF12 = Cross section: 3.10 mm (.122") x 1.55 mm (.061") nom.	E (60 to 90 GHz)	<b>Overall Length:</b> 102 mm (4.00") Min.
	WGBA = UG-387 to Threaded Waveguide Jack		<b>Threaded Plug:</b> 5 mm (.196") x 8 mm (.314")
Adaptor	WGBA = UG-387 to Threaded Waveguide Jack		<b>Diameter:</b> 19.05 mm (.750") (mates with WR12 standard flange)

### Also Available: V-Band (50 to 75 GHz)

WF15 Series Flexible Waveguide  
Cross Section: 3.76 mm (.148") x 1.88 mm (.074") nom.  
UG-385 flange adaptor to Threaded Waveguide Jack

## FLEXIBILITY & STABILITY



View complete specifications at: [samtec.com?WF12](http://samtec.com?WF12) and [samtec.com?WGBA](http://samtec.com?WGBA)

# LOW FREQUENCY CABLE SPECIFICATIONS

## STANDARD OFF-THE-SHELF ASSEMBLIES

SERIES	MH081	MH113	RF178	RF174	IJ5C <sup>†</sup> (IsoRate <sup>®</sup> )	RF316, IJ5C, IJ5H, GRF1-C, GRF1H-C	RS316	RF058	RF179, GRF7-C, GRF7H-C	RFB8T	RFC8T	RFB6T	RFC6T	RFA6T	C28S		
TYPE	50 Ω CABLES								75 Ω CABLES						100 Ω CABLES		
	0.81 mm (34 AWG)	1.13 mm (31 AWG)	RG 178 (28 AWG)	RG 174 (24 AWG)	Samtec 26 AWG, high-temp micro coax	RG 316 (24 AWG)	RG 316, double shielded (24 AWG)	RG 58 (20 AWG)	RG 179 (28 AWG)	Belden 1855A (23 AWG)	12G-SDI, Belden 4855R (23 AWG)	Belden 1694A (18 AWG)	12G- SDI, Belden 4694R (18 AWG)	RG 6 (18 AWG)	Samtec 28 AWG, shielded twisted pair		
<b>ELECTRICAL</b>																	
Impedance	Ω	50 ± 3	50 ± 2	50 ± 5	50 ± 2	50 ± 3	75 ± 3						100 ± 5				
Insertion Loss (dB/m)	100 MHz	1.00	0.60	0.50	0.40	0.68	0.30	1.40 @ 2 GHz	0.20	0.30	0.12		0.07	0.06	0.07	-----	
	1 GHz	3.10	1.90	1.70	1.40	2.37	1.25	1.60 @ 3 GHz	0.80	0.80	0.37	0.36	0.21	0.19	0.21	-----	
	6 GHz	8.60	4.90	5.90	4.40	6.53	4.25	2.20 @ 5 GHz	5.40	3.60	0.97	0.91	0.59	0.51	0.59	-----	
Propagation Delay	nS/m	4.70	4.70	4.83	5.06	4.17	4.83	-----	5.05	4.83	4.12		4.06		3.92	4.03	-----
Current Rating	Amps	1.20	2.10	3.00	5.00	3.00	5.00	-----	-----	3.00	5.00	4.70	-----	16.00	-----		
Capacitance	pF/m	100.00	95.00	96.00	101.00	85.60	96.00	95.80	102.00	64.00	55.70	53.40	53.14	52.20	53.14	38.00	
<b>CONSTRUCTION</b>																	
Center Conductor	Material	Silver Plated Copper		Silver Plated Copper Clad Steel	Bare Copper	Silver Plated Copper	Silver and Copper Plated Steel	Silver Plated Copper Clad Steel	Tinned Copper	Silver Plated Copper	Bare Copper	Silver Plated Copper	Bare Copper	Silver Plated Copper	Bare Copper	Silver Plated Copper	
	AWG	34	31	28	24	26	24		20	28	23		18		28		
Dielectric	Material	FEP		PTFE	KLPE	Foamed FEP	PTFE	FEP	Solid Polyethylene	PTFE	FHDPE	PE (Foam)	FHDPE	PE (Foam)	FHDPE	FEP	
Shield	Material	Silver Plated Copper	Tinned Copper	Silver Plated Copper	Tinned Copper	Silver Plated Copper			Tinned Copper	Silver Plated Copper	1. Al Foil-Polyester Tape-Al Foil 2. Tinned Copper		1. Bonded Al Foil 2. Al Wire	1. Al Foil-Polyester Tape-Al Foil 2. Tinned Copper		Silver Plated Copper	
Jacket	Material	PFA	FEP		PVC	FEP			PVC	FEP	PVC						
<b>MECHANICAL</b>																	
Operating Temp		-40 °C to +90 °C		-50 °C to +165 °C	-20 °C to +80 °C	-40 °C to +200 °C	-55 °C to +165 °C		-50 °C to +90 °C	-50 °C to +165 °C	-30 °C to +75 °C		-20 °C to +75 °C	-30 °C to +75 °C	-20 °C to +105 °C		
Bend Radius	Min	5.00 mm	6.80 mm	10.20 mm	25.40 mm	3.18 mm	12.80 mm	12.80 mm	49.50 mm	10.20 mm	38.10 mm	41.00 mm	69.85 mm	70.00 mm	69.85 mm	19.05 mm	
Connector Options		MHF1, MHF3, MHF4	MHF1, SMA	MMCX, MCX, SMA, SMB, BNC, TNC, N Type	MMCX, MMCXV, MCX, SMA, SMB, BNC, TNC, N Type, Ganged	IsoRate <sup>®</sup>	MMCX, MMCXV, MCX, SMA, SMB, BNC, TNC, N Type, Ganged	MMCX, MCX, SMA, BNC, TNC	SMA, TNC, N Type	MCX, MMCX7, SMB, BNC, DIN 1.0/2.3, Ganged	HD-BNC, DIN 1.0/2.3		BNC, HD-BNC, DIN 1.0/2.3		CJT		

<sup>†</sup> ALSO USES RG 316



# 50 Ω MICRO HIGH FREQUENCY RF CABLES TO 6 GHz

## MHF Cable Assemblies MH081, MH113



### SPECIFICATIONS

**Outer Contact Material:**  
Au plated Phosphor Bronze  
**Center Contact Material:**  
Au plated Phosphor Bronze (MHX)  
Au plated BeCu (SMA)  
**Insulator Material:**  
PBT (MHX)  
PTFE (SMA)  
**Operating Temperature:**  
-40 °C to +90 °C  
**Voltage Rating:**  
170 V max  
**Dielectric Withstanding Voltage:**  
200 Vrms

**0.81 mm Cable:**  
**Capacitance:**  
100 pF/meter  
**Max Attenuation (cable only):**  
3.1 dB @ 1 GHz  
**Conductor Size:**  
36 AWG, (0.81 mm) .032" dia.  
**Conductor Material:**  
Silver Plated Copper  
**Conductor Resistance:**  
1.40 Ω/meter max  
**Insulator Diameter:**  
(0.4 mm) .016"  
**Insulator Material:** FEP  
**Shield Material:**  
Silver Plated Copper  
**Jacket Material:** PFA  
**Jacket Diameter:**  
(0.81 mm) .032" dia.  
**Bend Radius:** 5.0 mm  
**Jacket Temp Rating:**  
-40 °C to +90 °C

**1.13 mm Cable:**  
**Capacitance:**  
95 pF/meter  
**Max Attenuation (cable only):**  
2 dB @ 1 GHz  
**Conductor Size:**  
32 AWG, (1.13 mm) .045" dia.  
**Conductor Material:**  
Silver Plated Copper  
**Conductor Resistance:**  
0.60 Ω/meter max  
**Insulator Diameter:**  
(0.66 mm) .026"  
**Insulator Material:**  
FEP  
**Shield Material:**  
Tinned Copper  
**Jacket Material:**  
FEP  
**Jacket Diameter:**  
(1.13 mm) .045" dia  
**Bend Radius:**  
6.8 mm  
**Jacket Temp Rating:**  
-40 °C to +90 °C

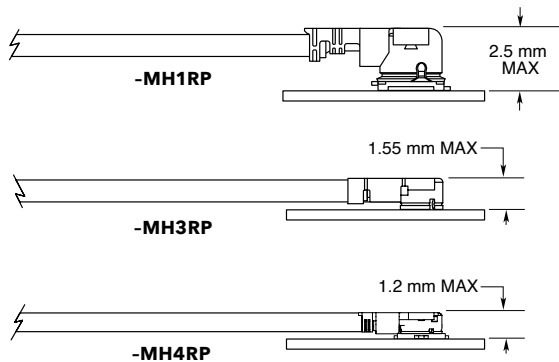
SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
--------	-----------------	-----------------	----------------

**MH081**  
= 0.81 mm Cable  
**MH113**  
= 1.13 mm Cable

Specify END OPTIONS from chart

**-0030**  
= 1.18" (30 mm)  
**-0050**  
= 1.97" (50 mm)  
**-0100**  
= 3.94" (100 mm)  
**-0150**  
= 5.91" (150 mm)  
**-0300**  
= 11.81" (300 mm)

### APPLICATION



### EXTRACTION TOOLS

MH1RP = RSP-122893-01  
MH3RP = RSP-122893-02  
MH4RP = RSP-122893-03

### MATING SOLUTIONS

MH1RP end mates with RSP-122811-01 (Cycles: 30 max.)

MH3RP end mates with RSP-122811-02

MH4RP end mates with RSP-122811-03



### END OPTIONS

<b>-MH1RP = MHF1 Type Plug</b> (3.9 μ" (0.1 μm) Gold on Center Contact, 1.9 μ" (0.05 μm) Gold on Shell)	
<b>-MH3RP = MHF3 Type Plug</b> (3.9 μ" (0.1 μm) Gold on Center Contact, 1.9 μ" (0.05 μm) Gold on Shell) (MH081 only)	
<b>-MH4RP = MHF4 Type Plug</b> (10 μ" (0.25 μm) Gold on Center Contact, 1.9 μ" (0.05 μm) Gold on Shell) (MH4RP is not available with MH1RP & MH3RP) (MH081 only)	
<b>-01BJ1 = SMA Straight Bulkhead Jack (MH081 only)</b> <b>-01BJ2 = SMA Straight Bulkhead Jack, Reversed Polarity</b> <b>-01SB1 = SMA Straight Jack, Sealed Bulkhead</b> <b>-01SR1 = SMA Straight Jack, Sealed Bulkhead, Reversed Polarity</b> (30 μ" (0.76 μm) Gold on Center Contact, Gold Flash on Shell)	
<b>-SING =</b> Single Ended (End 2 callout)	
<b>XXXXXX =</b> Stripped & Tinned (End 2 callout)	

### STRIPPED & TINNED (Dimensions in mm)

CALLOUT	A	B	C
-303030	3.0	3.0	3.0
-303040	3.0	3.0	4.0
-403030	4.0	3.0	3.0
-403040	4.0	3.0	4.0
-404040	4.0	4.0	4.0

Both center conductor and braid shield are stripped, only the center conductor is tinned.

## 50 Ω SMA TO 6 GHz

### SMA Cable Assemblies

RF174, RF178, RF316, RS316, RF058



SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RF174</b> = RG 174 Cable	<b>-01SP1</b> = SMA Straight Plug		<b>-“XXXX”</b> = Overall Length in millimeters
<b>RF178</b> = RG 178 Cable (-01BJ1 & -01BR1 only)	<b>-01RP1</b> = SMA Right-angle Plug		-0100 (100 mm) 3.94" minimum
<b>RF316</b> = RG 316 Cable, Single Braid Shield	<b>-01BJ1</b> = SMA Straight Bulkhead Jack		
<b>RS316</b> = RG 316 Cable, Double Shield (-01SP1 & -01BJ1 only)	<b>-01SB1</b> = Straight Bulkhead Jack, Sealed		
<b>RF058</b> = RG 58 Cable (-01SP1, -01BJ1 & -01SB1 only)	<b>-01SR1</b> = Straight Bulkhead Jack, Sealed, Reversed Polarity		
	<b>-01BR1</b> = Straight Bulkhead Jack, Reversed Polarity		
	<b>-01PN1</b> = 4-Hole Panel Mount Jack		

#### ALSO AVAILABLE

50 Ω: MCX, MMCX, SMB, BNC, TNC,  
N Type = RF174, RF178, RF316

50 Ω: MCX, MMCX, BNC, TNC = RS316

50 Ω: TNC = RF058

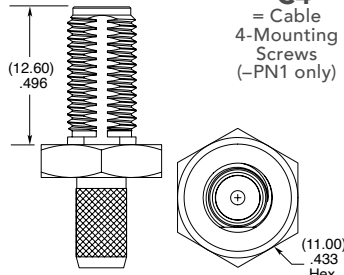
### SMA Cable Connectors

SMA-CA



Supplied with pins, washers, nuts and ferrules. See website for dimensions.

SMA	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION	PACKAGING	
	<b>-J</b> = Jack	<b>-C</b> = Cable  <b>-C4</b> = Cable 4-Mounting Screws (-PN1 only)	<b>-H</b> = 30 μ" (0.76 μm) Gold center contact, 3 μ" (0.08 μm) Gold outer contact (N/A with -BH1S)	<b>-ST</b> = Straight	<b>-BH1</b> = Bulkhead RG 174 / 316 Cable  <b>-BH2</b> = Bulkhead RG 178 Cable  <b>-BR1</b> = Bulkhead RG 174 / 316, Reversed Polarity  <b>-BR2</b> = Bulkhead RG 178 Cable, Reversed Polarity	<b>-BH1S</b> = Bulkhead RG 316 Cable, Double Shield  <b>-B10</b> = Bulkhead RG 58 Cable  <b>-PN1</b> = 4-Hole Panel Mount RG 174 / 316 Cable  <b>-S10</b> = Sealed Bulkhead RG 58 Cable	Leave blank for individually bagged.  <b>-B</b> = Bulk packaged (-BH1 only)
			<b>-HF</b> = 30 μ" (0.76 μm) Gold center contact, 3 μ" (0.08 μm) Gold outer contact (-BH1S only)				



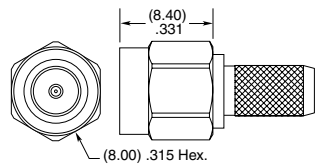
-S10, -B10



### SMA Board Connectors

See page 154 for Board Connectors

SMA	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION	PACKAGING
	<b>-P</b> = Plug	<b>-C</b> = Cable	<b>-H</b> = 30 μ" (0.76 μm) Gold center contact, 3 μ" (0.08 μm) Gold outer contact (-CA1, -C10 only)	<b>-ST</b> = Straight  <b>-RA</b> = Right-angle	<b>-CA1</b> = RG 174 / 316 Cable  <b>-C10</b> = RG 58 Cable (-ST only)  <b>-CA1S</b> = RG 316 Double Shielded Cable (-ST only)	Leave blank for individually bagged.  <b>-B</b> = Bulk packaged (-CA1 only)
			<b>-HF</b> = 30 μ" (0.76 μm) Gold center contact, 3 μ" (0.08 μm) Gold outer contact (-CA1S only)			



-ST-C10

Supplied with pins, washers, nuts and ferrules. See website for dimensions.

## 50 Ω MCX TO 6 GHz

### MCX Cable Assemblies

RF174, RF178, RF316, RS316



SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RF174</b> = RG 174 Cable	<b>-02SJ1</b> = MCX Straight Jack		<b>-“XXXX”</b> = Overall Length in millimeters
<b>RF178</b> = RG 178 Cable	<b>-02RP1</b> = MCX Right-angle Plug (RS316 not available)		-0100 (100 mm) 3.94" minimum
<b>RF316</b> = RG 316 Cable, Single Braid Shield	<b>-02SP1</b> = MCX Straight Plug		
<b>RS316</b> = RG 316 Cable, Double Shielded			

#### ALSO AVAILABLE

50 Ω: MMCX, SMA, SMB, BNC, TNC,  
N Type = RF174, RF178, RF316  
50 Ω: MMCX, SMA, BNC, TNC = RS316

### MCX Board Connectors

MCX-TH, MCX-SM, MCX-EM, MCX-MT

#### Cable Mates:

RF174, RF178, RF316, RS316, GRF1H-C, IJ5H



MCX	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION
	<b>-J</b> = Jack	<b>-P</b> = PCB Mount	<b>-H</b> = 30 μ" (0.76 μm) Gold center contact, 3 μ" (0.08 μm) Gold outer contact	<b>-ST</b> = Straight <b>-RA</b> = Right-angle	<b>-TH1</b> = Through-hole (-ST plug not available) <b>-TH2</b> = Elevated Through-hole (-ST plug only) <b>-SM1</b> = Surface Mount (Jack only) <b>-EM1</b> = Edge Mount (-ST jack only) <b>-MT1</b> = Mixed Technology (-ST jack only)

**-ST-SM1 (Jack)**

**-RA-TH1 (Plug)**

### MCX Cable Connectors

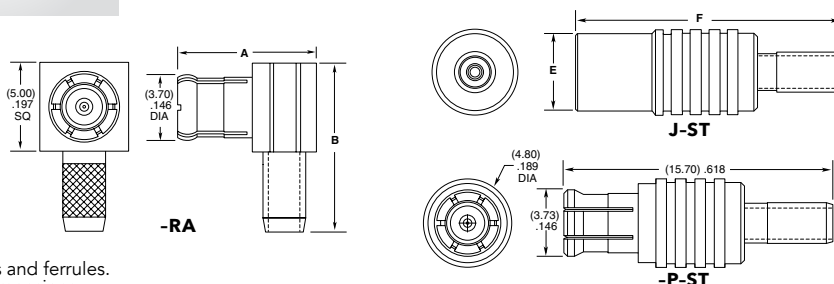
MCX-CA



CONNECTORS FOR INDUSTRY STANDARD CABLES	
MCX-J-C-H-ST-CA1	RG 174/316 Cable
*MCX-J-C-H-ST-CA2	RG 178 Cable
MCX-J-C-HF-ST-CA1S	RG 316 Double Shielded Cable
*MCX-P-C-H-ST-CA1	RG 174/316 Cable
MCX-P-C-H-ST-CA2	RG 178 Cable
MCX-P-C-HF-ST-CA1S	RG 316 Double Shielded Cable
*MCX-P-C-H-RA-CA1	RG 174/316 Cable
MCX-P-C-H-RA-CA2	RG 178 Cable

P-C = Cable Plug  
J-C = Cable Jack  
H or HF = Plating (30 μ" Gold center contact, 3 μ" Gold outer contact)  
ST = Straight  
RA = Right-angle

\*Add "-B" to the end of the part number for bulk packaging



Supplied with pins and ferrules. See website for dimensions.

TYPE (-RA)	A	B
-P-CA1	(7.78) .306	(9.50) .374
-P-CA2	(8.58) .338	(10.00) .394

TYPE (-ST)	E	F
-J-CA1	(4.50) .177	(15.50) .610
-J-CA2	(4.78) .188	(15.00) .591
-J-CA1S	(4.50) .177	(15.50) .610

# 50 Ω MMCX TO 6 GHz

## MMCX Cable Assemblies

RF174, RF178, RF316, RS316



SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RF174</b> = RG 174 Cable	<b>-03SP1</b> = MMCX Straight Plug		<b>-“XXXX”</b> = Overall Length in millimeters -0100 (100 mm) 3.94" minimum
<b>RF178</b> = RG 178 Cable (-03SP1 & -03RP1 only)	<b>-03RP1</b> = MMCX Right-angle Plug		
<b>RF316</b> = RG 316 Cable, Single Braid Shield	<b>-V3SP1</b> = MMCXV Straight Plug, High Vibration		
<b>RS316</b> = RG 316 Cable, Double Shielded (-03SP1 only)	<b>-V3RP1</b> = MMCXV Right-angle Plug, High Vibration		
		<b>-V3SJ1</b> = MMCXV Straight Jack, High Vibration	

### ALSO AVAILABLE

50 Ω: MCX, SMA, SMB, BNC, TNC,  
N Type = RF174, RF178, RF316

50 Ω: MCX, SMA, BNC, TNC = RS316

## MMCX Board Connectors

MMCX-SM, MMCX-TH, MMCX-MT, MMCX-EM

**Cable Mates:**  
RF174, RF178, RF316, RS316,  
GRF1H-C, IJ5H



MMCX	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION
	<b>-J</b> = Jack	<b>-P</b> = PCB Mount	<b>-H</b> = 30 μm (0.76 μm) Gold center contact, 3 μm (0.08 μm) Gold outer contact	<b>-ST</b> = Straight <b>-RA</b> = Right-angle	<b>-TH1</b> = Through-hole <b>-MT1</b> = Mixed Technology (-ST only) <b>-SM1</b> = Surface Mount (-RA plug not available) <b>-EM1</b> = Edge Mount (-ST only)

**-ST-SM1 (Jack)**

**-RA-TH1 (Plug)**

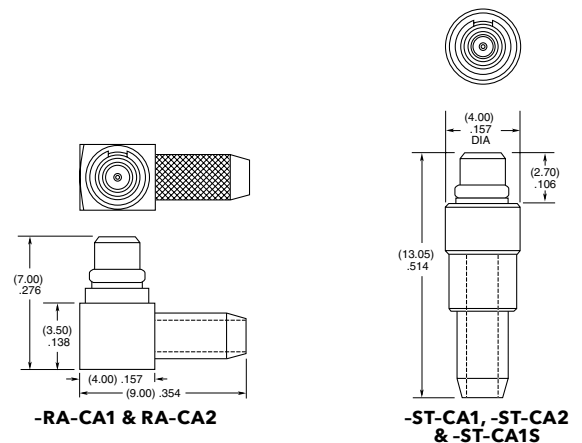
## MMCX Cable Connectors

MMCX-CA



CONNECTORS FOR INDUSTRY STANDARD CABLES	
MMCX-P-C-H-ST-CA1	RG 174/316 Cable
MMCX-P-C-H-ST-CA2	RG 178 Cable
MMCX-P-C-HF-ST-CA1S	RG 316 Double Shielded Cable
MMCX-P-C-H-RA-CA1	RG 174/316 Cable
MMCX-P-C-H-RA-CA2	RG 178 Cable

Add "-B" to the end of the part number for bulk packaging  
P-C = Cable Plug  
H or HF = Plating (30 μm Gold center contact,  
3 μm Gold outer contact)  
ST = Straight  
RA = Right-angle



Supplied with pins and ferrules.  
See website for dimensions.

## 50 Ω TNC TO 6 GHz

### TNC Cable Assemblies

RF174, RF178, RF316, RS316, RF058



SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RF174</b> = RG 174 Cable	<b>-05SP3</b> = TNC Straight Plug (RF058 not available)	<b>-05BJ3</b> = TNC Straight Bulkhead Jack (RS316 & RF058 not available)	<b>-“XXXX”</b> = Overall Length in millimeters  -0100 (100 mm) 3.94" minimum
<b>RF178</b> = RG 178 Cable			
<b>RF316</b> = RG 316 Cable, Single Braid Shield			
<b>RS316</b> = RG 316 Cable, Double Shielded			
<b>RF058</b> = RG 58 Cable			

#### ALSO AVAILABLE

50 Ω: MCX, MMCX, SMA, SMB, BNC,  
N Type = RF174, RF178, RF316

50 Ω: MCX, MMCX, SMA, BNC = RS316

50 Ω: SMA, N Type = RF058

### TNC Board Connectors

TNC-TH

#### Cable Mates:

RF174, RF178, RF316, RS316, RF058, GRF1H-C



TNC	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION
	<b>-J</b> = Jack	<b>-P</b> = PCB Mount	<b>-H</b> = 30 μ" (0.76 μm) Gold center contact, Nickel on shell	<b>-RA</b> = Right-angle	<b>-TH1</b> = Through-hole

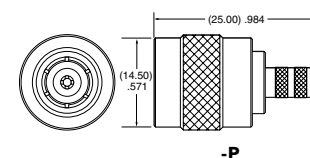
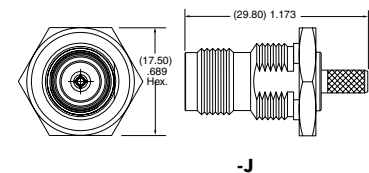
### TNC Cable Connectors

TNC-CA



CONNECTORS FOR INDUSTRY STANDARD CABLES	
TNC-P-C-GN-ST-CA1	RG 174/316 Cable
TNC-P-C-GN-ST-CA2	RG 178 Cable
TNC-P-C-GN-SR-C10	RG 58 Cable
TNC-J-C-GN-ST-BH1	RG 174/316 Cable, Bulkhead
TNC-J-C-GN-ST-BH2	RG 178 Cable, Bulkhead

P-C = Cable Plug  
J-C = Cable Jack  
GN = Plating (10 μ" Gold on contact, Nickel on body)  
ST = Straight  
SR = Straight Reverse Polarity



Supplied with pins, washers, nuts and ferrules. See website for dimensions.



## 50 Ω BNC TO 4 GHz

### BNC Cable Assemblies

RF174, RF178, RF316, RS316



SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RF174</b> = RG 174 Cable	<b>-04SP3</b> = BNC Straight Plug (RS316 not available)	<b>-04BJ2</b> = BNC Bulkhead Jack	<b>-“XXXX”</b> = Overall Length in millimeters  -0100 (100 mm) 3.94" minimum
<b>RF178</b> = RG 178 Cable			
<b>RF316</b> = RG 316 Cable, Single Braid Shield			
<b>RS316</b> = RG 316 Cable, Double Shielded			
<b>ALSO AVAILABLE</b>			
50 Ω: MCX, MMCX, SMA, SMB, TNC, N Type = RF174, RF178, RF316			
50 Ω: MCX, MMCX, SMA, TNC = RS316			

### BNC Cable Connectors

BNC5-CA



Supplied with pins, washers, nuts, gaskets and ferrules. See website for dimensions.

CONNECTORS FOR INDUSTRY STANDARD CABLES	
*BNC5-P-C-GN-ST-CA1	RG 174/316 Cable
*BNC5-P-C-GN-ST-CA2	RG 178 Cable
*BNC5-J-C-GN-ST-BH1	RG 174/316 Cable, Bulkhead
BNC5-J-C-GN-ST-BH2	RG 178 Cable, Bulkhead
BNC5-J-C-GN-ST-BH1S	RG 316 Double Shielded Cable, Bulkhead

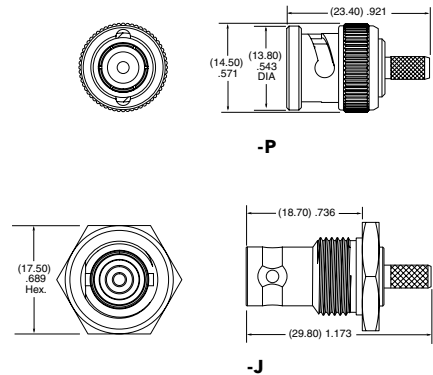
\*Add "-B" to the end of the part number for bulk packaging

P-C = Cable Plug

J-C = Cable Jack

GN = Plating (10 μ" Gold on contact, Nickel on body)

ST = Straight



## 50 Ω SMB TO 4 GHz

### SMB Cable Assemblies

RF174, RF178, RF316



SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RF174</b> = RG 174 Cable	<b>-07SP1</b> = SMB Straight Plug		<b>-“XXXX”</b> = Overall Length in millimeters
<b>RF178</b> = RG 178 Cable	<b>-07RP1</b> = SMB Right-angle Plug		-0100 (100 mm) 3.94" minimum
<b>RF316</b> = RG 316 Cable, Single Braid Shield	<b>-07BJ1</b> = SMB Bulkhead Jack		
	<b>-07BJ2</b> = SMB Bulkhead Jack (RF178 only)		

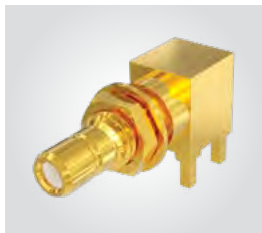
### ALSO AVAILABLE

50 Ω: MCX, MMCX, SMA, BNC, TNC,  
N Type = RF174, RF178, RF316

### SMB Board Connectors

SMB5-TH

**Cable Mates:**  
RF174, RF178, RF316,  
GRF1H-C, IJ5H



SMB5	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION
	<b>-J</b> = Jack	<b>-P</b> = PCB Mount	<b>-H</b> = 30 μ" (0.76 μm) Gold center contact, 3 μ" (0.08 μm) Gold outer contact	<b>-RA</b> = Right-angle	<b>-TH1</b> = Through-hole

(10.92)  
.430

(20.45) .805

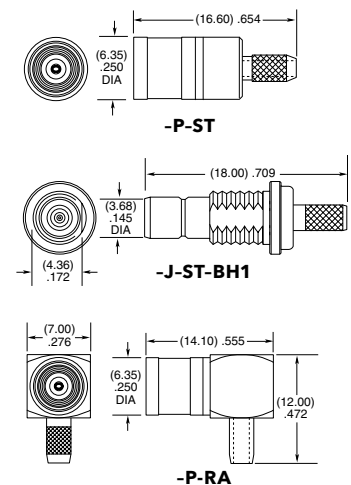
### SMB Cable Connectors

SMB5-CA



CONNECTORS FOR INDUSTRY STANDARD CABLES	
SMB5-P-C-H-ST-CA1	RG 174/316 Cable
SMB5-P-C-H-RA-CA1	RG 174/316 Cable
SMB5-J-C-H-ST-CA2	RG 178 Cable
SMB5-J-C-H-ST-BH1	RG 316 Cable, Bulkhead

P-C = Cable Plug  
J-C = Cable Jack  
H = Plating (30 μ" Gold center contact, 3 μ" Gold on outer contact)  
ST = Straight  
RA = Right-angle



Supplied with pins, washers, nuts and ferrules. See website for dimensions.



## 75 Ω BNC TO 12 GHz

### BNC Cable Assemblies

RFC6T, RFA6T, RFB6T, RF179



SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RFC6T*</b> = 12G-SDI, Belden 4694R Cable	<b>-74SP3</b> = 75 Ω BNC Straight Plug		<b>-“XXXX”</b> = Overall Length in millimeters
<b>RFA6T</b> = RG 6 Cable	<b>-D4SP3</b> = 75 Ω BNC Die Cast Straight Plug (RFA6T, RFB6T, RF179 only)		-0300 (300 mm) 11.81" minimum (RFA6T, RFB6T, RFC6T)
<b>RFB6T</b> = Belden 1694A Cable	<b>-74BJ3</b> = 75 Ω BNC Bulkhead Jack (RF179 only)		-0100 (100 mm) 3.94" minimum (RF179)
<b>RF179</b> = RG 179 Cable	<b>-74RP3</b> = 75 Ω BNC Right-angle Plug (RFA6T, RFB6T, RFC6T only)		

### ALSO AVAILABLE

75 Ω: DIN 1.0/2.3, HDBNC = RFA6T, RFB6T, RFC6T

75 Ω: DIN 1.0/2.3, SMB, MCX, MMCX = RF179

\*Designed to meet SMPTE 2082 12G-SDI specifications.

### BNC Cable Connectors

BNC7T-CA



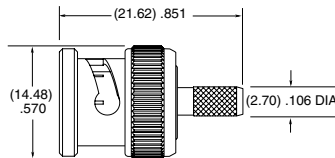
Supplied with pins, washers, nuts, gaskets and ferrules. See website for dimensions.

CONNECTORS FOR INDUSTRY STANDARD CABLES	
**BNC7T-P-C-GN-ST-CA3	Machined, RG 179 Cable
**BNC7T-P-C-GN-RA-CA3	Machined, RG 179 Cable
**BNC7T-P-C-GN-ST-CA6	*Machined, RG 6 Cable
**BNC7T-P-C-GN-RA-CA6	*Machined, RG 6 Cable
**BNC7T-P-C-GN-ST-CA6B	Belden 4694R Cable
**BNC7T-P-C-GN-RA-CA6B	Belden 4694R Cable
**BNC7T-J-C-GN-ST-BH3	Machined, Bulkhead, RG 179 Cable
BNC7T-P-C-GN-ST-CA3D	Die Cast, RG 179 Cable
BNC7T-P-C-GN-ST-CA6D	Die Cast, RG 179 Cable

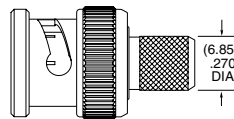
P-C = Cable Plug  
J-C = Cable Jack  
GN = Plating (10 μ" Gold on contact, Nickel on outer contact and shell)  
ST = Straight  
RA = Right-angle

\*\*Add "-B" to the end of the part number for bulk packaging

\*Designed to meet SMPTE 2082 12G-SDI specifications.

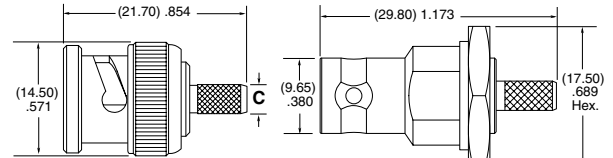


-CA3D



-CA6D

DIE CAST



-P-ST-CA3 & -P-ST-CA6

-J-ST-BH3

MACHINED

TERMINATION	C (DIA)
-CA3	(2.70) .106
-CA6	(6.85) .207

**Note:**  
Additional plating options available on Cable Assemblies, Cable Connectors and Board Connectors. Contact RFGroup@samtec.com

## 75 Ω DIE CAST BNC TO 12 GHz

### BNC Board Connectors

BNC7T-TH, BNC7T-BH, BNC7T-BM, BNC7T-EM

#### Cable Mates:

RF179, RFA6T, RFB6T, RFC6T, GRF7H-C



BNC7T	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION	PACKAGING
	<b>-J</b> = Jack	<b>-P</b> = PCB Mount	<b>-GN</b> = 10 μ" (0.25 μm) Gold contact, 100 μ" (2.54 μm) Nickel Shell	<b>-ST</b> = Straight  <b>-RA</b> = Right-angle Bulkhead/Panel Mount	<b>-TH2D</b> = Tall Through-hole Die Cast (-ST only)  <b>-BH2D*</b> = Low Profile Die Cast Bulkhead Through-hole (-RA only)  <b>-BM1D*</b> = Low Profile Die Cast Bulkhead Mixed Technology for (1.60 mm) .062" PCB (-RA only)  <b>-BM2D*</b> = Low Profile Die Cast Bulkhead Mixed Technology for (3.18 mm) .125" PCB (-RA only)  <b>-EM1D*</b> = Edge Mount Die Cast Bulkhead/Panel Mount for (1.60 mm) .062" PCB (-ST only)  <b>-EM2D*</b> = Edge Mount Die Cast Bulkhead/Panel Mount for (2.40 mm) .093" PCB (-ST only)	Leave blank for individually bagged.  <b>-B</b> = Bulk packaged (-BH2D only)
	<p><b>-RA-BM1D (BALANCED FOR PICK-AND-PLACE)</b></p>					
	<p><b>-RA-BH2D</b></p>					
	<p><b>-ST-EM1D &amp; -ST-EM2D</b></p>					
	<p><b>-ST-TH2D</b></p>					

**Notes:**  
Contact RFGroup@samtec.com for 12G-SDI PCB mount launch characteristics.

Designed to meet SMPTE 2082 12G-SDI specifications.

Additional plating options available on Board Connectors. Contact RFGroup@samtec.com

\*Lock washers & knurled nuts supplied with bulkhead/panel mount options

## 75 Ω MACHINED BNC TO 12 GHz

### BNC Board Connectors

BNC7T-TH, BNC7T-BH, BNC7T-EM

#### Cable Mates:

RF179, RFA6T, RFB6T, RFC6T, GRF7H-C



BNC7T	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION	PACKAGING
	<b>-J</b> = Jack	<b>-P</b> = PCB Mount	<b>-GN</b> = 10 μ" (0.25 μm) Gold contact, 100 μ" (2.54 μm) Nickel Shell	<b>-ST</b> = Straight  <b>-RA</b> = Right-angle Bulkhead/Panel Mount	<b>-TH1</b> = Standard Through-hole (-ST only)  <b>-BH1*</b> = Standard Bulkhead Through-hole (-RA only)  <b>-EM1*</b> = Edge Mount Bulkhead/Panel Mount for (1.60 mm) .062" PCB (-ST only)  <b>-EM2*</b> = Edge Mount Bulkhead/Panel Mount for (2.40 mm) .093" PCB (-ST only)	Leave blank for individually bagged.  <b>-B</b> = Bulk packaged (-BH1 only)
	<p><b>-ST-EM1 &amp; -ST-EM2</b></p>					
	<p><b>-ST-TH1</b></p>					
	<p><b>-RA-BH1</b></p>					

**Notes:**  
Contact RFGroup@samtec.com for 12G-SDI PCB mount launch characteristics.

Designed to meet SMPTE 2082 12G-SDI specifications.

Additional plating options available on Board Connectors. Contact RFGroup@samtec.com

\*Lock washers & knurled nuts supplied with bulkhead/panel mount options

## 75 Ω HIGH-DENSITY BNC TO 12 GHz

### HIGH-DENSITY BNC Cable Assemblies

RFA6T, RFB6T, RFB8T, RFC6T, RFC8T



SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RFC6T*</b> = 12G-SDI, Belden 4694R Cable  <b>RFC8T*</b> = 12G-SDI, Belden 4855R Cable  <b>RFA6T</b> = RG 6 Cable  <b>RFB6T</b> = Belden 1694A Cable  <b>RFB8T</b> = Belden 1855A Cable		<b>-H4SP3</b> = 75 Ω High-Density BNC Straight Plug	<b>-"XXXX"</b> = Overall Length in millimeters  -0300 (300 mm) 11.81" minimum

#### ALSO AVAILABLE

75 Ω: DIN 1.0/2.3, BNC = RFB6T, RFA6T, RFC6T

75 Ω: DIN 1.0/2.3 = RFB8T, RFC8T

\*Designed to meet SMPTE 2082 12G-SDI specifications.

### HIGH-DENSITY BNC Board Connectors

HDBNC-TH, HDBNC-EM, HDBNC-BH, HDBNC-BM

#### Cable Mates:

RFA6T, RFB6T, RFB8T, RFC6T, RFC8T



HDBNC	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION	PACKAGING
	<b>-J</b> = Jack	<b>-P</b> = PCB Mount	<b>-GN</b> = 10 μ" (0.25 μm) Gold contact, 100 μ" (2.54 μm) Nickel shell	<b>-ST</b> = Straight  <b>-RA</b> = Right-angle	<b>-BH1</b> = Through-hole  <b>-BH2</b> = Through-hole (2.36 mm) .093" PCB (-RA only)  <b>-BM1D</b> = Die Cast Bulkhead Mixed Technology for (1.60 mm) .062" PCB (-RA only)  <b>-BM2D</b> = Die Cast Bulkhead Mixed Technology for (3.18 mm) .125" PCB (-RA only)  <b>-EM1</b> = Edge Mount (-ST only)  <b>-TH1</b> = Through-hole, Three Legs (-ST only)	Leave blank for individually bagged.  <b>-B</b> Bulk packaged (-BHX only)

**-RA-BH2**

**-ST-EM1**

**-RA-BM1D & -BM2D (BALANCED FOR PICK-AND-PLACE)**

**-ST-BH1**

**-ST-TH1**

#### Notes:

Designed to meet SMPTE 2082 12G-SDI specifications.

Additional plating options available on Cable Assemblies, Cable Connectors and Board Connectors. Contact RFGroup@samtec.com

### HIGH-DENSITY BNC Cable Connectors

HDBNC-CA



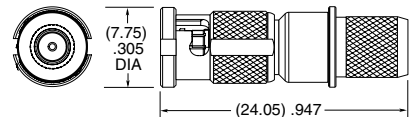
CONNECTORS FOR INDUSTRY STANDARD CABLES	
HDBNC-P-C-GN-ST-CA6	RG 6, Belden 1694A or Belden 4694R Cable
HDBNC-P-C-GN-ST-CA8	Belden 1855A or Belden 4855R Cable

Add "-B" to the end of the part number for bulk packaging (100 max.)

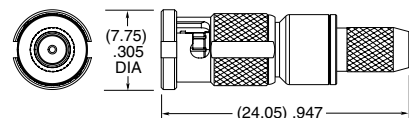
P-C = Cable Plug

GN = Plating (10 μ" Gold on contact, Nickel on outer contact & shell)

ST = Straight



**-CA6**



**-CA8**

Supplied with pins and ferrules. See website with dimensions.

Designed to meet SMPTE 2082 12G-SDI specifications.



**DIN Cable Assemblies**

RFA6T, RFB6T, RF179, RFB8T, RFC6T, RFC8T



SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
<b>RFC6T*</b> = 12G-SDI, Belden 4694R Cable  <b>RFC8T*</b> = 12G-SDI, Belden 4855R Cable  <b>RFA6T</b> = RG 6 Cable  <b>RFB6T</b> = Belden 1694A Cable  <b>RF179</b> = RG 179 Cable  <b>RFB8T</b> = Belden 1855A Cable	<b>-78SP4</b> = 75 Ω DIN Straight Plug		<b>-“XXXX”</b> = Overall length in millimeters  -0100 (100 mm) 3.94" minimum (RF179)  -0300 (300 mm) 11.81" minimum (RFA6T, RFB6T, RFB8T, RFC6T, RFC8T)
<b>ALSO AVAILABLE</b> 75 Ω: HDBNC, BNC = RFB6T, RFA6T, RFC6T 75 Ω: BNC, SMB, MCX, MMCX = RF179 75 Ω: HDBNC = RFB8T, RFC8T			

\*Designed to meet SMPTE 2082 12G-SDI specifications.

**DIN Board Connectors**

DIN7A-TH, DIN7A-BH

**Cable Mates:**

RFA6T, RFB6T, RF179, RFB8T, RFC6T, RFC8T, GRF7H-C



DIN7A	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION	PACKAGING
	<b>-J</b> = Jack	<b>-P</b> = PCB Mount	<b>-GF</b> = 10 μ" (0.25 μm) Gold center contact, 3 μ" (0.08 μm) Gold outer contact, 100 μ" (2.54 μm) Nickel body -RA only)	<b>-ST</b> = Straight (-TH1 only)  <b>-RA</b> = Right-angle (-BH1 only)	<b>-TH1</b> = Through-hole (-ST only)  <b>-BH1</b> = Bulkhead Through-hole (-RA only)	Leave blank for individually bagged.  <b>-B</b> = Bulk packaged (-BH1 only)
				<b>-ST-TH1</b>	<b>NUT</b>	<b>-RA-BH1</b>

**Notes:**  
Contact RFGroup@samtec.com for 12G-SDI PCB mount launch characteristics.

Designed to meet SMPTE 2082 12G-SDI specifications.

Additional plating options available on Cable Assemblies, Cable Connectors and Board Connectors. Contact RFGroup@samtec.com

**DIN Cable Connectors**

DIN7A-CA



CONNECTORS FOR INDUSTRY STANDARD CABLES	
DIN7A-PP-C-GF-ST-CA3	RG 179
DIN7A-PP-C-GF-ST-CA6	*RG 6, Belden 1694A or Belden 4694R Cable
DIN7A-PP-C-GF-ST-CA8	*Belden 1855A or Belden 4855R Cable

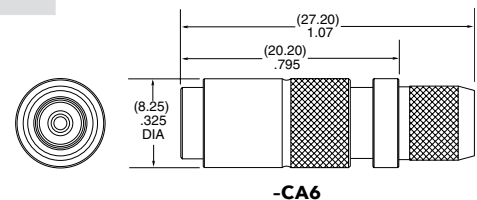
Add "-B" to the end of the part number for bulk packaging (100 max.)

\*Designed to meet SMPTE 2082 12G-SDI specifications.

PP-C = Push Pull Plug Cable

GF = Plating (10 μ" Gold on center contact, Flash Gold on outer contact, Nickel on Shell)

ST = Straight



**-CA6**

Supplied with pins and ferrules. See website for dimensions

# 75 Ω SMB TO 4 GHz

## SMB Cable Connectors RF179



SERIES	END 1 CONNECTOR	END 2 CONNECTOR	OVERALL LENGTH
--------	-----------------	-----------------	----------------

**RF179**  
= RG 179 Cable

**-77SP1**  
= 75 Ω SMB Straight Plug

**-77RP1**  
= 75 Ω SMB Right-angle Plug

**-“XXXX”**  
= Overall Length in millimeters  
-0100 (100 mm) 3.94" minimum

**ALSO AVAILABLE**  
75 Ω: DIN 1.0/2.3, BNC, MCX, MMCX = RF179

## SMB Cable Connectors SMB7H-TH, SMB7H-EM

**Cable Mates:**  
RF179, GRF7H-C



SMB7H	GENDER	TYPE	PLATING	ORIENTATION	TERMINATION
-------	--------	------	---------	-------------	-------------

**-J**  
= Jack

**-P**  
= PCB Mount

**-H**  
= 30 μ" (0.76 μm) Gold center contact,  
3 μ" (0.08 μm) Gold outer contact

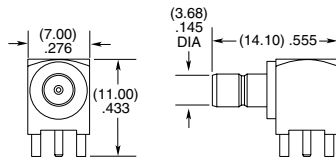
**-ST**  
= Straight

**-RA**  
= Right-angle

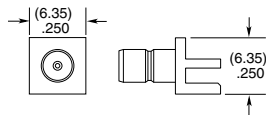
**-TH1**  
= Through-hole  
(0.90 mm) .035" DIA Signal Pin

**-TH2**  
= Through-hole  
(0.51 mm) .020" DIA Signal Pin  
(-ST only)

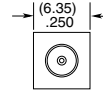
**-EM1**  
= Edge Mount  
(-ST only)



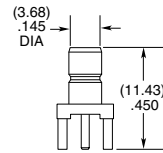
**-RA-TH1**



**-ST-EM1**



**-ST-TH1 & -ST-TH2**



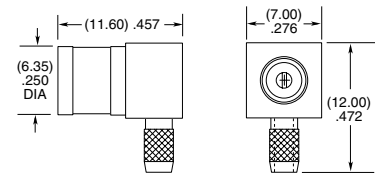
**Note:**  
Additional plating options available on Cable Assemblies, Cable Connectors and Board Connectors. Contact RFGroup@samtec.com

## SMB Cable Connectors SMB7H-CA

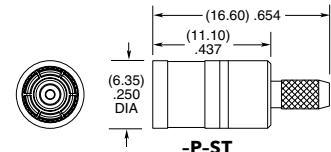


CONNECTORS FOR INDUSTRY STANDARD CABLES	
SMB7H-P-C-H-ST-CA3	RG 179 Cable
SMB7H-P-C-HF-RA-CA3	RG 179 Cable

P-C = Cable Plug  
H or HF = Plating (30 μ" Gold center contact, 3 μ" Gold outer contact)  
ST = Straight  
RA = Right-angle



**-P-RA**



**-P-ST**

Supplied with pins and ferrules.  
See website for dimensions

# ORIGINAL SOLUTIONS LOW FREQUENCY RF

## SHIELDED TWISTED PAIR SYSTEM

- 100  $\Omega$  differential pair
- 28 AWG shielded twisted pair cable assembly
- High reliability BeCu contacts
- 1/4-turn bayonet lock

DC TO  
4  
GHz

## GANGED MICRO-MINI SYSTEMS

- 50  $\Omega$  & 75  $\Omega$  board stacking and cable assemblies
- High performance rugged contacts
- Variety of End 2 connectors (GRF1H-C, GRF7H-C Series)

DC TO  
5  
GHz

## ISORATE® SYSTEMS

- 50  $\Omega$  board stacking and cable assemblies
- Isolated signal systems for 90 percent performance of traditional RF at 50 percent of the cost

DC TO  
9.5  
GHz

## MINI & MICRO-MINI INTERCONNECTS

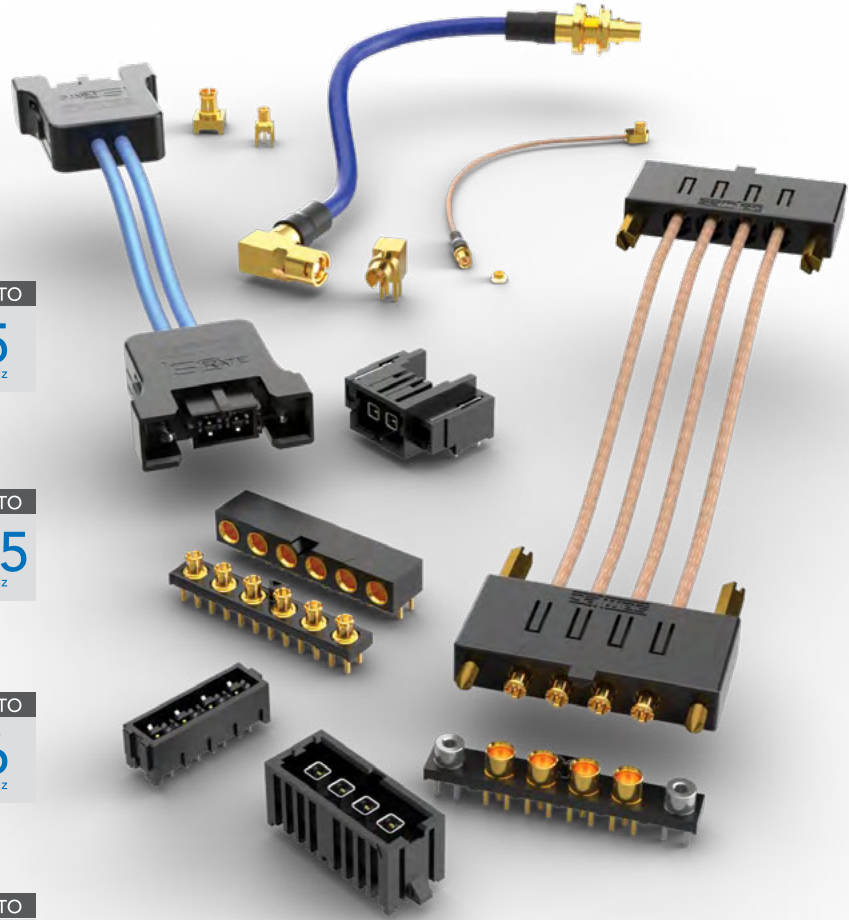
- 75  $\Omega$  impedance (MMCX7 & MCX7 Series)
- Higher extraction forces (MMCXV Series)
- Not intermateable with standard MMCX, MCX

DC TO  
6  
GHz

## HIGH-CYCLE U.FL CABLE PLUG

- 500 cycle U.FL compatible plug (HMHF1 Series)
- .047" DIA flexible cable (RF047 Series)

DC TO  
10  
GHz



High Frequency Original RF Solutions Available.  
See page 147

## CABLE SOLUTIONS

SERIES	C28S/CJT	GRF1-C/GRF7-C	GRF1H-C/GRF7H-C	RF047	IJ5C/IJ5H
Application	Shielded Twisted Pair	50 $\Omega$ & 75 $\Omega$ Micro-Mini Ganged	50 $\Omega$ & 75 $\Omega$ Micro-Mini Hybrid Ganged	50 $\Omega$ .047 DIA Flexible Cable	50 $\Omega$ IsoRate®
URL	<a href="http://samtec.com?C28S">samtec.com?C28S</a> <a href="http://samtec.com?CJT-BH">samtec.com?CJT-BH</a> <a href="http://samtec.com?CJT-TH">samtec.com?CJT-TH</a>	<a href="http://samtec.com?GRF1-C">samtec.com?GRF1-C</a> <a href="http://samtec.com?GRF7-C">samtec.com?GRF7-C</a>	<a href="http://samtec.com?GRF1H-C">samtec.com?GRF1H-C</a> <a href="http://samtec.com?GRF7H-C">samtec.com?GRF7H-C</a>	<a href="http://samtec.com?RF047">samtec.com?RF047</a>	<a href="http://samtec.com?IJ5C">samtec.com?IJ5C</a> <a href="http://samtec.com?IJ5H">samtec.com?IJ5H</a>

## BOARD-TO-BOARD SOLUTIONS

SERIES	GRF1-P/GRF1-J	GRF7-P/GRF7-J	MMCX7	MCX7	MMCXV	IJ5/IP5
Application	50 $\Omega$ Micro-Mini Ganged	75 $\Omega$ Micro-Mini Ganged	75 $\Omega$ Mini and Micro-Mini Interconnects		High-Vibration Micro-Mini	50 $\Omega$ IsoRate®
URL	<a href="http://samtec.com?GRF1-P">samtec.com?GRF1-P</a> <a href="http://samtec.com?GRF1-J">samtec.com?GRF1-J</a>	<a href="http://samtec.com?GRF7-P">samtec.com?GRF7-P</a> <a href="http://samtec.com?GRF7-J">samtec.com?GRF7-J</a>	<a href="http://samtec.com?MMCX7-TH">samtec.com?MMCX7-TH</a> <a href="http://samtec.com?MMCX7-CA">samtec.com?MMCX7-CA</a>	<a href="http://samtec.com?MCX7">samtec.com?MCX7</a> <a href="http://samtec.com?MCX7-CA">samtec.com?MCX7-CA</a>	<a href="http://samtec.com?MMCXV-TH">samtec.com?MMCXV-TH</a> <a href="http://samtec.com?MMCXV-EM">samtec.com?MMCXV-EM</a> <a href="http://samtec.com?MMCXV-CA">samtec.com?MMCXV-CA</a>	<a href="http://samtec.com?IJ5">samtec.com?IJ5</a> <a href="http://samtec.com?IP5">samtec.com?IP5</a>

# CUSTOM SOLUTIONS & QUICK-TURN MODIFICATIONS

Samtec's fully vertically integrated business model enables the flexibility to quickly and efficiently identify and/or develop innovative, application-specific interconnect solutions to meet a variety of demands in digital/analog systems. Contact [RFGroup@samtec.com](mailto:RFGroup@samtec.com) to discuss your application.

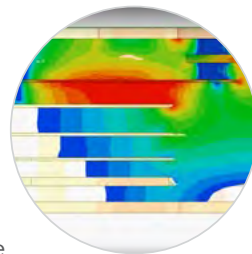
- Termination types
- Custom tail lengths / designs
- Right-angle height adjustment
- Heat-shrink tubing
- High frequency applications
- Pick & Place machine designs
- Counterweights for automated assembly (eliminate hand-soldering)
- Alternate platings
- Custom labels
- Test & Measurement solutions



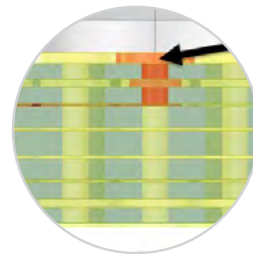
## TECHNICAL SUPPORT, SI & RF DESIGN EXPERTISE

Samtec's Signal Integrity / RF Design & Simulation Engineers provide personal support for solving complex system challenges. In addition, a variety of resources are available online which help answer questions specific to microwave / millimeter wave system design.

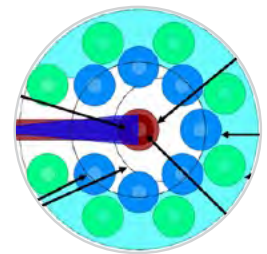
- Launch optimization & design services
- Simulation
- Prototyping
- Physical test and measurement verification
- Full channel analysis, system support
- Specific design and development application assistance



E-field Simulation



3D Modeling



Launch Optimization

## TECHNICAL RESOURCES

More available on [samtec.com](http://samtec.com)

### WHITE PAPERS

[samtec.com/tech-library](http://samtec.com/tech-library)

- Wideband RF Launches
- Impacts of Solder Reflow on RF Connectors
- Millimeter Wave Design

### TECH REPORT

[samtec.com/alignment](http://samtec.com/alignment)

- Precision Alignment Features

### PRESENTATION

[samtec.com/system-impedance](http://samtec.com/system-impedance)

- Understanding Transmission Line Discontinuities

### PRECISION RF EVALUATION KITS


[samtec.com/kits/rf](http://samtec.com/kits/rf)

- Precision RF
- Bulls Eye®
- Analog Over Array™

# ULTRA RUGGED SOLUTIONS

EXTREME HIGH MATING CYCLES • RUGGED MIL-DTL MATERIALS • SEVERE ENVIRONMENT TESTING

**185** RUGGED POWER I/O SYSTEMS (B1SD(T)/P1PD(T)/P1M)



**URSA I/O**  
ULTRA RUGGED CONTACT SYSTEM

**185** 38999 RUGGED I/O SYSTEMS (NVA3E/NVA3P)



**NOVARAY I/O**

**186** RUGGED/COMPACT OPTICS (CSPO, CSSO)



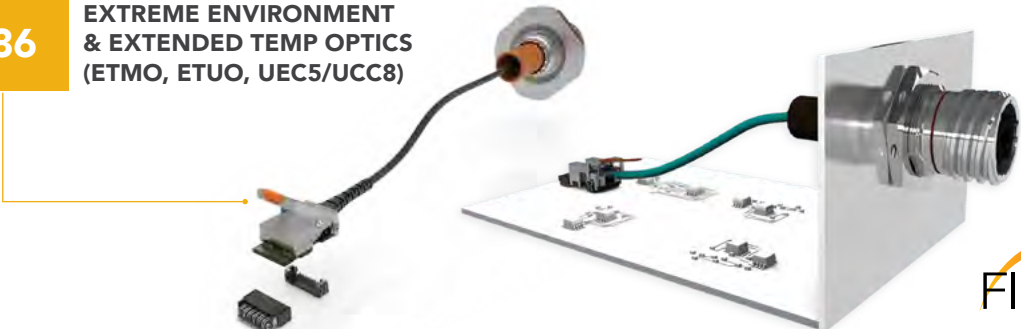
**FIREHAWK™**

**186** VITA 90 VNX+ SOLUTIONS (SEARAY™, GPCC, RUGGED OPTICS)



**VNX+™**

**186** EXTREME ENVIRONMENT & EXTENDED TEMP OPTICS (ETMO, ETUO, UEC5/UCC8)



**FIREFLY™**



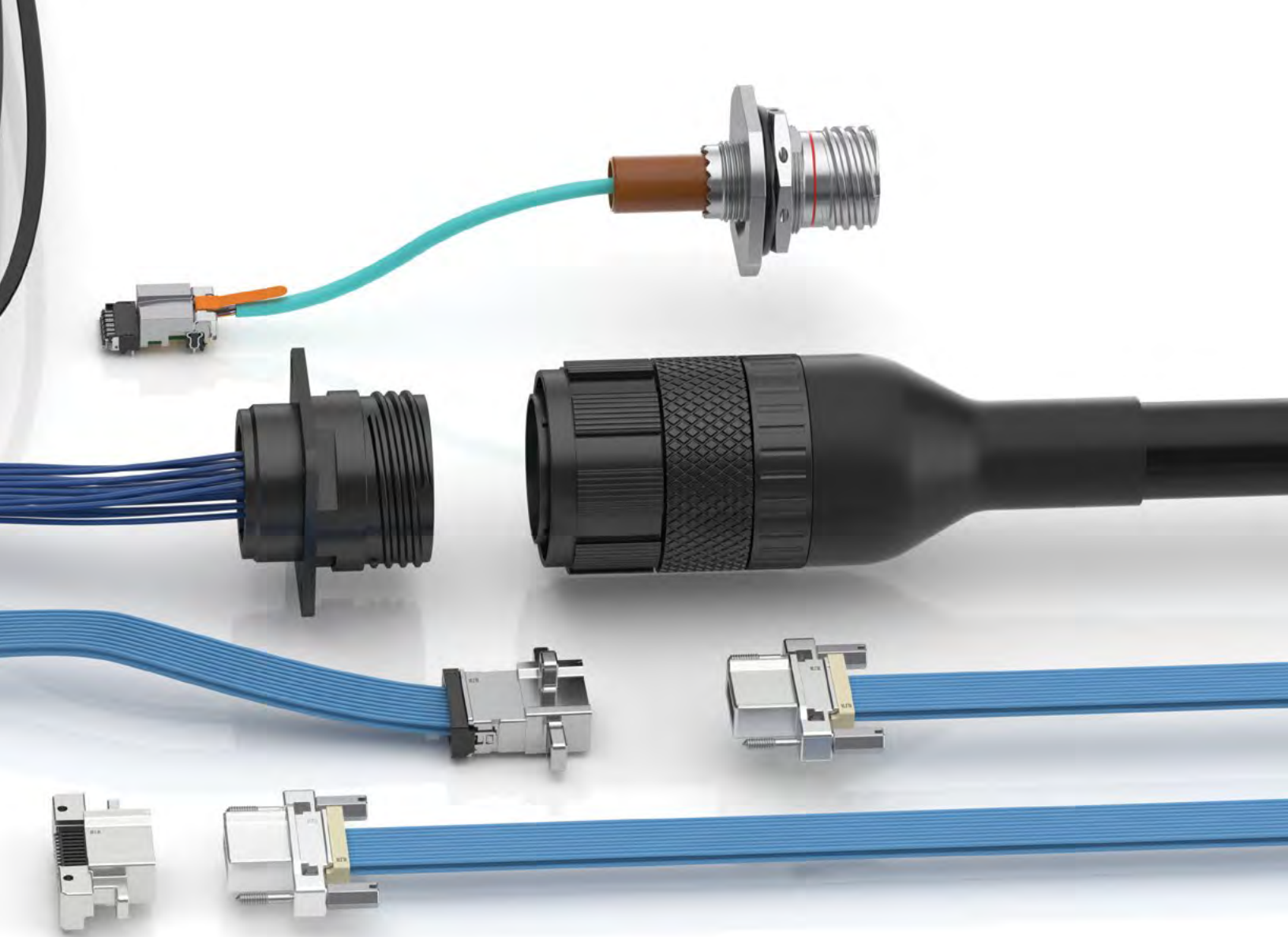
# ULTRA RUGGED SOLUTIONS



Samtec's ultra rugged solutions provide reliability and flexibility in small form factors for extreme/harsh environments. From rugged I/O cable assemblies, sealed & compact optics, and VITA 90 VNX+ modules to ultra rugged hardware and high-temp coatings, these solutions are ideal for military, aerospace, submersible and other harsh environment applications. Many ultra rugged offerings are available now with a robust roadmap to meet or exceed requirements for harsh environment applications and industries.

For design flexibility and cost optimization, Samtec's Severe Environment Testing (SET) qualified products are Commercial-Off-the-Shelf (COTS) and modified COTS to get solutions to market faster. See page 188-189 or visit [samtec.com/set](https://www.samtec.com/set) for more information.





### RUGGED POWER I/O SYSTEMS

- Four points of contact for a reliable connection and high mating cycles
- Extreme density with up to 1,450 I/Os in a 1RU panel
- EMI shielding limits signal degradation and optimizes performance
- Series: B1SD(T)/P1PD(T)/P1M
- See page 212-215 for more information
- [samtec.com/ursa](http://samtec.com/ursa)



### 38999 RUGGED I/O SYSTEMS

- High data rate cable system in a rugged 38999 shell
- Salt fog resistant to 48 hours; IP67 for dust and waterproof sealing
- Threaded cable-to-panel design
- High-density 16 pair; 32 on roadmap
- Series: NVA3E/NVA3P
- See page 103 for more information
- [samtec.com/novaray-io](http://samtec.com/novaray-io)





### ULTRA RUGGED/COMPACT OPTICS

- FireHawk™ is the smallest optical transceiver in the industry – 10 x 7.7 x 2.5 mm
- Extreme performance up to 40 Gbps transfer rates
- Rugged BGA attach withstands high shock and vibration
- Radiation tolerant design
- Series: CSPO, CSSO
- See page 138 for more information
- [samtec.com/firehawk](http://samtec.com/firehawk)



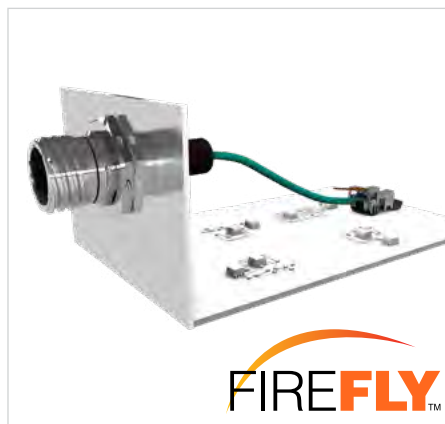
### VITA 90 VNX+ SOLUTIONS

- RF backplane system to support 110 GHz with high-density size 20 cable; size 16 on roadmap
- Rugged blind mate solution
- Configured with SEARAY™ right-angle array and rugged optics
- SWaP-C reductions make this ideal for military and aerospace applications
- COTS or modified COTS solution for cost and time flexibility
- See page 328-329 for more information
- [samtec.com/vnx-plus](http://samtec.com/vnx-plus)



### EXTREME ENVIRONMENT OPTICAL SYSTEM

- Sealed and parylene-coated for exposed military, aerospace and submersible applications
- Ruggedized for tin whisker mitigation and fungal resistance; operates in harsh environments including salt fog, blowing sand and dust, jet fuel exposure, altitudes up to 65,000 feet
- Extended temp range of -40 °C to +85 °C
- Series: ETMO/UEC5/UCC8
- See page 133 for more information
- [samtec.com/firefly](http://samtec.com/firefly)



### EXTENDED TEMP OPTICAL SYSTEMS

- Extended temperature range from -40 °C to +85 °C
- x4 and x12 designs to 25 Gbps per lane performance
- Samtec's Extended Temp FireFly™ optical with Amphenol® Aerospace bulkhead interconnects
- Micro footprint allows for increased density
- Series: ETUO/UEC5/UCC8
- See page 132 for more information
- [samtec.com/firefly](http://samtec.com/firefly)

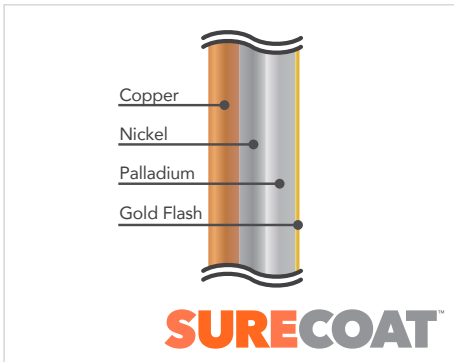






## ULTRA RUGGED HARDWARE

- Guide post standoffs (GPSO) allow for .035" of initial misalignment
- Assists with "blind mate" for ultra micro, fine pitch mezzanine connectors
- 5 to 30 mm stack heights
- 303 stainless steel with MIL-C-13924 black oxide finish
- Jack screw precision standoffs (JSO) reduce the risk of component damage
- Standoffs (SO) with precision machined tolerances (+/- .002" (0.05 mm))
- See pages 33-34 and 60 for more information
- [samtec.com/hardware](http://samtec.com/hardware)



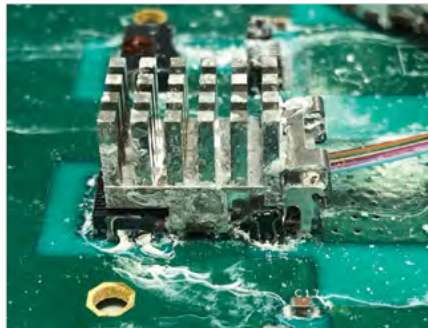
## HIGH-RELIABILITY PLATING

- 40 to 50  $\mu$ " palladium nickel plating with gold flash for high-temp, high-cycle applications
- Qualified up to 150 °C ambient; 200 °C on roadmap
- Available on SEARAY™ 1.27 mm pitch high-density arrays to 3,000 cycles (SEAF/SEAM)
- Product Roadmap includes SEARAY™ 0.80 mm, AcceleRate® HP, LP Array™ and Generate™ 0.80 mm
- Ideal for ATE applications

## ROADMAP



High-cycle "super lube" for extreme mating cycles



Expand testing to MIL-DTL-55302 including salt spray and enhanced shock & vibration



URSA™ I/O configurations of power, signal, RF coax and high-speed contacts for high-reliability in harsh environments



Rugged blind mate solution with RF and optical connectivity for backplane applications



Size 16 and 20 high-frequency coax 38999 contacts for high-density, multi-position housings



Phase & insertion loss stable microwave/millimeter wave cable assemblies - Orange is the new cable!

# ULTRA RUGGED TESTING

## SEVERE ENVIRONMENT TESTING (SET)

Severe Environment Testing (SET) is a Samtec initiative to test products beyond typical industry standards and specifications for performance confidence in rugged/harsh environment industries. These products undergo additional testing, inspired by military standards, to ensure they are more than suitable for military, space, automotive, industrial and other extreme applications.

SET qualified products are Commercial Off-the-Shelf (COTS) and modified COTS for incredible design flexibility to get solutions to market faster. Visit [samtec.com/SET](http://samtec.com/SET) or contact [SET@samtec.com](mailto:SET@samtec.com) for additional information and current available test results.



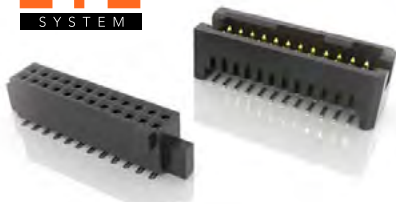
### MEETS OR EXCEEDS:

- VITA 47.1 Module Insertions
- VITA 47.3 Humidity
- VITA 47.1 Operating Shock Class OS2
- VITA 47.1 Vibration Class VS3
- Exceeds VITA 47.1 Temperature Cycling Class C4
- Exceeds VITA 47.1 Non-Operating Temperature Class C4
- VITA 47.1 Electrostatic Discharge Resistance
- Exceeds VITA 47.1 Altitude for DWV
- Aligns with MIL-DTL-55302

### LOT SCREEN SAMPLE TESTING

Lot screen sample testing available to ensure product meets required specifications. Military/Aerospace Product (MAP) required; contact [MAP@samtec.com](mailto:MAP@samtec.com)

**TIGER  
EYE**  
SYSTEM



**SEARAY**



**mPOWER**



### SET QUALIFIED PRODUCTS

**SFM / TFM** Tiger Eye™ 1.27 mm Pitch Micro Rugged System

**SEAF / SEAM** SEARAY™ High-Density Arrays

**LSHM** Razor Beam™ Hermaphroditic Strips

**SSM / TSM** .100" Pitch Square Post Header & Socket

**FTSH / CLP** .050" Pitch Header & Socket

**ERF8 / ERM8** Edge Rate® Rugged High-Speed Strips

**S2M / T2M** Tiger Eye™ 2.00 mm Pitch Micro Rugged System

**UMPS / UMPT** mPOWER® Ultra Micro Power Connectors

**SEAF8 / SEAM8** SEARAY™ 0.80 mm Ultra-High Density Arrays

### NASA

Samtec's SET products are approved for NASA Class D missions that require high-reliability, quick-turn and cost-effective solutions for LEO satellites, SmallSats, CubeSats and other space exploration applications.

Samtec also utilizes NASA outgassing data to determine if certain products meet NASA's ASTM E595-77/84/90 test requirements. Visit [outgassing.nasa.gov](http://outgassing.nasa.gov) for data.



## EXTENDED LIFE PRODUCT™

E.L.P.™ products are tested to rigorous standards, which evaluate contact resistance in simulated storage and field conditions.

- 10 year Mixed Flowing Gas (MFG)
- High Mating Cycles (250 to 2,500)
- Certain plating and/or contact options will apply

For complete details about Samtec's E.L.P.™ program, a list of qualifying products and test results, please visit [samtec.com/ELP](http://samtec.com/ELP) or email the Customer Engineering Support Group at [ASG@samtec.com](mailto:ASG@samtec.com)



## DESIGN QUALIFICATION TESTING (DQT)

All Samtec series undergo Design Qualification Testing (DQT), which includes:

- Gas Tight
- Normal Force
- Thermal Aging
- Mating/Unmating/Durability
- IR/DWV
- Current Carrying Capacity (CCC)
- Mechanical Shock/Random Vibration/LLCR
- Mechanical Shock/Random Vibration/Event Detection



## TESTING REFERENCE CHART

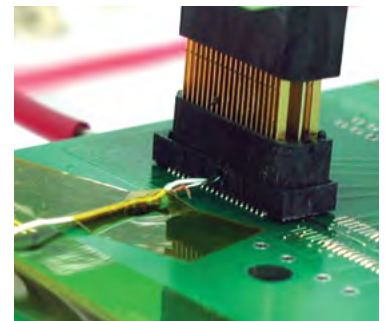
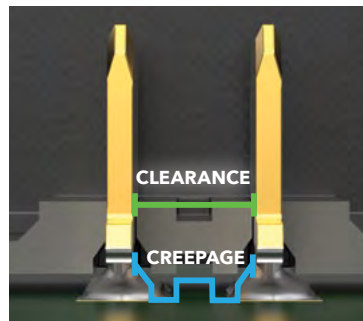
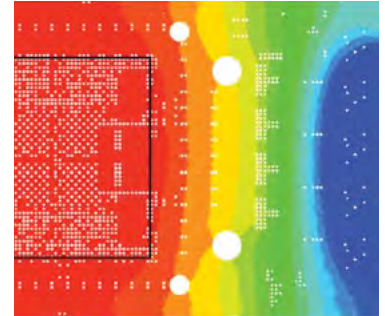
TEST	SET	E.L.P.™	DQT
Gas Tight	X*	X*	N/A
Normal Force	X*	X*	X
Thermal Aging	X*	X*	X
Mating / Unmating / Durability (240 Hrs)	X (100% RH, 250 Cycles)	X* (90-98% RH, 100 Cycles)	X (90-98% RH, 100 Cycles)
IR / DWV	X (At Altitude of 70,000 Feet)	X*	X
CCC	X*	X*	X
Mechanical Shock / Random Vibration / LLCR & Nanosecond Event Detection	X (40 G Peak, 11 ms, Half Sine & 12gRMS, 5 - 2,000 Hz, 1 Hr / Axis)	X* (100 G Peak, 6 ms, Half Sine & 7.56gRMS Avg, 2 Hr / Axis)	X (100 G Peak, 6 ms, Half Sine & 7.56gRMS Avg, 2 Hr / Axis)
Temperature Cycling (500 Cycles)	X	N/A	N/A
Non-Operating Class Temperature	X	N/A	N/A
Electrostatic Discharge (ESD)	X	N/A	N/A
10 Year MFG (Mixed Flowing Gas)	N/A	X	N/A
Mating Cycles (250 to 2,500)	N/A	X	N/A

\* Completed as part of initial Design Qualification Testing (DQT). E.L.P.™ and SET testing are performed in addition to DQT.

# POWER SERVICES

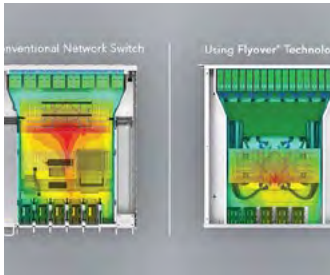
## POWER INTEGRITY SERVICES

- Standard power test data, including current carrying capacity, working voltage, voltage drop and resistance, creepage and clearance, is available for select power systems
- Current Cycling Test Data, which demonstrates connector performance in realistic and common applications, is available for select series
- Power Integrity Guidelines are based on test data and proven design parameters, designed to help in connector selection and PCB design maximization
- Power Integrity Certified products undergo testing and additional requirements unique to Samtec. Products must pass Current Cycling Test EIA 365-55, have current carrying capacity, resistance vs. number of contacts data available and Power Integrity Guidelines developed
- Visit [samtec.com/powerintegrity](http://samtec.com/powerintegrity) to learn more.

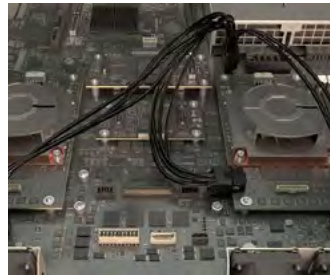


## POWER ARCHITECTURE, SYSTEM DESIGN & ROUTING SERVICES

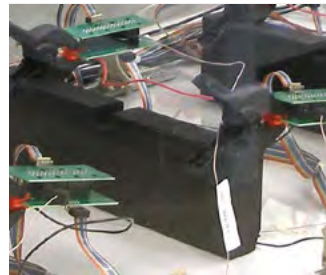
Samtec provides complete support and strategies for the optimization of system power architectures. Visit [samtec.com/sig](http://samtec.com/sig) for more information.



System Power Architectures & Design Solutions



Reference Routing Development for Application-Specific Solutions



Safety and Reliability Design Assurance



Recommendations for Customer-Specific Requirements

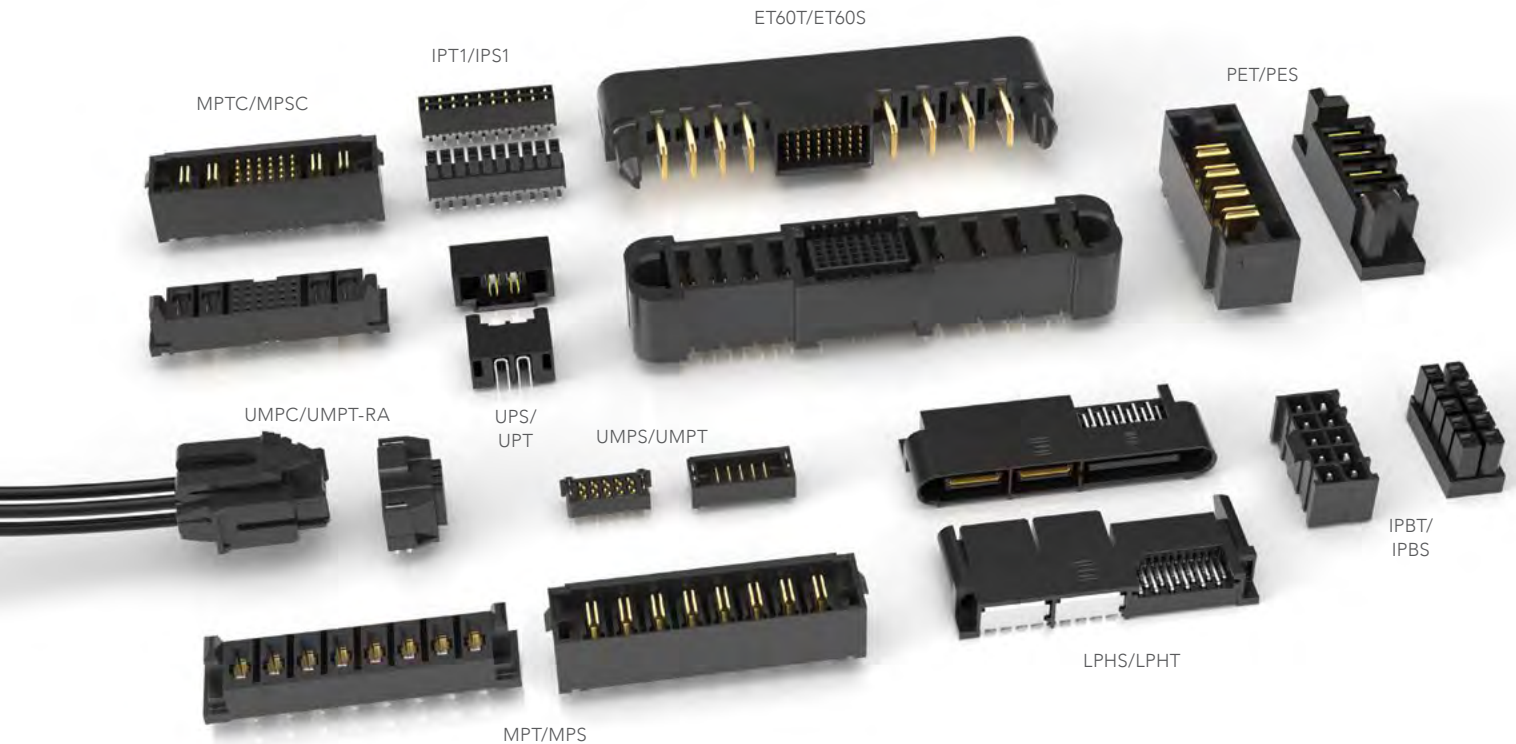
## INTERACTIVE POWER CHART

Samtec offers power simulation that can calculate temperature increase in the connector area, in real time. Find this tool on [samtec.com](http://samtec.com) when searching a product for your specific application. Contact [RuggedPower@samtec.com](mailto:RuggedPower@samtec.com) for assistance.



# HIGH POWER SYSTEMS

UP TO 60 AMPS • ULTRA MICRO POWER • POWER/SIGNAL COMBINATIONS



192-197

## mPOWER® ULTRA MICRO POWER SYSTEMS

Socket & Terminal Board Connectors (UMPS, UMPT) .....	192-194
Cable-to-Board Assemblies & Components (UMPC(T), IMPC, CC489) .....	195
Cable-to-Cable Panel Mount Assemblies & Components (UMPE(T), UMPI(T), IMPE, IMPC, TC146, CC489) .	196-197

198-207

## FLEX POWER SYSTEMS

EXTreme LPHPower™ Terminals and Sockets (LPHT, LPHS) .....	198-199
EXTreme Ten60Power™ Terminals and Sockets (ET60T, ET60S) .....	200-201
PowerStrip™/20 Headers & Sockets (UPS, UPT, UPPT) .....	202-203
PowerStrip™/30 Headers & Sockets (MPT, MPS, MPTC, MPSC) .....	204-205
PowerStrip™/40 Headers & Sockets (PET, PES, PETC, PES) .....	206-207

208-210

## RUGGED POWER SYSTEMS

Mini Mate® Terminals & Sockets (IPT1, IPS1) .....	209
Power Mate® Terminals & Sockets (IPBT, IPBS) .....	210

## ULTRA MICRO POWER SYSTEM

(2.00 mm) .0787" PITCH



MAX  
**18**  
A m p s

### FEATURES & BENEFITS

- Board-to-board, cable-to-board and cable-to-cable
- Up to 18 A per blade (1 blade powered)
- Choice of 2 to 10 positions
- 5 mm to 20 mm stack heights; vertical and right-angle orientations
- Tin or 10  $\mu$ " Gold plated power blades; 30  $\mu$ " Gold plating available to meet specific regulations
- Optional weld tabs
- Mating cable assemblies with plastic top or metal side latching
- Severe Environment Testing qualified (UMPT/UMPS); aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)

### KEY SPECIFICATIONS (UMPT/UMPS)

STACK HEIGHTS	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	VOLTAGE RATING	LEAD-FREE SOLDERABLE
5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 20 mm	Black LCP	Copper Alloy	Sn or Au over 50 $\mu$ " (1.27 $\mu$ m) Ni	-55 °C to +105 °C with Tin -55 °C to +125 °C with Gold	460 VAC/ 650 VDC	Yes

### CURRENT RATING (PER CONTACT)

PINS	UMPT/UMPS	
	-T	-L
1	17.8 A	17.5 A
2	15.5 A	16.3 A
3	13.5 A	13.9 A
4	12.9 A	13.2 A
10	9.8 A	8.9 A

Ratings are derated 20% with 30 °C rise to maximum allowable temperature.

### CREEPAGE & CLEARANCE

UMPT/UMPS	
CREEPAGE	2.20 mm
CLEARANCE	1.65 mm

Selectively loading contacts achieves customer specific creepage and clearance requirements.

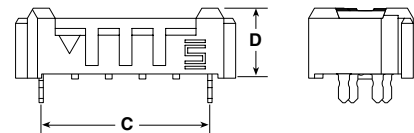
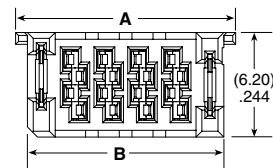


MAX  
18  
A m p s

## ULTRA MICRO POWER SOCKET

UMPS	NO. OF POSITIONS	LEAD STYLE	PLATING OPTION	V	S	OPTION	"X"R
	-02, -03, -04, -05, -06, -07, -08, -09, -10	-03.5 = (03.5 mm) .138" -05.5 = (05.5 mm) .217" -07.5 = (07.5 mm) .295"	-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail -S = 30 μ" (0.76 μm) Gold on contact, Matte Tin on tail -T = Matte Tin			-W = Weld Tab Through-hole (Leave blank for no weld tab)	-TR = Tape & Reel -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**UMPS**  
Board Mates:  
UMPT  
Standoffs:  
GPSO



UMPS-04-03.5-X-V-S-W SHOWN

NO. OF POSITIONS	A	B	C
-02	(9.05) .356	(7.65) .301	(6.00) .236
-03	(11.05) .435	(9.65) .380	(8.00) .315
-04	(13.05) .514	(11.65) .459	(10.00) .394
-05	(15.05) .593	(13.65) .537	(12.00) .472
-06	(17.05) .671	(15.65) .616	(14.00) .551
-07	(19.05) .750	(17.65) .695	(16.00) .630
-08	(21.05) .829	(19.65) .774	(18.00) .709
-09	(23.05) .907	(21.65) .852	(20.00) .787
-10	(25.05) .986	(23.65) .931	(22.00) .866

LEAD STYLE	D
-03.5	(4.15) .163
-05.5	(6.15) .242
-07.5	(8.15) .321

UMPT LEAD STYLE	MATED HEIGHT		
	UMPS LEAD STYLE		
	-03.5	-05.5	-07.5
-01.5	(5.00) .197	(7.00) .276	(9.00) .354
-02.5	(6.00) .236	(8.00) .315	(10.00) .394
-06.5	(10.00) .394	(12.00) .472	(14.00) .551
-07.5	(11.00) .433	(13.00) .512	(15.00) .591
-12.5	(16.00) .630	(18.00) .709	(20.00) .787

### UMPT/UMPS CURRENT RATING (PER CONTACT)

PINS	-T	-L
1	17.8 A	17.5 A
2	15.5 A	16.3 A
3	13.5 A	13.9 A
4	12.9 A	13.2 A
10	9.8 A	8.9 A

Ratings are derated 20% with 30 °C rise to maximum allowable temperature.

**Notes:**  
Severe Environment  
Testing qualified; aligns  
with MIL-DTL-55302.  
Visit [samtec.com/set](http://samtec.com/set)


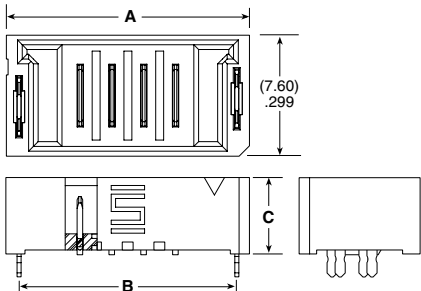
Some lengths, styles and  
options are non-standard,  
non-returnable

View complete specifications at: [samtec.com?UMPS](http://samtec.com?UMPS)



ULTRA MICRO POWER TERMINAL

UMPT	NO. OF POSITIONS	LEAD STYLE	PLATING OPTION	V	S	WELD TAB	LATCH OPTION	"X"R
<b>UMPT</b> Board Mates: <b>-05, -06, UMPS</b> Cable Mates: <b>-09, -10</b> UMPC* (*UMPT requires -P or -M option for mating) Standoffs: <b>GPSO</b>	<b>-02, -03, -04, -05, -06, -07, -08, -09, -10</b>	<b>-01.5</b> = (01.5 mm) .059" <b>-02.5</b> = (02.5 mm) .098" <b>-06.5</b> = (06.5 mm) .256" <b>-07.5</b> = (07.5 mm) .295" <b>-12.5</b> = (12.5 mm) .492" (-W option required)	<b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail <b>-S</b> = 30 μ" (0.76 μm) Gold on contact, Matte Tin on tail <b>-T</b> = Matte Tin			(Leave blank for no weld tab) <b>-W</b> = Weld Tab Through-hole (Required for -12.5 lead style)	(Leave blank for no latch) (Only available on -02.5 lead style) (Weld tab required) <b>-P</b> = Plastic top latch <b>-M</b> = Metal side latches	<b>-TR</b> = Tape & Reel <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

LEAD STYLE	C	NO. OF POSITIONS	
		A (-P & No latch)	B (-M latch)
-01.5	(4.80) .189	(11.30) .445	(9.70) .382
-02.5	(5.80) .228	(13.30) .524	(11.70) .460
-06.5	(9.55) .376	(15.30) .603	(13.70) .539
-07.5	(10.80) .425	(17.30) .681	(15.70) .618
-12.5	(15.80) .622	(19.30) .760	(17.70) .697
		(21.30) .839	(19.70) .776
		(23.30) .917	(21.70) .854
		(25.30) .996	(23.70) .933
		(27.30) 1.075	(25.70) 1.012
		(29.30) 1.154	(27.60) 1.087


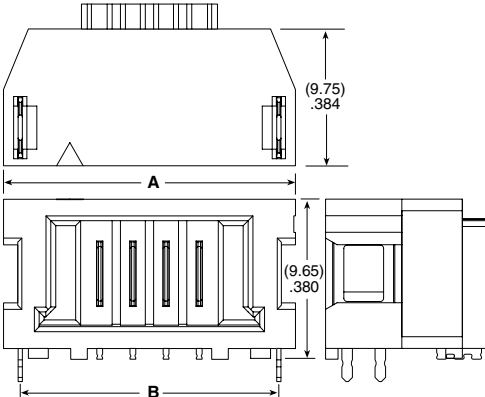
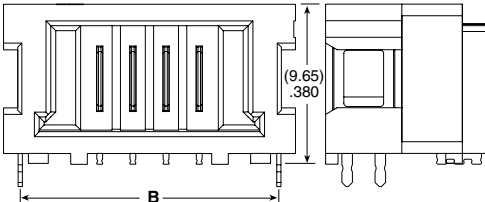
**UMPT-04-01.5-X-V-S-W SHOWN**

**Notes:**  
Severe Environment Testing qualified; aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)

Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?UMPT](http://samtec.com?UMPT)

UMPT	NO. OF POSITIONS	01	PLATING OPTION	RA	WELD TAB	LATCH OPTION	"X"R
<b>UMPT-RA</b> Board Mates: <b>UMPS</b> Cable Mates: <b>UMPC*</b> (*UMPT requires -P or -M option for mating)	<b>-02, -03, -04, -05, -06, -07, -08, -09, -10</b>		<b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail <b>-S</b> = 30 μ" (0.76 μm) Gold on contact, Matte Tin on tail <b>-T</b> = Matte Tin		<b>-WT</b> = Weld Tab Through-hole	(Leave blank for no latch) <b>-P</b> = Plastic top latch <b>-M</b> = Metal side latches	<b>-TR</b> = Tape & Reel <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

NO. OF POSITIONS	A		B	
	(-P & No latch)	(-M latch)	(-P & No latch)	(-M latch)
-02	(13.60) .535	(11.10) .437	(11.55) .455	
-03	(15.60) .614	(13.10) .516	(13.55) .533	
-04	(17.60) .693	(15.10) .594	(15.55) .612	
-05	(19.60) .772	(17.10) .673	(17.55) .691	
-06	(21.60) .850	(19.10) .752	(19.55) .770	
-07	(23.60) .929	(21.10) .831	(21.55) .848	
-08	(25.60) 1.008	(23.10) .909	(23.55) .927	
-09	(27.60) 1.087	(25.10) .988	(25.55) 1.006	
-10	(29.60) 1.165	(27.10) 1.067	(27.55) 1.085	

**UMPT-04-01-X-RA-WT-P SHOWN**  
**UMPT-04-01-X-RA-WT-M SHOWN**

**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?UMPT-RA](http://samtec.com?UMPT-RA)

## ULTRA MICRO POWER CABLE



SERIES	NO. OF POSITIONS	PLATING OPTION	WIRE GAUGE	LATCH OPTION	LENGTH	PINOUT
<b>UMPC</b> = Ultra Micro PVC Cable	<b>-02, -03, -04, -05, -06, -07, -08, -09, -10</b>	<b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Tin on tail	<b>-16</b> = 16 AWG	(Latching required)	<b>-"XX.X"</b> = Assembled Length in Inches	(Leave blank for Single ended)
<b>UMPCT</b> = Ultra Micro Blue *Teflon™ Fluoropolymer Cable		<b>-S</b> = 30 μ" (0.76 μm) Gold on contact, Tin on tail	<b>-16C</b> = Color Coded Cable (UMPC only)	<b>-P</b> = Plastic top latch	PVC Cable Single ended = (76.2 mm) 03.0" min. Double ended = (101.6 mm) 04.0" min. (2-4 positions) Double ended = (127.0 mm) 05.0" min. (5-10 positions)	<b>-1</b> = Pin 01 to Pin 01
<b>UMPC(T)</b> Board Mates: UMPT (Plastic (-P) or metal (-M) latch required)		<b>-T</b> = Tin	<b>-18</b> = 18 AWG	<b>-M</b> = Metal side latches	Teflon™ Fluoropolymer Double ended = (228.6 mm) 09.0" min. (2-4 positions) Double ended = (254.0 mm) 10.0" min. (5-10 positions)	<b>-2</b> = Pin 01 to Pin N
			<b>-18C</b> = Color Coded Cable (UMPC only)			

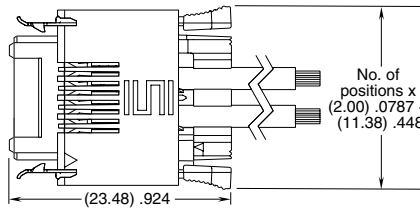
UMPC(T)  
PRELIMINARY

UMPC/UMPT (TIN PLATING)	
PINS	CURRENT RATING (PER CONTACT)
1	18.1 A
2	15.8 A
3	13.5 A
4	12.2 A
10	9.2 A

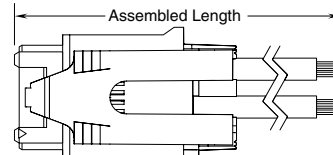
CABLE COLOR CODING	
PIN	COLOR
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	BLUE
7	VIOLET
8	GRAY
9	WHITE
10	BLACK

### SPECIFICATIONS

**Insulator Material:** Black LCP  
**Contact Material:** Copper Alloy  
**Plating:** Sn or Au over 50 μ" (1.27 μm) Ni  
**Wire:** 16 or 18 AWG  
**Voltage Rating:** 435 VAC



UMPC-04-X-XX-M-XX.X SHOWN



UMPC-03-X-XX-P-XX.X SHOWN

View complete specifications at: [samtec.com?UMPC](http://samtec.com?UMPC) & [samtec.com?UMPT](http://samtec.com?UMPT)

\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

**Note:** For wiring option information refer to drawings on web.

### UMPC CABLE HOLDER (Required for use with IMPC)

SERIES	NUMBER OF POSITIONS	LEAD STYLE
IMPC	-02, -03, -04, -05, -06, -07, -08, -09, -10	01 = 16 AWG
		02 = 18 AWG

### IMPC

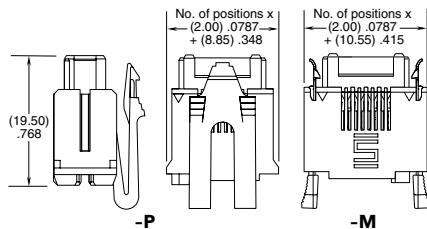
### NO. OF POSITIONS

**-02, -03, -04, -05, -06, -07, -08, -09, -10**

### LATCH OPTION

**-P**  
= Plastic top latch

**-M**  
= Metal side latches



### CC489

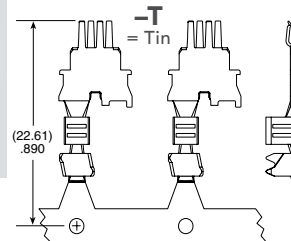
### 01

### PLATING

**-L**  
= 10 μ" (0.25 μm) Gold on contact, Tin on tail

**-S**  
= 30 μ" (0.76 μm) Gold on contact, Tin on tail

**-T**  
= Tin



### PACKAGING

**-R**  
= Full Reel (5,000 Contacts)

**-M**  
= Mini Reel (1,000 Contacts)

**-B**  
= Bubble Bag (35 Contacts)

### TOOLING

Hand Tool: CAT-HT-489-1618-13

Mini Applicator: CAT-MC-489-1618-XX-01

**Note:** Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?IMPC](http://samtec.com?IMPC) & [samtec.com?CC489](http://samtec.com?CC489)

ULTRA MICRO CABLE-TO-CABLE



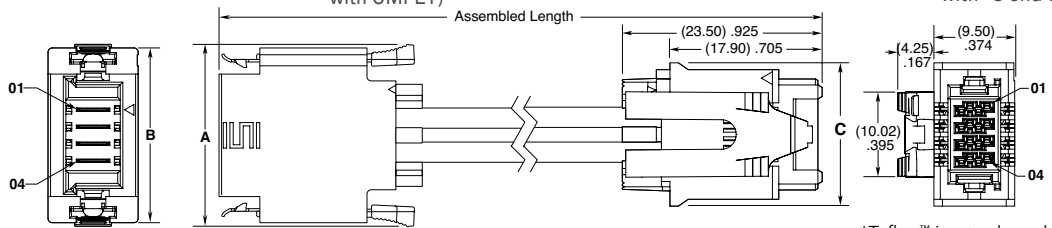
SERIES	NO. OF POSITIONS	PLATING OPTION	WIRE GAUGE	LENGTH	END 2 OPTION	PINOUT
<b>UMPE</b> = Ultra Micro PVC Cable  <b>UMPET</b> = Ultra Micro Blue *Teflon™ Fluoropolymer Cable	-02, -03, -04, -05, -06, -07, -08, -09, -10	-L = 10 μ" (0.25 μm) Gold on contact, Tin on tail  -S = 30 μ" (0.76 μm) Gold on contact, Tin on tail  -T = Tin	-16 = 16 AWG  -16C = 16 AWG Color Coded Cable (not available with UMPET)  -18 = 18 AWG  -18C = 18 AWG Color Coded Cable (not available with UMPET)	-"XX.X" = Assembled Length in Inches  Single ended = (76.2 mm) 03.0" min.  Double ended = (101.6 mm) 04.0" min. (2-4 positions)  Double ended = (127.0 mm) 05.0" min. (5-10 positions)	(Leave blank for Single ended)  -T = Terminal  -S = Socket	(Leave blank for Single ended)  -M1 = Metal Latch Pin 01 to Pin 01  -M2 = Metal Latch Pin 01 to Pin N  -P1 = Plastic Latch Pin 01 to Pin 01  -P2 = Plastic Latch Pin 01 to Pin N  (PX only available with -S end option)

**UMPE(T)**  
Cable Mates:  
UMPI(T)  
End 2 Mates:  
UMPI(T), UMPT

UMPET  
PRELIMINARY

SPECIFICATIONS

**Insulator Material:** Black LCP  
**Contact Material:** Copper Alloy  
**Plating:** Sn or Au over 50 μ" (1.27 μm) Ni  
**Wire:** 16 or 18 AWG  
**Voltage Rating:** 300 Volt = 16 & 18 AWG PVC 300 Volt = 16 AWG Teflon™ Fluoropolymer 600 Volt = 18 AWG Teflon™ Fluoropolymer



NO. OF POSITIONS	A	B	C
-02	(17.38) .684	(16.55) .652	(12.85) .506
-03	(19.38) .763	(18.55) .730	(14.85) .585
-04	(21.38) .842	(20.55) .809	(16.85) .663
-05	(23.38) .920	(22.55) .888	(18.85) .742
-06	(25.38) .999	(24.55) .967	(20.85) .821
-07	(27.38) 1.078	(26.55) 1.045	(22.85) .900
-08	(29.38) 1.157	(28.55) 1.124	(24.85) .978
-09	(31.38) 1.235	(30.55) 1.203	(26.85) 1.057
-10	(33.38) 1.314	(32.55) 1.281	(28.85) 1.136

CABLE COLOR CODING	
PIN	COLOR
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	BLUE
7	VIOLET
8	GRAY
9	WHITE
10	BLACK

\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.


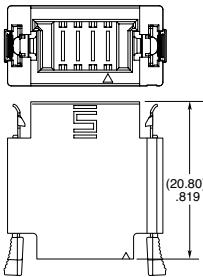

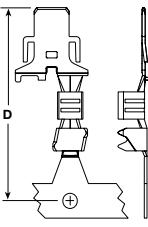
**Notes:** Teflon™ Fluoropolymer cable is intended for crimp only. Contact Samtec for solderable cable applications.

For wiring option information refer to drawings on web.

Some lengths, styles and options are non-standard, non-returnable

UMPE CABLE HOLDER (Required for use with UMPE)		
SERIES	NUMBER OF POSITIONS	LEAD STYLE
IMPEC	-02, -03, -04, -05, -06, -07, -08, -09, -10	01 = 16 AWG 02 = 18 AWG

View complete specifications at: [samtec.com?UMPE](http://samtec.com?UMPE) & [samtec.com?UMPET](http://samtec.com?UMPET)

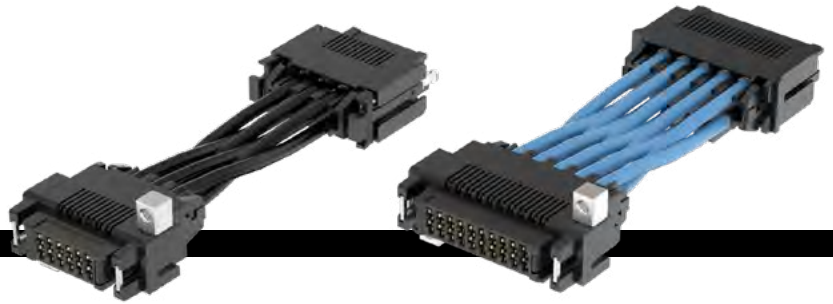
IMPE	NO. OF POSITIONS	LATCH OPTION	TC146	01	PLATING	HOT SWAP	PACKAGING						
	-02, -03, -04, -05, -06, -07, -08, -09, -10	-M = Metal Side Latches			-L = 10 μ" (0.25 μm) Gold on contact, Tin on tail  -S = 30 μ" (0.76 μm) Gold on contact, Tin on tail  -T = Tin	-1 = 6.60  -2 = 7.10	-R = Full Reel (5,000 Contacts)  -M = Mini Reel (1,000 Contacts)  -B = Bubble Bag (35 Contacts)						
							<table border="1"> <thead> <tr> <th>HOT SWAP</th> <th>D</th> </tr> </thead> <tbody> <tr><td>-1</td><td>(21.31) .839</td></tr> <tr><td>-2</td><td>(21.81) .859</td></tr> </tbody> </table>	HOT SWAP	D	-1	(21.31) .839	-2	(21.81) .859
HOT SWAP	D												
-1	(21.31) .839												
-2	(21.81) .859												

**Note:** Some lengths, styles and options are non-standard, non-returnable.

TOOLING	
Hand Tool: CAT-HT-489-1618-13	Mini Applicator: CAT-MC-489-1618-XX-01

View complete specifications at: [samtec.com?IMPE](http://samtec.com?IMPE) & [samtec.com?TC146](http://samtec.com?TC146)

ULTRA MICRO CABLE-TO-CABLE



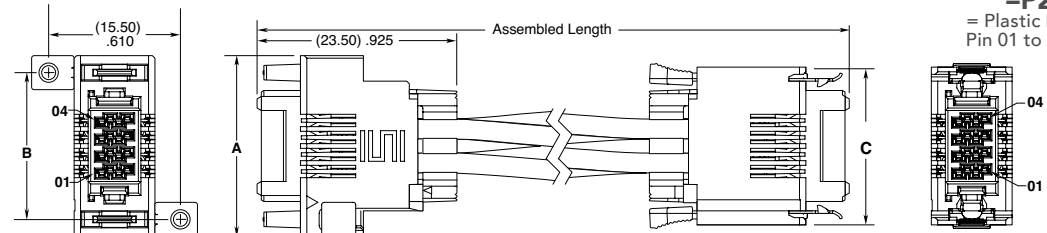
SERIES	NO. OF POSITIONS	PLATING OPTION	WIRE GAUGE	LENGTH	PINOUT
<b>UMPI</b> = Ultra Micro PVC Cable  <b>UMPI(T)</b> = Ultra Micro Blue *Teflon™ Fluoropolymer Cable	-02, -03, -04, -05, -06, -07, -08, -09, -10	-L = 10 μ" (0.25 μm) Gold on contact, Tin on tail  -S = 30 μ" (0.76 μm) Gold on contact, Tin on tail  -T = Tin	-16 = 16 AWG  -16C = 16 AWG Color Coded Cable (not available with UMPI(T))  -18 = 18 AWG  -18C = 18 AWG Color Coded Cable (not available with UMPI(T))	-"XX.X" = Assembled Length in Inches  Single ended = (76.2 mm) 03.0" min.  Double ended = (101.6 mm) 04.0" min. (2-4 positions)  Double ended = (127.0 mm) 05.0" min. (5-10 positions)	(Leave blank for Single ended)  -M1 = Metal Latch Pin 01 to Pin 01  -M2 = Metal Latch Pin 01 to Pin N  -P1 = Plastic Latch Pin 01 to Pin 01  -P2 = Plastic Latch Pin 01 to Pin N

UMPI(T) PRELIMINARY

**UMPI(T)**  
**Cable Mates:**  
 UMPE(T)  
**End 2 Mates:**  
 UMPE(T), UMPT

**SPECIFICATIONS**

**Insulator Material:**  
 Black LCP  
**Contact Material:**  
 Copper Alloy  
**Plating:**  
 Sn or Au over 50 μ" (1.27 μm) Ni  
**Wire:**  
 16 or 18 AWG  
**Voltage Rating:**  
 00 Volt = 16 & 18 AWG PVC  
 300 Volt = 16 AWG Teflon™ Fluoropolymer  
 600 Volt = 18 AWG Teflon™ Fluoropolymer



CABLE COLOR CODING	PIN	COLOR
1	BROWN	
2	RED	
3	ORANGE	
4	YELLOW	
5	GREEN	
6	BLUE	
7	VIOLET	
8	GRAY	
9	WHITE	
10	BLACK	

NO. OF POSITIONS	A	B	C
-02	(17.25) .679	(13.25) .522	(14.55) .573
-03	(19.25) .758	(15.25) .600	(16.55) .652
-04	(21.25) .837	(17.25) .679	(18.55) .730
-05	(23.25) .915	(19.25) .758	(20.55) .809
-06	(25.25) .994	(21.25) .837	(22.55) .888
-07	(27.25) 1.073	(23.25) .915	(24.55) .967
-08	(29.25) 1.152	(25.25) .994	(26.55) 1.045
-09	(31.25) 1.230	(27.25) 1.073	(28.55) 1.124
-10	(33.25) 1.309	(29.25) 1.152	(30.55) 1.203

\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

**Notes:**  
 Teflon™ Fluoropolymer cable is intended for crimp only. Contact Samtec for solderable cable applications.

For wiring option information refer to drawings on web.

Some lengths, styles and options are non-standard, non-returnable

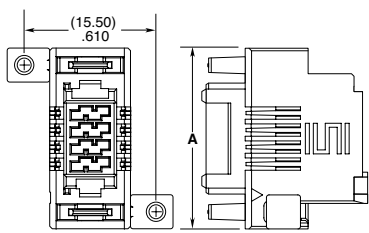
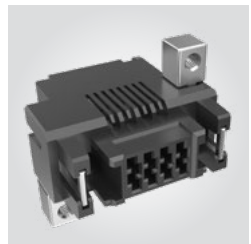
View complete specifications at: [samtec.com?UMPI](http://samtec.com?UMPI) & [samtec.com?UMPT](http://samtec.com?UMPT)

**UMPI CABLE HOLDER (Required for use with IMPC)**

SERIES	NUMBER OF POSITIONS	LEAD STYLE
IMPC	-02, -03, -04, -05, -06, -07, -08, -09, -10	01 = 16 AWG
		02 = 18 AWG

IMPC	NO. OF POSITIONS	LATCH OPTION	CC489	01	PLATING	PACKAGING
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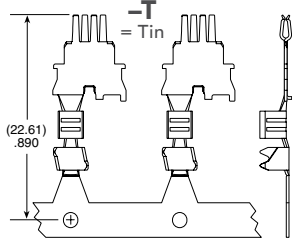
-02, -03, -04, -05, -06, -07, -08, -09, -10  
 -P1 = Panel Mount



-L = 10 μ" (0.25 μm) Gold on contact, Tin on tail  
 -R = Full Reel (5,000 Contacts)



-S = 30 μ" (0.76 μm) Gold on contact, Tin on tail  
 -M = Mini Reel (1,000 Contacts)



-B = Bubble Bag (35 Contacts)

**TOOLING**

Hand Tool: CAT-HT-489-1618-13

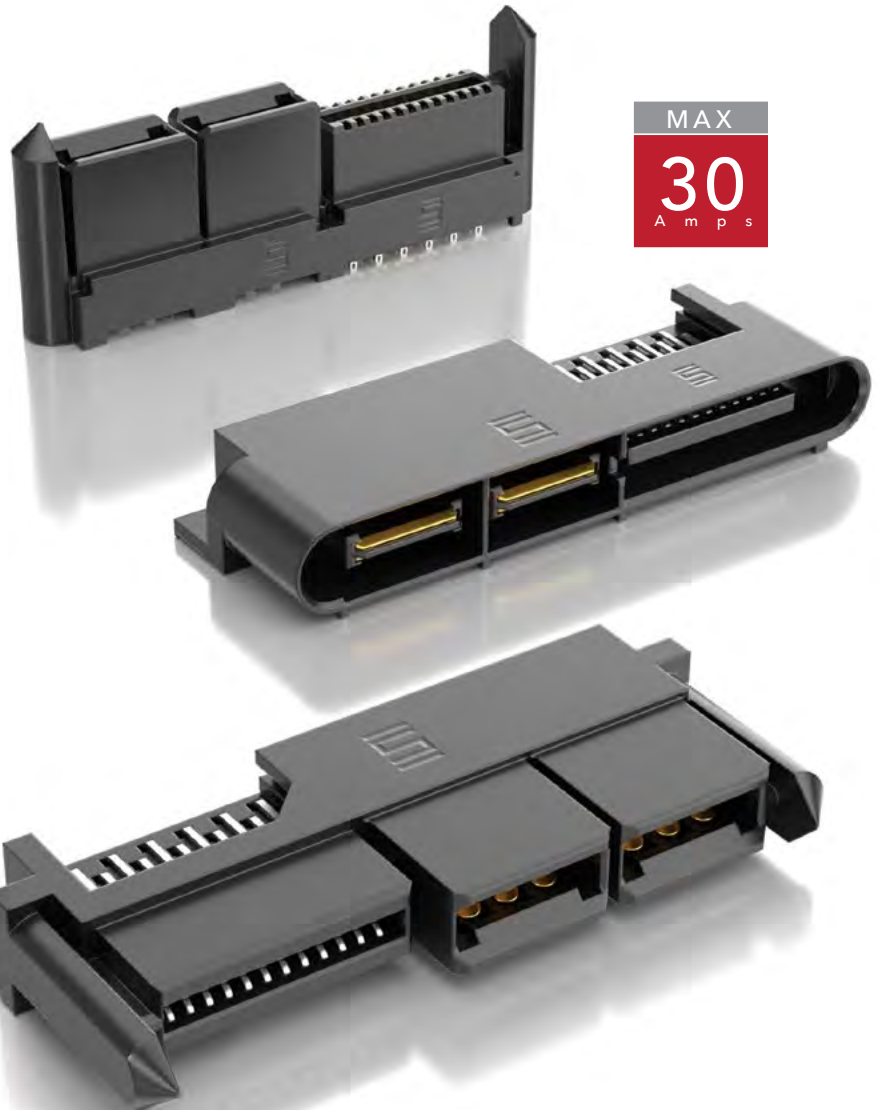
Mini Applicator: CAT-MC-489-1618-XX-01

View complete specifications at: [samtec.com?IMPC](http://samtec.com?IMPC) & [samtec.com?CC489](http://samtec.com?CC489)

# LOW PROFILE, EXTREME HIGH-POWER/SIGNAL COMBO

## FEATURES & BENEFITS

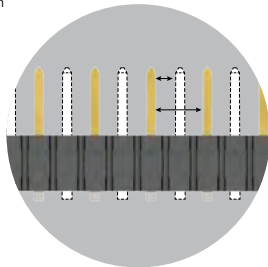
- 30 A per power blade and 1 A per signal pin
- Low 7.5 mm profile design (right-angle) for improved system airflow and space savings
- Double-stacked power blades per bank for increased density and power
- Ideal for coplanar and perpendicular applications
- Rugged guide posts are standard for blind mating assistance
- Socket available as vertical with press-fit tails and right-angle through-hole; mates with terminal or standard .062" (1.60 mm) PCB card



MAX  
**30**  
A m p s

Standard Creepage*	5.63 mm
Standard Clearance*	2.69 mm

\*Selectively loading contacts achieves customer specific creepage and clearance requirements. Contact [asp@samtec.com](mailto:asp@samtec.com)



## KEY SPECIFICATIONS (LPHT/LPHS)

PITCH	INSULATOR MATERIAL	TERMINAL MATERIAL	PLATING	OPERATING TEMP RANGE	VOLTAGE RATING	MATING CYCLES	LEAD-FREE SOLDERABLE
(12.00 mm) .472" (pwr) (1.27 mm) .050" (sig)	Black LCP	Signal: Brass Power: Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	40 °C to +105 °C	250 VAC / 500 VDC	250 (MFG Tested)	Yes (RT1 & RT2 option)

### Notes:

Series is rated up to 60 A per power bank.  
Some lengths, styles and options are non-standard, non-returnable.  
The Molex EXTreme LPHPower™ line is a second source to the Samtec LPHT/LPHS Series.  
\*EXTreme LPHPower™ is a trademark of Molex Incorporated.



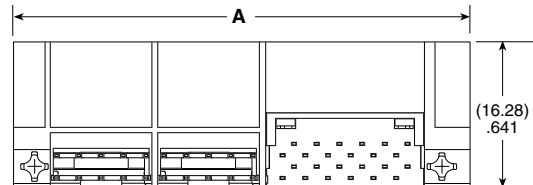
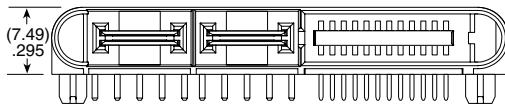
## 30 A SIGNAL/POWER COMBO SYSTEM

SERIES	POWER POSITIONS	SIGNAL POSITIONS	PLATING OPTION	TAIL	GP
<b>LPHT</b> Terminal  <b>LPHS</b> Socket	Total, 2 per power bank <b>-02, -04, -06, -08, -10</b>	Total <b>-12, -16, -20, -24, -32</b>	<b>-L</b> = 10 μm (0.25 μm) Gold on contact, Matte Tin on tail	<b>-VP1</b> = Vertical Press-fit (LPHS only)  <b>-RT1</b> = Right-angle Through-hole (Use with (1.60 mm) .062" thick board)  <b>-RT2</b> = Right-angle Through-hole (Use with (2.36 mm) .093" thick board)	

**LPHT**  
Board Mates:  
LPHS



SIGNAL POSITIONS	POWER POSITIONS				
	A (-02)	A (-04)	A (-06)	A (-08)	A (-10)
-16	(33.97) 1.337	(45.97) 1.810	(57.97) 2.282	(69.97) 2.755	(81.97) 3.227
-20	(36.51) 1.437	(48.51) 1.910	(60.51) 2.382	(72.51) 2.855	(84.51) 3.327
-24	(39.05) 1.537	(51.05) 2.010	(63.05) 2.482	(75.05) 2.955	(87.05) 3.427
-32	(44.13) 1.737	(56.13) 2.210	(68.13) 2.682	(80.13) 3.155	(92.13) 3.627

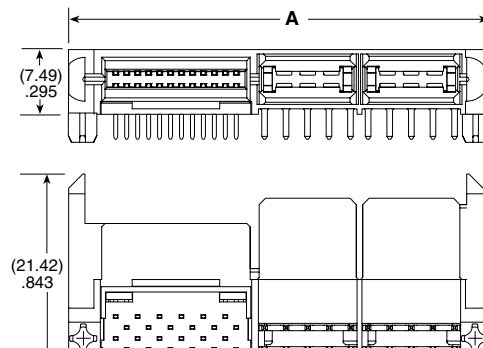
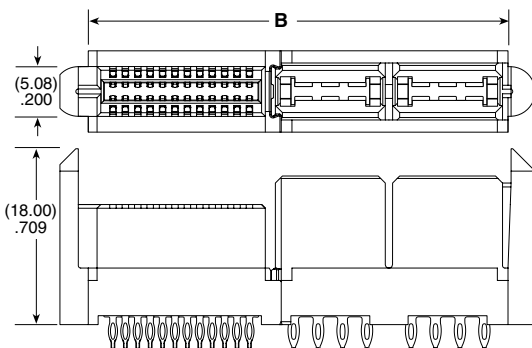


View complete specifications at: [samtec.com?LPHT](http://samtec.com?LPHT)

**LPHS**  
Board Mates:  
LPHT



SIGNAL POSITIONS	POWER POSITIONS									
	A (-02)	B (-02)	A (-04)	B (-04)	A (-06)	B (-06)	A (-08)	B (-08)	A (-10)	B (-10)
-16	(31.64) 1.918	(25.88) 1.019	(43.64) 1.718	(37.88) 1.491	(55.64) 2.191	(49.88) 1.964	(67.64) 2.633	(61.88) 2.436	(79.64) 3.135	(73.88) 2.909
-20	(34.18) 1.346	(28.42) 1.119	(46.18) 1.818	(40.42) 1.591	(58.18) 2.291	(52.42) 2.064	(70.18) 2.763	(64.42) 2.536	(82.18) 3.235	(76.42) 3.009
-24	(36.72) 1.446	(30.96) 1.219	(48.72) 1.918	(42.96) 1.691	(60.72) 2.391	(54.96) 2.164	(72.72) 2.863	(66.96) 2.636	(84.72) 3.335	(78.96) 3.109
-32	(41.80) 1.646	(36.04) 1.419	(53.80) 2.118	(48.04) 1.891	(65.80) 2.591	(60.04) 2.364	(78.04) 3.063	(72.04) 2.836	(89.80) 3.535	(84.04) 3.309



**-VP**

**-RT**

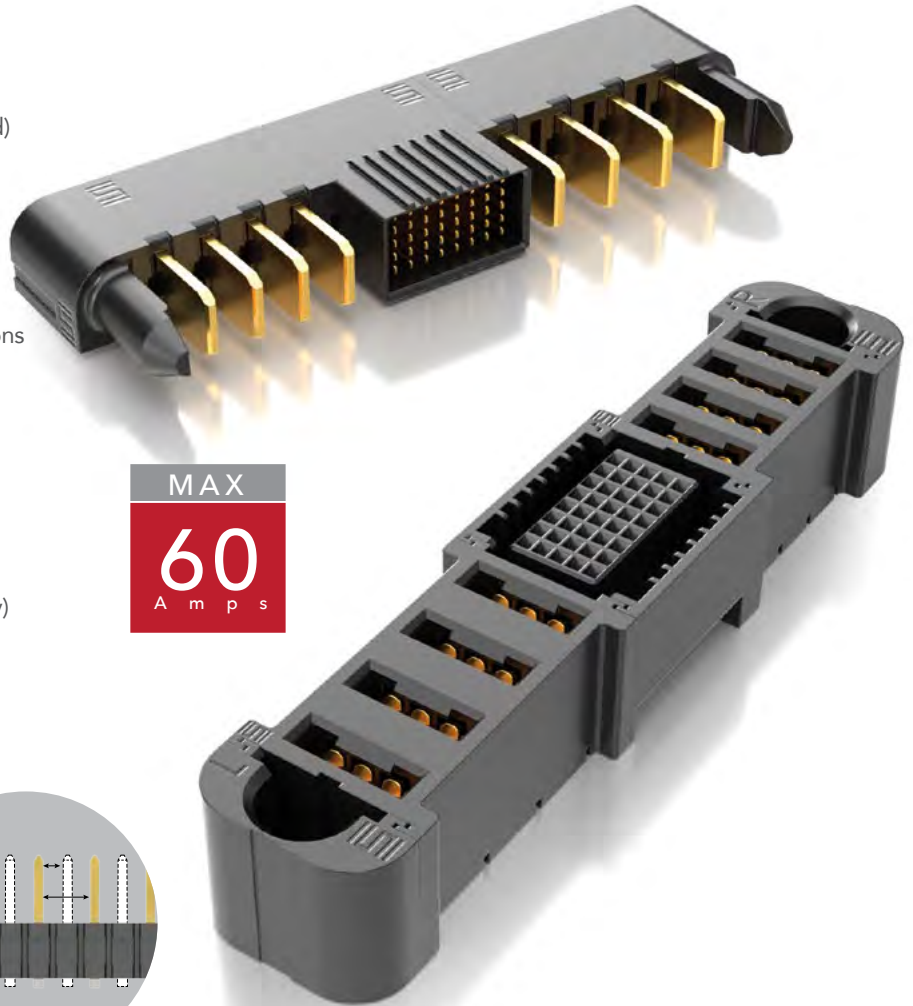
View complete specifications at: [samtec.com?LPHS](http://samtec.com?LPHS)

# POWER™ EXTreme STRIP Ten60

## EXTREME HIGH-POWER 60 A SYSTEMS

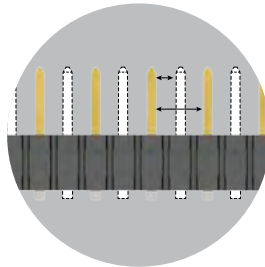
### FEATURES & BENEFITS

- Up to 60 A per power blade (2 blades powered)
- Low 10 mm profile (right-angle) for enhanced system airflow
- Power only, or power/signal combinations
- 3 or 5 signal rows in the same form factor
- AC power, DC power, power/signal combinations and split power options available
- Coplanar and perpendicular applications
- Modules can be configured to accommodate most any design
- Rugged guide posts are standard; top design for board space savings
- Press-fit (ET60S only) and hot swap (ET60T only) options available



Standard Creepage*	3.02 mm
Standard Clearance*	1.87 mm

\*Selectively loading contacts achieves customer specific creepage and clearance requirements. Contact [asp@samtec.com](mailto:asp@samtec.com)



### KEY SPECIFICATIONS (ET60T/ET60S)

	PITCH	INSULATOR MATERIAL	TERMINAL MATERIAL	PLATING	OPERATING TEMP RANGE	VOLTAGE RATING	MATING CYCLES	LEAD-FREE SOLDERABLE
Power	(5.50 mm) .217" (7.50 mm) .295"	Black LCP	Signal: Phosphor Bronze Power: Copper Alloy	Au or Sn over 50 μ" (1.27 μm) Ni	-40 °C to +105 °C	280 VAC	500	Yes
Signal	(2.00 mm) .097" (5 row) (2.54 mm) .100" (3 row)							

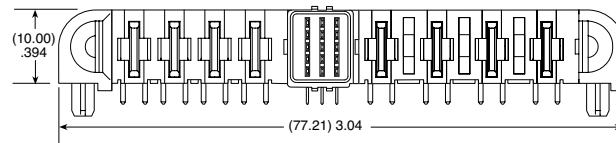
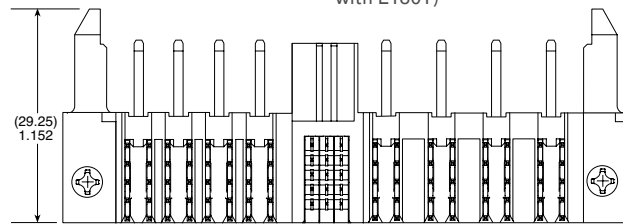
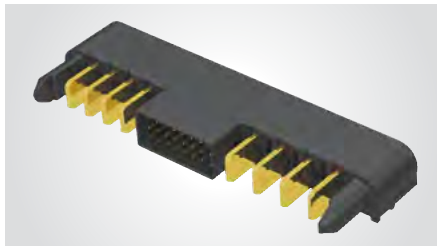
#### Notes:

Some lengths, styles and options are non-standard, non-returnable.  
\*EXTreme Ten60Power™ is a trademark of Molex Incorporated and is dual sourced by Molex®

## 60 A SIGNAL/POWER COMBO SYSTEM

SERIES	POWER OPTION (R)	ROWS	SIGNAL POS. PER ROW	POWER OPTION (L)	PLATING	TAIL	GUIDE POST	OPTION
<b>ET60T</b> Terminal	<b>-AXX</b> = AC Power Positions (02 - 06)	<b>-0</b> = No Signal	<b>-00</b> = No Signal	<b>-AXX</b> = AC Power Positions (02 - 06)	<b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail (Not available for 5 rows)	<b>-R1</b> = Right-angle Through-hole (Use with (1.60 mm) .062" thick card)	(Required callout)	(Leave blank for no hot swap)
<b>ET60S</b> Socket	<b>-DXX</b> = DC Power Positions (02 - 10)	<b>-3</b>	<b>-08</b> = 3 Row only	<b>-DXX</b> = DC Power Positions (02 - 10)	<b>-S</b> = 30 μ" (0.76 μm) Gold on contact, Matte tin on tail	<b>-VP</b> = Vertical Press-fit (Not available with ET60T)	<b>-S</b> = Side Guide Post	<b>-H</b> = Hot Swap (ET60T only)
	<b>-SXX*</b> = Split Power	<b>-5</b>	<b>-01, -02, -03, -04, -05, -06, -07, -08</b> = 5 Row only	<b>-SXX*</b> = Split Power		<b>-V1</b> = Vertical Through-hole (Use with (1.60 mm) .062" thick card) (-0 and -3 Row only) (Not available with ET60T)	<b>-T*</b> = Top Guide Post	
	<b>-000</b> = No Power			<b>-000</b> = No Power				

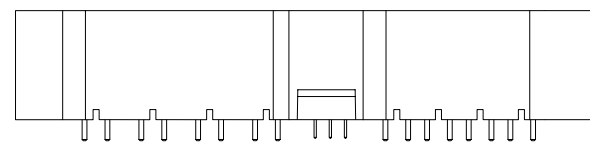
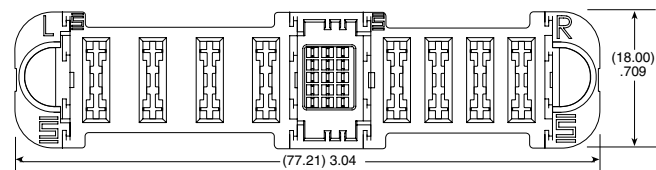
**ET60T**  
Board Mates:  
ET60S



ET60T-D04-5-03-A04-X-R1-S SHOWN

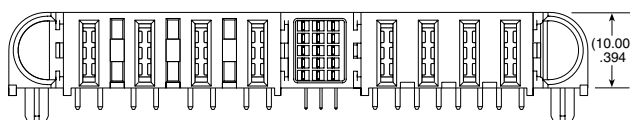
View complete specifications at: [samtec.com?ET60T](http://samtec.com?ET60T)

**ET60S**  
Board Mates:  
ET60T



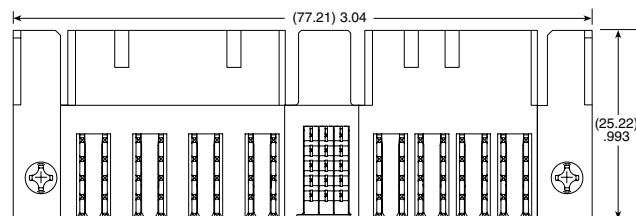
VERTICAL

ET60S-D04-5-03-A04-X-VP-S SHOWN



RIGHT-ANGLE

ET60S-D04-5-03-A04-X-R1-S SHOWN



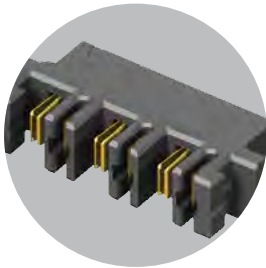
View complete specifications at: [samtec.com?ET60S](http://samtec.com?ET60S)

## HIGH POWER SYSTEMS

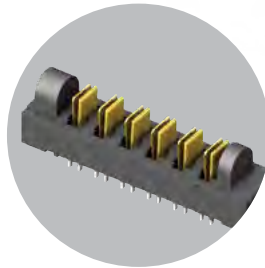
**20-60 A**  
per blade

### FEATURES & BENEFITS

- Current Rating: 23 A - 58.7 A per power blade
- 3.81 mm, 5.00 mm and 6.35 mm pitch
- Dual blade contact system
- Power only or power/signal combinations available
- Right-angle and vertical orientations
- Rugged screw down and locking clip options
- Discrete wire cable assemblies with 10-16 AWG wire (see pages 246-248)
- "Hinged" for unique mating in any orientation from 0° to 90° and space confined applications



Hermaphroditic options  
[samtec.com?MPPT](http://samtec.com?MPPT) and  
[samtec.com?UPPT](http://samtec.com?UPPT)



Hinging options available  
[samtec.com?FMPT](http://samtec.com?FMPT) and  
[samtec.com?FMPS](http://samtec.com?FMPS)

### CREEPAGE & CLEARANCE

SERIES	CREEPAGE	CLEARANCE
UPT/UPS/UPPT	5.50 mm	1.51 mm
MPT/MPS/MPTC/MPSC	2.95 mm	2.71 mm
PET/PES/PETC/PESC	3.66 mm	3.31 mm

Selectively loading contacts achieves customer specific creepage and clearance requirements.

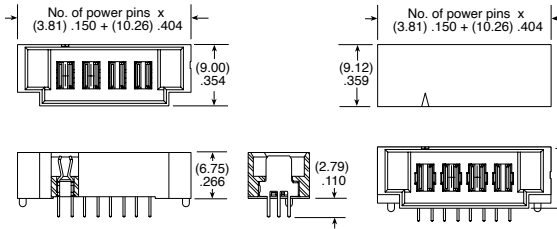
### KEY SPECIFICATIONS

SERIES	PITCH	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING	LEAD-FREE SOLDERABLE
UPT/UPS	(3.81 mm) .150"	Black LCP	BeCu	Sn or Au over 50 μ" (1.27 μm) Ni	-55 °C to +105 °C (Sn) -55 °C to +125 °C (Au)	23 A (1 pin powered)	438 VAC	Yes
UPPT	(3.81 mm) .150"	Black LCP	Copper Alloy	Sn or Au over 50 μ" (1.27 μm) Ni	-55 °C to +105 °C (Sn) -55 °C to +125 °C (Au)	21.4 A (1 pin powered)	425 VAC	Yes
MPT/MPS	(5.00 mm) .1969"	Black LCP	Copper Alloy	Sn or Au over 50 μ" (1.27 μm) Ni	-55 °C to +105 °C (Sn) -55 °C to +125 °C (Au)	28.8 A (1 pin powered)	575 VAC	Yes
MPTC/MPSC	(5.00 mm) .197" (pwr) (2.00 mm) .079" (sig)	Black LCP	Signal: Phosphor Bronze Terminal: Copper Alloy	Sn or Au over 50 μ" (1.27 μm) Ni	-55 °C to +105 °C (Sn) -55 °C to +125 °C (Au)	28.8 A (pwr - 1 pin powered) 5 A (sig - 4 pins powered)	250 VAC	Yes
PET/PES	(6.35 mm) .250"	Black LCP	Copper Alloy	Sn or Au over 50 μ" (1.27 μm) Ni	-55 °C to +105 °C (Sn) -55 °C to +125 °C (Au)	58.7 A (1 pin powered)	450 VAC	Yes
PETC/PESC	(6.35 mm) .250" (pwr) (2.54 mm) .100" (sig)	Black LCP	Copper Alloy	Sn or Au over 50 μ" (1.27 μm) Ni	-55 °C to +105 °C (Sn) -55 °C to +125 °C (Au)	31.4 A (pwr - 1 pin powered) 5.7 A (sig - 4 pins powered)	650 VAC (pwr) 450 VAC (sig)	Yes

**(3.81 mm) .150" PITCH • 20 A DUAL BLADE/LEAF POWER SYSTEMS**

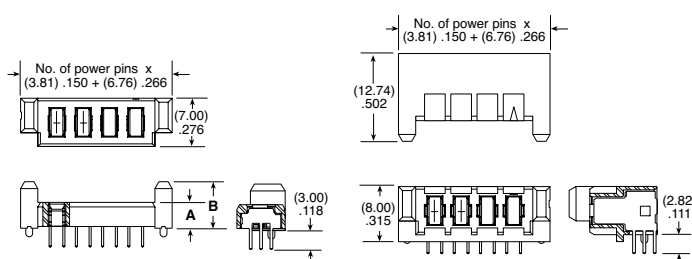
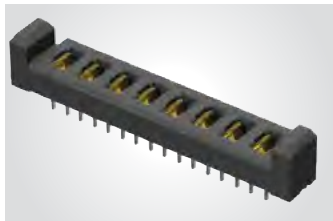
SERIES	POWER PINS	LEAD STYLE	TAIL LENGTH	PLATING OPTION	TAIL	OTHER OPTION	"X"R
UPT Terminal	-02	-01 = RA only	-01 = Use with (1.60 mm) .062" Thick PCB (-V & -RA only)	-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail	-V = Vertical (Not available with -T plating)	-LC = Locking Clip (Manual placement required) Not available with -PV option	Leave blank for tube packaging
	-04	-03.0 = (03.0 mm) .118" (UPT-V & UPT-PV only)	-03 = Use with (1.60 mm) .062" Thick PCB (-PV only)	-T = Matte Tin (-RA & -PV options only)	-RA = Right-angle		-TR = Tape & Reel
UPS Socket	-06	-04.0 = (04.0 mm) .157" (UPS-V & UPS-PV only)			-PV = Press-fit, Vertical		-FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)
	-08	-07.0 = (07.0 mm) .276" (UPS-V & UPS-PV only)					

**UPT**  
Board Mates:  
UPS



MATED HEIGHT*	
UPS LEAD STYLE	UPT LEAD STYLE
-03.0	-03.0
-04.0	(7.00) .276
-07.0	(10.00) .394

**UPS**  
Board Mates:  
UPT

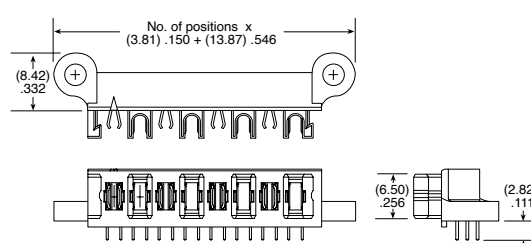
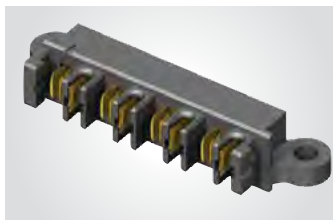


LEAD STYLE	A	B
-04.0	(3.75) .148	(6.75) .266
-07.0	(6.75) .266	(9.75) .384

\*Processing conditions will affect mated height.

View complete specifications at: [samtec.com?UPT](http://samtec.com?UPT) & [samtec.com?UPS](http://samtec.com?UPS)

SERIES	NO. OF POSITIONS	01	TAIL LENGTH	PLATING OPTION	RA	SD	"X"R
UPPT Hermaphroditic	-02, -04, -06, -08		-01 = (1.60 mm) .062" Thick PCB	-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail			Leave blank for tube packaging
UPPT Board Mates: UPPT				-T = Matte Tin			-TR = Tape & Reel
							-FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)



**Note:**  
Some lengths, styles and options are non-standard, non-returnable

View complete specifications at: [samtec.com?UPPT](http://samtec.com?UPPT)



## (5.00 mm) .1969" PITCH • 30 A DUAL BLADE/LEAF SYSTEMS

SERIES	POWER PINS	LEAD STYLE	TAIL LENGTH	PLATING OPTION	TAIL
MPT Terminal	-02, -03, -04, -06, -08	-6.30 = (6.30 mm) 0.248" (MPT only)	-01 = Use with (1.60 mm) .062" Thick PCB  -03 = Use with (2.36 mm) .093" Thick PCB	-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail  -T = Matte Tin	(Required Callout)  -V = Vertical
MPS Socket		-7.70 = (7.70 mm) 0.303" (MPS only)			

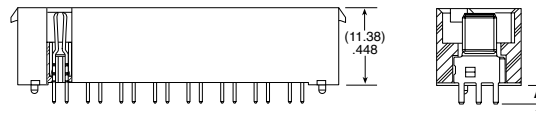
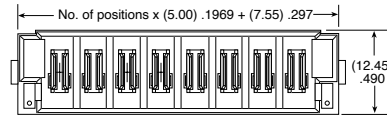
### MPT

Board Mates:

MPS

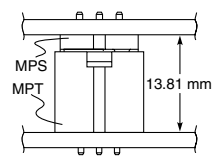
Cable Mates:

MPSS



TAIL LENGTH	A
-01	(2.72) .107
-03	(3.51) .138

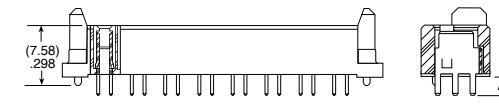
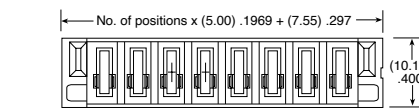
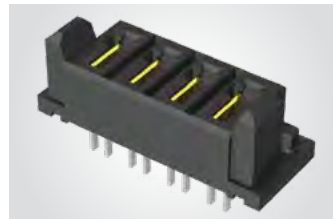
### MATED HEIGHT



### MPS

Board Mates:

MPT



TAIL LENGTH	A
-01	(2.72) .107
-03	(3.52) .139

View complete specifications at: [samtec.com?MPT](http://samtec.com?MPT) & [samtec.com?MPS](http://samtec.com?MPS)

SERIES	POWER PINS	01	TAIL LENGTH	PLATING OPTION	RA	SD
MPT Terminal	-02, -04, -06, -08		-01 = Use with (1.60 mm) .062" Thick PCB  -03 = Use with (2.36 mm) .093" Thick PCB	-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail  -T = Matte Tin		
MPS Socket						

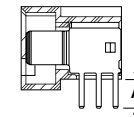
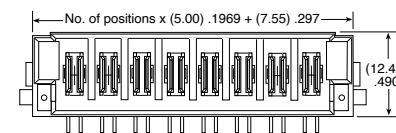
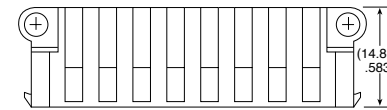
### MPT-RA

Board Mates:

MPS

Cable Mates:

MPSS

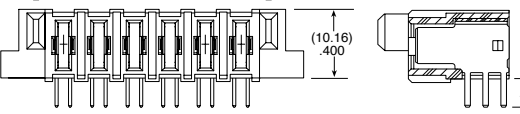
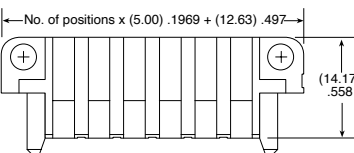


TAIL LENGTH	A
-01	(2.72) .107
-03	(3.51) .138

### MPS-RA

Board Mates:

MPT



TAIL LENGTH	A
-01	(2.72) .107
-03	(3.52) .139

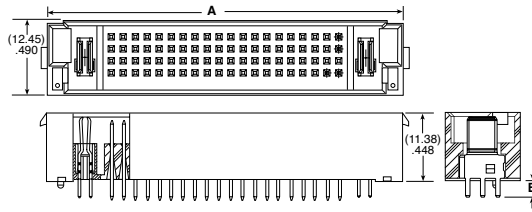
**Note:**  
Some lengths, styles and options are non-standard, non-returnable

View complete specifications at: [samtec.com?MPT](http://samtec.com?MPT) & [samtec.com?MPS](http://samtec.com?MPS)

## (5.00 mm) .197"(PWR) / (2.00 mm) .079"(SIG) • 30 A SIGNAL/POWER COMBO SYSTEMS

SERIES	POWER PINS	SIGNAL PINS	POWER PINS	LEAD STYLE	TAIL LENGTH	PLATING OPTION	V	OTHER OPTION
<b>MPTC</b> Terminal	Per end -01	-16 -24	Per end -01	<b>-6.30</b> = (6.30 mm) 0.248" (MPTC only)	<b>-01</b> = Use with (1.60 mm) .062" Thick PCB	<b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail (Power & Signal)		<b>-LC</b> = Locking Clip (Manual placement required)
<b>MPSC</b> Socket	-02	-40 -80	-02	<b>-7.70</b> = (7.70 mm) 0.303" (MPSC only)	<b>-03</b> = Use with (2.36 mm) .093" Thick PCB	<b>-T</b> = Matte tin on contact and tail (power), Gold on contact, Matte tin on tail (Signal)		

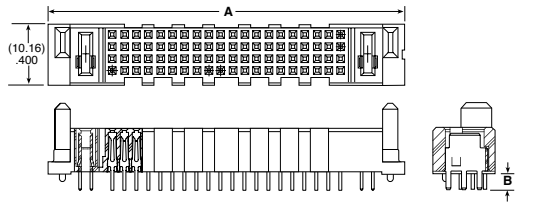
**MPTC**  
Board Mates:  
MPSC  
Cable Mates:  
MPCC



TAIL LENGTH	B
-01	(2.72) .107
-03	(3.51) .138

POWER PINS/ENDS	A			
	16 SIGNAL PINS	24 SIGNAL PINS	40 SIGNAL PINS	80 SIGNAL PINS
-01	(27.44) 1.081	(31.45) 1.238	(39.44) 1.553	(59.44) 2.340
-02	(37.44) 1.474	(41.45) 1.632	(49.44) 1.946	(69.44) 2.734

**MPSC**  
Board Mates:  
MPTC

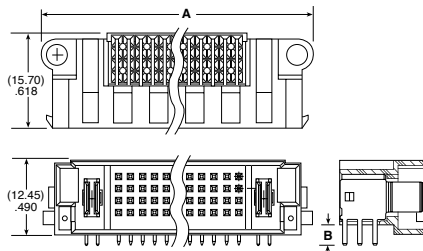
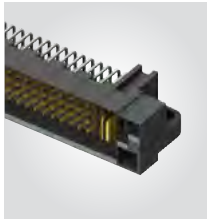


TAIL LENGTH	B
-01	(2.72) .107
-03	(3.52) .139

View complete specifications at: [samtec.com?MPTC](http://samtec.com?MPTC) & [samtec.com?MPSC](http://samtec.com?MPSC)

SERIES	POWER PINS	SIGNAL PINS	POWER PINS	01	TAIL LENGTH	PLATING OPTION	RA	OTHER OPTION
<b>MPTC</b> Terminal	Per end -01	-24 -80	Per end -01		<b>-01</b> = Use with (1.60 mm) .062" Thick PCB	<b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail (Power & Signal)		-SD or -LC is a required callout
<b>MPSC</b> Socket	-02		-02		<b>-03</b> = Use with (2.36 mm) .093" Thick PCB	<b>-T</b> = Matte Tin on contact and tail (power), Gold on contact, Matte tin on tail (Signal)		<b>-SD</b> = Screw Down
								<b>-LC</b> = Locking Clip (Manual placement required)

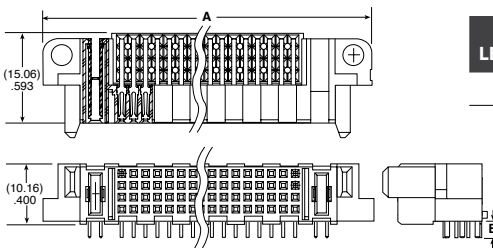
**MPTC-RA**  
Board Mates:  
MPSC  
Cable Mates:  
MPCC



TAIL LENGTH	B
-01	(2.72) .107
-03	(3.51) .138

POWER PINS/ENDS	A	
	24 SIGNAL PINS	80 SIGNAL PINS
-01	(35.25) 1.388	(63.25) 2.490
-02	(45.25) 1.781	(73.25) 2.884

**MPSC-RA**  
Board Mates:  
MPTC



TAIL LENGTH	B
-01	(2.20) .087
-03	(3.00) .118

POWER PINS/ENDS	A	
	24 SIGNAL PINS	80 SIGNAL PINS
-01	(36.52) 1.438	(64.52) 2.540
-02	(46.52) 1.831	(74.52) 2.934

**Note:** Some lengths, styles and options are non-standard, non-returnable

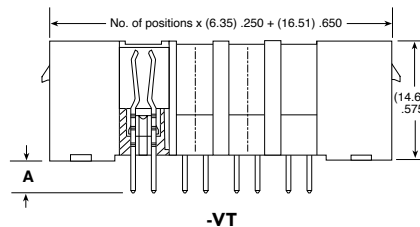
View complete specifications at: [samtec.com?MPTC](http://samtec.com?MPTC) & [samtec.com?MPSC](http://samtec.com?MPSC)

(6.35 mm) .250" PITCH • 40 A HIGH-POWER SYSTEM

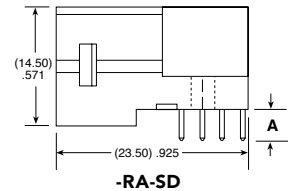
PET	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	TAIL OPTION	OTHER OPTION
	-02, -04, -06, -08	-01 = Use with (1.60 mm) .062" Thick PCB  -02 = Use with (3.18 mm) .125" Thick PCB	-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail  -T = Matte Tin	-VT = Vertical  -RA = Right-angle (Screw Down option required)	-SD = Screw Down (Right-angle only)

## PET

Board Mates:  
PES  
Cable Mates:  
PESS



TAIL LENGTH	A
-01	(2.35) .093
-02	(3.95) .156



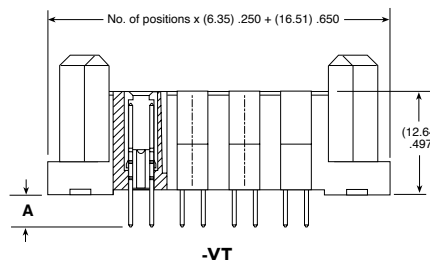
**Note:** Some lengths, styles and options are non-standard, non-returnable

View complete specifications at: [samtec.com?PET](http://samtec.com?PET)

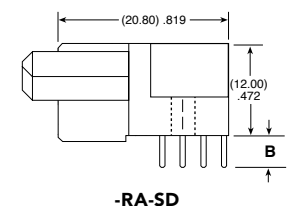
PES	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	TAIL OPTION	OTHER OPTION
	-02, -04, -06, -08	-01 = Use with (1.60 mm) .062" Thick PCB  -02 = Use with (3.18 mm) .125" Thick PCB	-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail  -T = Matte Tin	-VT = Vertical  -RA = Right-angle (Screw Down option required)	-SD = Screw Down (Right-angle only)

## PES

Board Mates:  
PET



TAIL LENGTH	A	B
-01	(2.47) .097	(2.35) .093
-02	(4.07) .160	(3.95) .156



**Note:** Some lengths, styles and options are non-standard, non-returnable

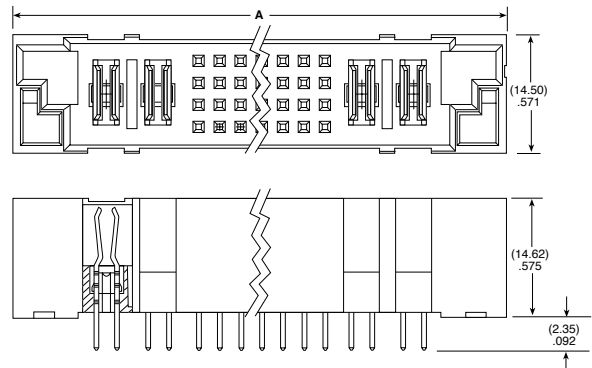
View complete specifications at: [samtec.com?PES](http://samtec.com?PES)

# POWER™ STRIP40

(6.35 mm) .250" PITCH • 40 A HIGH POWER/SIGNAL SYSTEM

PETC	POWER PINS	SIGNAL PINS	POWER PINS	01	PLATING OPTION	TAIL	OTHER OPTION
	-01, -02, -04	-12, -40	-01, -02, -04		-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail  -T = Matte Tin	-VT = Vertical  -RA = Right-angle	-SD = Screw Down (Right-angle only)  -LC = Locking Clip (Manual placement required)

**PETC**  
Board Mates:  
PESC



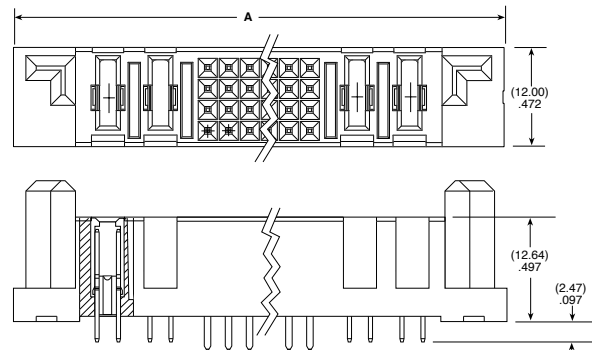
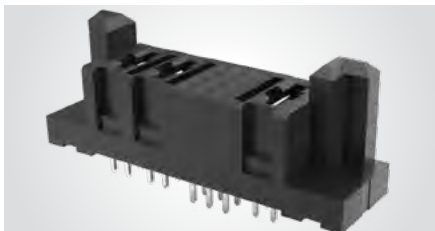
POWER PINS/ENDS	A	
	12 SIGNAL PINS	40 SIGNAL PINS
-01	(39.37) 1.550	(57.15) 2.250
-02	(52.07) 2.050	(69.85) 2.750
-04	(77.47) 3.050	(95.25) 3.750

**Note:**  
Some lengths, styles and options are non-standard, non-returnable

View complete specifications at: [samtec.com?PETC](http://samtec.com?PETC)

PESC	POWER PINS	SIGNAL PINS	POWER PINS	01	PLATING OPTION	TAIL	OTHER OPTION
	-01, -02, -04	-12, -40	-01, -02, -04		-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail  -T = Matte Tin	-VT = Vertical  -RA = Right-angle	-SD = Screw Down (Right-angle only)  -LC = Locking Clip (Manual placement required)

**PESC**  
Board Mates:  
PETC



POWER PINS/ENDS	A	
	12 SIGNAL PINS	40 SIGNAL PINS
-01	(39.37) 1.550	(57.15) 2.250
-02	(52.07) 2.050	(69.85) 2.750
-04	(77.47) 3.050	(95.25) 3.750

**Note:**  
Some lengths, styles and options are non-standard, non-returnable

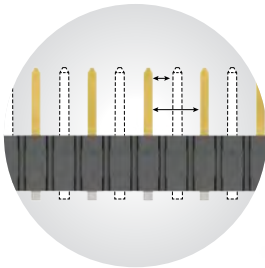
View complete specifications at: [samtec.com?PESC](http://samtec.com?PESC)

## ISOLATED POWER SYSTEMS

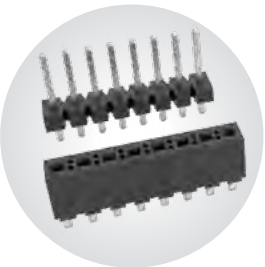
### FEATURES & BENEFITS

- Individually shrouded contacts for electrical and mechanical protection
- .100" (2.54 mm) and .165" (4.19 mm) pitch
- Surface mount or through-hole
- Vertical and right-angle for parallel, perpendicular and coplanar applications
- Locking clip, key polarization and guide post options
- Discrete wire assemblies with 16-30 AWG PVC or Teflon™ fluoropolymer wire (see pages 243-245).
- Metal or plastic rugged latching system

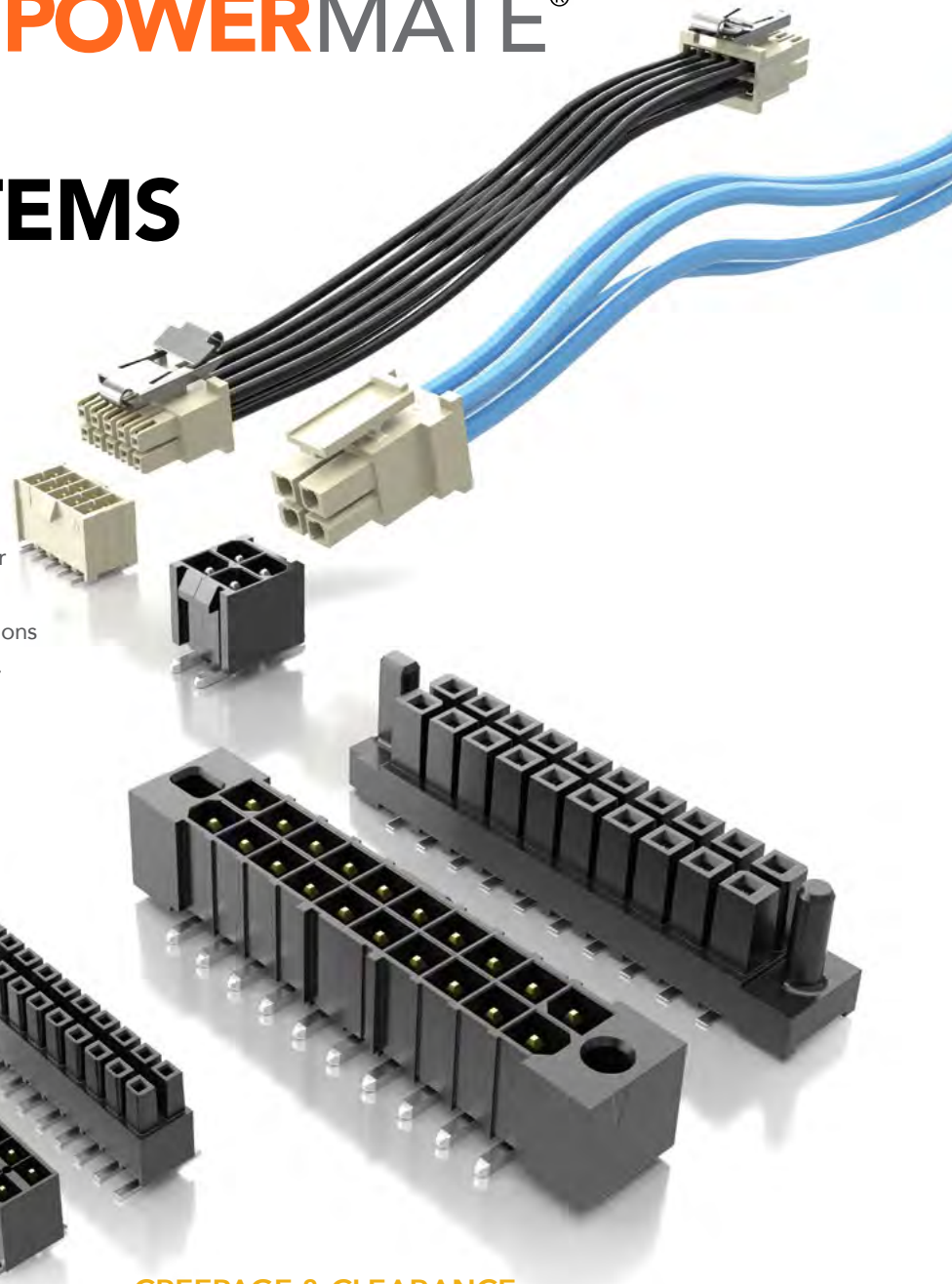
\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec



Selectively loading contacts achieves customer specific creepage and clearance requirements.



Flexible standard or high-power stacking systems with Power Eye three-finger BeCu contacts for reliable connection. For available series, visit [samtec.com/flexiblestrips](http://samtec.com/flexiblestrips)



### CREEPAGE & CLEARANCE

	CREEPAGE	CLEARANCE
IPT1/IPBS MMSS(T)/MMSD(T)	2.54 mm	1.91 mm
IPBT/IPBS PMSS(T)/PMSD(T)	4.27 mm	3.05 mm

Selectively loading contacts achieves customer specific creepage and clearance requirements.

### KEY SPECIFICATIONS

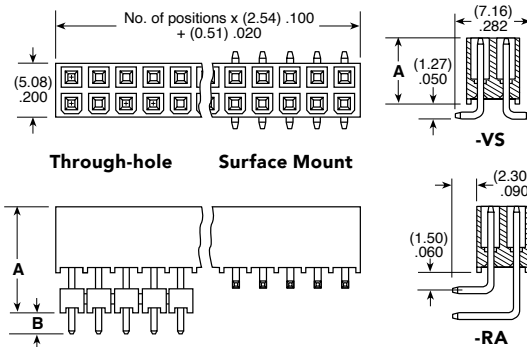
SERIES	PITCH	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING	LEAD-FREE SOLDERABLE
IPT1/IPBS1	.100" (2.54 mm)	Black LCP	Phosphor Bronze	Sn or Au over 50 μ" (1.27 μm) Nickel	-55 °C to +125 °C	5.9 A (1 pin power)	775 VAC	Yes
IPBT/IPBS	.165" (4.19 mm)	Black LCP	High Copper Alloy (IPBT) Phosphor Bronze (IPBS)	Sn over 50 μ" (1.27 μm) Nickel	-55 °C to +105 °C	10.3 A (2 pins power)	400 VAC	Yes



## (2.54 mm) .100" PITCH • SHROUDED POWER CONNECTOR SET

IPT1	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	D	TAIL OPTION	OTHER OPTIONS
		05 10 15 20 25 (Standard Sizes)	Specify LEAD STYLE from chart	-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail		Requires -01 Lead Style (Leave blank for Through-hole)  -RA = Right-angle  -VS = Surface Mount	-A = Alignment Pin (-VS only) (N/A with -LC)  -LC = Locking Clip (Manual placement required) (-VS only) (N/A with -A)  -K = (6.00 mm) .236" DIA Polyimide film Pick & Place Pad (-VS only)  -TR = Tape & Reel (-VS only)  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-VS only)

**IPT1**  
Board Mates:  
IPS1

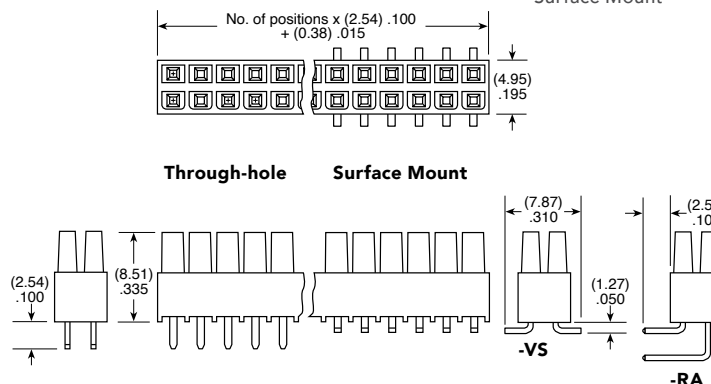
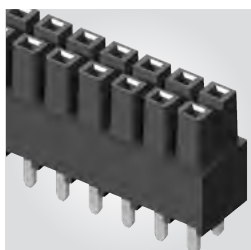


IPT1/IPS1	
PINS	CURRENT RATING (PER CONTACT)
1	5.9 A
2	4.8 A
3	4.1 A
4	3.6 A
50	2.3 A

LEAD STYLE	MATED HEIGHT	A	B
-01	(11.05) .435	(6.35) .250	(2.16) .085
-01-VS	(13.59) .535	(6.35) .250	N/A
-02	(14.00) .551	(9.30) .366	(2.64) .104
-03	(16.00) .630	(11.30) .445	(2.16) .085
-04	(17.00) .669	(12.30) .484	(2.69) .106
-05	(19.00) .748	(14.30) .563	(2.46) .097
-06	(20.00) .787	(15.30) .602	(2.35) .093
-07	(25.00) .984	(20.30) .799	(2.31) .091
-08	(30.00) 1.181	(25.30) .996	(2.39) .094
-09	(35.00) 1.378	(30.30) 1.193	(2.46) .097

IPS1	1	NO. PINS PER ROW	01	PLATING OPTION	D	TAIL OPTION	OTHER OPTIONS
		05 10 15 20 25 (Standard Sizes)		-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail		Leave blank for Through-hole  -RA = Right-angle  -VS = Surface Mount	-LC = Locking Clip (Manual placement required) (-VS only)  -K = (5.50 mm) .217" DIA Polyimide film Pick & Place Pad (-VS only)  -TR = Tape & Reel (-VS only)  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-VS only)

**IPS1**  
Board Mates:  
IPT1



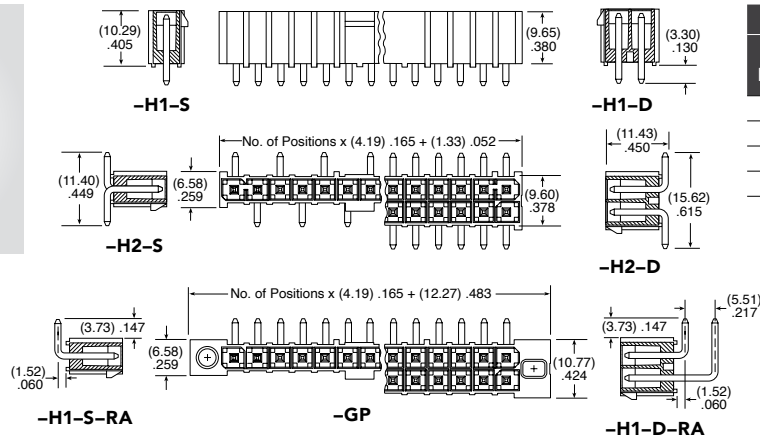
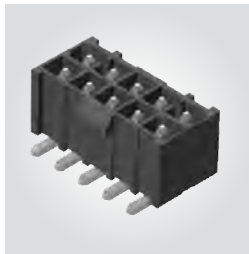
**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?IPT1](http://samtec.com?IPT1) & [samtec.com?IPS1](http://samtec.com?IPS1)

**(4.19 mm) .165" PITCH • ISOLATED POWER CONNECTOR SET**

IPBT	1	NO. OF POSITIONS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	OPTIONS
		02, 03, 04, 05, 08, 10 15 (-D Only) (Standard Sizes)	-H1 = Through-hole  -H2 = Surface Mount	-T = Matte Tin	-S = Single Row  -D = Double Row	-RA = Right-angle (Lead Style -H1 only)  -GP = Guide Post Holes (Not available with -K)  -K = Keyed Polarization (Not available with -GP option, is required callout if -GP not called out)

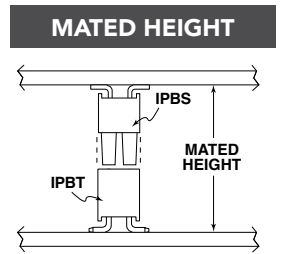
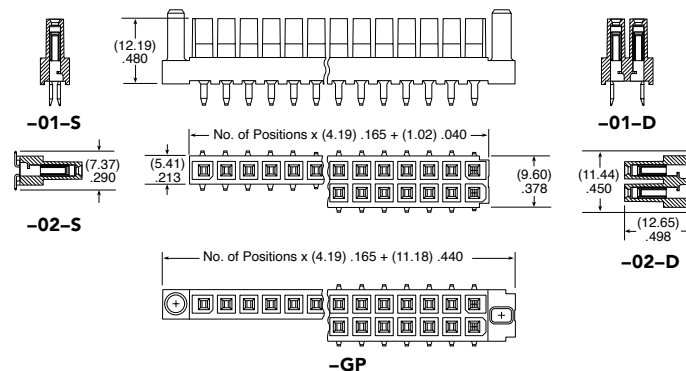
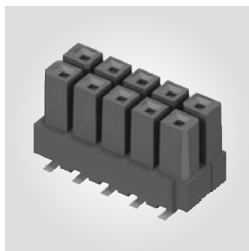
**IPBT**  
Board Mates:  
IPBS  
Cable Mates:  
PMMSD, PMSS



IPBT/IPBS	
PINS POWERED	CURRENT RATING (PER CONTACT)
2	10.3 A
4	8.4 A
6	7.6 A
8	7.1 A
30	6.0 A

IPBS	1	NO. OF POSITIONS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	OPTION
		02, 03, 04, 05, 08, 10 15 (-D Only) (Standard Sizes)	-01 = Standard Power  -02 = Standard Power Surface Mount	-T = Matte Tin	-S = Single Row  -D = Double Row	-GP = Guide Post

**IPBS**  
Board Mates:  
IPBT



IPBT/IPBS LEAD STYLE	MATED HEIGHT*
H1/-01	(15.25) .600
-H2/-02	(16.84) .663

\*Processing conditions will affect mated height.

**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?IPBT](http://samtec.com?IPBT) & [samtec.com?IPBS](http://samtec.com?IPBS)

# RUGGED I/O SYSTEMS

POWER I/O • MICRO-HYPERBOLOID CONTACT • SEALED CIRCULARS & RECTANGULARS



**URSA I/O**  
ULTRA RUGGED CONTACT SYSTEM

212-215

## URSA™ I/O ULTRA RUGGED POWER CABLE SYSTEMS

Socket Cables and Components (B1SD(T), B1SDS, IBT1, CC508) .....	213
Panel Mount Terminal Cables and Components (P1PD(T), P1PDS, IPP1, TC145) .....	214
Board Mount I/O Connector (P1M) .....	215

216-218

## FLEXIBLE SEALED SYSTEMS

AccliMate™ IP67 & IP68 Sealed Circular & Rectangular Systems .....	216-218
--------------------------------------------------------------------	---------

# ULTRA RUGGED I/O SYSTEMS

(1.00 mm) .0394" PITCH



## FEATURES & BENEFITS

MAX  
**2.9**  
A m p s

- Small form factor
- Four points of contact for a reliable connection and high mating cycles
- Up to 40 positions per row
- Cable-to-cable & cable-to-board solutions
- EMI shielding limits signal degradation and optimizes performance
- Through-hole or surface mount
- 28 & 30 AWG cable



Shown actual size at 20 total positions



Hyperboloid-type contact for extreme high mating cycles



Extreme density with up to 1,450 total I/Os in a 1RU panel (29 cables at 50 total I/Os each)

## KEY SPECIFICATIONS (P1PD(X), B1SD(X) & P1M)

PITCH	INSULATOR MATERIAL	CONTACT MATERIAL	SHIELD MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING
1.00 mm	Liquid Crystal Polymer	Beryllium Copper	Zinc Alloy	Au over 50 μ" (1.27 μm) Ni	-10 °C to +80 °C (PVC) -40 °C to +125 °C (*Teflon™ Fluoropolymer)	2.9 A per pin (2 pins powered)	253 VAC

\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.



**(1.00 mm) .0394" PITCH • NON-PANEL MOUNT I/O CABLE/COMPONENTS**

SERIES	NO. OF POSITIONS	WIRE GAUGE	COLOR CODE	PLATING	ASSEMBLED LENGTH	PINOUT
<b>B1SD</b> = Double Row Non-Panel Mount PVC Cable	<b>-10, -15, -25, -30</b> (Per Row)	<b>-28</b> = 28 AWG  <b>-30</b> = 30 AWG	(Leave blank for standard wire)  <b>C</b> = Color Code Wire (Not available with B1SDT)	<b>-H</b> = 30 μ" (0.76 μm) Gold on contact area, Gold flash on tail	<b>-"XX.X"</b> = Length in inches 06.0" (152.4 mm) minimum	(Leave blank for single ended)  <b>-1</b> = Pin 1 to Pin 1  <b>-2</b> = Pin 1 to Pin 2  <b>-3</b> = Pin 1 to Pin N  <b>-4</b> = Pin 1 to Pin N-1

**B1SD, B1SDT**  
Cable Mates:  
P1PD, P1PDT  
Board Mates:  
P1M

**B1SDX-10-XXX-H-XX.X-3 SHOWN**

NO. OF POSITIONS	A	B	C	D
-10	(9.00) .354	(13.94) .549	(23.75) .935	(27.75) 1.093
-15	(14.00) .551	(18.94) .746	(28.75) 1.132	(32.75) 1.289
-25	(24.00) .945	(28.94) 1.139	(38.75) 1.526	(42.75) 1.683
-30	(29.00) 1.142	(33.94) 1.336	(43.75) 1.722	(47.75) 1.880

\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

**Notes:**  
Teflon™ Fluoropolymer Cable is intended for crimp only. Contact Samtec for solderable cable applications.

Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?B1SD](http://samtec.com?B1SD) & [samtec.com?B1SDT](http://samtec.com?B1SDT)

B1SD CABLE HOLDER (Required for use with IBT1)	
SERIES	NUMBER OF POSITIONS
B1SDR	-10, -15, -25, -30

B1SDS	NO. OF POSITIONS	N	OPTION
	<b>-10, -15, -25, -30</b>		<b>-CS</b> = Captive Screw

NO. OF POSITIONS	A
-10	(27.75) 1.093
-15	(32.75) 1.289
-25	(42.75) 1.683
-30	(47.75) 1.880

**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

**TOOLING**

Hand Tool: TBD      Mini Applicator: TBD

IBT1	NO. OF POSITIONS	1
	<b>-10, -15, -25, -30</b>	

NO. OF POSITIONS	A	B
-10	(12.290) .484	(9.00) .354
-15	(17.290) .681	(14.00) .551
-25	(27.290) 1.074	(24.00) .945
-30	(32.290) 1.271	(29.00) 1.142

CC508	01	PLATING	PACKAGING
		<b>-H</b> = 30 μ" (0.76 μm) Gold on contact area, Gold flash on tail	<b>-R</b> = Full Reel (25,000 Contacts Per Reel)  <b>-M</b> = Mini Reel (1,000 to 5,000 Contacts Per Reel)  <b>-B</b> = Bubble Bag (35 Contacts)

View complete specifications at: [samtec.com?B1SDS](http://samtec.com?B1SDS), [samtec.com?IBT1](http://samtec.com?IBT1) & [samtec.com?CC508](http://samtec.com?CC508)



**(1.00 mm) .0394" PITCH • PANEL MOUNT I/O CABLE/COMPONENTS**

SERIES	NO. OF POSITIONS	WIRE GAUGE	COLOR CODE	PLATING	ASSEMBLED LENGTH	END OPTION	PINOUT
--------	------------------	------------	------------	---------	------------------	------------	--------

**P1PD**  
= Double Row Panel Mount PVC Cable

**-10, -15, -25, -30**  
(Per Row)

**-28**  
= 28 AWG  
**-30**  
= 30 AWG

(Leave blank for standard wire)  
**C**  
= Color Code Wire (Not available with P1PDT)

**-H**  
= 30 μ" (0.76 μm) Gold on contact area, Gold flash on tail

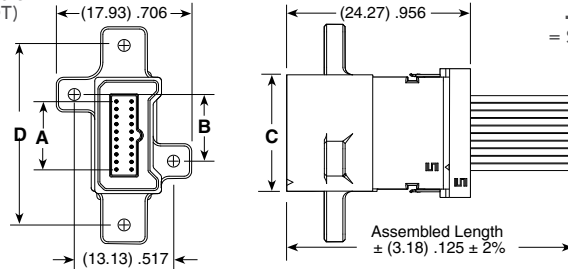
**-"XX.X"**  
= Length in inches 06.0" (152.4 mm) minimum

(Leave blank for single ended)

(Leave blank for single ended)

**P1PDT**  
= Double Row Panel Mount Blue \*Teflon™ Fluoropolymer Cable

**P1PD, P1PDT Cable Mates:**  
B1SD, B1SDT



**P1PDX-10-XXX-H-XX.X SHOWN**

NO. OF POSITIONS	A	B	C	D
-10	(9.00) .354	(8.79) .346	(15.39) .606	(23.75) .935
-15	(14.00) .551	(13.79) .543	(20.39) .803	(28.75) 1.132
-25	(24.00) .945	(23.79) .937	(30.39) 1.196	(38.75) 1.526
-30	(29.00) 1.142	(28.79) 1.133	(35.39) 1.393	(43.75) 1.722

\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

**Notes:**  
Teflon™ Fluoropolymer Cable is intended for crimp only. Contact Samtec for solderable cable applications.

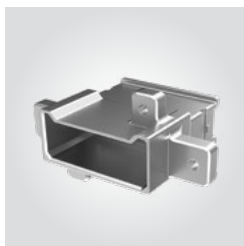
Some lengths, styles and options are non-standard, non-returnable.

**P1PD CABLE HOLDER (Required for use with IPP1)**

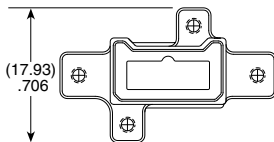
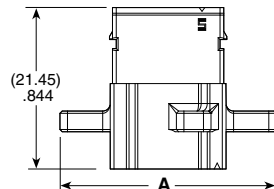
SERIES	NUMBER OF POSITIONS
P1PDR	-10, -15, -25, -30

View complete specifications at: [samtec.com?P1PD](http://samtec.com?P1PD) & [samtec.com?P1PDT](http://samtec.com?P1PDT)

P1PDS	NO. OF POSITIONS	N
	<b>-10, -15, -25, -30</b>	



PRELIMINARY



NO. OF POSITIONS	A
-10	(28.75) 1.132
-15	(33.75) 1.329
-25	(43.75) 1.722
-30	(48.75) 1.920

**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

**TOOLING**

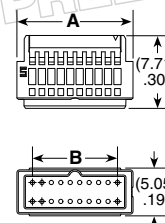
Hand Tool: TBD

Mini Applicator: TBD

IPP1	NO. OF POSITIONS	1
	<b>-10, -15, -25, -30</b>	



PRELIMINARY

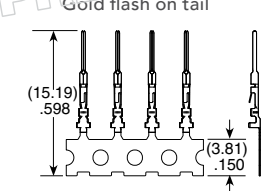


NO. OF POSITIONS	A	B
-10	(12.290) .484	(9.00) .354
-15	(17.290) .681	(14.00) .551
-25	(27.290) 1.074	(24.00) .945
-30	(32.290) 1.271	(29.00) 1.142

TC145	01	PLATING	PACKAGING
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PRELIMINARY



**-H**  
= 30 μ" (0.76 μm) Gold on contact area, Gold flash on tail

**-R**  
= Full Reel (25,000 Terminals Per Reel)

**-M**  
= Mini Reel (1,000 to 5,000 Terminals Per Reel)

**-B**  
= Bubble Bag (35 Terminals)

View complete specifications at: [samtec.com?P1PDS](http://samtec.com?P1PDS), [samtec.com?IPP1](http://samtec.com?IPP1) & [samtec.com?TC145](http://samtec.com?TC145)

**(1.00 mm) .0394" PITCH • I/O BOARD MOUNT**

P1M	NO. OF POSITIONS	LEAD STYLE	PLATING	D	RA	PIN LENGTH	"X"R
-----	------------------	------------	---------	---	----	------------	------

**-10, -15,  
-25, -30**  
(Per Row)

**-01**  
= Surface Mount

**-02**  
= Through-hole  
(1.57 mm PCB)

**-03**  
= Through-hole  
(2.36 mm PCB)

**-S**  
= 30 μ" (0.76 μm)  
Gold on contact area,  
Matte Tin on tail

**-STL**  
= 30 μ" (0.76 μm)  
Gold on contact area,  
Tin/Lead on tail

(Leave blank for standard)

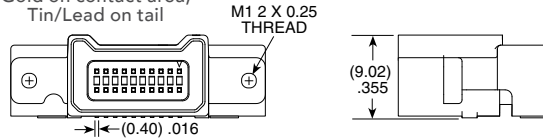
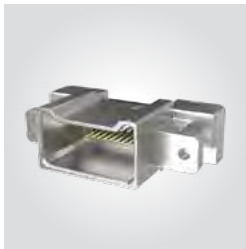
**-H**  
= Hot Swap

**-TR**  
= Tape & Reel

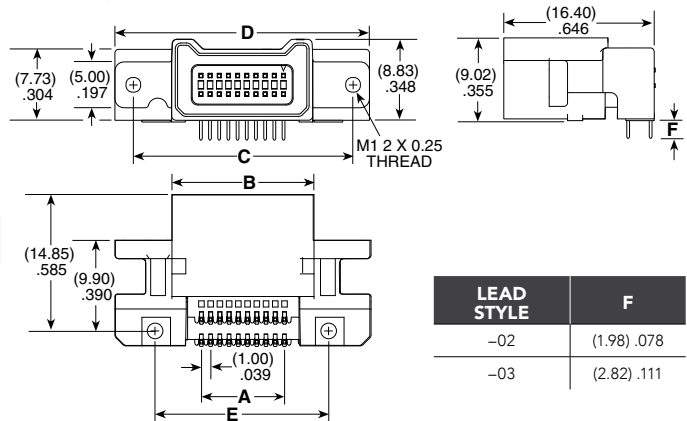
**-FR**  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)

PRELIMINARY

**P1M**  
Cable Mates:  
B1SD, B1SDT



**P1M-10-01-S-D-RA SHOWN  
(SURFACE MOUNT)**



**P1M-10-02-S-D-RA SHOWN  
(THROUGH-HOLE)**

NO. OF POSITIONS	A	B	C	D	E
-10	(9.00) .354	(15.39) .606	(23.75) .935	(27.75) 1.093	(18.80) .740
-15	(14.00) .551	(20.39) .803	(28.75) 1.132	(32.75) 1.289	(23.80) .937
-25	(24.00) .945	(30.39) 1.196	(38.75) 1.526	(42.75) 1.683	(33.80) 1.331
-30	(29.00) 1.142	(35.39) 1.393	(43.75) 1.722	(47.75) 1.880	(38.80) 1.528

LEAD STYLE	F
-02	(1.98) .078
-03	(2.82) .111

**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?P1M](http://samtec.com?P1M)

P1M	NO. OF POSITIONS	LEAD STYLE	PLATING	DV	PIN LENGTH	PICK & PLACE OPTION	"X"R
-----	------------------	------------	---------	----	------------	---------------------	------

**-10, -15, -25,  
-30**  
(Per Row)

**-01**  
= Surface Mount

**-02**  
= Through-hole  
(1.57 mm PCB)

**-03**  
= Through-hole  
(2.36 mm PCB)

**-S**  
= 30 μ" (0.76 μm)  
Gold on contact area,  
Matte Tin on tail

**-STL**  
= 30 μ" (0.76 μm)  
Gold on contact area,  
Tin/Lead on tail

(Leave blank for standard)

**-H**  
= Hot Swap

(Leave blank for no pad)

**-K**  
= (8.25 mm) .315"  
DIA Polyimide  
Film Pick &  
Place Pad

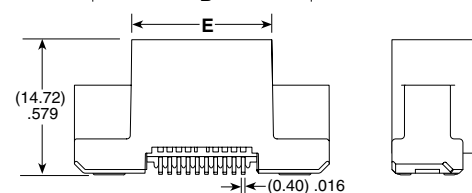
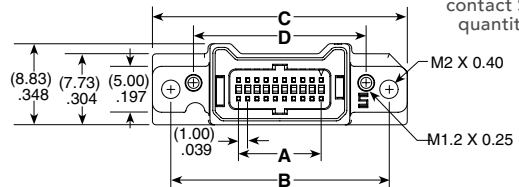
**-TR**  
= Tape & Reel

**-FR**  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)

**P1M**  
Cable Mates:  
B1SD, B1SDT



PRELIMINARY



**P1M-10-01-S-DV SHOWN**

NO. OF POSITIONS	A	B	C	D	E
-10	(9.00) .354	(23.75) .935	(27.75) 1.093	(18.80) .740	(15.22) .599
-15	(14.00) .551	(28.75) 1.132	(32.75) 1.289	(23.80) .937	(20.22) .796
-25	(24.00) .945	(38.75) 1.526	(42.75) 1.683	(33.80) 1.331	(30.22) 1.190
-30	(29.00) 1.142	(43.75) 1.722	(47.75) 1.880	(38.80) 1.528	(35.22) 1.387

**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?P1M](http://samtec.com?P1M)

# ACCLIMATE™

## RUGGED SEALED I/O SYSTEMS



### FEATURES & BENEFITS

- Meets IP68 & IP67 requirements for dust and waterproof sealing
- Ideal for high reliability in harsh environments
- Bayonet circulars in 12 mm, 16 mm and 22 mm shell sizes with choice of pin configuration and gender (ACX)
- Lightweight plastic mini push-pull system in a small form factor for increased panel density (MCP/MCR)
- Threaded sealed circular systems available with USB or Ethernet
- Rectangular systems offer a 25-45% panel area savings
- Rugged dust caps available

### KEY SPECIFICATIONS

SERIES	TYPE	INSULATOR MATERIAL	TERMINAL MATERIAL	CONTACT MATERIAL	OPERATING TEMP RANGE
ACP-12/ACR-12	Bayonet Circular	Thermoplastic	Brass	Brass/BeCu	-10 °C to +80 °C
ACP-16/ACR-16					-10 °C to +105 °C
ACP-22/ACR-22					-10 °C to +105 °C
MCP/MCR	Mini Push-Pull	PPS	Phosphor Bronze	Phosphor Bronze	-20 °C to +80 °C
BCU/BPCU/BRU	Threaded Circular	Thermoplastic	--	Copper Alloy	-40 °C to +80 °C
SCRUS/SCRES		PBT	--	Phosphor Bronze	-20 °C to +75 °C (SCRUS) -40 °C to +70 °C (SCRES)
RPBE/RPCE		Black LCP (RPBE)	--	Phosphor Bronze	-40 °C to +75 °C
RPBU/RPCU	Rectangular	Glass Filled Thermoplastic (RPCE)	--	Phosphor Bronze	-20 °C to +80 °C
		Black LCP	--	Phosphor Bronze	-20 °C to +80 °C

## IP68 SEALED BAYONET CIRCULAR - 12 mm SHELL



Series	Gender	Current Carrying Capacity	Housing	Web Address
ACP-12	Terminal	<b>MAX</b> <b>5.0</b> A m p s	Metal or Plastic	<a href="http://samtec.com?acp-12">samtec.com?acp-12</a>
ACR-12	Socket			<a href="http://samtec.com?acr-12">samtec.com?acr-12</a>

Kitted components available for field assembly, visit [samtec.com/acpk-12](http://samtec.com/acpk-12) or [samtec.com/acrk-12](http://samtec.com/acrk-12)

## IP68 SEALED BAYONET CIRCULAR - 16 mm SHELL



Series	Gender	Current Carrying Capacity	Housing	Web Address
ACP-16	Terminal	<b>MAX</b> <b>11.6</b> A m p s	Metal or Plastic	<a href="http://samtec.com?acp-16">samtec.com?acp-16</a>
ACR-16	Socket			<a href="http://samtec.com?acr-16">samtec.com?acr-16</a>

Kitted components available for field assembly, visit [samtec.com/acpk-16](http://samtec.com/acpk-16) or [samtec.com/acrk-16](http://samtec.com/acrk-16)

## IP68 SEALED BAYONET CIRCULAR - 22 mm SHELL



Series	Gender	Current Carrying Capacity	Housing	Web Address
ACP-22	Terminal	<b>MAX</b> <b>8.3</b> A m p s	Metal or Plastic	<a href="http://samtec.com?acp-22">samtec.com?acp-22</a>
ACR-22	Socket			<a href="http://samtec.com?acr-22">samtec.com?acr-22</a>

Kitted components available for field assembly, visit [samtec.com/acpk-22](http://samtec.com/acpk-22) or [samtec.com/acrk-22](http://samtec.com/acrk-22)

## IP67 SEALED MINI PUSH-PULL - 8 SERIES



Series	Gender	Current Carrying Capacity	Housing	Web Address
MCP	Terminal	<b>MAX</b> <b>3.4</b> A m p s	Plastic	<a href="http://samtec.com?mcp">samtec.com?mcp</a>
MCR	Socket			<a href="http://samtec.com?mcr">samtec.com?mcr</a>

Dust caps: DCA-MCR-8 and DCA-MCP-8

## IP67 THREADED CIRCULAR SYSTEM - USB TYPE C



Series	Gender	Current Carrying Capacity	Housing	Web Address
BCU	Terminal (Cable)	Supports 100 W power delivery (5 A @ 20 V)	Plastic	<a href="http://samtec.com?bcu">samtec.com?bcu</a>
BPCU	Socket (Cable)			<a href="http://samtec.com?bpcu">samtec.com?bpcu</a>
BRU	Socket (Board Mount)			<a href="http://samtec.com?bru">samtec.com?bru</a>

Dust cap: DCA-BRU-C-01

## IP68 SEALED THREADED CIRCULAR SYSTEM - USB TYPE A/B & ETHERNET



Series	Gender	Current Carrying Capacity	Housing	Mates With	Web Address
SCRUS	Socket (USB)	4.3 Amps MAX	Plastic	SCPU	<a href="http://samtec.com?scrus">samtec.com?scrus</a>
SCRES	Socket (Ethernet)	3.8 Amps MAX		SCPE	<a href="http://samtec.com?scres">samtec.com?scres</a>

Dust caps: DCA-17-03, DCA-17-01 and SCPPA-17-01 (panel plug)

## IP68 SEALED RECTANGULAR SYSTEM - ETHERNET



Series	Gender	Housing	Mates With	Web Address
RPBE	Socket	Plastic	RCE	<a href="http://samtec.com?rpbe">samtec.com?rpbe</a>
RPCE	Socket		RCE	<a href="http://samtec.com?rpce">samtec.com?rpce</a>

Dust caps: DCA-RPBE-01-01-P (no latch) and DCA-RPBE-XX-01-L (latching)

## IP68 SEALED RECTANGULAR SYSTEM - USB TYPE A/B



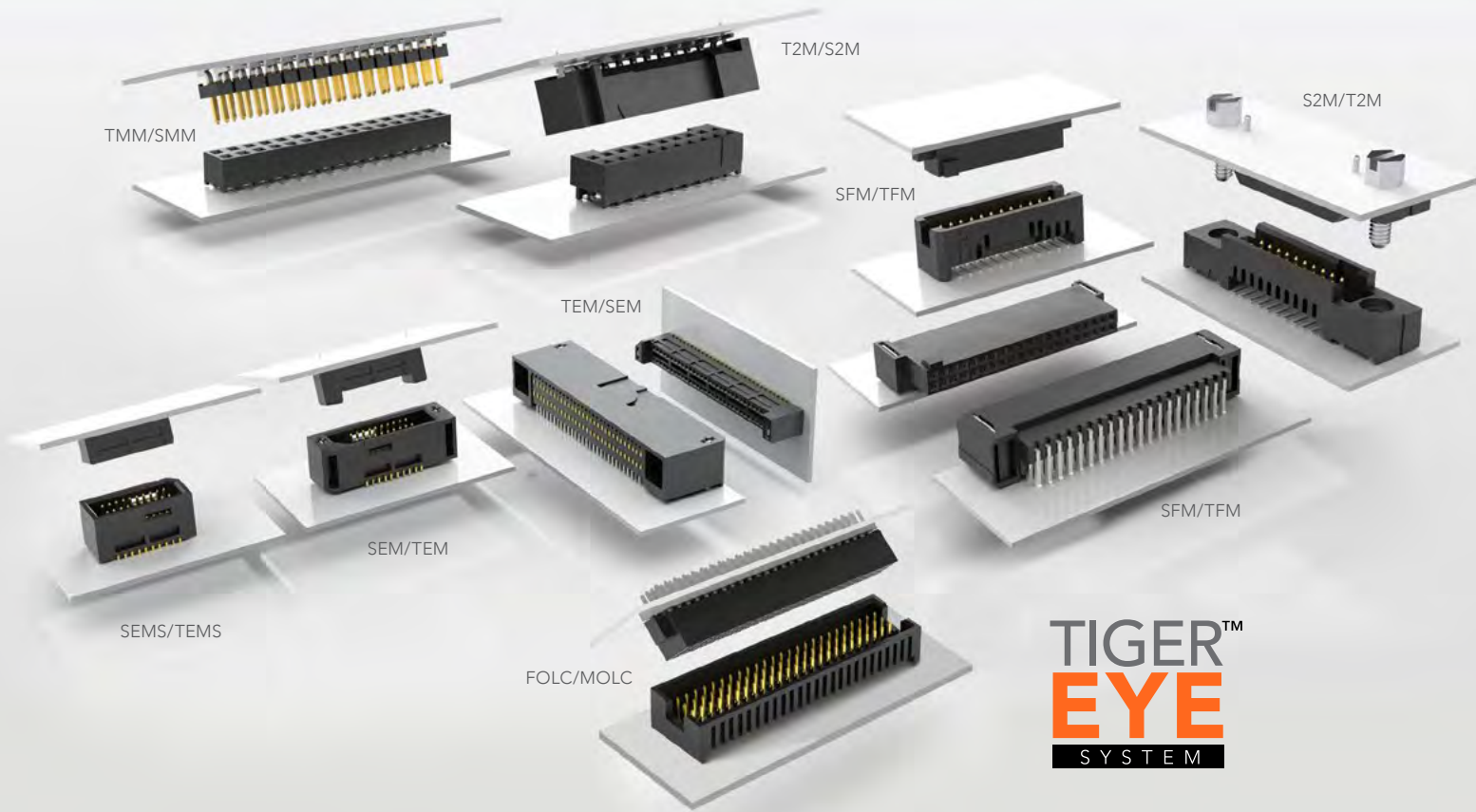
Series	Gender	Current Carrying Capacity	Housing	Mates With	Web Address
RPBU	Socket	4.5 Amps MAX	Plastic	RCU (Single Port Only)	<a href="http://samtec.com?rpbu">samtec.com?rpbu</a>
RPCU	Socket			RCU	<a href="http://samtec.com?rpcu">samtec.com?rpcu</a>

Dust caps: DCA-RPBU-XX-01-X



# RUGGED TIGER EYE™ SYSTEMS

HIGH-RELIABILITY • MULTI-FINGER BeCu CONTACT • HIGH MATING CYCLES



## 220-225

### .050" (1.27 mm) PITCH TIGER EYE™ SYSTEMS

Standard Pitch Sockets & Terminals (SFM, TFM) .....	220-222
Cost-Effective Tiger Eye™ Lite Sockets & Terminals (SFC, TFC) .....	223
Quad Row Strips (MOLC, FOLC) .....	224
Flexible Pin Count Tiger Eye™ Sockets (SFMC) .....	225

## 226-227

### 0.80 mm PITCH TIGER EYE™ SYSTEMS

Micro Pitch Sockets & Terminals (SEM, SEMS, TEM, TEMS) .....	226-227
--------------------------------------------------------------	---------

## 228-230

### 2.00 mm PITCH TIGER EYE™ SYSTEMS

2.00 mm Pitch Sockets & Terminals (S2M, T2M) .....	228-229
2.00 mm Pitch Flex Stack & IDC Cable Socket (SMM) .....	230

# RUGGED TIGER EYE™ SYSTEMS

(1.27 mm) .050" PITCH

MAX  
**3.2**  
A m p s

**8**  
G b p s

## FEATURES & BENEFITS

- Screw down, locking clip, friction latching and weld tab ruggedizing options
- Shrouded, polarized and keyed
- Surface mount or through-hole tails
- High-density, four row design (FOLC/MOLC Series)
- Discrete wire assemblies available in single or double row, 28 and 30 AWG PVC or \*Teflon™ Fluoropolymer (See pages 238-239). Contact [asp@samtec.com](mailto:asp@samtec.com) for custom solutions.
- Cable components (ISDF/CC03) and tooling available: [samtec.com/tooling](http://samtec.com/tooling)
- Severe Environment Testing qualified (SFM/TFM); aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)

\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

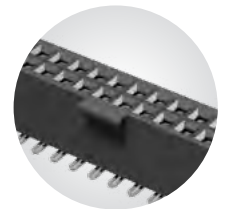
## KEY SPECIFICATIONS

SERIES	STACK HEIGHTS	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING	MAX. CYCLES	LEAD-FREE SOLDERABLE
SFM/TFM	6 to 12 mm	Black LCP	BeCu (SFM) Phosphor Bronze (TFM)	Au or Sn over 50 μ" (1.27 μm) Ni	-55 °C to +125 °C	3.2 A per pin (2 pins powered)	250 VAC	10,000 with 30 μ" (0.76 μm) Au	Yes
SFC/TFC	6 to 12 mm	Black LCP	Phosphor Bronze	Au or Sn over 50 μ" (1.27 μm) Ni	-55 °C to +125 °C	3.1 A per pin (2 pins powered)	350 VAC	(Call Samtec for E.L.P.™ plating option)	Yes

**TIGER™  
EYE**  
CONTACT



IDC cable assemblies with rugged strain relief (FFSD/FFMD, FFTP/FMTP)



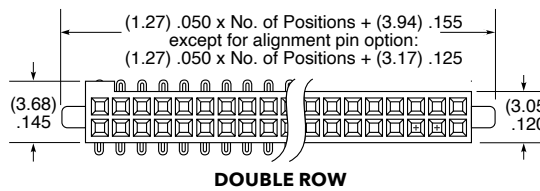
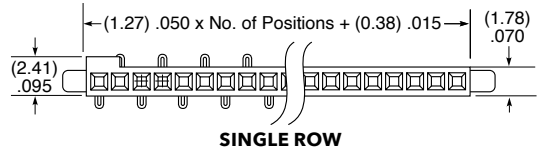
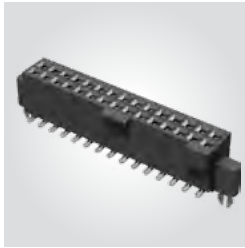
Locking for increased unmating force (SFML/TFML)

**(1.27 mm) .050" PITCH • SMT/THROUGH-HOLE SOCKET**

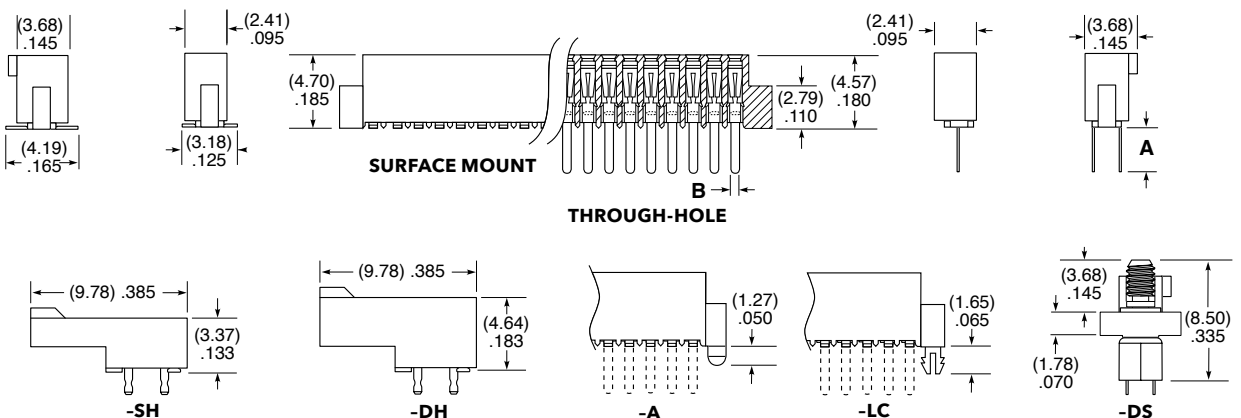
SERIES	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	OPTIONS
<b>SFM</b> = Standard		<b>03, 04, 06, 08</b> (SFM only)	(Surface Mount) (Through-hole)	<b>-L</b> = 10 μm (0.25 μm) Gold on contact, Matte Tin on tail (Call Samtec for E.L.P.™ plating option)	<b>-S</b> = Single Row (SFM only)	Specify only -A, -LC or -DS (Not available with -DH, -SH)
<b>SFML</b> = Locking		<b>05, 07, 10, 15, 20, 25, 30, 35, 40, 45, 50</b> (Standard sizes)	<b>-02</b> = Tiger Eye™ Contact (BeCu)	<b>-01, -03</b> = Tiger Eye™ Contact (BeCu)	<b>-D</b> = Double Row	Specify only -K or -P (Lead styles -02, -L2, -T2 only)
			<b>-L2</b> = Low Insertion Force Tiger Eye™ Contact (BeCu)	<b>-L1, -L3</b> = Low Insertion Force Tiger Eye™ Contact (BeCu)	<b>-SH</b> = Single Horizontal (05 thru 30 positions only) (SFM only) (Lead style -02 only)	<b>-A</b> = Alignment Pin
			<b>-T2</b> = Tiger Eye™ LITE Contact (Phosphor Bronze)	<b>-T1</b> = Tiger Eye™ LITE Contact (Phosphor Bronze)	<b>-DH</b> = Double Horizontal (05 thru 30 positions only) (SFM only) (Lead style -02 only)	<b>-LC</b> = Locking Clip (Manual placement required)
						<b>-DS</b> = Dual Screw Down for (1.60 mm) .062" PCB (05 thru 40 positions only) (Lead styles -01, -02 & -03 only) (Requires -D row option) (Not available with SFML) (Mates with TFM-DS option) (Not available with -A, -LC, -K, -P, -XR)
						<b>-K</b> = Polyimide film Pick & Place Pad (Not available with -DH, -SH)
						<b>-P</b> = Plastic Pick & Place Pad (Not available with -DH, -SH)
						Specify -TR or -FR last; Required for -DH & -SH. (Lead styles -02, -L2 & -T2 only)
						<b>-TR</b> = Tape & Reel
						<b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**SFM**  
Board Mates:  
TFM  
Cable Mates:  
TFSD, TFSS

**SFML**  
Board Mates:  
TFML  
Cable Mates:  
TFSD



LEAD STYLE	A	B
-01, -L1, -T1	(3.05) .120	(0.51) .020
-03, -L3	(1.91) .075	(0.41) .016



**Notes:**  
Severe Environment Testing qualified (SFM); aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)

Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?SFM](http://samtec.com?SFM) & [samtec.com?SFML](http://samtec.com?SFML)

**(1.27 mm) .050" • SMT/THROUGH-HOLE HEADER**

SERIES	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	OPTIONS
--------	---	------------------	------------	----------------	------------	---------

**TFM**  
= Standard

**TFML**  
= Locking  
(-01 & -02 lead style only)

**03, 04, 06, 08**  
(TFM -01 & -02 only)

**05, 07, 10, 15, 20, 25, 30, 35, 40, 45, 50**  
(Standard sizes)

Specify **LEAD STYLE** from chart

**-L**  
= 15 μm  
(0.38 μm)  
Gold on post, Matte Tin on tail  
(Call Samtec for E.L.P.™ plating option)

**-S**  
= Single Row (TFM only)

**-D**  
= Double Row

**-DH\***  
= Double Horizontal (TFM lead style -02 only) (05 thru 50 positions only) (-TR or -FR option only available)

Specify only -RA, -RE1 or -RE2

**-RA**  
= Right-angle (Lead style -01 only)

**-RE1**  
= Right-angle Elevated for (1.60 mm) .062" PCB (Requires TFM lead style -01, -D row and -WT)

**-RE2**  
= Right-angle Elevated for (2.36 mm) .093" PCB (Requires TFM lead style -01, -D row and -WT)

Specify only -A, -LC, -DS or -WT  
Not available with -RA, -RE1 and -RE2 unless otherwise noted.

**-A**  
= Alignment Pin

**-LC**  
= Locking Clip (Manual Placement required)

**-DS**  
= Dual Screw Down for (1.60 mm) .062" PCB (05, 07, 10, 15, 20, 25, 30, 35, 40 positions only) (TFM lead styles -01 and -02 only) (Requires -D row option) (Mates with SFM-DS option and SFSD/SFSDT -SS and -DS option only) (Not available with -A, -LC, -WT, -K, -P, -XR)

SMT lead styles only  
Specify only -K or -P

**-K**  
= Polyimide Film Pick & Place Pad

**-P**  
= Plastic Pick & Place Pad (5 positions min.) (Not available with 5 position with -WT)

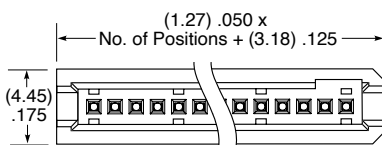
Specify -TR or -FR last (Not available with -DS)

**-TR**  
= Tape & Reel

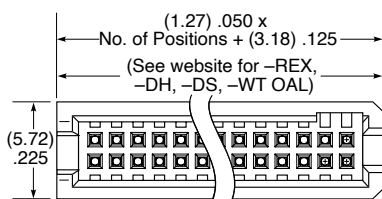
**-FR**  
= Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**TFM**  
Board Mates:  
SFM, SFMC  
Cable Mates:  
SFSD, SFSS

**TFML**  
Board Mates:  
SFML  
Cable Mates:  
SFSD, SFSS  
TFSD (-T end option)



**SINGLE ROW**



**DOUBLE ROW**

MATED HEIGHTS*		
LEAD STYLE (SMT)		MATED HEIGHT*
TFM	SFM	
-02	-02	(6.35) .250
-12		(8.13) .320
-22		(9.91) .390
-32		(11.81) .465
LEAD STYLE (T/H)		MATED HEIGHT*
TFM	SFM	
-01	-01	(5.97) .235
-03		(5.97) .235
-11		(7.75) .305
-13		(7.75) .305
-21		(9.53) .375
-23		(9.53) .375
-31		(11.43) .450

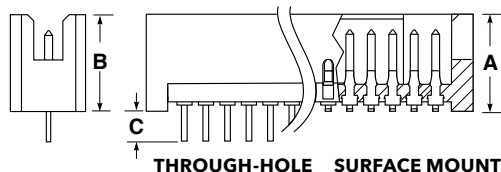
\*Processing conditions will affect mated height.

LEAD STYLE (SMT)	A
-02	(5.72) .225
-12*	(7.49) .295
-22*	(9.27) .365
-32*	(11.18) .440

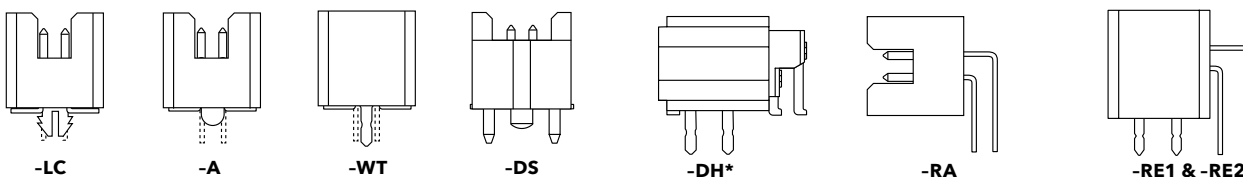
\* N/A with 07, -DH or -S row option

LEAD STYLE (T/H)	B	C
-01	(5.59) .220	(1.97) .078
-03*	(5.59) .220	(2.77) .109
-11*	(7.37) .290	(1.97) .078
-13*	(7.37) .290	(2.77) .109
-21*	(9.14) .360	(1.97) .078
-23*	(9.14) .360	(2.77) .109
-31*	(11.05) .435	(1.97) .078

\* Not Available with 07 or -S row option



**THROUGH-HOLE SURFACE MOUNT**

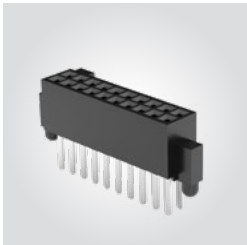
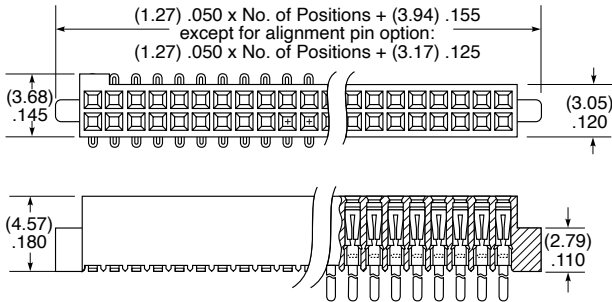
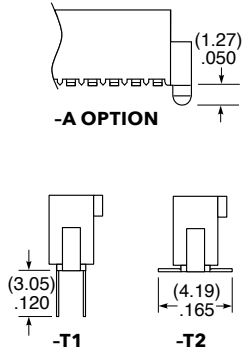


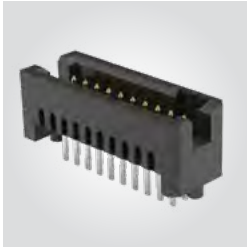
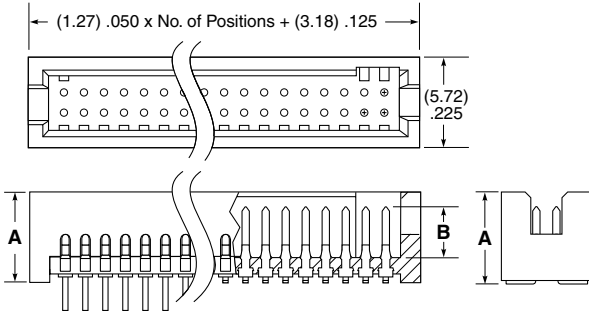
**Notes:**  
Severe Environment Testing qualified (TFM); aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)

Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?TFM](http://samtec.com?TFM) & [samtec.com?TFML](http://samtec.com?TFML)

**(1.27 mm) .050" PITCH • COST-EFFECTIVE HEADER/SOCKET**

SFC	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	D	OPTIONS	
		04, 05, 10, 15, 20, 25, 30, 35, 40, 45, 50 (Standard sizes)	<b>-T1</b> = Through-hole Tiger Eye™ LITE  <b>-T2</b> = Surface Mount Tiger Eye™ LITE	<b>-F</b> = Gold flash on contact, Matte Tin on tail  <b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail		<b>-A</b> = Alignment Pin  <b>-K</b> = (4.00 mm) .157" DIA Polyimide film Pick & Place Pad  <b>-TR</b> = Tape & Reel (-T2 only)  <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-T2 only)	
<b>SFC</b> Board Mates: TFC Cable Mates: TFS, TFSDT							
			<p>View complete specifications at: <a href="http://samtec.com?SFC">samtec.com?SFC</a></p>				

TFC	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	D	OPTIONS																															
		03, 04, 06, 08 (Lead Style -01 & -02 only)  05, 07, 10, 15, 20, 25, 30, 35, 40, 45, 50 (Standard sizes)	<b>-X1</b> = Through-hole  <b>-X2</b> = Surface Mount	<b>-F</b> = Gold flash on post, Matte Tin on tail  <b>-L</b> = 15 μ" (0.38 μm) Gold on post, Matte Tin on tail		<b>-RA</b> = Right-angle (-01 only)  <b>-A</b> = Alignment Pin  <b>-LC</b> = Locking Clip (Manual Placement required) (not available with -RA)  <b>-K</b> = (6.75 mm) .266" DIA Polyimide film Pick & Place Pad (not available with -RA)  <b>-P</b> = Plastic Pick & Place Pad (5 positions min.) (not available with -RA)  <b>-TR</b> = Tape & Reel (-X2 only) (not available with -RA)  <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-X2 only) (not available with -RA)																															
<b>TFC</b> Board Mates: SFC Cable Mates: SFS, SFSDT						<table border="1"> <thead> <tr> <th>SMT LEAD STYLE</th> <th>A</th> <th>B</th> <th>TH LEAD STYLE</th> <th>A</th> <th>B</th> </tr> </thead> <tbody> <tr> <td>-02</td> <td>(5.72) .225</td> <td>(3.38) .133</td> <td>-01</td> <td>(5.59) .220</td> <td>(3.38) .133</td> </tr> <tr> <td>-12</td> <td>(7.49) .295</td> <td></td> <td>-11</td> <td>(7.37) .290</td> <td></td> </tr> <tr> <td>-22</td> <td>(9.27) .365</td> <td>(3.30) .130</td> <td>-21</td> <td>(9.14) .360</td> <td>(3.30) .130</td> </tr> <tr> <td>-32</td> <td>(11.18) .440</td> <td></td> <td>-31</td> <td>(11.05) .435</td> <td></td> </tr> </tbody> </table>		SMT LEAD STYLE	A	B	TH LEAD STYLE	A	B	-02	(5.72) .225	(3.38) .133	-01	(5.59) .220	(3.38) .133	-12	(7.49) .295		-11	(7.37) .290		-22	(9.27) .365	(3.30) .130	-21	(9.14) .360	(3.30) .130	-32	(11.18) .440		-31	(11.05) .435	
			SMT LEAD STYLE	A	B	TH LEAD STYLE	A	B																													
-02	(5.72) .225	(3.38) .133	-01	(5.59) .220	(3.38) .133																																
-12	(7.49) .295		-11	(7.37) .290																																	
-22	(9.27) .365	(3.30) .130	-21	(9.14) .360	(3.30) .130																																
-32	(11.18) .440		-31	(11.05) .435																																	
<p><b>Note:</b> Some lengths, styles and options are non-standard, non-returnable.</p>		<p>View complete specifications at: <a href="http://samtec.com?TFC">samtec.com?TFC</a></p>																																			



# QUAD ROW TERMINAL/SOCKET

(1.27 mm) .050" PITCH • FOLC/MOLC SERIES

MAX  
**2.6**  
A m p s

**8**  
G b p s



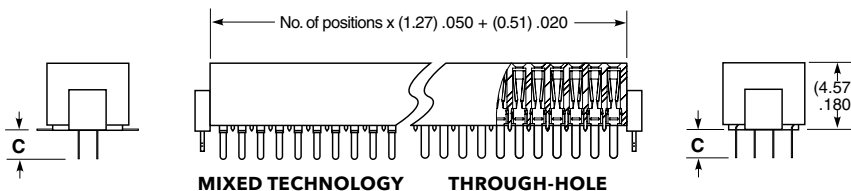
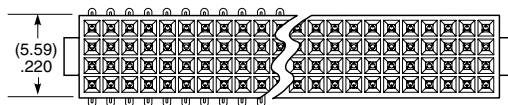
**FOLC**  
Board Mates:  
**MOLC**

**MOLC**  
Board Mates:  
**FOLC**

## SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Contact Material (FOLC):**  
BeCu  
**Terminal Material (MOLC):**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Current Rating:**  
2.6 A per pin  
(4 pins powered)  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Voltage Rating:**  
165 VAC/230 VDC  
**Insertion Depth (FOLC):**  
(3.30 mm) .130" to  
(4.06 mm) .160"  
**Max Cycles (FOLC):**  
100

FOLC	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	Q	OPTION	PACKAGING
		20, 25, 30, 35, 40, 45, 50 (Standard sizes)	-01 & -04 = Through-hole -M1 & -M2 = Mixed Technology -L1 & -L4 = Low Insertion Force Through-hole	-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail		-LC = Locking Clip (Manual placement required)	Leave blank for tubes -TR = Tape & Reel (-MX only) -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-MX only)



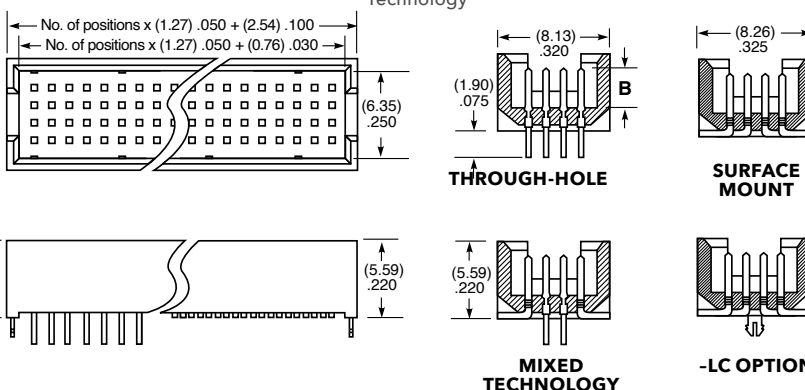
LEAD STYLE	C
-01, -M1	(1.91) .075
-04, -M2	(3.04) .120

View complete specifications at: [samtec.com?FOLC](http://samtec.com?FOLC)

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity (MOLC):**  
(0.10 mm) .004" max (20-25)  
(0.15 mm) .006" max (30-50)\*  
\*(.004" stencil solution may be available; contact [ipg@samtec.com](mailto:ipg@samtec.com))

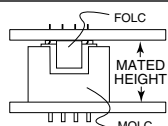
MOLC	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	Q	OPTION	PACKAGING
		20, 25, 30, 35, 40, 45, 50 (Standard sizes)	-'X'1 = Through-hole (Specify from chart) -02 = Surface Mount -M1 = Mixed Technology	-L = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail		-LC = Locking Clip (Manual placement required) -P = Pick & Place Pad (-02 only)	Leave blank for tubes -TR = Tape & Reel (-02 & -M1 only) -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-02 & -M1 only)



LEAD STYLE	A	B
-01	(5.59) .220	(3.38) .133
-11	(7.34) .289	(3.66) .144
-31	(11.05) .435	

View complete specifications at: [samtec.com?MOLC](http://samtec.com?MOLC)

## APPLICATIONS



LEAD STYLE		MATED HEIGHT*
MOLC	FOLC	
-01		(5.97) .235
-11	-01	(7.75) .305
-31		(11.43) .450

\*Processing conditions will affect mated height.

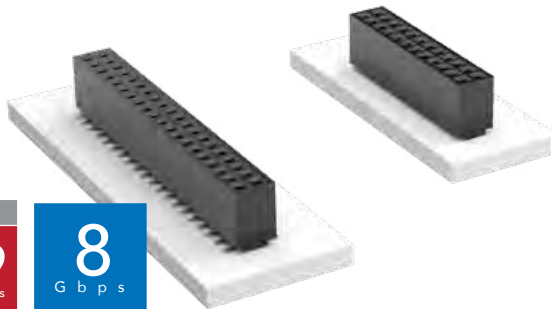
**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

# FLEXIBLE PIN COUNT TIGER EYE™ SOCKET

(1.27 mm) .050" PITCH • SFMC SERIES

MAX  
2.9  
A m p s

8  
G b p s



## SFMC Board Mates: TFM

Cable Mates:  
FMTP, FFMD\*

\*Note: Standard FFMD callout will not mate with FLE, SFMC. Must use gold plated callouts. (See drawing on web.)

SFMC	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	D	OPTIONS
------	---	------------------	------------	----------------	---	---------

02 thru 50

-01, -03  
= Through-hole

-L1, -L3  
= Low Insertion Force Through-hole

-02  
= Surface Mount

-L2  
= Low Insertion Force Surface Mount

-T1  
= Through-hole Tiger Eye™ LITE

-T2  
= Surface Mount Tiger Eye™ LITE

-L  
= 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail

-K  
= (4.00 mm) .157" DIA Polyimide film Pick & Place Pad (4 positions min.)

-P  
= Plastic Pick & Place Pad (5 positions min.)

-TR  
= Tape & Reel

-FR  
= Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

## SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer

**Contact Material:**  
Tiger Eye™ = BeCu  
Tiger Eye™ LITE = Phosphor Bronze

**Plating:**  
Au or Sn over 50 μ" (1.27 μm) Ni

**Current Rating:**  
2.9 A per pin (2 pins powered)

**Voltage Rating:**  
220 VAC/310 VDC

**Operating Temp Range:**  
-55 °C to +125 °C

**Insertion Depth:**  
(3.05 mm) .120" to (4.06 mm) .160"

**Max Cycles:**  
10,000 with 30 μ" (0.76 μm) Au

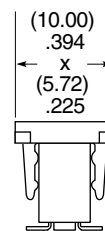
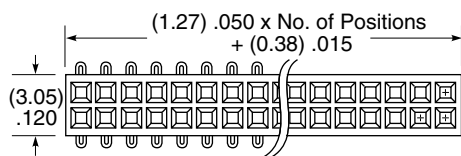
## PROCESSING

**Lead-Free Solderable:**  
Yes

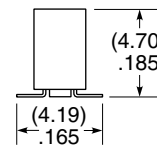
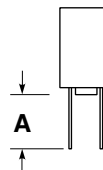
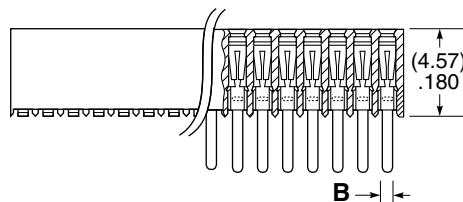
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (02-26)  
(0.15 mm) .006" max (27-50)\*  
\*(.004" stencil solution may be available; contact ipg@samtec.com)

## ALSO AVAILABLE

Other plating (MOQ Required)



-P OPTION



LEAD STYLE	A	B
-01, -L1, -T1	(3.05) .120	(0.51) .020
-03, -L3	(1.91) .075	(0.41) .016

**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?SFMC](http://samtec.com?SFMC)

# RUGGED TIGER EYE™ SYSTEMS

(0.80 mm) .0315" PITCH



## FEATURES & BENEFITS

- High-reliability, multi-finger BeCu contact
- Micro pitch and slim body for space savings
- 6 mm, 7 mm and 10 mm stack heights
- Locking clip, alignment pins and weld tab ruggedizing features
- Rugged latching system for increased withdrawal force
- Vertical and right-angle mating headers
- Discrete wire assembly available with 32 AWG \*Teflon™ Fluoropolymer (See page 241). Contact [asp@samtec.com](mailto:asp@samtec.com) for custom solutions.
- Extended Life Product™ testing available

\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

MAX  
**2.9**  
A m p s

**8**  
G b p s

**TIGER™  
EYE**  
CONTACT



Locking for increased unmating force  
(Visit [samtec.com?SEML](http://samtec.com?SEML) for more information)



Components (ISDE/CC396) and tooling available:  
[samtec.com/tooling](http://samtec.com/tooling)

## KEY SPECIFICATIONS (SEM/TEM)

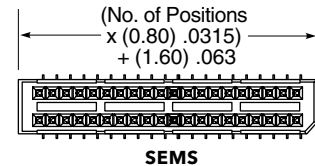
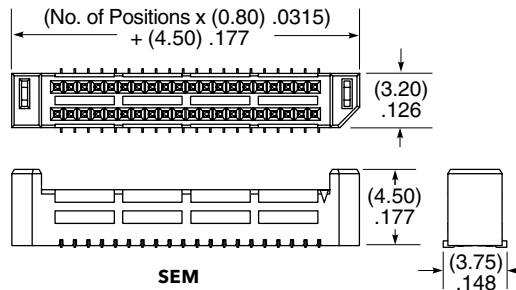
STACK HEIGHTS	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	MAX. CYCLES	VOLTAGE RATING	LEAD-FREE SOLDERABLE
6 - 10 mm	Black LCP	BeCu (SEM) Phosphor Bronze (TEM)	Au or Sn over 50 μ" (1.27 μm) Ni	-55 °C to +125 °C	2.9 A per pin (2 pins powered)	100 with 10 μ" (0.25 μm) Au	235 VAC/330 VDC	Yes

**(0.80 mm) .0315" PITCH • MICRO TIGER EYE™ SOCKET AND HEADER**

SERIES	1	NO. PINS PER ROW	02	STACK HEIGHT	PLATING OPTION	D	OPTIONS	OTHER OPTIONS
<b>SEM</b> Socket		<b>05, 10, 15, 20, 25</b> (SEM, SEMS, TEM, TEMS only)		<b>-03.0</b> = 6 mm Stack Height (-03.0 required for SEM/SEMS Series)	<b>-FG</b> = Gold Flash		Leave blank for SEMS/TEMS	<b>-K</b> = (3.50 mm) .138" DIA Polyimide film Pick & Place Pad (Required for SEMS)
<b>SEMS</b> Slim Socket		<b>30, 35, 40, 45, 50</b> (SEM/TEM only) (Standard sizes)		<b>-04.0</b> = 7 mm Stack Height (TEM/TEMS only)	<b>-G</b> = 10 μm (0.25 μm) Gold on contact, Gold Flash on tail		<b>-A</b> = Alignment Pin (Not available with -LC or -WT)	= (5.50 mm) .217" DIA Polyimide film Pick & Place Pad (Required for TEMS)
<b>TEM</b> Header				<b>-07.0</b> = 10 mm Stack Height (TEM/TEMS only)	<b>-H</b> = 30 μm (0.76 μm) Gold on contact, Gold Flash on tail		<b>-LC</b> = Locking Clip (Not available with -A or -WT) (Manual placement required)	<b>-TR</b> = Tape & Reel
<b>TEMS</b> Slim Header							<b>-WT</b> = Weld Tab (Not available with -A or -LC)	<b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**SEM**  
Board Mates:  
TEM

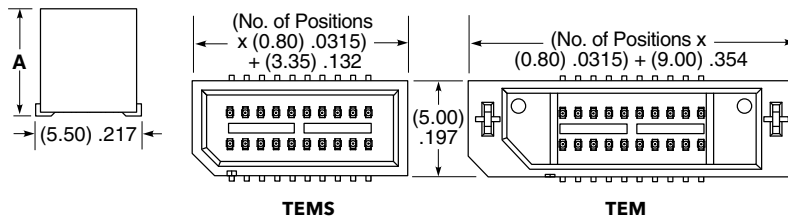
**SEMS**  
Board Mates:  
TEMS



View complete specifications at: [samtec.com?SEM](http://samtec.com?SEM) & [samtec.com?SEMS](http://samtec.com?SEMS)

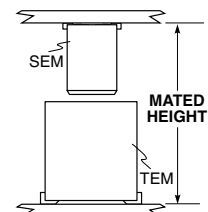
**TEM**  
Board Mates:  
SEM, SEML

**TEMS**  
Board Mates:  
SEMS



MATED HEIGHTS		
STACK HEIGHT	A	MATED HEIGHT*
-03.0	(5.610) .2209	6 mm
-04.0	(6.610) .2602	7 mm
-07.0	(9.610) .3783	10 mm

\*Processing conditions will affect mated height.

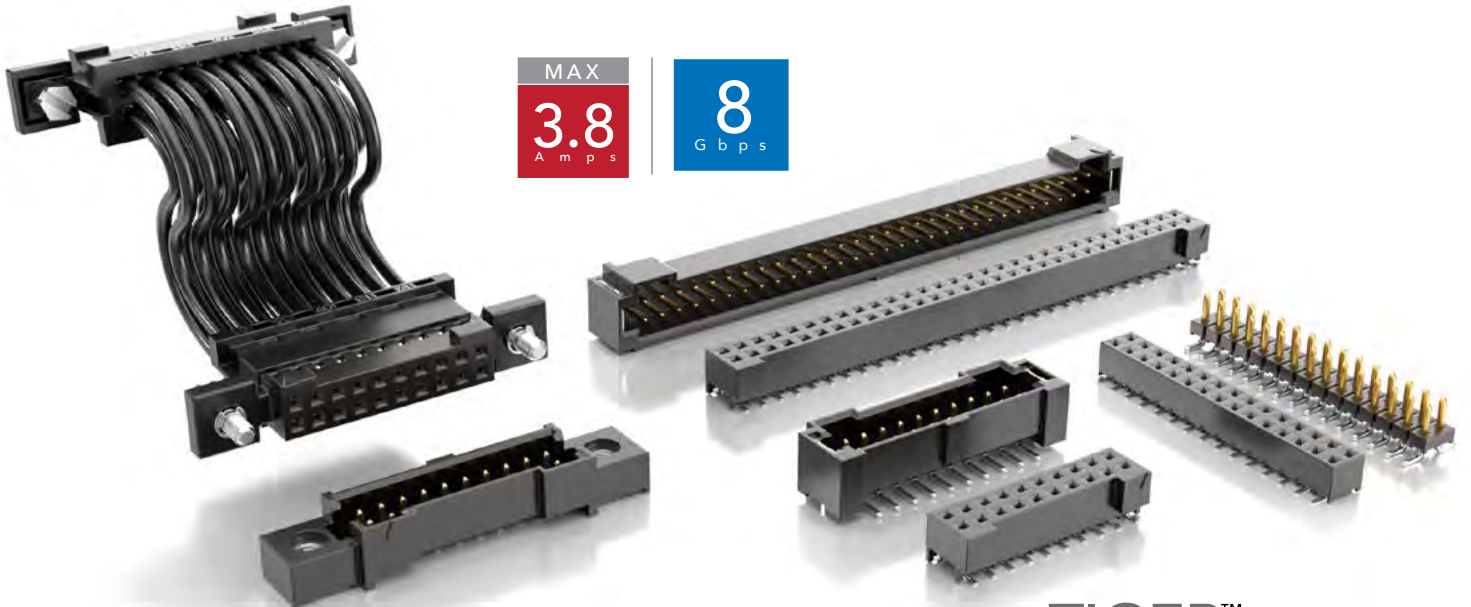


**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?TEM](http://samtec.com?TEM) & [samtec.com?TEMS](http://samtec.com?TEMS)

# RUGGED TIGER EYE™ SYSTEMS

(2.00 mm) .0787" PITCH



MAX  
**3.8**  
A m p s

**8**  
G b p s

## FEATURES & BENEFITS

- Rugged Tiger Eye™ contact system for high reliability
- Wide range of stack heights (SMM/TMM Series)
- Right-angle mating headers available
- Optional metal latching, screw downs, weld tabs and locking clips
- Surface mount or through-hole
- Discrete wire assemblies available in 24-30 AWG PVC or \*Teflon™ Fluoropolymer (See page 240). Contact [asp@samtec.com](mailto:asp@samtec.com) for custom solutions
- Severe Environment Testing qualified (S2M/T2M); aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)

\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.



Optional strain relief and variety of wiring options



Components (ISD2/CC81) & tooling available: [samtec.com/tooling](http://samtec.com/tooling)

## KEY SPECIFICATIONS (S2M/T2M)


STACK HEIGHTS	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	MAX. CYCLES	VOLTAGE RATING	LEAD-FREE SOLDERABLE
6 & 7 mm	Black LCP	BeCu (S2M) Phosphor Bronze (T2M)	Au or Sn over 50 μ" (1.27 μm) Ni	-55 °C to +125 °C	3.8 A (T2M) 2.6 A (S2M) (2 pins powered)	100 with 10 μ" (0.25 μm) Au	350 VAC	Yes

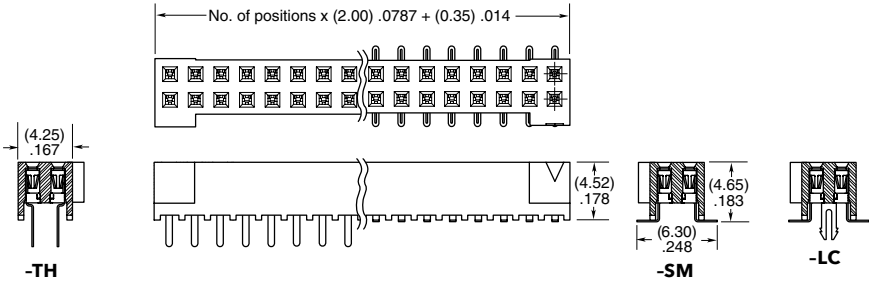


**(2.00 mm) .0787" PITCH • HIGH-RELIABILITY CABLE INTERCONNECTS**

SERIES	1	NO. OF POSITIONS	LEAD STYLE	PLATING OPTION	D	OPTIONS	PACKAGING
<b>S2M</b> Socket		<b>05, 07, 10, 15, 20, 25, 30</b> (Per Row)	<b>-01</b> = Through-hole <b>-02</b> = Surface Mount	<b>-F</b> = Gold flash on contact, Matte Tin on tail <b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail		<b>-K</b> = (5.50 mm) .217" DIA Polyimide film Pick & Place Pad (-02 only) <b>-LC</b> = Locking Clip (Manual placement required) (-02 only) <b>-DS</b> = Screw Down (N/A with -LC) (mates with -T2M-DS)	Leave blank for tube packaging <b>-TR</b> = Tape & Reel (-02 only) <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-02 only)

**S2M**  
Board Mates:  
T2M  
Cable Mates:  
T2SD




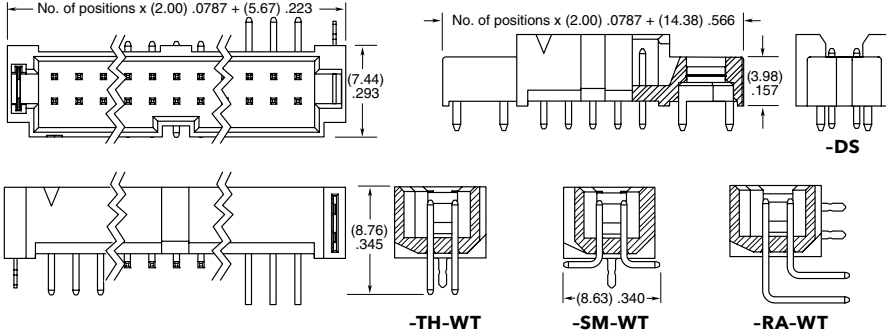


View complete specifications at: [samtec.com?S2M](http://samtec.com?S2M)

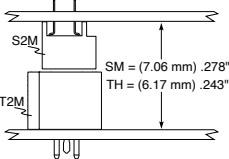
SERIES	1	NO. OF POSITIONS	01	PLATING OPTION	D	TAIL OPTION	OTHER OPTIONS	PACKAGING
<b>T2M</b> Header		<b>05, 07, 10, 15, 20, 25, 30</b> (Per Row)		<b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail		<b>-TH</b> = Through-hole <b>-RA</b> = Right-angle <b>-SM</b> = Surface Mount	<b>-WT</b> = Weld Tab (S2SD & S2SDT, -SR/-DR required mate) <b>-DS</b> = Screw Down (N/A with -RA) (mates with -S2M-DS, S2SD/S2SDT -SS/-DS option) <b>-K</b> = (7.50 mm) .295" DIA Polyimide film Pick & Place Pad (-SM only)	Leave blank for tube packaging <b>-TR</b> = Tape & Reel (-SM only) <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-SM only)

**T2M**  
Board Mates:  
S2M  
Cable Mates:  
S2SD, S2SDT





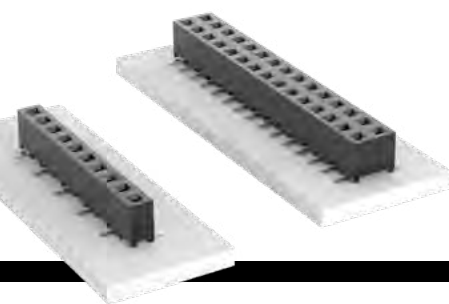
**MATED HEIGHT**



**Notes:**  
Severe Environment Testing qualified; aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)

Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?T2M](http://samtec.com?T2M)



**(2.00 mm) .0787" PITCH • TIGER EYE™ SOCKET**

SMM	1	NO. PINS PER ROW	02	PLATING OPTION	ROW OPTION	OTHER OPTIONS
		02 thru 40		<p><b>-F</b> = Gold flash on contact, Matte Tin on tail</p> <p><b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail</p> <p><b>-S</b> = 30 μ" (0.76 μm) Gold on contact, Matte Tin on tail</p>	<p><b>-S</b> = Single Row</p> <p><b>-D</b> = Double Row</p>	<p><b>-"XX"</b> = Polarized Position</p> <p><b>-K</b> = (5.50 mm) .217" DIA Polyimide Film Pick &amp; Place Pad (2 positions minimum, -02 thru -05 requires -TR)</p> <p><b>-P</b> = Plastic Pick &amp; Place Pad (-02 thru -05 requires -TR)</p> <p><b>-TR</b> = Tape &amp; Reel Packaging (27 positions maximum)</p> <p><b>-FR</b> = Full Reel Tape &amp; Reel (must order maximum quantity per reel; contact Samtec for quantity breaks) (27 positions maximum)</p>

**SMM**

**Board Mates:**  
TMM, TMMH, MTMM, MMT, LTMM, TW, PTT, ZLTMM

**Cable Mates:**  
TCMD

**SPECIFICATIONS**

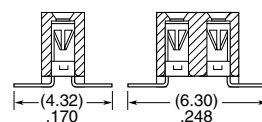
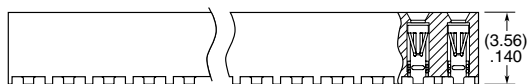
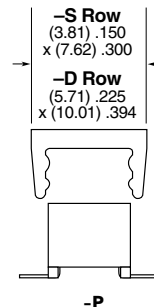
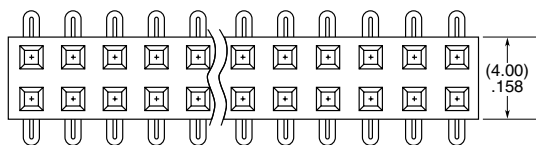
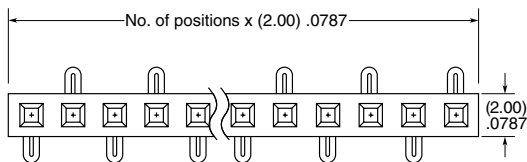
**Insulator Material:**  
Black Liquid Crystal Polymer  
**Contact Material:**  
BeCu  
**Plating:** Sn or Au over 50 μ" (1.27 μm) Ni  
**Current Rating (TMM/SMM):**  
3.2 A per pin (2 pins powered)  
**Voltage Rating:**  
350 VAC  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Insertion Depth:**  
(3.05 mm) .120" to (3.25 mm) .128"  
**Max Cycles:**  
100 with 10 μ" (0.25 μm) Au

**PROCESSING**

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max

**ALSO AVAILABLE**  
MOQ Required

Locking Clip  
(Manual placement required)  
Other platings



**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?SMM](http://samtec.com?SMM)

# DISCRETE WIRE SYSTEMS

MICRO PITCH • HIGH-CYCLE CONTACTS • ISOLATED POWER • COMPONENTS & TOOLING



**232-237**

## 1.00 mm PITCH MICRO MATE™ SYSTEMS

Socket Cable Assemblies/Components (T1M, S1SS(T), S1SD(T), ISS1, ISD1, CC09) .....	232-235
Single Row Terminal Cable Assemblies/Components (T1SS(T), T1PS(T), IST1, ISP1, TC37) .....	236
Double Row Terminal Cable Assemblies/Components (T1SD(T), T1PD(T), IDT1, IDP1, TC37) .....	237

**238-242**

## TIGER EYE™ SYSTEMS

1.27 mm Pitch Socket Cable Assembly/Components (SFSS(T), SFSD(T), ISDF, CC03) .....	238-239
2.00 mm Pitch Socket Cable Assembly/Components (S2SD(T), ISD2, CC81) .....	240
0.80 mm Pitch Socket Cable Assembly/Components (SESST, ISDE, CC396, TEM) .....	241-242

**243-245**

## RUGGED POWER SYSTEMS

Power Mate® Cables & Components (PMSS(T), PMSD(T), IPBD, CC69) .....	243
Mini Mate® Cable System (MMSD(T) MMSS(T), IPD1, CC79, IPL1) .....	244-245

**246-248**

## FLEX POWER SYSTEMS

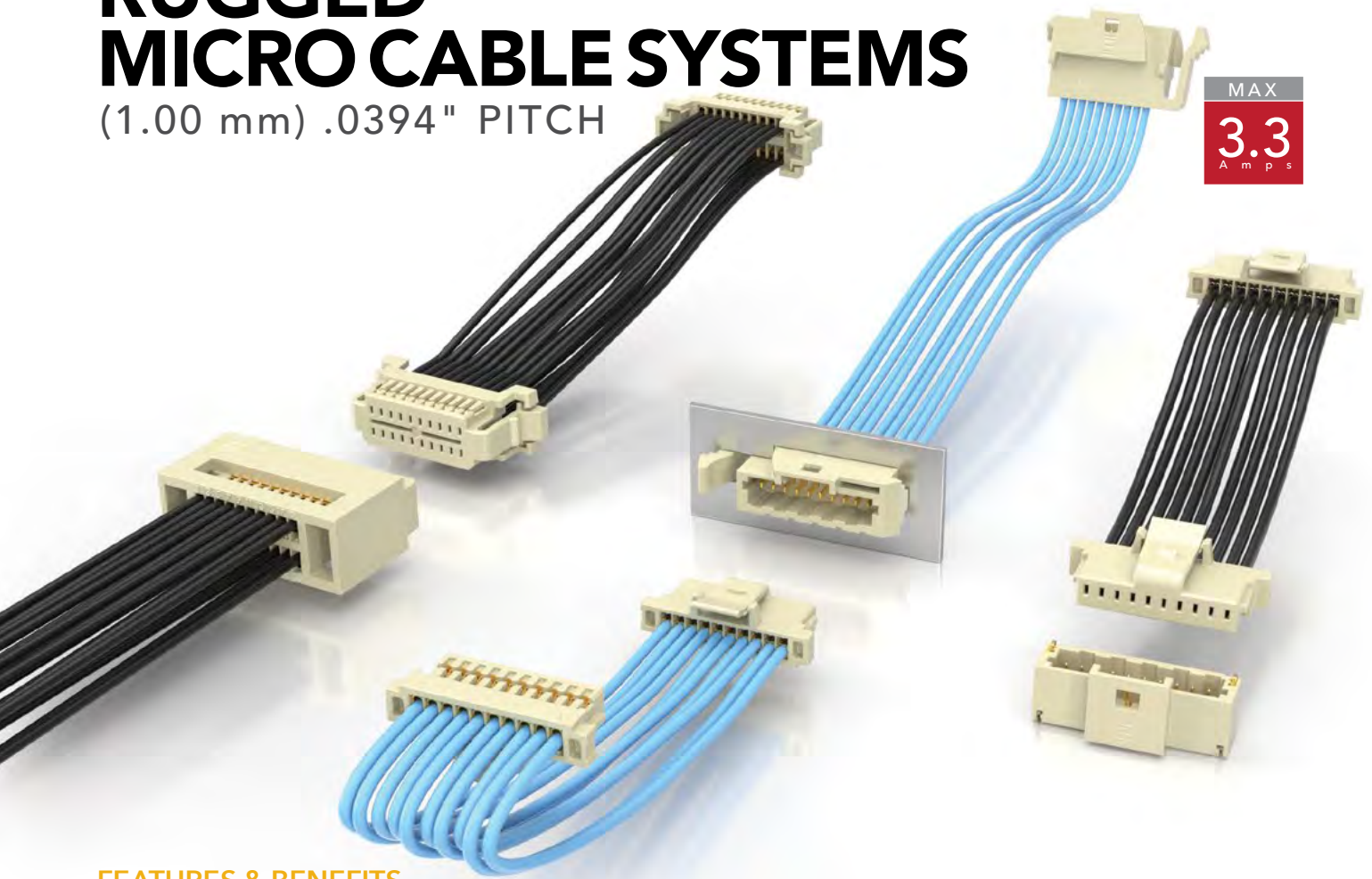
PowerStrip™/30 Cables & Components (MPSS, IMS5, CC46) .....	246
PowerStrip™/30 Signal/Power Combo Cables & Components (MPCC, IMSC5, CC46, CC81) .....	247
PowerStrip™/40 Cables & Components (PESS, IPS6, CC10) .....	248

# MICROMATE™

## RUGGED MICRO CABLE SYSTEMS

(1.00 mm) .0394" PITCH

MAX  
**3.3**  
A m p s



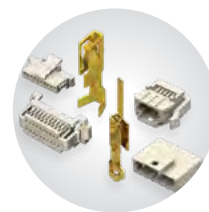
### FEATURES & BENEFITS

- Cable-to-cable, panel-to-board and cable-to-board applications
- Extremely small form factors
- 28 and 30 AWG wire options in PVC or Teflon™ Fluoropolymer
- Rugged positive latching for increased retention
- Socket or terminal, single or double row assemblies
- Vertical and right-angle mating headers

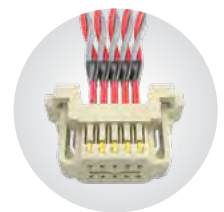
Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.



Dual leaf contact system for a reliable connection



Components and tooling available:  
[samtec.com/tooling](http://samtec.com/tooling)



Custom solutions available contact:  
[asp@samtec.com](mailto:asp@samtec.com)

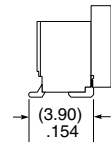
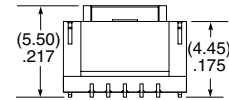
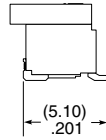
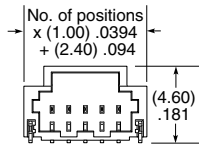
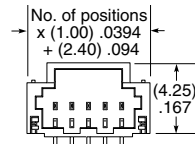
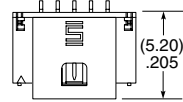
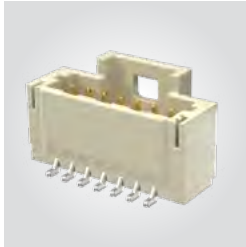
### KEY SPECIFICATIONS (S1SX(T)/T1M, T1SX(T) & T1PX(T))

PITCH	INSULATOR MATERIAL	CONTACT MATERIAL	PLATING	OPERATING TEMP RANGE	CURRENT RATING	VOLTAGE RATING
1.00 mm	Black LCP (S1SS(T) without latch) Natural LCP (T1M) Natural Nylon (S1SS(T) with Latch, S1SD(T), T1XD(T)) Nylon, Light Green (T1XS(T))	Phosphor Bronze	Au or Sn over 50 μ" (1.27 μm) Ni	-10 °C to +85 °C (PVC) -40 °C to +125 °C (Teflon™ Fluoropolymer)	3.3 A per pin (1 pin powered) (Max.)	250 VAC/ 353 VDC

## (1.00 mm) .0394" PITCH • DISCRETE WIRE TERMINAL STRIP

SERIES	NO. OF POSITIONS	PLATING OPTION	ROW OPTION	LATCH	OPTIONS	"X"R
T1M	-02, -03, -05, -07, -10, -15, -20	-F = 3 μ" (0.07 μm) Gold on contact, Matte Tin on tail	-SH = Single Row Horizontal  -SV = Single Row Vertical	(Required in callout)  -L = Positive Latch	-K = (4.00 mm) .157" DIA Polyimide Film Pick & Place Pad (-SH only)  -P = Pick & Place Pad (-SV only)	(Leave blank for Tape & Reel)  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**T1M-SH/SV**  
Cable Mates:  
S1SS(T), S1SD(T)



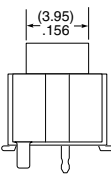
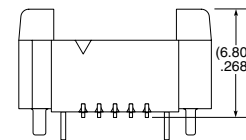
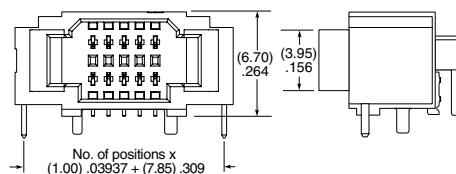
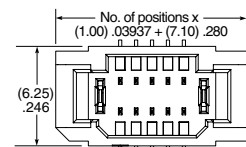
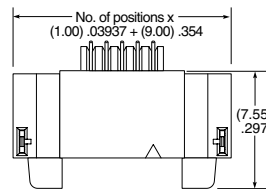
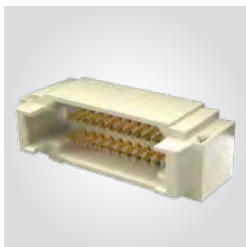
### SPECIFICATIONS

**Insulator Material:**  
Natural LCP  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Sn or Au over  
50 μ" (1.27 μm) Ni  
**Operating Temp Range:**  
-55 °C to +125 °C  
(Component only)  
**Voltage Rating:**  
250 VAC/353 VDC

View complete specifications at: [samtec.com?T1M](http://samtec.com?T1M)

SERIES	NO. OF POSITIONS	PLATING OPTION	ROW OPTION	OPTION	"X"R
T1M	-02, -03, -04, -05, -10, -15, -20 (Per Row)	-GF = 3 μ" (0.07 μm) Gold contact and tail	-DH = Double Row Horizontal  -DV = Double Row Vertical	-K = (4.00 mm) .157" DIA Polyimide Film Pick & Place Pad (-DV only)	(Leave blank for Tape & Reel)  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**T1M-DH/DV**  
Cable Mates:  
S1SS(T), S1SD(T)



### SPECIFICATIONS

**Insulator Material:**  
Natural LCP  
**Terminal Material:**  
Phosphor Bronze  
**Plating:** Sn or Au over  
50 μ" (1.27 μm) Ni  
**Operating Temp Range:**  
-55 °C to +125 °C  
(Component only)  
**Voltage Rating:**  
250 VAC/353 VDC

View complete specifications at: [samtec.com?T1M](http://samtec.com?T1M)

**Note:**  
Some lengths, styles and options  
are non-standard, non-returnable.



## (1.00 mm) .0394" PITCH • SINGLE ROW DISCRETE WIRE SOCKET



SERIES	PINS PER ROW	WIRE GAUGE	PLATING OPTION	ASSEMBLED LENGTH	OPTION
<b>S1SS</b> = Single Row PVC Cable	<b>-02, -03, -05, -07, -10 -15, -20</b> (Standard sizes)	<b>-28</b> = 28 AWG <b>-28C</b> = 28 AWG Color Coded Cable (S1SS only)	<b>-GF</b> = 3 μ" (0.07 μm) Gold on contact and tail	<b>-"XX.XX"</b> = Assembled Length in Inches (45.72 mm) 01.80" min.	(Required Callout) <b>-L</b> = Single Ended With Latch <b>-L1</b> = Double Ended Latch down, straight (Pin 1 to Pin 1) <b>-L3</b> = Double Ended Latch up, straight (Pin 1 to Pin N) <b>-S</b> = Single Ended No Latch <b>-D-NUS</b> = Double Ended No Latch, "N" up, straight <b>-D-NDS</b> = Double Ended No Latch, "N" down, straight

### S1SS(T)

Board Mates:

T1M

Cable Mates:

T1SS(T), T1PS(T)

### SPECIFICATIONS

#### Insulator Material:

Nylon, White (with latch)

Black, LCP (without latch)

#### Contact Material:

Phosphor Bronze

#### Plating:

Au over 50 μ" (1.27 μm) Ni

#### Operating Temp Range (S1SS(T)/T1M):

-10 °C to +85 °C (PVC)

-40 °C to +125 °C

(\*Teflon™ Fluoropolymer)

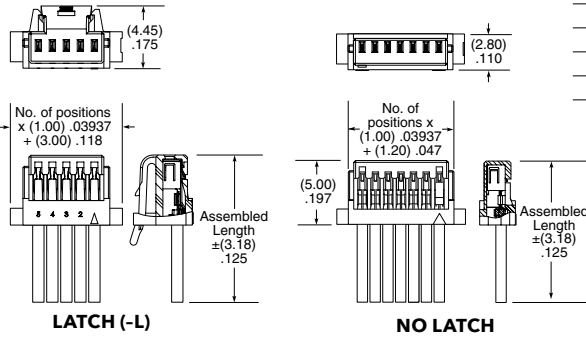
#### Current Rating (28 AWG):

2.7 A per pin (1 pin powered)

#### Voltage Rating:

250 VAC/353 VDC

Wire: 28 or 30 AWG



#### S1SS CABLE COLOR CODING


PIN	COLOR
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	BLUE
7	VIOLET
8	GRAY
9	WHITE
10	BLACK
ETC	REPEAT

\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

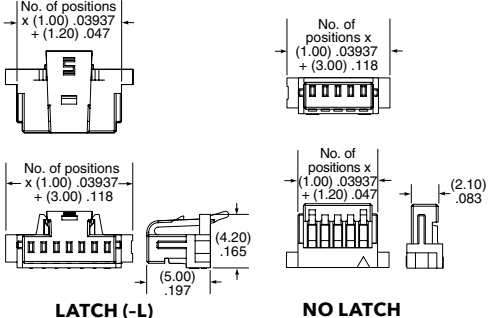
**Note:** Teflon™ Fluoropolymer cable is intended for crimp only. Contact Samtec for solderable cable applications.

View complete specifications at: [samtec.com?S1SS](http://samtec.com?S1SS) & [samtec.com?S1ST](http://samtec.com?S1ST)


SERIES	NO. OF POSITIONS	LATCH	SERIES	01	PLATING
<b>ISS1</b> = Single Row Body	<b>-02, -03, -05, -07, -10, -15, -20</b>	(Leave blank for no latch) <b>-L</b> = Positive Latch	<b>CC09R</b> = Contact, Full Reel (25,000 Parts per Reel)		<b>-GF</b> = 3 μ" (0.07 μm) Gold contact and tail

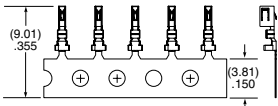


**LATCH (-L)**



**NO LATCH**





### TOOLING

Hand Tool: CAT-HT-309-2830-12

Clamp for mounting hand tool: CAT-HT-MNT-01

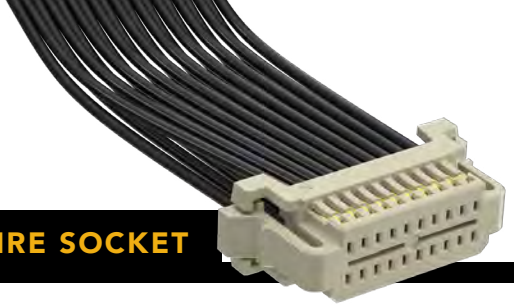
Mini Applicator: CAT-MC-309-2830-XX-01

#### Note:

Some lengths, styles and options are non-standard, non-returnable.

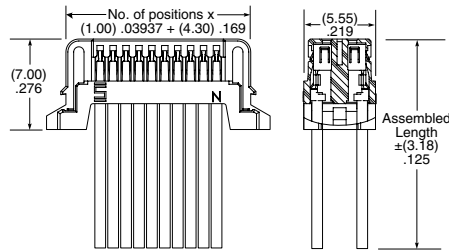
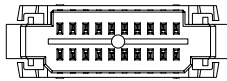
View complete specifications at: [samtec.com?ISS1](http://samtec.com?ISS1), [samtec.com?CC09R](http://samtec.com?CC09R) & [samtec.com?CC09M](http://samtec.com?CC09M)

## (1.00 mm) .0394" PITCH • DOUBLE ROW DISCRETE WIRE SOCKET



SERIES	PINS PER ROW	WIRE GAUGE	PLATING OPTION	ASSEMBLED LENGTH	WIRING OPTION
<b>S1SD</b> = Double Row PVC Cable  <b>S1SDT</b> = Double Row Blue *Teflon™ Fluoropolymer Cable	-02, -03 -04, -05, -10, -15, -20 (Standard sizes)	-28 = 28 AWG  -30 = 30 AWG	-GF = 3 μ" (0.07 μm) Gold on contact and tail	-"XX.XX" = Assembled Length in Inches (45.72 mm) 01.80" min.	<b>Double Ended Assemblies</b> -L1 = Pin 1 to Pin 1 -L2 = Pin 1 to Pin 2 -L3 = Pin 1 to Pin N -L4 = Pin 1 to Pin N-1  <b>Single Ended Assembly</b> -L = Latching

**S1SD(T)**  
**Board Mates:**  
 T1M  
**Cable Mates:**  
 T1SD(T), T1PD(T)




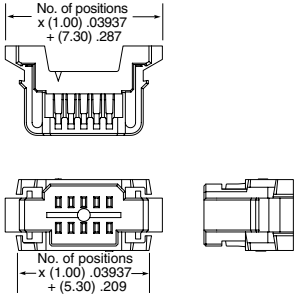

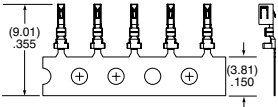
### SPECIFICATIONS

**Insulator Material:**  
White Nylon  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Au over 50 μ" (1.27 μm) Ni  
**Operating Temp Range (S1SD(T)/T1M):**  
 -10 °C to +85 °C (PVC)  
 -40 °C to +125 °C (\*Teflon™ Fluoropolymer)  
**Current Rating (28 AWG):**  
 2.3 A per pin  
 (2 pins powered)  
**Voltage Rating:**  
 250 VAC/353 VDC  
**Wire:**  
 28 or 30 AWG

\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

**Note:**  
Teflon™ Fluoropolymer cable is intended for crimp only. Contact Samtec for solderable cable applications.

View complete specifications at: [samtec.com?S1SD](http://samtec.com?S1SD) & [samtec.com?S1SDT](http://samtec.com?S1SDT)

SERIES	NO. OF POSITIONS	SERIES	01	PLATING
<b>ISD1</b> = Double Row Body	-02, -03, -04, -05, -10, -15, -20 (Per Row)	<b>CC09R</b> = Contact, Full Reel (25,000 Parts per Reel)  <b>CC09M</b> = Contact, Mini Reel (5,000 Parts per Reel)		-GF = 3 μ" (0.07 μm) Gold contact and tail
				

### TOOLING

Hand Tool: CAT-HT-309-2830-12

Clamp for mounting hand tool: CAT-HT-MNT-01

Mini Applicator: CAT-MC-309-2830-XX-01

**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?ISD1](http://samtec.com?ISD1), [samtec.com?CC09R](http://samtec.com?CC09R) & [samtec.com?CC09M](http://samtec.com?CC09M)

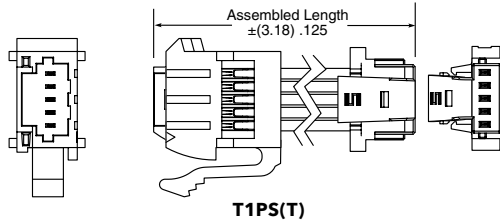
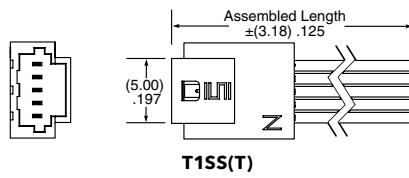


## (1.00 mm) .0394" • SINGLE ROW DISCRETE WIRE TERMINAL

SERIES	NO. OF POSITIONS	WIRE GAUGE	PLATING OPTION	ASSEMBLED LENGTH	PANEL OPTION	PINOUT
<b>T1SS</b> = Single Row Non-Panel Mount PVC Cable  <b>T1PS</b> = Single Row Panel Mount PVC Cable  <b>T1SST</b> = Single Row Non-Panel Mount Blue *Teflon™ Fluoropolymer Cable  <b>T1PST</b> = Double Row Panel Mount Blue *Teflon™ Fluoropolymer Cable  <b>T1SS(T), T1PS(T)</b> Cable Mates: S1SS, S1SST	-02 positions not available with T1PS or T1PST)  -02 thru -10 (Per Row)	-28 = 28 AWG  -28C = 28 AWG Color Coded Cable (T1SS & T1PS only)  -30 = 30 AWG  -30C = 30 AWG Color Coded Cable (T1SS & T1PS only)	-GF = 3 μ" (0.07 μm) Gold on contact and tail	-"XX.X" = Assembled Length in Inches (45.7 mm) 01.8" min.	(Leave blank for non-panel mount)  -A = Fits .033" (0.84 mm), .062" (1.57 mm) and .090" (2.29 mm) Thick Panels	(Leave blank for single ended assembly)  -D1 = Double Ended down (Not available with T1PS or T1PST)  -D3 = Double Ended up (Not available with T1PS or T1PST)  -T1 = Transfer to socket down  -T3 = Transfer to socket up

### -28C, -30C CABLE COLOR CODING

PIN	COLOR
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	BLUE
7	VIOLET
8	GRAY
9	WHITE
10	BLACK
ETC	REPEAT



### SPECIFICATIONS

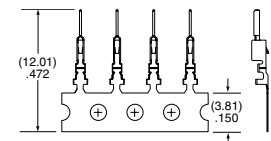
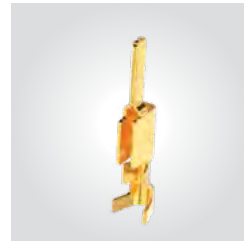
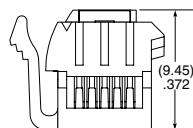
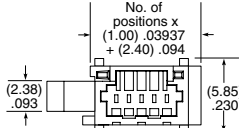
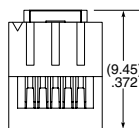
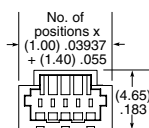
**Insulator Material:** Nylon, Light Green  
**Contact Material:** Phosphor Bronze  
**Plating:** Au over 50 μ" (1.27 μm) Ni  
**Operating Temp Range:** -10 °C to +80 °C (PVC) -40 °C to +125 °C (\*Teflon™ Fluoropolymer)  
**Wire:** 28 or 30 AWG

\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

**Note:** Teflon™ Fluoropolymer cable is intended for crimp only. Contact Samtec for solderable cable applications.

View complete specifications at: [samtec.com?T1SS](http://samtec.com?T1SS), [samtec.com?T1SST](http://samtec.com?T1SST), [samtec.com?T1PS](http://samtec.com?T1PS) & [samtec.com?T1PST](http://samtec.com?T1PST)

SERIES	NO. OF POSITIONS	PANEL THICKNESS	SERIES	01	PLATING
<b>IST1</b> = Single Row Body  <b>ISP1</b> = Single Row Panel Mount Body	-02 thru -10 (IST1 Body)  -03 thru -10 (ISP1 Body)	(Leave blank for IST1)  -A = Fits 0.84 mm, 1.57 mm & 2.29 mm Thick Panels	<b>TC37R</b> = Contact, Full Reel (25,000 Parts per Reel)  <b>TC37M</b> = Contact, Mini Reel (1,000 - 5,000 Parts per Reel)		-GF = 3 μ" (0.07 μm) Gold contact and tail



### TOOLING

Hand Tool: CAT-HT-1137-2830-12

Mini Applicator: CAT-MC-309-2830-XX-01

**Note:** Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?IST1](http://samtec.com?IST1), [samtec.com?ISP1](http://samtec.com?ISP1), [samtec.com?TC37R](http://samtec.com?TC37R) & [samtec.com?TC37M](http://samtec.com?TC37M)

## (1.00 mm) .0394" PITCH • DOUBLE ROW DISCRETE WIRE TERMINAL

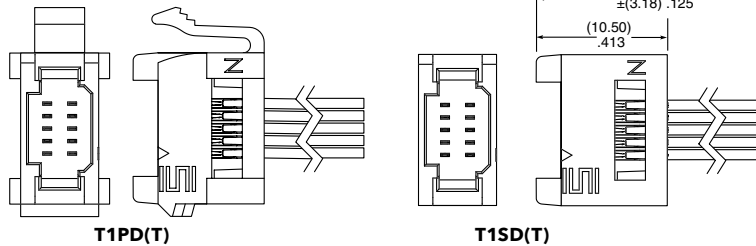


SERIES	NO. OF POSITIONS	WIRE GAUGE	PLATING OPTION	ASSEMBLED LENGTH	PANEL OPTION	PINOUT																										
<b>T1SD</b> = Double Row Non-Panel Mount PVC Cable  <b>T1PD</b> = Double Row Panel Mount PVC Cable  <b>T1SDT</b> = Double Row Non-Panel Mount Blue *Teflon™ Fluoropolymer Cable  <b>T1PDT</b> = Double Row Panel Mount Blue *Teflon™ Fluoropolymer Cable	<b>-02 thru -10</b> (Per Row)	<b>-28</b> = 28 AWG  <b>-28C</b> = 28 AWG Color Coded Cable (T1SD & T1PD only)  <b>-30</b> = 30 AWG  <b>-30C</b> = 30 AWG Color Coded Cable (T1SD & T1PD only)	<b>-GF</b> = 3 μ" (0.07 μm) Gold on contact and tail  <table border="1"> <thead> <tr> <th colspan="2">-28C, -30C CABLE COLOR CODING</th> </tr> <tr> <th>PIN</th> <th>COLOR</th> </tr> </thead> <tbody> <tr><td>1</td><td>BROWN</td></tr> <tr><td>2</td><td>RED</td></tr> <tr><td>3</td><td>ORANGE</td></tr> <tr><td>4</td><td>YELLOW</td></tr> <tr><td>5</td><td>GREEN</td></tr> <tr><td>6</td><td>BLUE</td></tr> <tr><td>7</td><td>VIOLET</td></tr> <tr><td>8</td><td>GRAY</td></tr> <tr><td>9</td><td>WHITE</td></tr> <tr><td>10</td><td>BLACK</td></tr> <tr><td>ETC</td><td>REPEAT</td></tr> </tbody> </table>	-28C, -30C CABLE COLOR CODING		PIN	COLOR	1	BROWN	2	RED	3	ORANGE	4	YELLOW	5	GREEN	6	BLUE	7	VIOLET	8	GRAY	9	WHITE	10	BLACK	ETC	REPEAT	<b>"XX.X"</b> = Assembled Length in Inches (45.7 mm) 01.8" min.	(Leave blank for non-panel mount)  <b>-A</b> = Fits .033" (0.84 mm), .062" (1.57 mm) and .090" (2.29 mm) Thick Panels	(Leave blank for single ended assembly)  <b>-D1</b> = Double Ended down (Not available with T1PD or T1PDT)  <b>-D3</b> = Double Ended up (Not available with T1PD or T1PDT)  <b>-T1</b> = Transfer to socket down  <b>-T3</b> = Transfer to socket up
-28C, -30C CABLE COLOR CODING																																
PIN	COLOR																															
1	BROWN																															
2	RED																															
3	ORANGE																															
4	YELLOW																															
5	GREEN																															
6	BLUE																															
7	VIOLET																															
8	GRAY																															
9	WHITE																															
10	BLACK																															
ETC	REPEAT																															

**T1SD(T), T1PD(T)**  
Cable Mates:  
S1SD, S1SDT

### SPECIFICATIONS


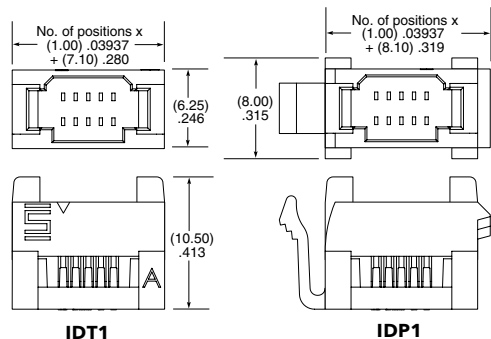

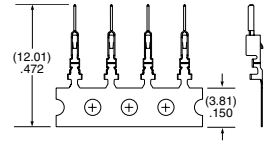
**Insulator Material:** Nylon, White  
**Contact Material:** Phosphor Bronze  
**Plating:** Au over 50 μ" (1.27 μm) Ni  
**Operating Temp Range:** -10 °C to +80 °C (PVC)  
 -40 °C to +125 °C (\*Teflon™ Fluoropolymer)  
**Wire:** 28 or 30 AWG



\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

**Note:** Teflon™ Fluoropolymer cable is intended for crimp only. Contact Samtec for solderable cable applications.

View complete specifications at: [samtec.com?T1SD](http://samtec.com?T1SD), [samtec.com?T1SDT](http://samtec.com?T1SDT), [samtec.com?T1PD](http://samtec.com?T1PD) & [samtec.com?T1PDT](http://samtec.com?T1PDT)

SERIES	NO. OF POSITIONS	PANEL THICKNESS	SERIES	01	PLATING
<b>IDT1</b> = Double Row Body  <b>IDP1</b> = Double Row Panel Mount Body	<b>-02 thru -10</b> (per row)	(Leave blank for IDT1)  <b>-A</b> = Fits 0.84 mm, 1.57 mm & 2.29 mm Thick Panels	<b>TC37R</b> = Contact, Full Reel (25,000 Parts per Reel)  <b>TC37M</b> = Contact, Mini Reel (1,000 - 5,000 Parts per Reel)		<b>-GF</b> = 3 μ" (0.07 μm) Gold contact and tail
					

**Note:** Some lengths, styles and options are non-standard, non-returnable.

### TOOLING

Hand Tool: CAT-HT-1137-2830-12

Mini Applicator: CAT-MC-309-2830-XX-01

View complete specifications at: [samtec.com?IDT1](http://samtec.com?IDT1), [samtec.com?IDP1](http://samtec.com?IDP1), [samtec.com?TC37R](http://samtec.com?TC37R) & [samtec.com?TC37M](http://samtec.com?TC37M)

**(1.27 mm) .050" PITCH • DISCRETE WIRE ASSEMBLY/COMPONENTS**

SERIES	POSITIONS PER ROW	WIRE GAUGE	PLATING OPTION	ASSEMBLED LENGTH	END OPTION	END 2 OPTION
--------	-------------------	------------	----------------	------------------	------------	--------------

**SFSS**  
= Single Row  
PVC Cable

**SFSST**  
= Single Row  
Blue \*Teflon™  
Fluoropolymer  
Cable

**-03, -04, -05,  
-07, -10, -15,  
-20, -25, -40, -50**  
(Standard sizes)

**-28**  
= 28 AWG

**-28C**  
= Color  
Coded Cable  
(SFSS only)

**-30**  
= 30 AWG

**-G**  
= 10 μm  
(0.25 μm)  
Gold on  
contact,  
Gold Flash  
on balance

**-"XX.XX"**  
= Assembled  
Length in Inches  
(76.20 mm)  
03.00" min. for  
-S end option  
(82.60 mm)  
03.25" min. for  
-D end option

**-S**  
= Single Ended

**-D**  
= Double Ended

**-SR**  
= Single Ended  
Retention Latch  
(TFM-WT option  
required for mating)

**-DR**  
= Double Ended  
Retention Latch  
(TFM-WT option  
required for mating)

Requires  
-D or -DR  
(End 1 Notch Up)

**-NUS**  
= Notch up,  
straight  
(Pin 1 to Pin N)

**-NDS**  
= Notch down,  
straight  
(Pin 1 to Pin 1)

-28C CABLE COLOR CODING	
PIN	COLOR
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	VIOLET
7	GRAY
8	WHITE
9	BLACK
10	BLUE
ETC	REPEAT

**SFSS(T)**

**Board Mates:**

TFM, TFC

(-SR & -DR requires  
-WT option)

**SPECIFICATIONS**

**Insulator Material:**

Black LCP

**Contact Material:**

BeCu

**Plating:**

Au over 50 μm (1.27 μm) Ni

**Current Rating:**

2.9 A per pin (2 pins powered)

**Operating Temp Range:**

-10 °C to +80 °C (PVC)

-40 °C to +125 °C

(\*Teflon™ Fluoropolymer)

**Voltage Rating:**

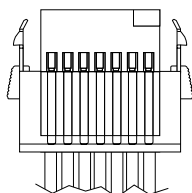
275 VAC (PVC)

235 VAC

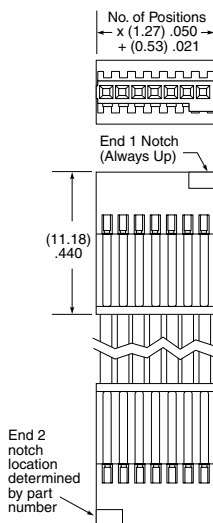
(\*Teflon™ Fluoropolymer)

**Wire:**

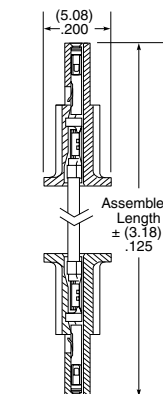
28 or 30 AWG



**-SR**



**-D-NUS**



**SFSS OR SFSST**

\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

**Notes:**  
Teflon™ Fluoropolymer cable is intended for crimp only. Contact Samtec for solderable cable applications.

For wiring option information refer to drawings on web.

View complete specifications at: [samtec.com?SFSS](http://samtec.com?SFSS) & [samtec.com?SFSST](http://samtec.com?SFSST)

ISDF	POSITIONS PER ROW	ROW OPTION	OPTION	SERIES	WIRE GAUGE	01	PLATING
------	-------------------	------------	--------	--------	------------	----	---------

**-03, -04, -05,  
-07, -10, -15,  
-20, -25, -40, -50**  
(Standard sizes)

**-S**  
= Single  
Row

**-M**  
= Metal  
Retention  
Latch

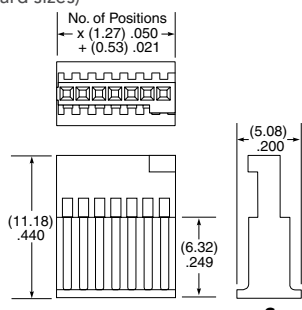
**CC03R**  
= Contact, Full Reel  
(35,000 Parts per Reel)

**-2830**  
= 28 to 30  
AWG

**-GF**  
= Gold flash  
contact

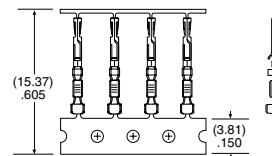
**CC03M**  
= Contact, Mini Reel  
(1,000 - 5,000 Parts  
per Reel)

**-G**  
= 10 μm (0.25 μm)  
Gold on contact



**-S**

**-M**



**TOOLING**

Hand Tool: CAT-HT-203-2830-12

Mini Applicator: CAT-MC-203-2830-XX-01

Clamp for mounting hand tool: CAT-HT-MNT-01

Extraction Tool: CAT-EX-169-01

**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

View complete specifications at: [samtec.com?ISDF](http://samtec.com?ISDF), [samtec.com?CC03R](http://samtec.com?CC03R) & [samtec.com?CC03M](http://samtec.com?CC03M)



**(1.27 mm) .050" PITCH • DISCRETE WIRE ASSEMBLY/COMPONENTS**

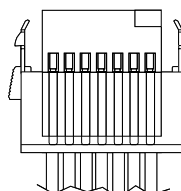
SERIES	POSITIONS PER ROW	WIRE GAUGE	PLATING OPTION	ASSEMBLED LENGTH	END OPTION	END 2 OPTION
<b>SFSD</b> = Double Row PVC Cable  <b>SFSDT</b> = Double Row Blue *Teflon™ Fluoropolymer Cable	<b>-03, -04, -05, -07, -10, -15, -20, -25, -40, -50</b> (Standard sizes)	<b>-28</b> = 28 AWG  <b>-28C</b> = Color Coded Cable (SFSD only)  <b>-30</b> = 30 AWG	<b>-G</b> = 10 μ" (0.25 μm) Gold on contact, Gold Flash on balance	<b>-"XX.XX"</b> = Assembled Length in Inches (76.20 mm) 03.00" min. for -S end option (82.60 mm) 03.25" min. for -D end option	<b>-S</b> = Single Ended  <b>-D</b> = Double Ended For -(X) specify "S" for single ended and "D" for double ended.  <b>-(X)R</b> = Retention Latch (TFM-WT option required for mating)  <b>-(X)S</b> = Screw Down (Not available in -03, -04 & -50 positions) (Mates with TFM-DS option)	Requires -D, -DS, -DR (End 1 Notch Up)  <b>-NUS</b> = Notch up, straight (Pin 1 to Pin N-1)  <b>-NDS</b> = Notch down, straight (Pin 1 to Pin 2)  <b>-NUX</b> = Notch up, crossed (Pin 1 to Pin N)  <b>-NDX</b> = Notch down, crossed (Pin 1 to Pin 1)

**SFSD(T) Board Mates:** TFM, TFML, TFC (-SR & -DR requires -WT option)

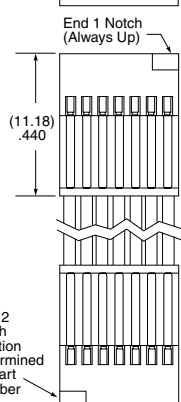
**SPECIFICATIONS**

**Insulator Material:** Black LCP  
**Contact Material:** BeCu  
**Plating:** Au over 50 μ" (1.27 μm) Ni  
**Current Rating:** 2.9 A per pin (2 pins powered)  
**Operating Temp Range:** -10 °C to +80 °C (PVC) -40 °C to +125 °C (\*Teflon™ Fluoropolymer)  
**Voltage Rating:** 280 VAC (PVC) 313 VAC (\*Teflon™ Fluoropolymer)  
**Wire:** 28 or 30 AWG

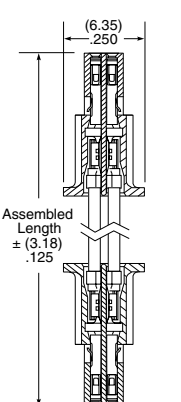
PIN	COLOR
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	VIOLET
7	GRAY
8	WHITE
9	BLACK
10	BLUE
ETC	REPEAT



**-SR**



**-D-NUS**



**SFSD OR SFSDT**


\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

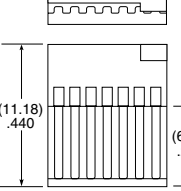
**Notes:** Teflon™ Fluoropolymer cable is intended for crimp only. Contact Samtec for solderable cable applications.

For wiring option information refer to drawings on web.

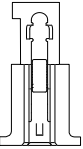
View complete specifications at: [samtec.com?SFSD](http://samtec.com?SFSD) & [samtec.com?SFSDT](http://samtec.com?SFSDT)

ISDF	POSITIONS PER ROW	ROW OPTION	OPTION	SERIES	WIRE GAUGE	01	PLATING
	<b>-03, -04, -05, -07, -10, -15, -20, -25, -40, -50</b> (Standard sizes)	<b>-D</b> = Double Row	<b>-M</b> = Metal Retention Latch  <b>-S</b> = Screw Down	<b>CC03R</b> = Contact, Full Reel (35,000 Parts per Reel)  <b>CC03M</b> = Contact, Mini Reel (1,000 - 5,000 Parts per Reel)	<b>-2830</b> = 28 to 30 AWG		<b>-GF</b> = Gold flash contact  <b>-G</b> = 10 μ" (0.25 μm) Gold on contact

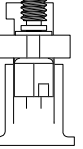





**-D**

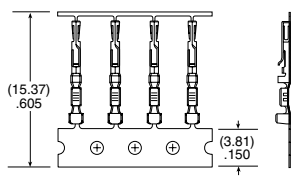


**-M**



**-S**





**TOOLING**

Hand Tool: CAT-HT-203-2830-12	Mini Applicator: CAT-MC-203-2830-XX-01
Clamp for mounting hand tool: CAT-HT-MNT-01	Extraction Tool: CAT-EX-169-01

**Note:** Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?ISDF](http://samtec.com?ISDF), [samtec.com?CC03R](http://samtec.com?CC03R) & [samtec.com?CC03M](http://samtec.com?CC03M)

**(2.00 mm) .0787" PITCH • CABLE ASSEMBLY/COMPONENTS**



SERIES	PINS PER ROW	WIRE GAUGE	PLATING OPTION	ASSEMBLED LENGTH	END OPTIONS	END 2 OPTIONS
<b>S2SD</b> = Double Row PVC Cable	<b>-05, -07, -10, -15, -20, -25, -30</b> (Standard sizes)	<b>-24</b> <b>-24C</b> = Color Coded Cable (S2SD only)	<b>-L</b> = 10 μ" (0.25 μm) Gold on contact	<b>-"XX.XX"</b> = Wire Length in Inches (69.85 mm) 02.75" min.	<b>-S</b> = Single End <b>-D</b> = Double End Specify "S" for single ended and "D" for double ended. <b>-(X)R</b> = Retention Latch (-SR mates with T2M-WT) <b>-(X)S</b> = Screw Down (10 positions minimum) (mates with T2M-DS)	(Only available with -D, -DR & -DS) <b>-NUS</b> = Notch up, straight (Pin 1 to Pin N-1) <b>-NDS</b> = Notch down, straight (Pin 1 to Pin 2) <b>-NUX</b> = Notch up, crossed (Pin 1 to Pin N) <b>-NDX</b> = Notch down, crossed (Pin 1 to Pin 1)
<b>S2SDT</b> = Double Row Blue *Teflon™ Fluoropolymer Cable (24, 28, 30 AWG only)		<b>-26</b> <b>-28</b> <b>-30</b>				

**S2SD(T)**

Board Mates:

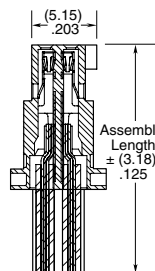
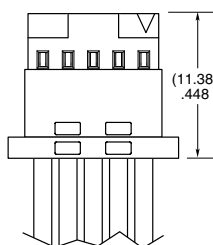
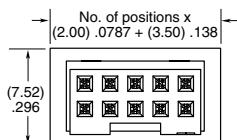
T2M

**SPECIFICATIONS**

**Insulator Material:**  
Black LCP  
**Contact Material:**  
BeCu  
**Plating:**  
Au over 50 μ" (1.27 μm) Ni  
**Wire:**  
24, 26, 28 or 30 AWG  
**Operating Temp Range:**  
-10 °C to +105 °C (PVC)  
-40 °C to +125 °C  
(\*Teflon™ Fluoropolymer)  
**Current Rating  
(S2SD-24/T2M):**  
3.8 A per pin  
(2 pins powered)  
**Voltage Rating:**  
250 VAC

**-24C CABLE  
COLOR CODING**

PIN	COLOR
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	VIOLET
7	GRAY
8	WHITE
9	BLACK
10	BLUE
ETC	REPEAT



\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

**Notes:**  
Teflon™ Fluoropolymer cable is intended for crimp only. Contact Samtec for solderable cable applications.

For wiring option information refer to drawings on web.

View complete specifications at: [samtec.com?S2SD](http://samtec.com?S2SD) & [samtec.com?S2SDT](http://samtec.com?S2SDT)

ISD2	POSITIONS PER ROW	ROW OPTION	LATCH OPTION	SERIES	WIRE GAUGE	01	PLATING OPTION
	<b>-05, -07, -10, -15, -20, -25, -30</b> (Standard sizes)	<b>-D</b> = Double Row	<b>-M</b> = Metal Retention Latch  <b>-S</b> = Screw Down	<b>CC81L</b> = Contact, Loose  <b>CC81R</b> = Contact, Full Reel (17,000 Parts per Reel)	<b>-2426</b> = 24 to 26 AWG  <b>-2830</b> = 28 to 30 AWG		<b>-L</b> = 10 μ" (0.25 μm) Gold on contact

**TOOLING**

Hand Tool: CAT-HT-281-2430-13

Mini Applicator: CAT-MC-281-2426-XX-01 (24-26 AWG)

Extraction Tool: CAT-EX-169-01

Mini Applicator: CAT-MC-281-2830-XX-01 (28-30 AWG)

**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?ISD2](http://samtec.com?ISD2), [samtec.com?CC81R](http://samtec.com?CC81R) & [samtec.com?CC81L](http://samtec.com?CC81L)



**(0.80 mm) .0315" PITCH • DISCRETE WIRE CABLE ASSEMBLY/COMPONENTS**

SESDT	POSITIONS PER ROW	32	PLATING OPTION	ASSEMBLED LENGTH	OPTIONS
-------	-------------------	----	----------------	------------------	---------

= Double Row  
Blue \*Teflon™  
Fluoropolymer Cable  
(32 AWG)

**-05, -10, -15, -20**  
(Standard sizes)

**-G**  
= 10 μ" (0.25 μm)  
Gold on contact area,  
3 μ" (0.08 μm) Gold on tail

**-"XX.X"**  
= Assembled  
Length in Inches  
(76.2 mm) 03.0" min.

**Double Ended Assemblies**

**-L1**  
= Pin 1 to Pin 1

**-L2**  
= Pin 1 to Pin 2

**-L3**  
= Pin 1 to Pin N-1

**-L4**  
= Pin 1 to Pin N

**Single Ended Assembly**

**-L**  
= Latching

**SESDT**

**Board Mates:**

TEM-L1

**SPECIFICATIONS**

**Insulator Material:**

Natural Nylon

**Contact Material:**

BeCu

**Plating:**

Au over 50 μ" (1.27 μm) Ni

**Wire:**

Tinned Copper

**Wire Insulation:**

FEP

**Operating Temp Range:**

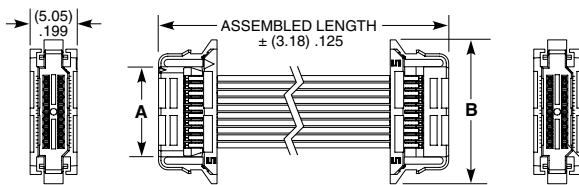
-55 °C to +125 °C

**Current Rating:**

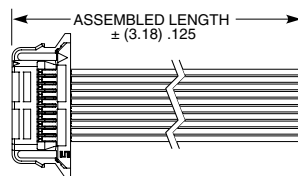
1.9 A per pin  
(2 pins powered)

**Voltage Rating:**

200 VAC/280 VDC



**DOUBLE ENDED**



**SINGLE ENDED**

NO. OF POSITIONS	A	B
-05	(5.70) .224	(11.50) .453
-10	(9.70) .382	(15.50) .610
-15	(13.70) .539	(19.50) .768
-20	(17.70) .697	(23.50) .925

\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

**Note:**

Teflon™ Fluoropolymer cable is intended for crimp only. Contact Samtec for solderable cable applications.

View complete specifications at: [samtec.com?SESDT](http://samtec.com?SESDT)

ISDE	POSITIONS PER ROW	D	L	SERIES	WIRE GAUGE	PLATING	REEL OPTIONS
------	-------------------	---	---	--------	------------	---------	--------------

**-05, -10, -15, -20**  
(Standard sizes)

**-D**  
= Dual Row

**-L**  
= Latch

**CC396**  
= Contact

**-3234**  
= 32 to 34 AWG

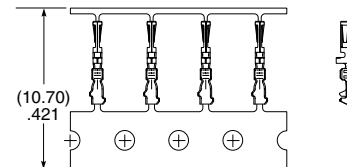
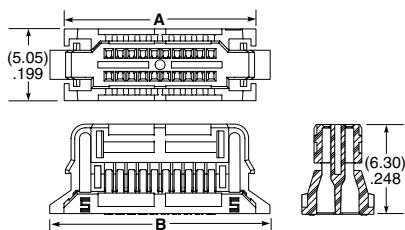
**-G**  
= 10 μ" (0.25 μm)  
Gold on contact area,  
3 μ" (0.08 μm)  
Gold on tail

**-U**  
= Micro Reel  
(4K Contacts)

**-M**  
= Mini Reel  
(15K Contacts)

**-R**  
= Reel  
(50K Contacts)

POSITIONS PER ROW	A	B
-05	(9.50) .374	(11.50) .453
-10	(13.50) .531	(15.50) .610
-15	(17.50) .689	(19.50) .768
-20	(21.50) .846	(23.50) .925



**TOOLING**

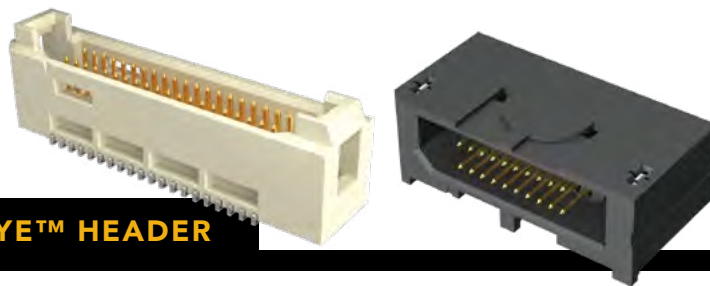
Hand Tool: CAT-HT-396-3232-12

Mini Applicator: CAT-MC-396-3232-XX-03

**Note:**

Some lengths, styles and options are non-standard, non-returnable

View complete specifications at: [samtec.com?ISDE](http://samtec.com?ISDE) & [samtec.com?CC396](http://samtec.com?CC396)



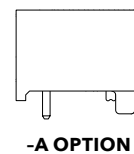
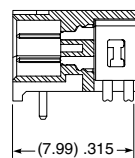
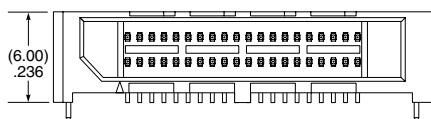
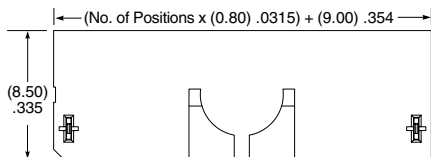
**(0.80 mm) .0315" PITCH • MICRO TIGER EYE™ HEADER**

<b>TEM</b>	<b>1</b>	<b>NO. OF POSITIONS</b>	<b>02</b>	<b>DH1</b>	<b>PLATING OPTION</b>	<b>D</b>	<b>OPTION</b>
		<b>10, 15, 20, 25, 30, 35, 40, 45, 50</b> (Per Row) (Standard sizes)			<b>-F</b> = Gold Flash on contact, Matte Tin on tail		<b>-A</b> = Alignment Pin
					<b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail		
					<b>-S</b> = 30 μ" (0.76 μm) Gold on contact, Matte Tin on tail		

**TEM-DH**  
Board Mates:  
SEM, SEML

**SPECIFICATIONS**

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Current Rating:**  
2.9 A per pin  
(2 pins powered)  
**Voltage Rating:**  
235 VAC/330 VDC  
**Operating Temp Range:**  
-55 °C to +125 °C



**PROCESSING**

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max.

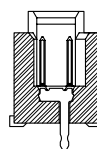
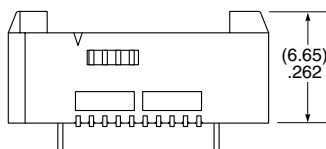
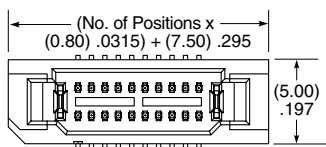
View complete specifications at: [samtec.com?TEM](http://samtec.com?TEM)

<b>TEM</b>	<b>1</b>	<b>POSITIONS PER ROW</b>	<b>02</b>	<b>03.0</b>	<b>PLATING OPTION</b>	<b>D</b>	<b>L1</b>	<b>OPTIONS</b>
		<b>05, 10, 15, 20</b> (Standard sizes)			<b>-G</b> = 10 μ" (0.25 μm) Gold on contact, Gold Flash on tail		<b>-L1</b> = Latching	<b>-K</b> = (5.50 mm) .217" DIA. Polyimide film Pick & Place Pad
								<b>-TR</b> = Tape & Reel
								<b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**TEM-L1**  
Cable Mates:  
SESDT

**SPECIFICATIONS**

**Insulator Material:**  
Natural Liquid Crystal Polymer  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Au over 50 μ" (1.27 μm) Ni  
**Current Rating:**  
1.9 A per pin (2 pins powered)  
**Voltage Rating:**  
235 VAC/330 VDC  
**Operating Temp Range:**  
-55 °C to +125 °C



**PROCESSING**

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max.

**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable

View complete specifications at: [samtec.com?TEM](http://samtec.com?TEM)

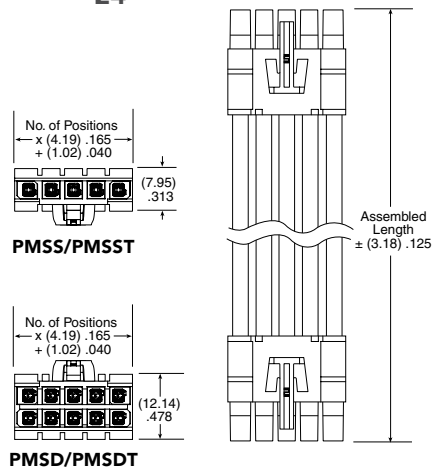


SERIES	PINS PER ROW	WIRE GAUGE	K	ASSEMBLED LENGTH	END OPTION	LATCH OPTION
<b>PMSD</b> = Double Row PVC Cable	-02,	-16	-K = Keyed Polarization	-"XX.XX" = Wire length in inches (88.90 mm) 03.50" min.	-S = Single Ended	-LUS = Plastic Latch up, straight
<b>PMSDT</b> = Double Row Blue *Teflon™ Fluoropolymer Cable (24 AWG only)	-03, -04, -05, -08, -10, -15* (Standard sizes) *Only available for double row	-18 -206 (20 AWG/600 volts)			-D = Double Ended (Latch Required)	-LDS = Plastic Latch down, straight
<b>PMSS</b> = Single Row PVC Cable		-22				-LUX* = Plastic Latch up, crossed
<b>PMSST</b> = Single Row Blue *Teflon™ Fluoropolymer Cable (24 AWG)		-24				-LDX* = Plastic Latch down, crossed

**PMSD, PMSDT, PMSS, PMSST**  
Board Mates:  
IPBT

### SPECIFICATIONS

**Insulator Material:** Valox 457  
**Contact Material:** Phosphor Bronze  
**Plating:** Sn over 50 μ" (1.27 μm) Ni  
**Operating Temp Range:** -10 °C to +105 °C (PVC)  
 -40 °C to +105 °C (Teflon™ Fluoropolymer)



PMSD/IPBT		
WIRE GAUGE	CURRENT RATING (PER PIN)	VOLTAGE RATING
16 AWG	*10.3 A	424 VAC/600 VDC (PVC)
18 AWG	*8.8 A	
22 AWG	*5.7 A	300 VAC/424 VDC (PVC)
24 AWG	*5.2 A	424 VAC/600 VDC (PVC)
		300 VAC/424 VDC (PMSXT)

\*2 PINS POWERED

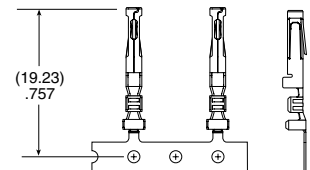
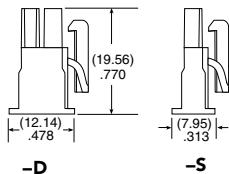
\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.

**Notes:** Teflon™ Fluoropolymer cable is intended for crimp only. Contact Samtec for solderable cable applications.

For wiring option information refer to drawing on web.

View complete specifications at: [samtec.com?PMSD](http://samtec.com?PMSD), [samtec.com?PMSDT](http://samtec.com?PMSDT), [samtec.com?PMSS](http://samtec.com?PMSS) & [samtec.com?PMSST](http://samtec.com?PMSST)

IPBD	POSITIONS PER ROW	ROW OPTION	K	SERIES	WIRE GAUGE	01	T	SP
	-02, -03, -04, -05, -08, -10, -15 (Standard sizes)	-S = Single Row -D = Double Row	-K = Keyed Polarization	<b>CC69L</b> = Contact, Loose	-2024 = 20 to 24 AWG		-T = Tin	
				<b>CC69R</b> = Contact, Full Reel (4,000 Parts per Reel)	-1620 = 16 to 20 AWG			



### TOOLING

Hand Tool: CAT-HT-169-1620-13 (16-20 AWG)  
 Hand Tool: CAT-HT-169-2024-13 (20-24 AWG)

Mini Applicator: CAT-MC-169-1620-XX-02 (16-20 AWG)  
 Mini Applicator: CAT-MC-169-2024-XX-01 (20-24 AWG)  
 Extraction Tool: CAT-EX-169-01

**Note:** Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?IPBD](http://samtec.com?IPBD), [samtec.com?CC69L](http://samtec.com?CC69L) & [samtec.com?CC69R](http://samtec.com?CC69R)





SERIES	PINS PER ROW	WIRE GAUGE	PLATING OPTION	ASSEMBLY LENGTH	END OPTION	K	LATCH OPTION
<b>MMSD</b> = Double Row PVC Cable	<b>-02, -03,</b> <b>-04, -05,</b> <b>-06, -08,</b> <b>-10, -12,</b> <b>-15, -16,</b> <b>-20, -25</b> (Standard sizes)	<b>-20</b>  <b>-20C</b> = Color Coded Cable (MMSD & MMSS only)	<b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Tin on tail	<b>-"XX.XX"</b> = Assembly Length in Inches (82.55 mm) 03.25" min.	<b>-S</b> = Single Ended  <b>-D</b> = Double Ended (Latch Required)	<b>-K</b> = Keyed Polarization	(Metal latches for more rugged environments; -02, -05 & -10 positions only)  <b>-M</b> = Single Ended, Metal Latches (Leave blank for plastic)  Double Ended (-D) Crossed requires MMSD/MMSDT  <b>-LUS</b> = Plastic Latch up, straight  <b>-LDS</b> = Plastic Latch down, straight  <b>-LUX</b> = Plastic Latch up, crossed  <b>-LDX</b> = Plastic Latch down, crossed  <b>-MUS</b> = Metal Latch up, straight  <b>-MDS</b> = Metal Latch down, straight  <b>-MUX</b> = Metal Latch up, crossed  <b>-MDX</b> = Metal Latch down, crossed
<b>MMSDT</b> = Double Row Blue *Teflon™ Fluoropolymer Cable (20, 24, 28, 30 AWG only)		<b>-24C</b> = Color Coded Cable (MMSD & MMSS only)					
<b>MMSS</b> = Single Row PVC Cable		<b>-26, -28</b>					
<b>MMSST</b> = Single Row Blue *Teflon™ Fluoropolymer Cable (20, 24, 28, 30 AWG)		<b>-28C</b> = Color Coded Cable (MMSD & MMSS only)					
<b>MMSD, MMSDT, MMSS, MMSST</b> <b>Board Mates:</b> IPL1 (Does not mate with IPT1) <b>Cable Mates:</b> MMTD(T), MMTS(T)		<b>-30</b>					

PIN	COLOR
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	BLUE
7	VIOLET
8	GRAY
9	WHITE
10	BLACK
ETC	REPEAT

### SPECIFICATIONS

**Insulator Material:** Nylon 66  
**Contact Material:** Phosphor Bronze  
**Plating:** Au or Sn over 50 μ" (1.27 μm) Ni  
**Voltage Rating:** 300 VAC

\*Teflon™ is a trademark of The Chemours Company FC, LLC used under license by Samtec.  
 Teflon™ Fluoropolymer cable is intended for crimp only. Contact Samtec for solderable cable applications.

View complete specifications at: [samtec.com?MMSD](http://samtec.com?MMSD), [samtec.com?MMSDT](http://samtec.com?MMSDT), [samtec.com?MMSS](http://samtec.com?MMSS) & [samtec.com?MMSST](http://samtec.com?MMSST)

IPD1	POSITIONS PER ROW	ROW OPTION	K	LATCH OPTION	SERIES	WIRE GAUGE	01	PLATING OPTION
	<b>-02, -03, -04,</b> <b>-05, -06, -08,</b> <b>-10, -12, -15,</b> <b>-16, -20, -25</b> (Standard sizes)	<b>-S</b> = Single Row  <b>-D</b> = Double Row	<b>-K</b> = Keyed Polarization	<b>-M</b> = Metal Latch (Metal for more rugged environments) (-02, -05 & -10 positions only)  (Leave blank for plastic latch)	<b>CC79L</b> = Contact, Loose  <b>CC79R</b> = Contact, Full Reel (12,000 Parts per Reel)	<b>-2630</b> = 26 to 30 AWG  <b>-2024</b> = 20 to 24 AWG		<b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Tin on tail

### TOOLING

Hand Tool: CAT-HT-179-2030-13 (20-30 AWG)

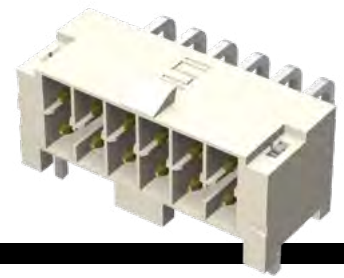
Mini Applicator: CAT-MC-179-2024-XX-01 (20-24 AWG)

Mini Applicator: CAT-MC-179-2630 XX-01 (26-30 AWG)

Extraction Tool: CAT-EX-179-01

**Not:** Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?IPD1](http://samtec.com?IPD1), [samtec.com?CC79L](http://samtec.com?CC79L) & [samtec.com?CC79R](http://samtec.com?CC79R)



IPL1	1	PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	TAIL OPTION	K	OPTION
		02, 03, 04, 05, 06, 08, 10, 12, 15, 16, 20, 25 (Standard sizes)	<b>-01</b> = Through-hole  <b>-02</b> = Surface Mount	<b>-L</b> = 10 μm (0.25 μm) Gold on contact, Matte Tin on tail	<b>-S</b> = Single Row  <b>-SH</b> = Single Row Horizontal (-02 lead style only)  <b>-D</b> = Double Row	<b>-RA</b> = Right-angle (-01 lead style only)  <b>-RE1</b> = Right-angle Elevated (-01 lead style only) (-K is a required callout)	<b>-K</b> = Keyed Polarization	<b>-TR</b> = Tape & Reel (-02 lead style only) Comes with Polyimide Pick & Place Pad  <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-02 lead style only) Comes with Polyimide Pick & Place Pad

## IPL1

### Cable Mates:

MMSD, MMSS,  
MMSDT, MMSST

## SPECIFICATIONS

### Insulator Material:

Natural LCP

### Terminal Material:

Phosphor Bronze

### Plating:

Sn or Au over

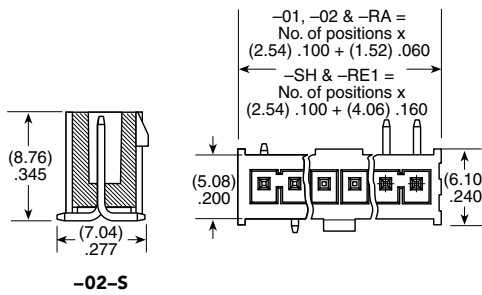
50 μm (1.27 μm) Ni

### Operating Temp Range:

-55 °C to +125 °C

### Voltage Rating:

675 VAC/954 VDC



MMSD/IPL1	
WIRE GAUGE	CURRENT RATING (PER PIN)
20	4.8 A
22	4.3 A
24	3.9 A
26	3.5 A
28	2.6 A
30	2.1 A

2 PINS POWERED

## PROCESSING

### Lead-Free Solderable:

Yes

### -S & -D (-02 Lead Style)

### SMT Lead Coplanarity:

(0.10 mm) .004" max (02-05)

(0.13 mm) .005" max (06-10)\*

(0.15 mm) .006" max (11-25)\*

\*(.004" stencil solution

may be available; contact

IPG@samtec.com)

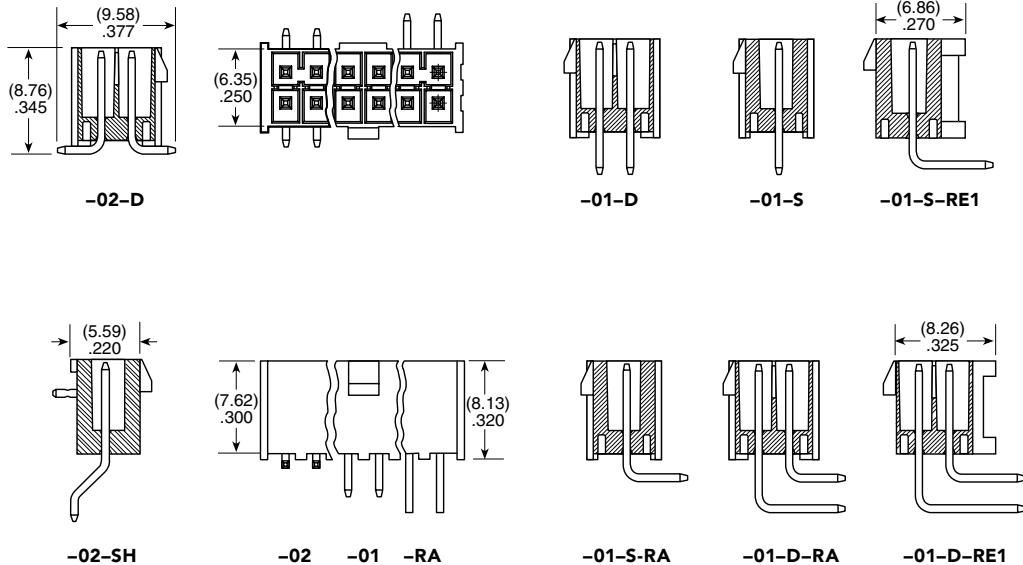
### -SH SMT Lead Coplanarity:

(0.15 mm) .006" max (02-25)\*

\*(.004" stencil solution

may be available; contact

ipg@samtec.com)



## ALSO AVAILABLE

MOQ Required

Other sizes

With or without plug polarization

Guide post holes

Other platings

Weld tab

### Note:

Some lengths, styles and options are non-standard, non-returnable.

View complete specifications at: [samtec.com?IPL1](http://samtec.com?IPL1)



## (5.00 mm) .1969" PITCH • 30 A CABLE ASSEMBLY/COMPONENTS

MPSS	NO. OF POSITIONS	WIRE GAUGE	PLATING OPTION	ASSEMBLED LENGTH	END 1 OPTION	END 2 OPTION
------	------------------	------------	----------------	------------------	--------------	--------------

-02, -03,  
-04, -06, -08

-14  
-16

-L  
= 10 μ" (0.25 μm)  
Gold on contact  
  
-T  
= Matte Tin

"XX.XX"  
= Wire length in  
inches (83.00 mm)  
03.25" min.

-SR  
= Single End  
  
-DR  
= Double End

(Available with -DR only)

-NUS  
= Notch up, straight  
  
-NDS  
= Notch down, straight

### MPSS

Board Mates:

MPT

### SPECIFICATIONS

**Insulator Material:**

Nylon 6/6

**Contact Material:**

Copper Alloy

**Plating:**

Au or Sn over

50 μ" (1.27 μm) Ni

**Latch:**

Nylon 6/6

**Operating Temp Range:**

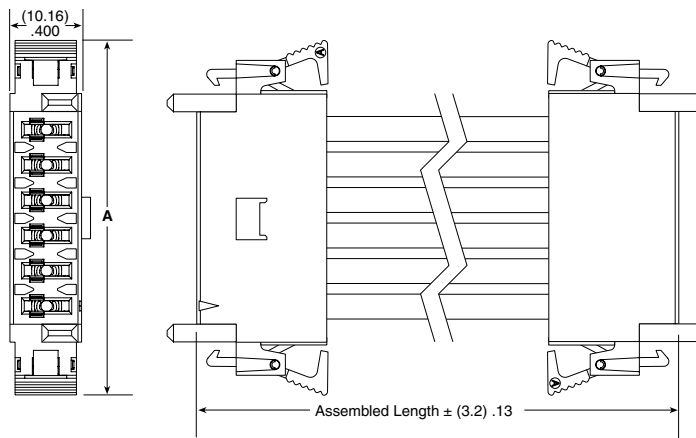
-30 °C to +105 °C

**Voltage Rating:**

600 VAC/848 VDC

**Wire:**

14 or 16 AWG



NO. OF POSITIONS	A
-02	(30.07) 1.184
-03	(35.07) 1.381
-04	(40.08) 1.578
-06	(50.09) 1.972
-08	(60.10) 2.366

MPSS/MPT-V	
WIRE GAUGE	CURRENT RATING (PER PIN)
14 AWG	19.7 A
16 AWG	15.9 A
1 PIN POWERED	

View complete specifications at: [samtec.com?MPSS](http://samtec.com?MPSS)

IMS5	POSITIONS PER ROW	02	SERIES	WIRE GAUGE	01	PLATING OPTION
------	-------------------	----	--------	------------	----	----------------

-02, -03, -04, -06, -08

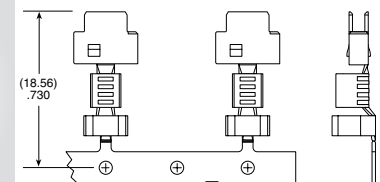
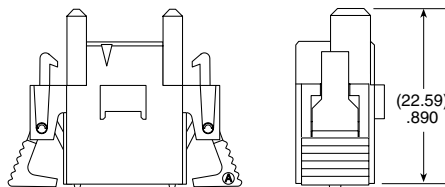
CC46L  
= Contact, Loose

-1416  
= 14 to 16 AWG

-L  
= 10 μ"  
(0.25 μm)  
Gold on contact

CC46R  
= Contact,  
Full Reel

-T  
= Matte Tin



### TOOLING

Hand Tool: CAT-HT-246-1416-14 (14-16 AWG)

Mini Applicator: CAT-MC-246-1416-XX-02 (14-16 AWG)

Extraction Tool: CAT-EX-MPSS-01

**Note:**

Some lengths, styles and options are non-standard, non-returnable

View complete specifications at: [samtec.com?IMS5](http://samtec.com?IMS5), [samtec.com?CC46L](http://samtec.com?CC46L) & [samtec.com?CC46R](http://samtec.com?CC46R)



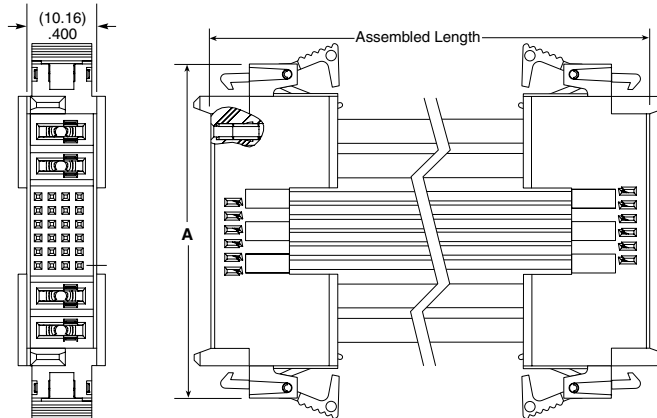
## 30 SIGNAL/POWER COMBO CABLE ASSEMBLY/COMPONENTS

MPCC	2	SIGNAL PINS	2	PLATING OPTION	LEAD STYLE	LENGTH	END 1 OPTION	END 2 OPTION
		-16 = Total Signal Pins		-L = 10 μ" (0.25 μm) Gold on contact, Tin on tail (Power & Signal)	Specify LEAD STYLE from chart	-"XX.XX" = Assembled Length in Inches (101.60 mm) 04.00" min.	-S = Single End	(Available with -D only)
		-24 = Total Signal Pins		-T = Tin on contact and tail (Power), Gold on contact, Tin on tail (Signal)			-D = Double End	-NUS = Notch up, straight (Pin A1 to Pin AX)

**MPCC**  
Board Mates:  
MPTC

### SPECIFICATIONS

**Insulator Material:**  
Black LCP  
**Contact Material:**  
Signal: BeCu  
Power: Copper Alloy  
**Plating:**  
Sn or Au over 50 μ" (1.27 μm) Ni  
**Current Rating:**  
**Signal Pin (24 AWG):**  
3.4 A per pin  
(4 adjacent pins powered)  
**Power Pin (14 AWG):**  
23.2 A per pin  
(1 pin powered)  
**Operating Temp Range:**  
-10 °C to +105 °C  
**Voltage Rating:**  
250 VAC

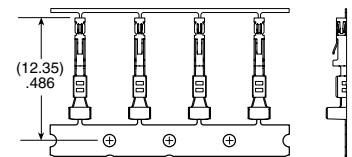
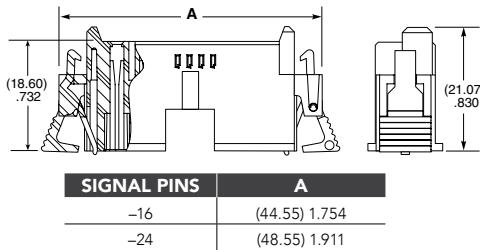


SIGNAL PINS	A
16	(44.55) 1.754
24	(48.55) 1.911

LEAD STYLE	PWR/SIG	AWG
-44	PWR	14
	SIG	24
-46	PWR	14
	SIG	26
-48	PWR	14
	SIG	28
-40	PWR	14
	SIG	30
-64	PWR	16
	SIG	24
-66	PWR	16
	SIG	26
-68	PWR	16
	SIG	28
-60	PWR	16
	SIG	30

View complete specifications at: [samtec.com?MPCC](http://samtec.com?MPCC)

IMSC5	POWER PINS	SIGNAL PINS	POWER PINS	L	SERIES	WIRE GAUGE	01	PLATING OPTION
	-02 = Power Pins Per End	-16 = Total Signal Pins	-02 = Power Pins Per End	-L = Latch	CC81L = Contact, Loose	-2426 = 24 to 26 AWG		-L = 10 μ" (0.25 μm) Gold on contact
		-24 = Total Signal Pins			CC81R = Contact, Full Reel (17,000 Parts per Reel)	-2830 = 28 to 30 AWG		



**Note:** Power contact (CC46 Series) information on page 246.

### TOOLING

Hand Tool: CAT-HT-281-2430-13 (Signal: 24-30 AWG)  
CAT-HT-246-1416-13 (Power: 14-16 AWG)

Extraction Tool: CAT-EX-169-01 (Signal)  
CAT-EX-MPSS-01 (Power)

Mini Applicator: CAT-MC-246-1416-XX-01 (Power 14-16 AWG)  
CAT-MC-281-2426-XX-01 (Signal: 24-26 AWG)  
CAT-MC-281-2830-XX-01 (Signal: 28-30 AWG)

**Note:** Some lengths, styles and options are non-standard, non-returnable

View complete specifications at: [samtec.com?IMSC5](http://samtec.com?IMSC5), [samtec.com?CC81R](http://samtec.com?CC81R) & [samtec.com?CC81L](http://samtec.com?CC81L)



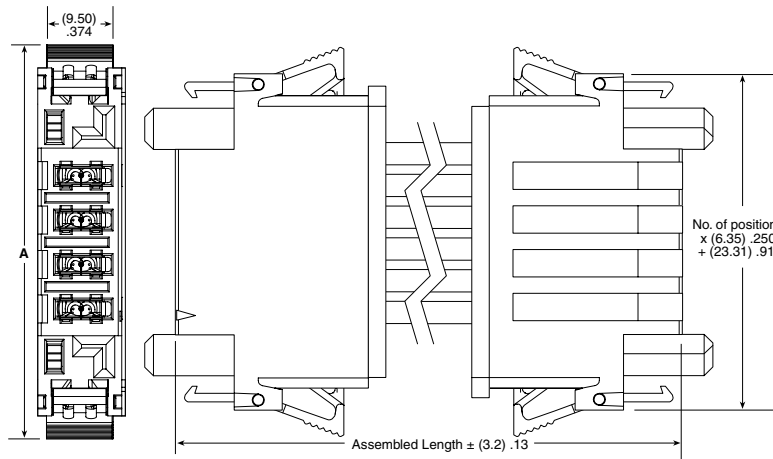
## (6.35 mm) .250" PITCH • 40 A CABLE ASSEMBLY/COMPONENTS

PESS	NO. OF POSITIONS	WIRE GAUGE	PLATING OPTION	ASSEMBLED LENGTH	END 1 OPTION	END 2 OPTION
	-02, -04, -06, -08	-10 -12	-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail  -T = Matte Tin on tail	-"XX.XX" = Wire length in inches (152.4 mm) 06.00" min.	-SR = Single End  -DR = Double End	(Available with -DR only)  -NUS = Notch up, straight (Available with -DR only)  -NDS = Notch down, straight

**PESS**  
Board Mates:  
PET

### SPECIFICATIONS

**Insulator Material:**  
Nylon Black  
**Contact Material:**  
Copper Alloy  
**Plating:**  
Sn or Au over  
50 μ" (1.27 μm) Ni  
**Operating Temp Range:**  
-30 °C to +105 °C  
**Voltage Rating:**  
600 VAC  
846 VDC  
**Wire:**  
10 or 12 AWG



NO. OF POSITIONS	A
-02	(43.9) 1.73
-04	(56.6) 2.23
-06	(69.3) 2.73
-08	(82.0) 3.23

PESS/PET	
WIRE GAUGE	CURRENT RATING (PER PIN)
10 AWG	34.5 A
12 AWG	29.7 A

1 PIN POWERED

View complete specifications at: [samtec.com?PESS](http://samtec.com?PESS)

IPS6	POSITIONS PER ROW	01	LATCH	SERIES	WIRE GAUGE	PLATING OPTION
	-02, -04, -06, -08		-L = Latch	CC10R = Contact, Full Reel  CC10L = Contact, Loose	-1012 = 10 to 12 AWG	-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail  -T = Matte Tin on tail

### TOOLING

Hand Tool: CAT-HT-310-1012-14  
Mini Applicator: CAT-MC-310-1012-XX-02

**Note:**  
Some lengths, styles and options are non-standard, non-returnable

View complete specifications at: [samtec.com?IPS6](http://samtec.com?IPS6), [samtec.com?CC10L](http://samtec.com?CC10L) & [samtec.com?CC10R](http://samtec.com?CC10R)



# FLEXIBLE STACKING

VARIETY OF PITCHES, CONTACT SYSTEMS & ORIENTATIONS • HIGHLY CUSTOMIZABLE



## 254-255

### ONE-PIECE INTERFACES

1.00 mm (.0394") Pitch (FSI) .....	254
1.00" (2.54 mm) (SIB, SIR1) .....	255

## 256-261

### MICRO BLADE & BEAM

0.50 mm (.0197") Pitch Low Profile Systems (LTH, LSH) .....	256
Floating Contact Systems (FT5, FS5) .....	257
Basic Blade & Beam Systems (BXH, BXS, BXE) .....	258-261

## 262-278

### MICRO PIN & SOCKET

0.80 mm (.0315") Pitch Headers & Sockets (FTE, CLE, AW) .....	262-263
1.00 mm (.0394") Pitch Headers, Stackers & Sockets (FTMH, FTM, MW, CLM, MLE) .....	264-266
Quad Row Headers & Sockets (SOLC, TOLC) .....	267
.050" (1.27 mm) Pitch Headers, Stackers & Sockets (FTSH, FTS, FW, CLP, FLE) .....	268-273
.050" (1.27 mm) x 100" (2.54 mm) Pitch Headers, Stackers & Sockets (TMS, HTMS, TML, ZML, DWM, FTR, RSM, SLM, SMS) .....	274-278

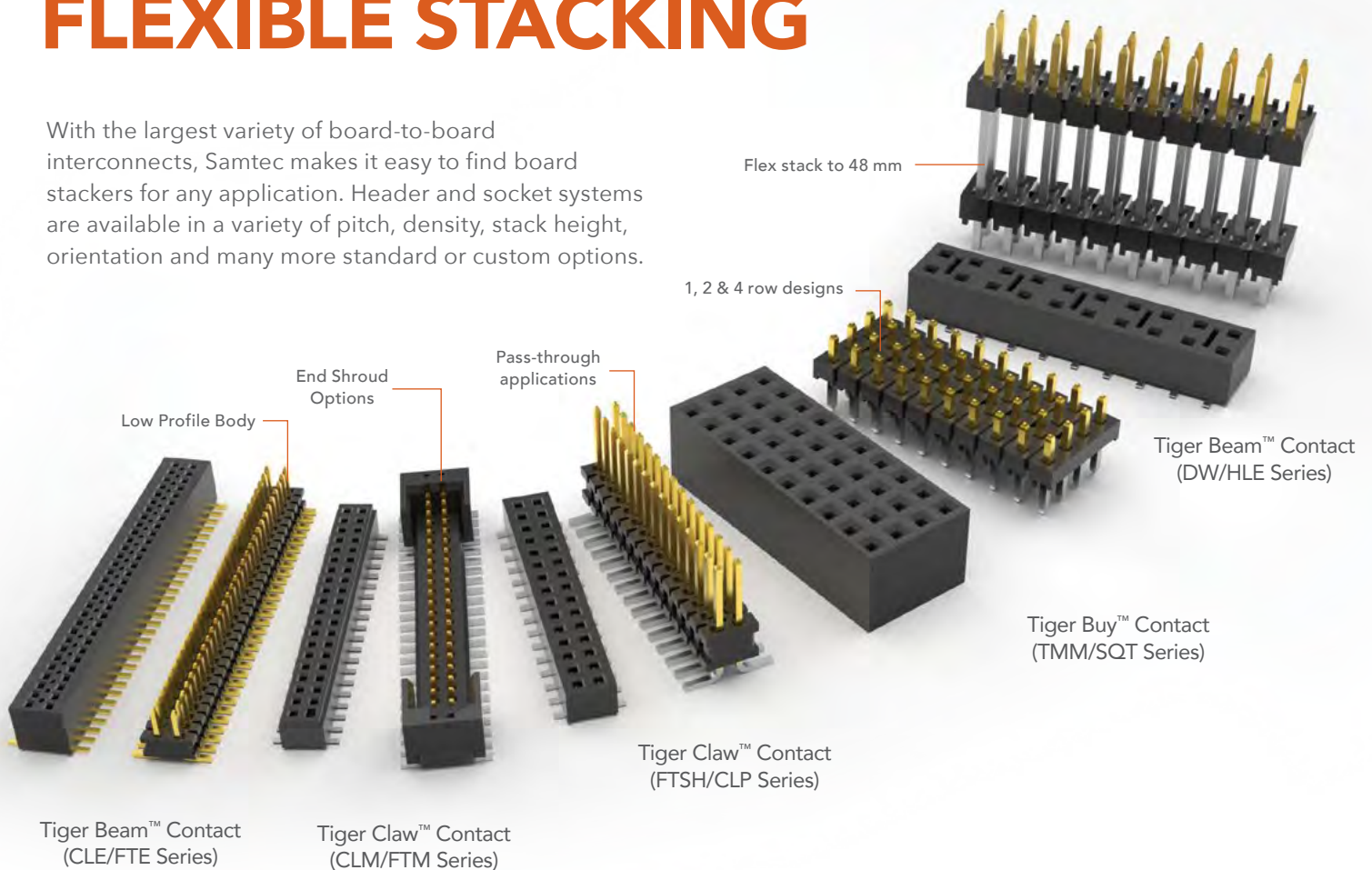
## 279-312

### BOARD-TO-BOARD

2.00 mm (.0787") Pitch Headers & Stackers (TMM, MMT, MTMM, TMMH, LTMM, ZLTMM, TMMS, TSH, TW) .....	279-286
2.00 mm (.0787") Pitch Press-Fit Headers & Sockets (PTT, PTF, PTHF, ESQT-368) .....	287-288
2.00 mm (.0787") Pitch Sockets (SQW, SQT, MMS, TLE, CLT) .....	289-291
2.00 mm (.0787") Pitch Self Mating Hermaphroditic Strips (LS2) .....	292
.100" (2.54) Pitch Square Post Headers & Stackers (PHT, PHF, TSW, HTSW, TSM, MTSW, HMTSW, TLW, MTLW, HW, DW, EW, ZW, TSS, HTSS, ZSS) ....	293-303
.100" (2.54 mm) Pitch Square Post Sockets (SSW, SSQ, SSM, ESW, ESQ, HLE, BCS, BSW, SLW, CES) .....	304-311
Shunts & Jumpers (SNT, MNT, 2SN, SNM, JL) .....	312

# FLEXIBLE STACKING

With the largest variety of board-to-board interconnects, Samtec makes it easy to find board stackers for any application. Header and socket systems are available in a variety of pitch, density, stack height, orientation and many more standard or custom options.



## INCREDIBLE FLEXIBILITY

- Post height: Adjustable in .005" (0.13 mm) increments
- Body positions: Adjustable in .005" (0.13 mm) increments
- Board stacking distance: 1.65 mm (.065") – 48.51 mm (1.910")
- Number of pins: 2-300
- Number of rows: 1-6

## CUSTOMIZABLE

- Mix-and-match headers and sockets to find the right solution
- Quick and easy custom parts are available. Contact [asp@samtec.com](mailto:asp@samtec.com)

## VARIETY OF PITCHES

- 0.80 mm (.0315")
- 1.00 mm (.0394")
- .050" (1.27 mm)
- .050" x .050" (1.27 x 1.27 mm)
- .050" x .100" (1.27 x 2.54 mm)
- 2.00 mm (.0787")
- .100" (2.54 mm)
- .156" (3.96 mm)
- .200" (5.08 mm)

## BUILD IT YOURSELF

Check out Solutionator® to quickly build a mated set for your specific application. Visit [samtec.com/solutionator](http://samtec.com/solutionator)

**Solutionator** **FLEX STACKING**  
GET A MATED SET IN SECONDS

## VARIETY OF CONTACTS

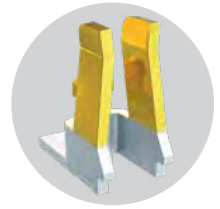
### TIGER EYE™ CONTACT

- High-reliability
- High mating cycles
- Multi-finger contact



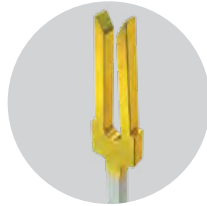
### TIGER CLAW™ CONTACT

- Pass-through
- Ultra-low profile
- Dual wipe contact



### TIGER BUY™ CONTACT

- High-retention
- Cost-effective
- Tuning fork contact

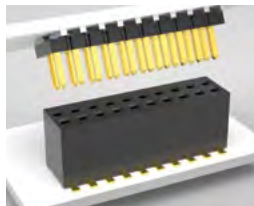


### TIGER BEAM™ CONTACT

- Best cost
- Reliable performance
- Post & beam contact

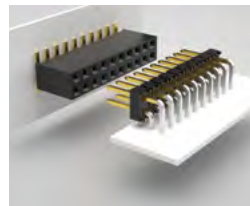


## VARIETY OF ORIENTATIONS/APPLICATIONS



### Standard

- Choice of contact system
- Single, double and triple row designs
- Largest variety



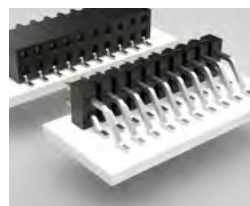
### Right-Angle

- Design flexibility
- Tiger Claw™ & Tiger Buy™ contacts
- Through-hole, surface mount



### Low Profile

- Down to 1.65 mm (.065") stack height
- Tiger Claw™ contacts
- Space saving



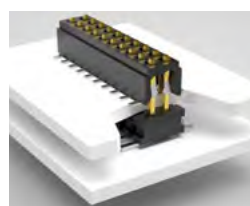
### Coplanar

- 1-4 row designs
- Surface mount, through-hole or mixed technology
- Tiger Claw™ & Tiger Beam™ contacts



### Elevated

- Up to 48.51 mm (1.910") stack height
- Design flexibility
- Clearance, air flow



### Bottom Entry

- Tiger Claw™ contacts
- Access to components when mated
- Space savings



### Pass-Through

- Connect three or more boards
- Tiger Claw™ & Tiger Beam™ contact systems
- Surface mount or offset through-hole



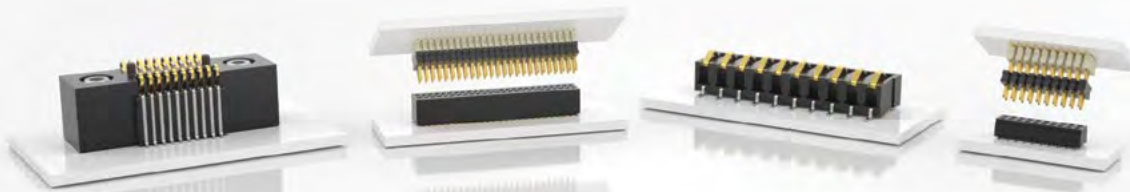
### Self-Nesting

- Tiger Buy™ contacts
- Press-fit or through-hole tails
- PC/104-Plus™ embedded applications

# BOARD STACKING REFERENCE

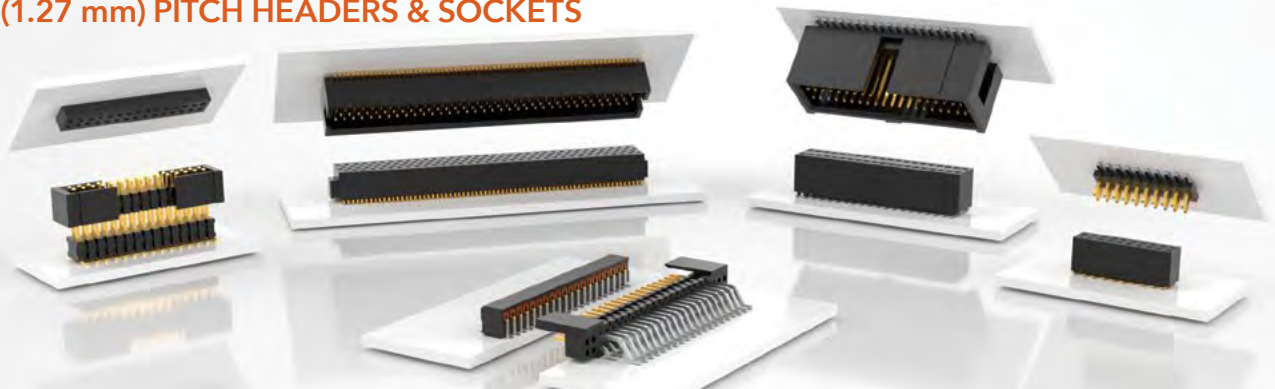
Focused/most popular series in charts. For all flexible stacking solutions, visit [samtec.com/connectors](http://samtec.com/connectors)

## ONE-PIECE, 0.80 mm (.0315") & 1.00 mm (.0394") PITCH



SERIES	FSI	SEI	SIB	CLE	FTE	CLM	FTMH/FTM	MLE	MW	
PITCH	1.00 mm (.0394")		.100" (2.54 mm)	0.80 mm (.0315")		1.00 mm (.0394")				
ORIENTATION	V				V & RA	V	V & RA	V		
BOARD STACKING (MM)	MIN	3	1.65	3.8	5	5	3.48		4.57	4.62
	MAX	10			9.14		8.43	5.11	9.27	
CONTACT SYSTEM					Tiger Beam™		Tiger Claw™		Tiger Beam™	
MATES	One-Piece				FTE, AW	CLE	FTM, FTMH, MW	CLM, MLE	FTM, FTMH, MW	CLM, MLE
PAGE	254	See Website	255	262	262	266	264	266	265	

## .050" (1.27 mm) PITCH HEADERS & SOCKETS



SERIES	CLP	FLE	FTS	FTSH	FW	SOLC	TOLC	DWM/HDWM	FTR	RSM	SLM
PITCH	.050" x .050" (1.27 mm x 1.27 mm)							.050" x .100" (1.27 mm x 2.54 mm)			
ORIENTATION	V & RA	V		V & RA	V						
BOARD STACKING (MM)	MIN	3.53	5.82	3.53	5.18	7.72	6.35	9.65	9.78		7.11
	MAX	17.75	19.15	5.82	7.49	19.15	12.00	22.99	14.73	19.69	19.43
CONTACT SYSTEM	Tiger Claw™	Tiger Beam™				Tiger Buy™					Tiger Buy™
MATES	FTSH, FTS, FW			CLP, FLE		TOLC	SOLC	SMS, SLM, RSM		FTR, HTMS, HDWM, DWM, TML, ZML, TMS	HTMS, TMS, MTMS, DWM, HDWM, FTR, HMTMS
PAGE	272	273	270	268-269	271	267	267	276	277	277	278



## 2.00 mm (.0787") PITCH HEADERS & SOCKETS



SERIES	MMT	TMM/MTMM	TMMH	TW	ZLTMM	CLT	ESQT/-368	MMS	SMM	SQT	SQW	TLE
ORIENTATION	RA	V & RA		V				V & RA	V	V & RA	V	
TERMINATION	SMT & MT	T/H & SMT			T/H	T/H & SMT	T/H	T/H & SMT	SMT	T/H	T/H & SMT	SMT
BOARD STACKING (MM)	MIN	2	3.63	4.14	7.49	7.62	3.63	9.37	5.94	6.07	7.85	6.99
	MAX	4	18.87	22.07	43.31	13.34	4.98	43.31	19.81	17.78	29.59	17.53
CONTACT SYSTEM						Tiger Claw™	Tiger Buy™	Tiger Claw™	Tiger Eye™	Tiger Buy™		Tiger Beam™
MATES	CLT, SQT, SQW, ESQT, TLE, SMM, MMS				SQT, SQW, ESQT, SMM	TMM, TMMH, MTMM, MMT, TW, TSH	TMMH, TMM, MTMM, MMT, TW, LTMM, ZLTMM, ESQT, PTT, TSH, TMMS, PTHF	TMMH, TMM, MTMM, MMT, TW, ZLTMM, TSH	TMM, TMMH, MTMM, MMT, LTMM, TW, PTT, ZLTMM	TMMH, TMM, MTMM, MMT, TW, TSH, LTMM, PTT	TMMH, TMM, MTMM, MMT, TW, TSH, LTMM, PTT	TMMH, TMM, MTMM, MMT, TW, LTMM, ZLTMM, TSH
PAGE	281	279-281	282-283	286	284	291	288	290	230	289	289	291

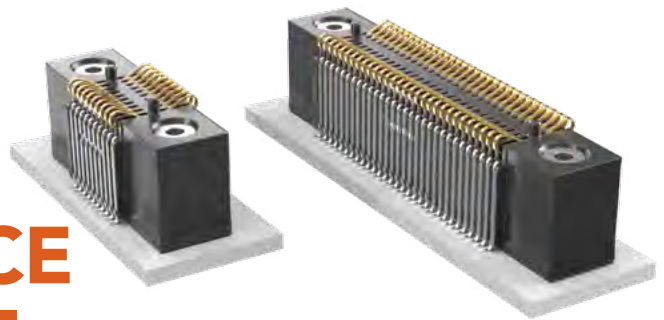
## .100" (2.54 mm) PITCH HEADERS & SOCKETS



SERIES	DW, EW, ZW	HW	MTSW/HMTSW	TLW/MTLW	TSM	TSW/HTSW	BCS	ESW, ESQ	HLE	SSM	SSQ	SSW
ORIENTATION	V		V & RA				V & RA	V		V & RA		
TERMINATION	T/H	T/H & SMT	T/H		SMT & MT	T/H		T/H & SMT	SMT	T/H	T/H & SMT	
BOARD STACKING (MM)	MIN	13.59	10.03	7.24	6.1	7.47	7.87	9.02	13.59	7.47	11.18	10.03
	MAX	48.51	30.73	46.36	20.96	14.48	35.69	18.92	48.51	26.16	30.1	38.35
CONTACT SYSTEM							Tiger Claw™	Tiger Buy™	Tiger Beam™	Tiger Claw™	Tiger Buy™	
MATES	SSW, SSQ, ESW, ESQ, CES, SLW, BSW, BCS, SSM, HLE, PHF		SSW, SSQ, ESW, ESQ, BCS, BSW, CES, SLW, HLE, SSM	BSW, CES, SLW, HLE	SSW, SSQ, SSM, BSW, ESW, ESQ, BCS, BSW, CES, SLW, HLE	SSW, SSQ, SSM, ESW, ESQ, BCS, BSW, CES, SLW	TSW, MTSW, HTSW, HMTSW, TSS, ZSS, DW, EV, ZW, HW, TSM, MTLW, PHT	TSW, MTSW, EW, MTLW, TSS, ZSS, TSM, DW, ZW, HW, TSSH, HTSS	TSW, MTSW, DW, EV, ZW, TLW, TSM, MTLW, HW	TSW, MTSW, TST, TSS, ZST, ZSS, DW, EV, ZW, TSM, HMTSW, HTSW, TSSH, BST, HTSS, TLW, MTLW	TSW, MTSW, MTLW, EV, ZW, TSS, TSM, TSSH, HTSS	TSW, MTSW, HTSW, HMTSW, MTLW, EV, ZW, TSS, HTSS, ZSS, TSM, TSSH, DW, HW
PAGE	302	301	298-299	300	296-297	294-295	309	307	308	306	304-305	



# LOW PROFILE AND ELEVATED ONE-PIECE



(1.00 mm) .0394" PITCH • FSI SERIES

## SPECIFICATIONS

**Insulator Material:**  
Liquid Crystal Polymer  
**Contact Material:**  
BeCu  
**Current Rating:**  
2.8 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Plating:**  
Au over 50 μ" (1.27 μm) Ni

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (05-30)  
(0.15 mm) .006" max (50)\*  
\*(.004" stencil solution may be available; contact ipg@samtec.com)  
**Compression Board:**  
Gold Pads required

## OTHER SOLUTIONS

### Low Profile

See [www.samtec.com?SEI](http://www.samtec.com?SEI)

### .050" (1.27 mm) Pitch

See [www.samtec.com?SIBF](http://www.samtec.com?SIBF)

FSI	1	PINS PER ROW	BODY HEIGHT	PLATING OPTION	ROW OPTION	INSERT OPTION	ALIGNMENT OPTION	OTHER OPTION
-----	---	--------------	-------------	----------------	------------	---------------	------------------	--------------

10, 20, 30, 50  
(Insert/Screw Option)

-03  
= 3 mm

-06  
= 6 mm

-10  
= 10 mm

-G  
= 10 μ" (0.25 μm) Gold (-03 only)

-L  
= 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail (Not available with -03 body height)

-S  
= Single Row (Available with 5, 10 & 20 pins with -AD alignment pin)

-D  
= Double Row

Leave blank for Short Version (No screw down inserts or holes)

-E  
= #2-56 x 1/16" screw thread

-M  
= 2.00 mm x 0.40 mm screw thread

Leave blank for no Alignment Pin

-AD  
= Alignment Pin Top & Bottom

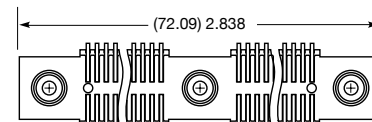
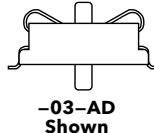
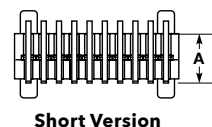
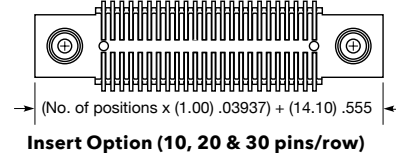
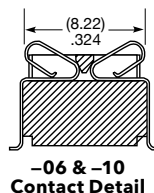
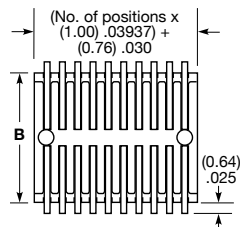
-WT  
= Weld Tab (Available with -S row option & -06 & -10 body height only)

-K  
= Polyimide Film Pick & Place Pad (50 position with threaded insert option only)

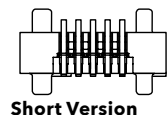
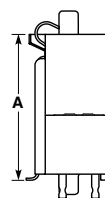
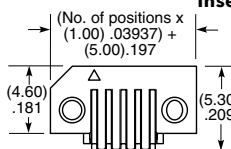
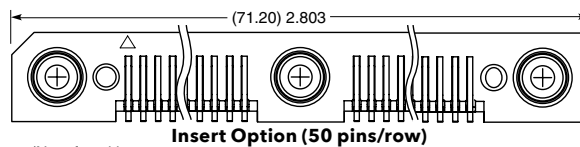
-P  
= Plastic Pick & Place Pad (5.08 mm) .200" x (12.45 mm) .490" (50 not available with -E) (Not available with -S row option or -03 body height)

-TR  
= Tape & Reel

-FR  
= Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)



Double Row Version -03, -06, -10

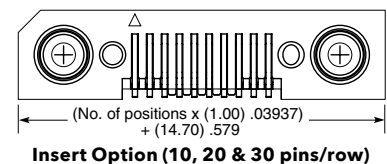


-03-AD Shown

-WT Option (-06 & -10 Body only)

Single Row Version -03, -06, -10

BODY HEIGHT	A	B
-03	(3.00) .118	(8.76) .345
-06	(6.00) .236	(9.02) .355
-10	(10.00) .394	(9.02) .355



## ALSO AVAILABLE

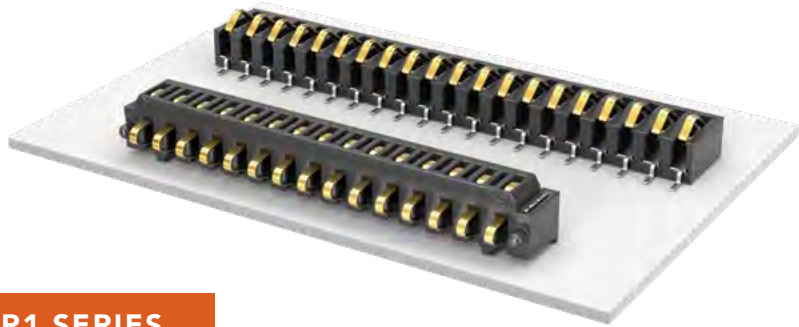
MOQ Required

No alignment pin  
Top side alignment pin  
Bottom side alignment pin  
Other platings

**Notes:**  
Applications requiring 40-50 positions without threaded inserts, please contact Samtec Interconnect Processing Group.

Some lengths, styles and options are non-standard, non-returnable.

# ONE-PIECE INTERFACES



(2.54 mm) .100" PITCH • SIB/SIR1 SERIES

## SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Current Rating:**  
2.6 A per pin  
(1 pin powered)  
**Operating Temp Range:**  
-55 °C to +125 °C

<b>SIB</b>	-	<b>1</b>	<b>NO. OF POSITIONS</b>	-	<b>02</b>	<b>PLATING OPTION</b>	-	<b>S</b>	-	<b>OPTION</b>
------------	---	----------	-------------------------	---	-----------	-----------------------	---	----------	---	---------------

**02 thru 30**  
(Per Row)

**-F**  
= Gold flash  
on contact,  
Matte Tin on tail

**-LC**  
= Locking  
Clip  
(Manual  
placement  
required)

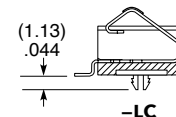
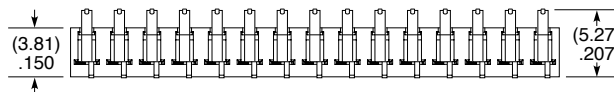
## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (02-19)  
(0.15 mm) .005" max (20-30)\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)



**Notes:**  
The SIB Series  
is intended for vertical  
mating only.

Some lengths, styles and  
options are non-standard,  
non-returnable.



**-LC**

## SPECIFICATIONS

**Insulator Material:**  
Black LCP  
**Contact Material:**  
Phosphor Bronze  
**Weld Tab:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Current Rating:**  
2.8 A per pin  
(1 pin powered)

<b>SIR1</b>	-	<b>NO. OF POSITIONS</b>	-	<b>PLATING OPTION</b>	-	<b>S</b>	-	<b>OPTION</b>
-------------	---	-------------------------	---	-----------------------	---	----------	---	---------------

**-03, -05, -10, -15**  
(Per Row)

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact,  
Matte Tin on tail

**-S**  
= 30 μ" (0.76 μm)  
Gold on contact,  
Matte Tin on tail

**-A**  
= Alignment Pin

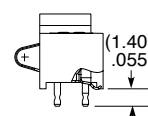
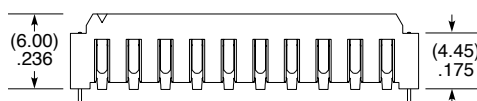
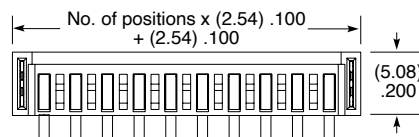
**-K**  
= (4.00 mm) .157"  
DIA Polyimide  
Film Pick &  
Place Pad

**-TR**  
= Tape & Reel

**-FR**  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)

## PROCESSING

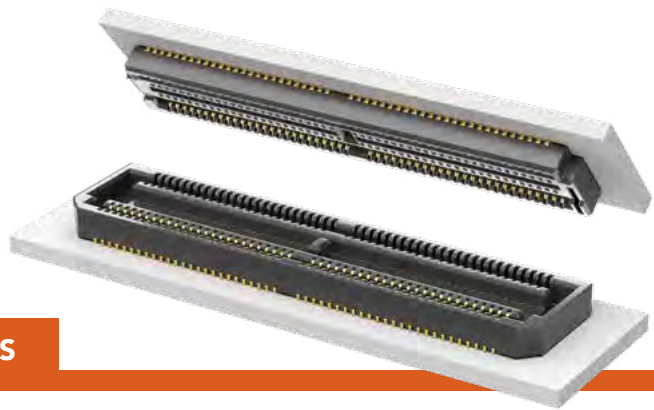
**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max



**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

# LOW PROFILE BLADE AND BEAM

(0.50 mm) .0197" PITCH • LTH/LSH SERIES



**LTH**  
Mates:  
LSH

**LSH**  
Mates:  
LTH

LTH	-	NO. OF POSITIONS PER ROW	-	01	-	PLATING OPTION	-	D	-	A	-	OTHER OPTION
-----	---	--------------------------	---	----	---	----------------	---	---	---	---	---	--------------

-010, -020,  
-030, -040, -050

-G  
= 10 μm  
(0.25 μm)  
Gold

-K  
= (5.50 mm)  
.217" DIA  
Polyimide  
film Pick &  
Place Pad

-TR  
= Tape & Reel

-FR  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)

## SPECIFICATIONS

### Insulator Material:

Liquid Crystal  
Polymer

### Terminal Material:

Phosphor Bronze

### Contact Material:

BeCu

### Plating:

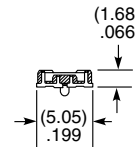
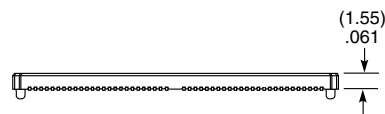
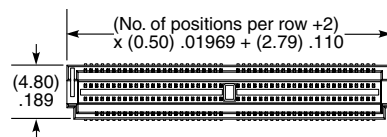
Au over 50 μm (1.27 μm) Ni

### Current Rating:

2.6 A per pin  
(2 pins powered)

### Operating Temp Range:

-55 °C to +125 °C



## PROCESSING

### Lead-Free Solderable:

Yes

### SMT Lead Coplanarity:

(0.10 mm) .004" max

### Board Stacking:

For applications requiring more than two connectors per board, contact ipg@samtec.com

LSH	-	NO. OF POSITIONS PER ROW	-	01	-	PLATING OPTION	-	D	-	A	-	OTHER OPTION
-----	---	--------------------------	---	----	---	----------------	---	---	---	---	---	--------------

-010, -020,  
-030, -040, -050

-G  
= 10 μm  
(0.25 μm)  
Gold

-K  
= (7.50 mm)  
.295" DIA  
Polyimide  
film Pick &  
Place Pad

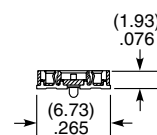
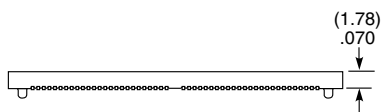
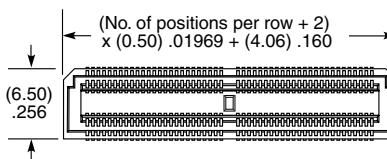
-TR  
= Tape & Reel

-FR  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)

## MATED HEIGHT

LEAD STYLE	MATED HEIGHT*
-01	(2.31 mm) .091"

\*Processing conditions will affect mated height.



**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

# HIGH-SPEED FLOATING CONTACT SYSTEM



(0.50 mm) .0197" PITCH • FT5/FS5 SERIES

**FT5**  
Mates:  
FS5

**FS5**  
Mates:  
FT5

## SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Contact Material:**  
Phosphor Bronze (FT5)  
BeCu (FS5)  
**Weld Tab:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Current Rating:**  
1.8 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Lead-Free Solderable:**  
Yes

FT5	NO. OF POSITIONS	LEAD STYLE	PLATING OPTION	ROW OPTION	TH	OPTION
-----	------------------	------------	----------------	------------	----	--------

-15, -30  
(Per Row)

-01.0  
= 1 mm  
Body  
Height

-L  
= 10 μ"  
(0.25 μm)  
Gold on  
contact,  
Matte Tin  
on tail

-DV  
= Vertical

Leave blank  
for -RA

Required  
callouts

-03.0  
= 3 mm  
Body  
Height

-RA  
= Right-  
angle

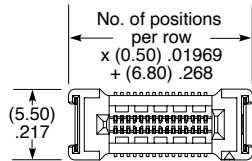
-TH  
= Through-hole  
weld tab

-P  
= Pick &  
Place Pad  
(-DV only)

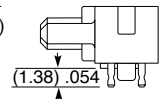
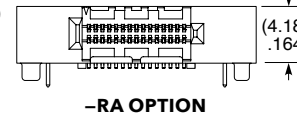
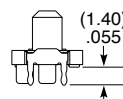
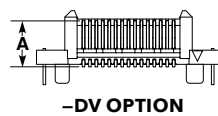
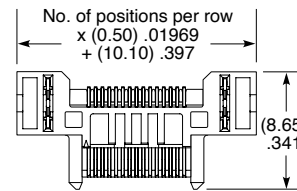
-K  
= (5.00 mm)  
.197" DIA  
Polyimide  
Film Pick &  
Place Pad  
(-RA only)

-TR  
= Tape &  
Reel

-FR  
= Full Reel  
Tape & Reel  
(must order  
max. quantity  
per reel;  
contact  
Samtec for  
quantity  
breaks)



LEAD STYLE	A
-01.0	(3.72) .146
-03.0	(5.72) .225



## MATED HEIGHT \*

FS5 LEAD STYLE	FT5 LEAD STYLE	
	-01.0	-03.0
-04.0	(5.00 mm) .197"	(7.00 mm) .276"

\*Processing conditions will affect mated height.

FS5	NO. OF POSITIONS	LEAD STYLE	PLATING OPTION	DV	TH	K	XR
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-15, -30  
(Per Row)

-04.0  
= 4 mm  
Body  
Height

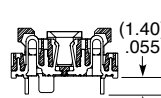
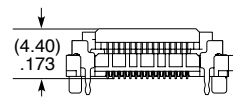
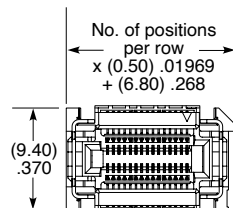
-L  
= 10 μ"  
(0.25 μm)  
Gold on  
contact,  
Matte Tin  
on tail

-TH  
= Through-hole  
weld tab

-K  
= (8.25 mm)  
.325" DIA  
Polyimide  
Film Pick &  
Place Pad

-TR  
= Tape & Reel

-FR  
= Full Reel  
Tape & Reel  
(must order  
max. quantity  
per reel;  
contact  
Samtec for  
quantity  
breaks)



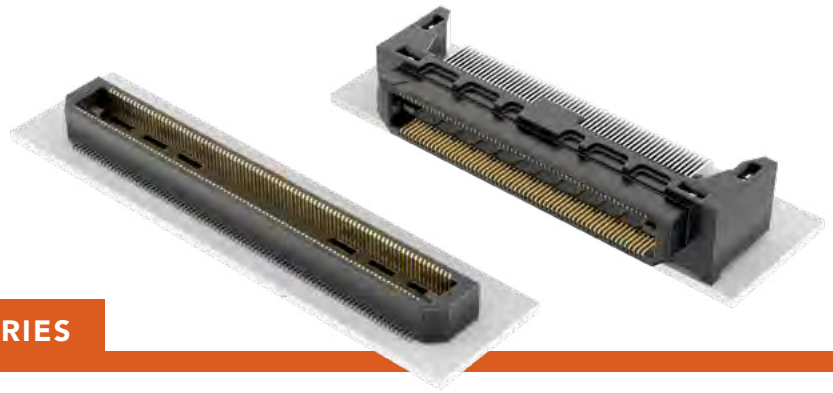
## Notes:

Floating contact system provides 0.50 mm float in X and Y directions.

Some lengths, styles and options are non-standard, non-returnable.

# BASIC BLADE & BEAM HEADER

(0.50 mm) .0197" PITCH • BTH SERIES



**BTH**  
Mates:  
BSH

## SPECIFICATIONS

**Insulator Material:**  
Black LCP  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Current Rating:**  
2.0 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Voltage Rating:**  
175 VAC  
**Max Cycles:**  
100

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
Vertical=  
(0.10 mm) .004" max (030-090),  
(0.15 mm) .006" max (120-150)\*  
Right-angle=  
(0.15 mm) .006" max (030-090)\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)  
**Board Stacking:**  
For applications requiring more  
than two connectors per board  
or 90 positions or higher,  
contact ipg@samtec.com

## ALSO AVAILABLE

MOQ Required

30 μ" (0.76 μm) Gold  
Edge Mount Capability  
8 mm, 11 mm, 16 mm,  
19 mm and 22 mm Stack  
Height (Caution: Some  
automatic placement/  
inspection machines may  
have component height  
restrictions. Please consult  
machinery specifications.)  
(11 mm, 16 mm, 19 mm  
and 22 mm not available  
with 50 positions)



**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

<b>BTH</b>	<b>-</b>	<b>NO. OF POSITIONS PER ROW</b>	<b>-</b>	<b>01</b>	<b>-</b>	<b>PLATING OPTION</b>	<b>-</b>	<b>D</b>	<b>-</b>	<b>A</b>	<b>-</b>	<b>OTHER OPTION</b>
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**-030, -050, -060,  
-090, -120, -150**

**-F**  
= Gold Flash  
on contact,  
Matte Tin on tail

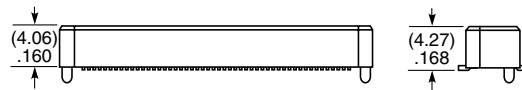
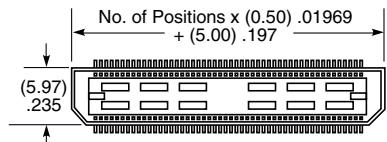
**-L**  
= 10 μ" (0.25 μm)  
Gold on contact,  
Matte Tin on tail

**-C\***  
= Electro-Polished Selective  
50 μ" (1.27 μm) min  
Au over 150 μ" (3.81 μm)  
Ni on Signal Pins in contact  
area, Matte Tin over  
50 μ" (1.27 μm) min  
Ni on all solder tails  
(\*C Plating passes  
10 year MFG testing)

**-K**  
= (7.00 mm) .276"  
DIA Polyimide  
Film Pick  
& Place Pad

**-TR**  
= Tape & Reel  
(120 positions  
maximum)

**-FR**  
= Full Reel  
Tape & Reel  
(must order  
maximum  
quantity per reel;  
contact  
Samtec for  
quantity breaks)  
(120 positions  
maximum)



## MATED HEIGHT

LEAD STYLE	MATED HEIGHT*
-01	(5.00 mm) .1971"

\*Processing conditions  
will affect mated height.

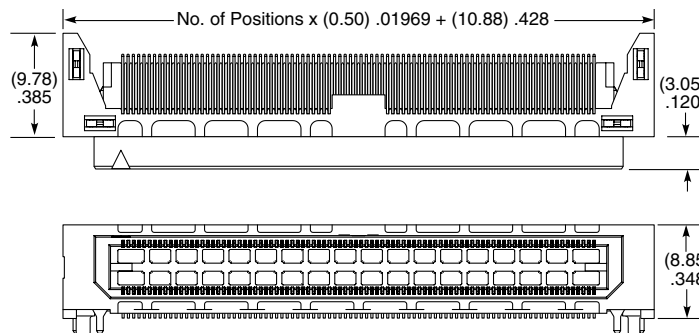
<b>BTH</b>	<b>-</b>	<b>NO. OF POSITIONS PER ROW</b>	<b>-</b>	<b>01</b>	<b>-</b>	<b>PLATING OPTION</b>	<b>-</b>	<b>D</b>	<b>-</b>	<b>RA</b>	<b>-</b>	<b>WT</b>	<b>-</b>	<b>OTHER OPTION</b>
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**-030, -060, -090**

**-F**  
= Gold Flash on  
contact, Matte  
Tin on tail

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact,  
Matte Tin on tail

**-K**  
= (7.00 mm)  
.276" DIA  
Polyimide  
Film Pick &  
Place Pad





# BASIC BLADE & BEAM SOCKET

(0.50 mm) .0197" PITCH • BSH SERIES



**BSH**  
Mates:  
BTH

## SPECIFICATIONS

**Insulator Material:**  
Black LCP  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Current Rating:**  
2 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Voltage Rating:**  
175 VAC  
**Max Cycles:**  
100

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (030-090)  
(0.15 mm) .006" max (120-150)\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)  
**Board Stacking:**  
For applications requiring more  
than two connectors per board  
or 90 positions or higher,  
contact ipg@samtec.com

## ALSO AVAILABLE

MOQ Required

30 μ" (0.76 μm) Gold  
Edge Mount Capability  
8 mm, 11 mm, 16 mm, 19 mm  
and 22 mm Stack Height  
(Caution: Some automatic  
placement/inspection  
machines may have  
component height  
restrictions. Please consult  
machinery specifications.)  
(11 mm, 16 mm, 19 mm  
and 22 mm not available  
with 50 positions)



**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

<b>BSH</b>	<b>NO. OF POSITIONS PER ROW</b>	<b>01</b>	<b>PLATING OPTION</b>	<b>D</b>	<b>A</b>	<b>OTHER OPTION</b>
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**-030, -050, -060,  
-090, -120, -150**

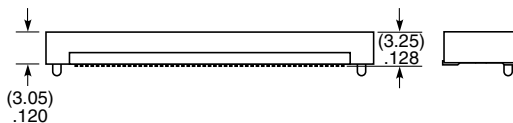
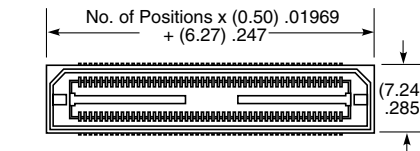
**-F**  
= Gold Flash  
on contact,  
Matte Tin on tail

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact,  
Matte Tin on tail

**-C\***  
= Electro-Polished  
Selective  
50 μ" (1.27 μm) min  
Au over 150 μ" (3.81 μm)  
Ni on Signal Pins in  
contact area,  
Matte Tin over  
50 μ" (1.27 μm) min  
Ni on all solder tails  
(\*-C Plating passes  
10 year MFG testing)

**-TR**  
= Tape & Reel  
(120 positions  
maximum)

**-FR**  
= Full Reel  
Tape & Reel  
(must order  
maximum  
quantity  
per reel;  
contact  
Samtec for  
quantity breaks  
(120 positions  
maximum)



## MATED HEIGHT

LEAD STYLE	MATED HEIGHT*
-01	(5.00 mm) .1971"

\*Processing conditions  
will affect mated height.

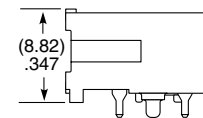
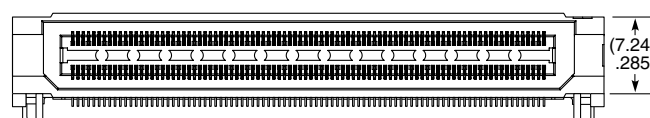
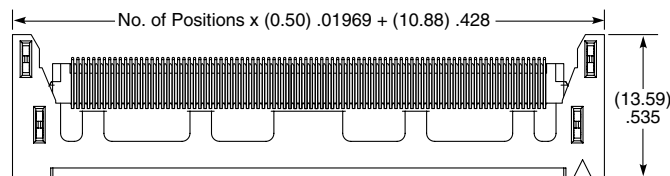
<b>BSH</b>	<b>NO. OF POSITIONS PER ROW</b>	<b>01</b>	<b>PLATING OPTION</b>	<b>D</b>	<b>RA</b>	<b>WT</b>	<b>OTHER OPTION</b>
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**-030, -060, -090**

**-F**  
= Gold Flash  
on contact,  
Matte Tin on tail

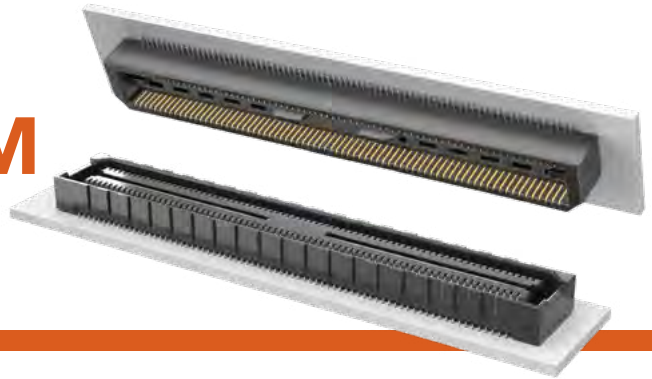
**-L**  
= 10 μ" (0.25 μm)  
Gold on contact,  
Matte Tin on tail

**-GP**  
= Guide  
Post



# BASIC BLADE & BEAM HEADER & SOCKET

(0.635 mm) .025" PITCH • BTS/BSS SERIES



**BTS**  
Mates:  
BSS

**BSS**  
Mates:  
BTS

## SPECIFICATIONS

**Insulator Material:**  
Liquid Crystal Polymer  
**Terminal Material:**  
Phosphor Bronze  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over 50 μ" (1.27 μm) Ni  
**Current Rating:**  
1.8 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +125 °C

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max  
**Board Stacking:**  
For applications requiring more than two connectors per board or 100 positions or higher, contact ipg@samtec.com

## ALSO AVAILABLE

MOQ Required

30 μ" (0.76 μm) Gold  
Other platings  
Other positions

## MATED HEIGHT

LEAD STYLE	MATED HEIGHT*
-01	(5.00 mm) .197"

\*Processing conditions will affect mated height.



**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

<b>BTS</b>	-	<b>NO. OF POSITIONS PER ROW</b>	-	<b>01</b>	-	<b>PLATING OPTION</b>	-	<b>D</b>	-	<b>A</b>	-	<b>OTHER OPTION</b>
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-025, -050,  
-075, -100

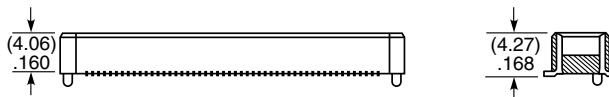
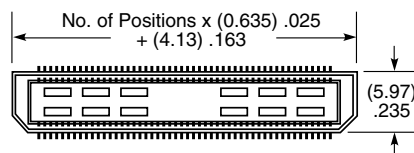
**-F**  
= Gold Flash on contact, Matte Tin on tail

**-L**  
= 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail

**-K**  
= (7.00 mm) .275" DIA Polyimide Film Pick & Place Pad

**-TR**  
= Tape & Reel (-100 positions max.)

**-FR**  
= Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-100 positions max.)



<b>BSS</b>	-	<b>NO. OF POSITIONS PER ROW</b>	-	<b>01</b>	-	<b>PLATING OPTION</b>	-	<b>D</b>	-	<b>A</b>	-	<b>OTHER OPTION</b>
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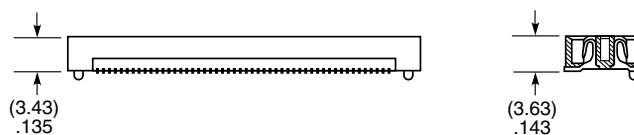
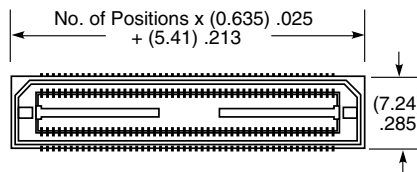
-025, -050,  
-075, -100

**-F**  
= Gold Flash on contact, Matte Tin on tail

**-L**  
= 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail

**-TR**  
= Tape & Reel (-100 positions maximum)

**-FR**  
= Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks) (-100 positions maximum)



# BASIC BLADE & BEAM HEADER & SOCKET

(0.80 mm) .0315" PITCH • BTE/BSE SERIES



**BTE**  
Mates:  
BSE

**BSE**  
Mates:  
BTE

## SPECIFICATIONS

**Insulator Material:**  
Liquid Crystal Polymer  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over 50 μ" (1.27 μm) Ni  
**Current Rating:**  
2 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Voltage Rating:**  
225 VAC with 5 mm Stack Height  
**Max Cycles:**  
100

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (020-080)  
(0.15 mm) .006" max (100-120)\*  
\*(.004" stencil solution may be available; contact ipg@samtec.com)  
**Board Stacking:**  
For applications requiring more than two connectors per board or 80 positions or higher, contact ipg@samtec.com

## ALSO AVAILABLE

MOQ Required

30 μ" (0.76 μm) Gold  
Edge Mount Capability  
Friction Lock option  
11 mm, 14 mm, 16.10 mm, 19.10 mm, 22 mm, 25 mm and 30 mm Stack Height (Caution: Some automatic placement/inspection machines may have component height restrictions. Please consult machinery specifications.)



**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

BTE	NO. OF POSITIONS PER ROW	LEAD STYLE	PLATING OPTION	D	A	OTHER OPTION
-----	--------------------------	------------	----------------	---	---	--------------

-020, -040, -060, -080, -100, -120

Specify LEAD STYLE from chart

**-F**  
= Gold Flash on contact, Matte Tin on tail

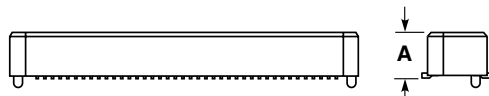
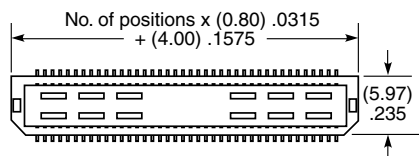
**-L**  
= 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail

**-C\***  
= Electro-Polished Selective 50 μ" (1.27 μm) min Au over 150 μ" (3.81 μm) Ni on Signal Pins in contact area, Matte Tin over 50 μ" (1.27 μm) min Ni on all solder tails (\*-C Plating passes 10 year MFG testing)

**-K**  
= (7.00 mm) .275" DIA Polyimide Film Pick & Place Pad

**-TR**  
= Tape & Reel (80 positions maximum)

**-FR**  
= Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks) (80 positions maximum)



LEAD STYLE	A
-01	(4.27) .168
-02	(7.21) .284

## MATED HEIGHT

LEAD STYLE	MATED HEIGHT*
-01	(5.00 mm) .1971"
-02	(8.00 mm) .315"

\*Processing conditions will affect mated height.

BSE	NO. OF POSITIONS PER ROW	01	PLATING OPTION	D	A	OTHER OPTION
-----	--------------------------	----	----------------	---	---	--------------

-020, -040, -060, -080, -100, -120

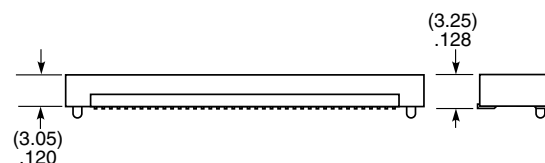
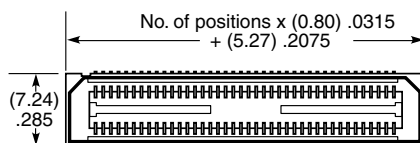
**-F**  
= Gold Flash on contact, Matte Tin on tail

**-L**  
= 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail

**-C\***  
= Electro-Polished Selective 50 μ" (1.27 μm) min Au over 150 μ" (3.81 μm) Ni on Signal Pins in contact area, Matte Tin over 50 μ" (1.27 μm) min Ni on all solder tails (\*-C Plating passes 10 year MFG testing)

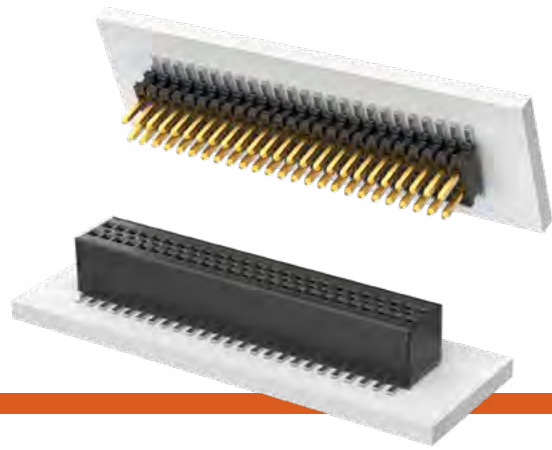
**-TR**  
= Tape & Reel (80 positions maximum)

**-FR**  
= Full Reel Tape & Reel (must order maximum quantity per reel; contact Samtec for quantity breaks) (80 positions maximum)



# SMT MICRO HEADER & SOCKET

(0.80 mm) .0315" PITCH • FTE/CLE SERIES



**FTE**  
Mates:  
CLE

**CLE**  
Mates:  
FTE, AW

## SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Terminal Material:**  
Phosphor Bronze  
**Contact Material:**  
BeCu  
**Plating:**  
Au over 50 μ" (1.27 μm) Ni  
**Current Rating (FTE/CLE):**  
2.7 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Insertion Depth (CLE):**  
Top Entry =  
(1.73 mm) .068" to (3.18 mm) .125"  
with (0.38 mm) .015"  
wipe, or pass-through  
Bottom Entry =  
(3.23 mm) .127" minimum plus  
board thickness  
**Max Cycles (CLE):**  
100 with 10 μ" (0.25 μm) Au

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity (FTE):**  
-DV: (0.10 mm) .004" max  
-DH: (0.10 mm) .004" max (05-25)  
(0.15 mm) .006" max (26-50)\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)  
**SMT Lead Coplanarity (CLE):**  
(0.10 mm) .004" max (04-65)  
(0.15 mm) .006" max (66-90)\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)



05  
thru  
90

Specify  
LEAD  
STYLE  
from  
chart

**-G**  
= 10 μ"  
(0.25 μm)  
Gold on  
post,  
Gold flash  
on balance

**-DV**  
= Dual  
Vertical  
**-DH**  
= Dual  
Horizontal  
(50 positions  
maximum)

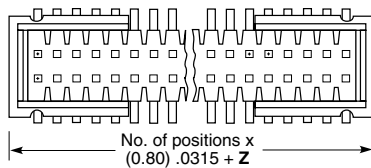
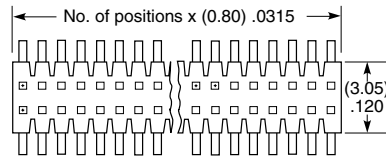
Style -01 -DV only  
(11 pins/row  
minimum)  
**-ES**  
= End Shroud  
**-EC**  
= End Shroud with  
Locking Clips  
(Manual placement  
required)  
**-EP**  
= End Shroud with  
Guide Posts

**-A**  
= Alignment  
Pin  
(5 positions  
minimum)  
Metal or  
plastic at  
Samtec  
discretion  
(-DV only)  
**-K**  
= (2.50 mm)  
.098" DIA  
Polyimide  
Film Pick &  
Place Pad  
(-DH only)

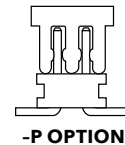
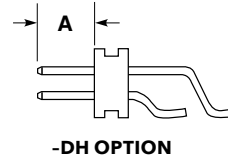
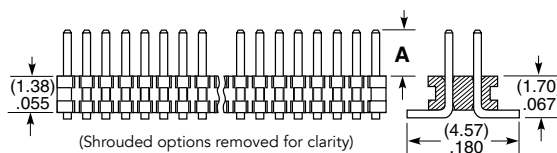
**-P**  
= Plastic Pick  
& Place Pad  
(8 positions  
minimum)  
-DV only

**-TR**  
= Tape & Reel

**-FR**  
= Full Reel  
Tape & Reel  
(must order  
max. quantity  
per reel;  
contact  
Samtec for  
quantity  
breaks)



OPTION	Z	LEAD STYLE	A
-ES	(1.57) .062	-01	(1.90) .075
-EC	(4.11) .162	-02	(4.45) .175
-EP	(5.51) .217	-03	(3.05) .120



04 thru 90

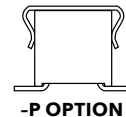
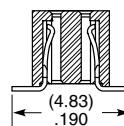
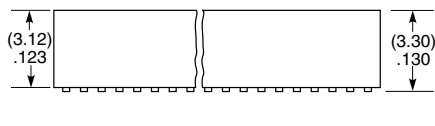
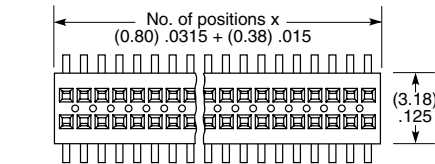
**-G**  
= 10 μ"  
(0.25 μm)  
Gold

**-A**  
= Alignment Pin  
(4 positions minimum)  
Metal or plastic at  
Samtec discretion.  
**-K**  
= (3.50 mm) .138" DIA  
Polyimide film  
Pick & Place Pad  
(8 positions minimum)

**-P**  
= Metal Pick & Place Pad  
(8 positions minimum)

**-TR**  
= Tape & Reel

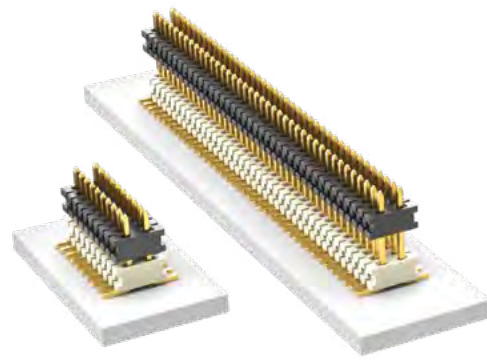
**-FR**  
= Full Reel Tape & Reel  
(must order max. quantity  
per reel; contact Samtec  
for quantity breaks)



**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

# SMT MICRO BOARD STACKER

(0.80 mm) .0315" PITCH • AW SERIES



**AW**  
Mates:  
CLE

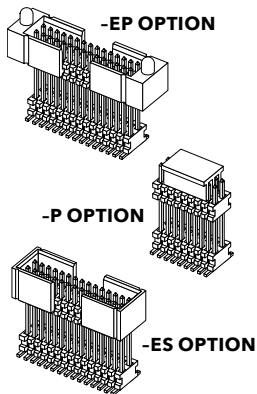
## SPECIFICATIONS

**Insulator Material:**  
Top: Black LCP  
Bottom: Natural LCP  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Au over 50  $\mu$ " (1.27  $\mu$ m) Ni  
**Operating Temp Range:**  
-55 °C to +125 °C

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (05-40)  
(0.15 mm) .006" max (41-90)\*  
\*(.004" stencil solution may be available; contact ipg@samtec.com)

## OPTIONS



**Notes:**  
For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

Some lengths, styles and options are non-standard, non-returnable.

AW	NO. PINS PER ROW	03	PLATING OPTION	D	STACKER HEIGHT	POST HEIGHT	OTHER OPTION
----	------------------	----	----------------	---	----------------	-------------	--------------

05 thru 90

**-G**  
= 10  $\mu$ "  
(0.25  $\mu$ m)  
Gold

**-"XXX"**  
= Stacker Height  
(in inches)  
(3.09 mm)  
.122" to  
(5.84 mm)  
.230"

Example:  
-175  
= (4.45 mm)  
.175"

**-"XXX"**  
= Post Height  
(in inches)  
(1.91 mm)  
.075"  
minimum

Example:  
-075  
= (1.91 mm)  
.075"

**-ES**  
= End Shroud  
11 pins/row min.  
(-075 Post Height only)

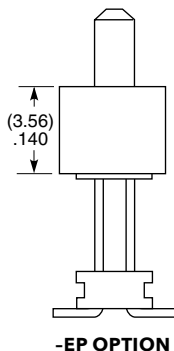
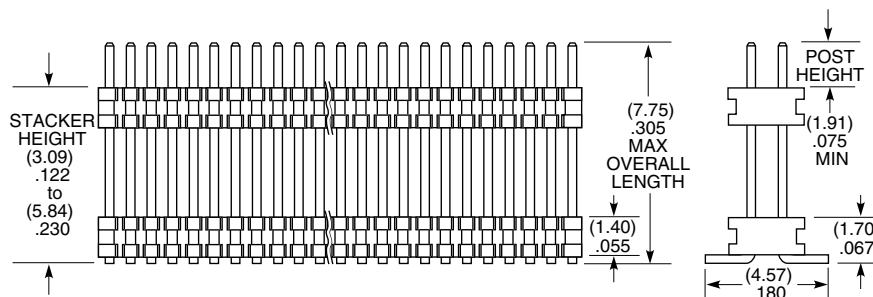
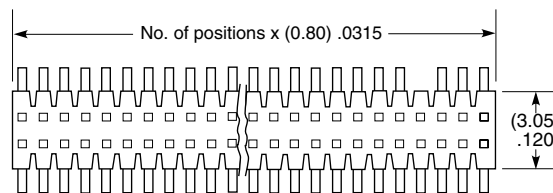
**-EP**  
= End Shroud with Guide Post  
(-075 Post Height only)  
11 pins/row min.

**-A**  
= Alignment Pin  
(4 positions min.)  
(Available for board stacks between  
(4.06 mm) .160" to  
(5.84 mm) .230")  
(Metal or plastic at Samtec discretion.)

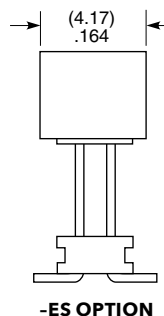
**-P**  
= Pick & Place Pad  
(8 positions min.)

**-TR**  
= Tape & Reel  
(84 positions max.)

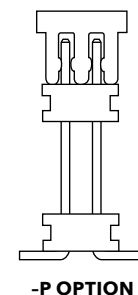
**-FR**  
= Full Reel  
Tape & Reel  
(must order max. quantity per reel; contact Samtec for quantity breaks)  
(84 positions max.)



**-EP OPTION**



**-ES OPTION**

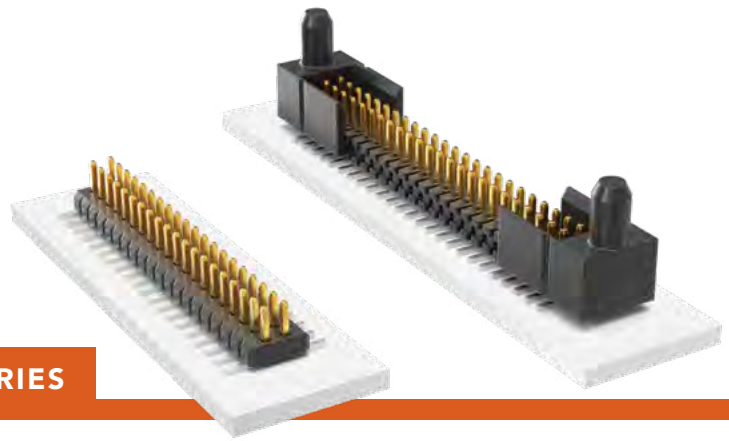


**-P OPTION**



# SMT MICRO TERMINAL STRIPS

(1.00 mm) .0394" PITCH • FTMH/FTM SERIES



**FTMH**  
Mates:  
CLM, MLE

**FTM**  
Mates:  
CLM, MLE

FTMH	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	FLEX SHROUD OPTION	OTHER OPTION
------	---	------------------	------------	----------------	------------	--------------------	--------------

05  
thru  
50

**-02**  
= (1.91 mm)  
.075" Post  
(Mates with MLE)

**-F**  
= Gold flash  
on post,  
Matte Tin  
on tail

**-DV**  
= Dual  
Vertical

(-DV only with  
9 pins/row  
minimum)

**-A**  
= Alignment Pin  
(3 positions min.)  
Metal or plastic at  
Samtec discretion  
(-DV only)

**-ES**  
= End Shroud

**-DH**  
= Dual  
Horizontal

**-EC**  
= End Shroud  
with Locking Clip  
(Manual placement  
required)

**-K**  
= (2.50 mm)  
.098" DIA  
Polyimide Film  
Pick & Place Pad  
(-DH only)

**-EP**  
= End Shroud  
with Guide Post  
(Use only when  
mating with CLM)

**-P**  
= Plastic Pick  
& Place Pad  
(6 positions min.)  
(-DV only)

**-TR**  
= Tape & Reel

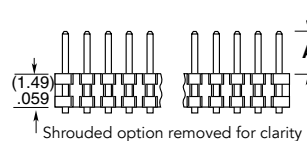
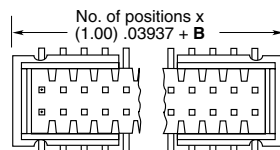
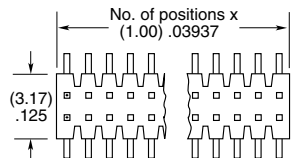
**-FR**  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)

## SPECIFICATIONS

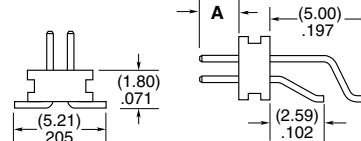
**Insulator Material:**  
Black Liquid Crystal  
Polymer  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Sn or Au over  
50  $\mu$ " (1.27  $\mu$ m) Ni  
**Current Rating (FTMH/CLM):**  
3.1 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Voltage Rating:**  
FTMH: 270 VAC

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
-DV: (0.10 mm) .004" max  
-DH: (0.10 mm) .004" max (05-25)  
(0.15 mm) .006" max (26-50)\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)



-DV OPTION



-DH OPTION

OPTION	B
-ES	(1.57) .062
-EC	(4.06) .160
-EP	(5.49) .216

LEAD STYLE	A
-02	(1.91) .075
-03	(1.65) .065

## ALSO AVAILABLE

MOQ Required

End shrouds with board locks  
Molded end shrouds for  
05 through 08 positions  
Other platings



**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

FTM	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	DV	FLEX SHROUD OPTION	OTHER OPTION
-----	---	------------------	------------	----------------	----	--------------------	--------------

02 thru 50  
= Unshrouded

05 thru 46  
= Shrouded

**-02**  
= (1.91 mm)  
.075" Post  
(Mates with MLE)

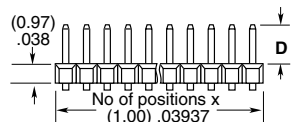
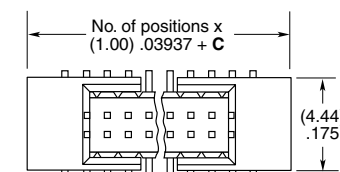
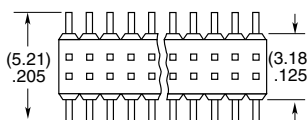
**-F**  
= Gold flash  
on post,  
Matte Tin  
on tail

**-S**  
= End Shroud  
(05 positions  
minimum).  
Molded or  
press-fit shroud  
at Samtec's  
discretion

**-P**  
= Plastic Pick  
& Place Pad  
(7 positions min.)

**-TR**  
= Tape & Reel

**-FR**  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)



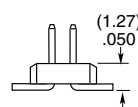
Shrouded options removed for clarity

**-03**  
= (1.65 mm)  
.065" Post  
(Mates with CLM)

**-L**  
= 10  $\mu$ "  
(0.25  $\mu$ m)  
Gold  
on post,  
Matte Tin  
on tail

OPTION	C
-S	(4.00) .157
-SA	(7.00) .276

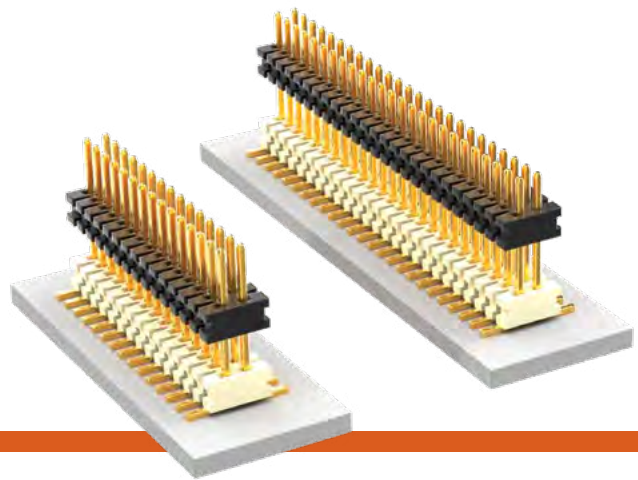
LEAD STYLE	D
-02	(1.91) .075
-03	(1.65) .065



# FLEX STACK

## SMT MICRO BOARD HEADER

(1.00 mm) .0394" PITCH • MW SERIES



### MW

Mates:  
CLM, MLE

### SPECIFICATIONS

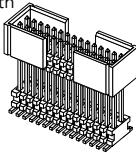
**Insulator Material:**  
Top: Black LCP  
Bottom: Natural LCP  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Au over 50  $\mu$ " (1.27  $\mu$ m) Ni  
**Operating Temp Range:**  
-55 °C to +125 °C

### PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (02-30)  
(0.15 mm) .006" max (31-50)\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)

### ALSO AVAILABLE MOQ Required

End shrouds  
End shrouds with  
guide posts



<b>MW</b>	<b>-</b>	<b>NO. PINS PER ROW</b>	<b>-</b>	<b>03</b>	<b>-</b>	<b>PLATING OPTION</b>	<b>-</b>	<b>D</b>	<b>-</b>	<b>STACKER HEIGHT</b>	<b>-</b>	<b>POST HEIGHT</b>	<b>-</b>	<b>OPTION</b>
-----------	----------	-------------------------	----------	-----------	----------	-----------------------	----------	----------	----------	-----------------------	----------	--------------------	----------	---------------

02 thru 50

**-G**  
= 10  $\mu$ "  
(0.25  $\mu$ m)  
Gold

**-"XXX"**  
= Stacker  
Height  
(in inches)  
  
(2.41 mm)  
.095" to  
(6.22 mm)  
.245"

Example:  
-245  
= (6.22 mm)  
.245"

**-"XXX"**  
= Post  
Height  
(in inches)  
  
(1.65 mm)  
.065"  
minimum

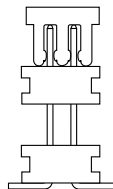
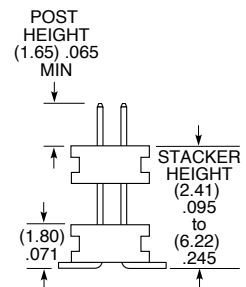
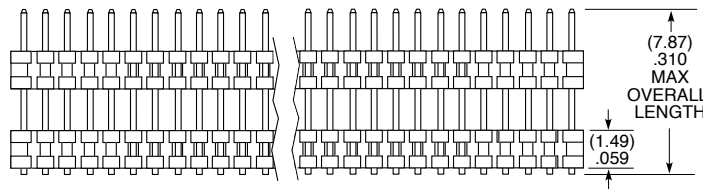
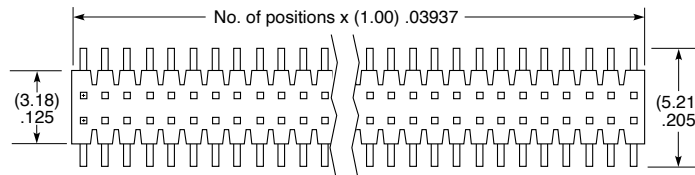
Example:  
-065  
= (1.65 mm)  
.065"

**-A**  
= Alignment  
Pin  
(5 positions  
minimum)  
Metal or  
plastic at  
Samtec's  
discretion

**-P**  
= Pick &  
Place Pad  
(7 positions  
minimum)

**-TR**  
= Tape & Reel

**-FR**  
= Full Reel  
Tape & Reel  
(must order  
maximum  
quantity per  
reel; contact  
Samtec for  
quantity  
breaks)

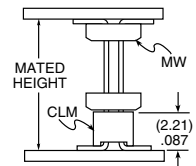


**-P OPTION**

### APPLICATION

EXAMPLES		
LEAD STYLE		MATED HEIGHT*
MW	CLM	
-163-065	-02	(6.35 mm) .250"
-233-065	-02	(8.13 mm) .320"

\*Processing conditions  
will affect mated height.



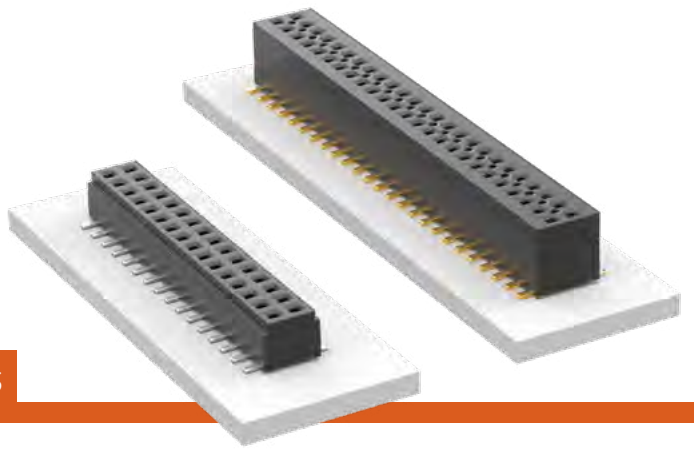
### Notes:

For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.

# RUGGED RELIABLE MICRO SOCKETS

(1.00 mm) .0394" PITCH • CLM/MLE SERIES



## CLM

Mates:  
FTM, FTMH, MW

## MLE

Mates:  
FTM, FTMH, MW

### SPECIFICATIONS

**Insulator Material:** Black LCP  
**Contact Material:**  
 CLM: Phosphor Bronze  
 MLE: BeCu  
**Plating:**  
 CLM: Au or Sn over  
 50  $\mu$ " (1.27  $\mu$ m) Ni  
 MLE: Au over 10  $\mu$ " (0.25  $\mu$ m) Ni  
**Current Rating (CLM/FTM):**  
 3.1 A per pin  
 (2 pins powered)  
**Current Rating (MLE/FTM):**  
 2.9 A per pin (2 pins powered)  
**Operating Temp Range:**  
 -55 °C to +125 °C  
**Max Cycles:**  
 CLM: 100 with 10  $\mu$ " (0.25  $\mu$ m) Au  
**Voltage Rating:**  
 CLM: 270 VAC  
 MLE: 310 VAC  
**Insertion Depth:**  
 CLM:  
 Top Entry = (1.40 mm) .055" min.,  
 Bottom Entry =  
 (2.41 mm) .095" min.  
 (Add board thickness for  
 correct post OAL)  
 MLE:  
 (1.63 mm) .064" to  
 (3.18 mm) .125" with  
 (0.38 mm) .015" wipe,  
 pass-through, or (2.44 mm) .096"  
 minimum for bottom entry

### PROCESSING

**Lead-Free Solderable:**  
 Yes  
**SMT Lead Coplanarity:**  
 (0.10 mm) .004" max (02-25)  
 (0.15 mm) .006" max (26-50)\*  
 \*(.004" stencil solution  
 may be available; contact  
 ipg@samtec.com)

### ALSO AVAILABLE

MOQ Required

Alignment pin  
 Other Gold plating options



**Note:**  
 Some lengths, styles and  
 options are non-standard,  
 non-returnable.



02 thru 50

**-F**  
 = Gold flash on  
 contact,  
 Matte Tin on tail

**-L**  
 = 10  $\mu$ " (0.25  $\mu$ m)  
 Gold on contact,  
 Matte Tin on tail

**-BE**  
 = Bottom Entry  
 (Required for bottom entry)

**-K**  
 = (3.50 mm) .138" DIA  
 Polyimide film  
 Pick & Place Pad  
 (7 positions minimum)

**-P**  
 = Pick & Place Pad  
 (7 positions minimum)

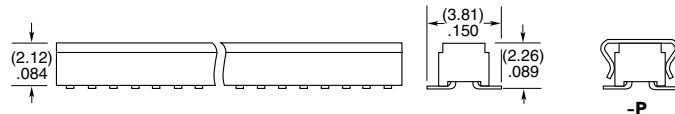
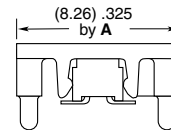
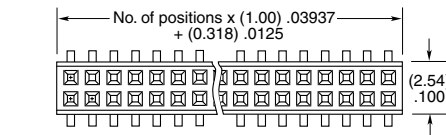
**-PA**  
 = Pick & Place Pad with  
 integral Alignment Pin

**-TR**  
 = Tape & Reel

**-FR**  
 = Full Reel Tape & Reel  
 (must order maximum  
 quantity per reel;  
 contact Samtec for  
 quantity breaks)



PIN/ROW	A
04-15	(3.56) .140
16-50	(7.11) .280



02 thru 50

**-G**  
 = 10  $\mu$ "  
 (0.25  $\mu$ m)  
 Gold

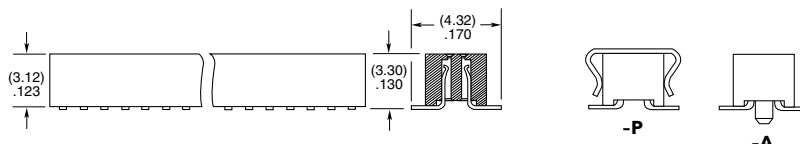
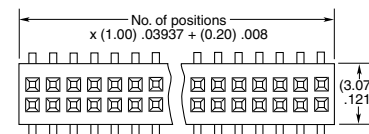
**-A**  
 = Alignment Pin  
 (3 positions minimum)  
 Metal or plastic  
 at Samtec discretion

**-K**  
 = (4.00 mm) .1575" DIA  
 Polyimide film  
 Pick & Place Pad  
 (5 positions minimum)

**-P**  
 = Metal Pick & Place Pad  
 (5 positions minimum)

**-TR**  
 = Tape & Reel

**-FR**  
 = Full Reel Tape & Reel  
 (must order maximum  
 quantity per reel;  
 contact Samtec for  
 quantity breaks)



# QUAD ROW SMT TERMINAL & SOCKET

(1.27 mm) .050" PITCH • TOLC/SOLC SERIES



**TOLC**  
Mates:  
SOLC

**SOLC**  
Mates:  
TOLC

## SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Au over 50 μm (1.27 μm) Ni  
**Current Rating:**  
2.4 A per pin  
(6 adjacent pins powered)  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Insertion Depth (SOLC):**  
(1.68 mm) .066" to  
(3.61 mm) .142" with  
(0.38 mm) .015" wipe  
**Max Cycles (SOLC):**  
100+

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (05-35)  
(0.15 mm) .006" max (40-50)\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)

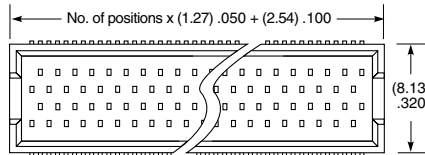
<b>TOLC</b>	<b>1</b>	<b>NO. PINS PER ROW</b>	<b>LEAD STYLE</b>	<b>PLATING OPTION</b>	<b>Q</b>	<b>OTHER OPTION</b>
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05, 10, 15, 20, 25,  
30, 35, 40, 45, 50  
(Standard Sizes)

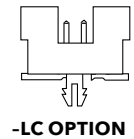
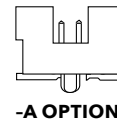
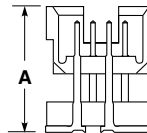
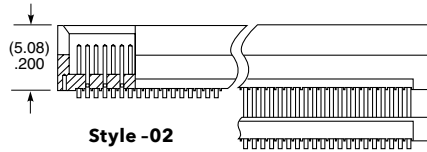
Specify  
LEAD  
STYLE  
from  
chart

**-F**  
= Gold flash  
on contact,  
Gold flash  
on tail  
**-L**  
= 10 μm  
(0.25 μm)  
Gold on  
contact,  
Gold flash  
on tail

**-A**  
= Alignment Pin  
(N/A with -LC)  
**-LC**  
= Locking Clip  
(N/A with -A)  
(Manual  
placement required)  
**-K**  
= (9.00 mm) .354" DIA  
Polyimide film  
Pick & Place Pad



LEAD STYLE	A	MATED HEIGHT
-02	(5.59) .220	(6.35) .250
-12	(7.24) .285	(8.00) .315
-22	(9.25) .364	(10.00) .394
-32	(11.23) .442	(12.00) .472

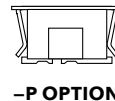
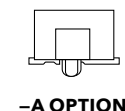
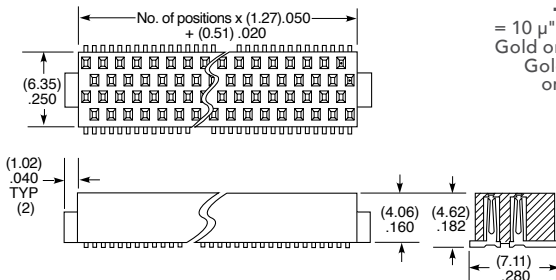


<b>SOLC</b>	<b>1</b>	<b>NO. PINS PER ROW</b>	<b>02</b>	<b>PLATING OPTION</b>	<b>Q</b>	<b>OTHER OPTION</b>
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05, 10, 15, 20, 25,  
30, 35, 40, 45, 50  
(Standard Sizes)

**-F**  
= Gold flash  
on contact,  
Gold flash  
on tail  
**-L**  
= 10 μm (0.25 μm)  
Gold on contact,  
Gold flash  
on tail

**-A**  
= Alignment Pin  
(N/A with -LC)  
**-LC**  
= Locking Clip  
(N/A with -A)  
(Manual  
placement required)  
**-K**  
= (7.00 mm) .276" DIA  
Polyimide film  
Pick & Place Pad  
**-P**  
= Pick & Place Pad  
**-TR**  
= Tape & Reel  
**-FR**  
= Full Reel Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)



## ALSO AVAILABLE

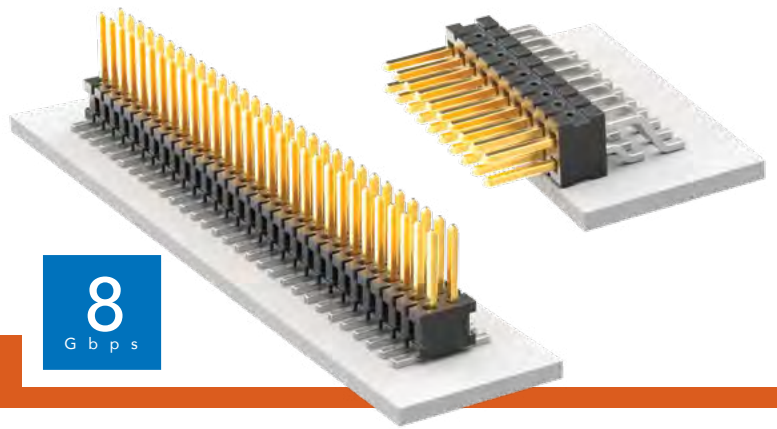
MOQ Required

Other sizes  
Other platings

**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

# SURFACE MOUNT MICRO HEADER

(1.27 mm) .050" PITCH • FTSH SERIES



## FTSH

**Board Mates:**  
CLP, FLE

**Cable Mates:**  
FFSD, FFTP

### SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer

**Terminal Material:**  
Phosphor Bronze

**Plating:**  
Sn or Au over

50 μ" (1.27 μm) Ni

**Current Rating (FTSH/CLP):**  
3.4 A per pin

(2 pins powered)

**Operating Temp Range:**  
-55 °C to +125 °C

### PROCESSING

**Lead-Free Solderable:**  
Yes

**SMT Lead Coplanarity:**  
-MT & -DV Tail Option:

(0.10 mm) .004" max (02-25)

-MT & -DH Tail Option:

(0.15 mm) .006" max (26-50)\*

\*(.004" stencil solution

may be available; contact

ipg@samtec.com)

### ALSO AVAILABLE

MOQ Required

Molded Pick & Place pads

Latches

Other platings



### Notes:

Severe Environment  
Testing qualified; aligns  
with MIL-DTL-55302.  
Visit samtec.com/set

Some sizes, styles and  
options are non-standard,  
non-returnable.

See SFM/TFM for positive  
alignment feature.

FTSH	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	TAIL OPTION	OPTION	FLEX SHROUD OPTIONS	OTHER OPTIONS
------	---	------------------	------------	----------------	-------------	--------	---------------------	---------------

02  
thru  
50

**-01**  
= (3.05 mm)  
.120" Post  
(Mates with  
FFSD)

**-02**  
= (1.91 mm)  
.075" Post  
(Mates with  
FLE)

**-03**  
= (1.65 mm)  
.065" Post  
(Mates with  
CLP-D)

**-04**  
= (3.81 mm)  
.150" Post  
(Mates with  
CLP-DH)

**-05**  
= (4.32 mm)  
.170" Post  
(Mates with  
CLP-BE)

**-F**  
= Gold flash  
on post,  
Matte Tin  
on tail

**-L**  
= 10 μ"  
(0.25 μm)  
Gold  
on post,  
Matte Tin  
on tail

**-DV**  
= Double  
Vertical

**-DH**  
= Double  
Horizontal  
(Styles  
-01, -02 &  
-04 only)

**-MT**  
= Mixed  
Technology  
(Styles  
-01, -02 &  
-04 only)

Leave Blank  
for -DH &  
-MT

**-"XXX"**  
= Polarized  
Position  
(Specify  
position  
of  
omitted  
pin)  
(Not  
available  
with -EX  
options)

(Style -02 & -03  
only, -DH & -MT  
not available)  
9 pins/row  
minimum  
(Other positions  
available. Call  
Samtec.)

**-ES**  
= End Shroud

**-EC**  
= End Shroud  
with Locking  
Clip  
(Manual  
placement  
required)

**-EP**  
= End Shroud  
with Guide Post

**-EL**  
= End Shroud  
with Board  
Lock  
(Boards are  
positively  
locked  
and cannot be  
unmated)

**-EJ**  
= Ejector Shroud  
(Style -01 only)  
-DH & -MT  
not available  
10 pins/row  
minimum  
25 pins/row  
maximum

**-K**  
= Keying  
Shroud for  
mating  
with FFSD  
(Style -01 only,  
05 thru 25  
pins/row only.  
13, 17, 20 &  
25 only with  
-EJ option)  
(-DV only)

**-A**  
= Alignment  
Pin  
(-DV 3 positions  
minimum)  
(-DH 5 positions  
minimum)  
(Metal or  
plastic at  
Samtec  
discretion)

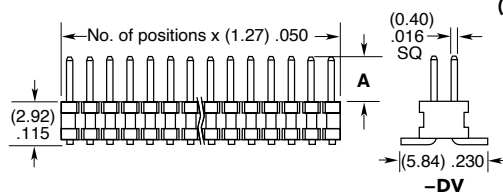
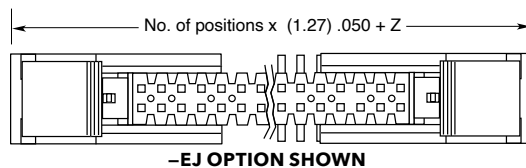
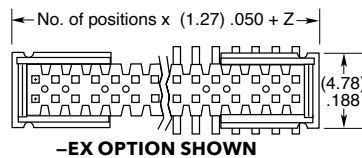
**-C**  
= (5.00 mm)  
.197" DIA  
Polyimide film  
Pick & Place Pad  
(-DH only)

**-P**  
= Pick &  
Place Pad  
(-DV 4 positions  
minimum)  
(-DH & -MT  
not available)

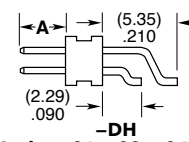
**-TR**  
= Tape & Reel  
(Flex Shroud  
options  
not available  
except -ES  
& -EJ)

**-FR**  
= Full Reel  
Tape & Reel  
(must order  
maximum  
quantity  
per reel;  
contact  
Samtec for  
quantity breaks)

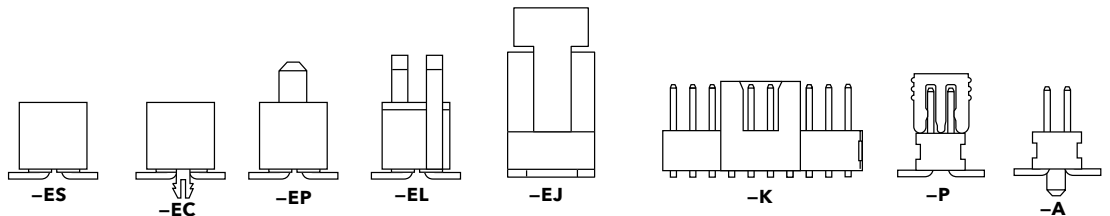
OPTION	Z
-ES	(2.57) .101
-EJ	(15.77) .621
-EC	(3.33) .131
-EP	(5.87) .231
-EL	(6.53) .257



**-MT**  
(Styles -01, -02 & -04 only)



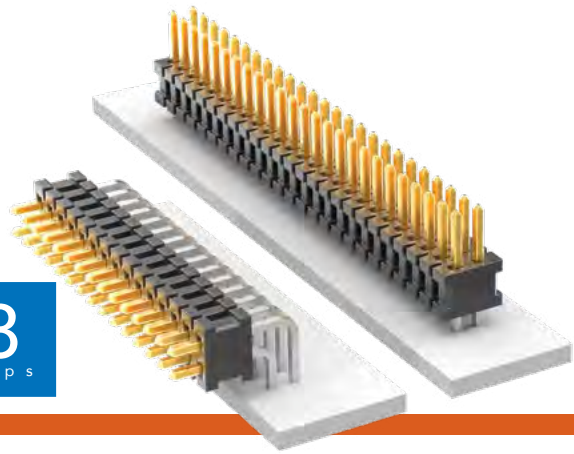
LEAD STYLE	A
-01	(3.05) .120
-02	(1.91) .075
-03	(1.65) .065
-04	(3.81) .150
-05	(4.32) .170





# THROUGH-HOLE MICRO HEADER

(1.27 mm) .050" PITCH • FTSH SERIES



## FTSH

**Board Mates:**  
CLP, FLE

**Cable Mates:**  
FFSD, FFTP

### SPECIFICATIONS

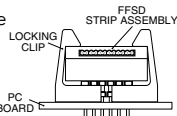
**Insulator Material:**  
Black Liquid Crystal Polymer  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Sn or Au over 50 μ" (1.27 μm) Ni  
**Current Rating (FTSH/CLP):**  
3.4 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +125 °C

### PROCESSING

**Lead-Free Solderable:**  
Yes

### LOCKING CLIP

For single mating cycle with the FFSD. Specify -LC after tail option. Lead Style -01 and 10 pins/row minimum. 5-9 pins/row not available in combination with keying shroud (-K).



FTSH	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	D	OPTION	TAIL OPTION	OTHER OPTIONS
------	---	------------------	------------	----------------	---	--------	-------------	---------------

02 thru 50

Specify LEAD STYLE from chart

**-F**  
= Gold flash on post, Matte Tin on tail  
**-L**  
= 10 μ" (0.25 μm) Gold on post, Matte Tin on tail

Leave blank for Right-angle  
**-"XXX"**  
= Polarized Position (Specify position of omitted pin) (Not available with -EX options)

Leave blank for straight tail  
**-RA**  
= Right-angle

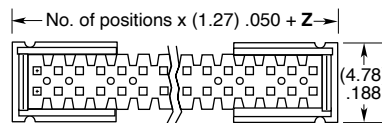
**-ES**  
= End Shroud (Style -02 & -03) 9 pins/row minimum

**-EP**  
= End Shroud with Guide Post (Style -02 & -03) 9 pins/row minimum

**-EL**  
= End Shroud with Board Lock (Style -02 & -03) 9 pins/row minimum

**-EJ**  
= Ejector Shroud (Style -01 only) 10 pins/row minimum 25 pins/row maximum -RA not available

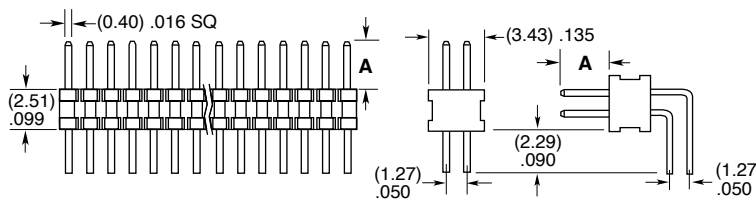
**-K**  
= Keying Shroud for mating with FFSD (Style -01 only, 05 thru 25 pins/row only. 13, 17, 20 & 25 only with -EJ option)



-EX OPTION SHOWN



OPTION	Z
-ES	(1.55) .061
-EJ	(15.77) .621
-EP	(5.87) .231
-EL	((6.53) .257



LEAD STYLE	A	MATES WITH
-01	(3.05) .120	FFSD
-02	(1.91) .075	FLE
-03	(1.65) .065	CLP-D
-04	(3.81) .150	N/A

### ALSO AVAILABLE

MOQ Required

Molded Pick & Place pads  
Other platings

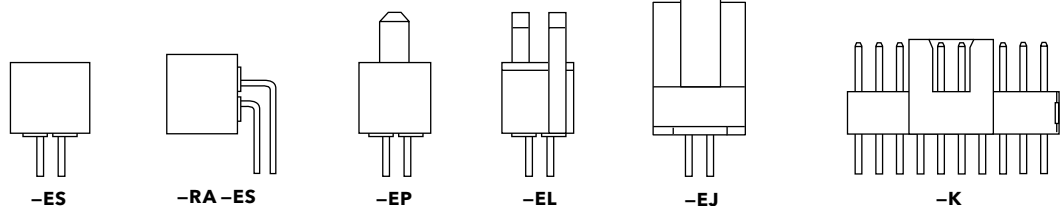


### Notes:

Severe Environment Testing qualified; aligns with MIL-DTL-55302. Visit [samtec.com/set](http://samtec.com/set)

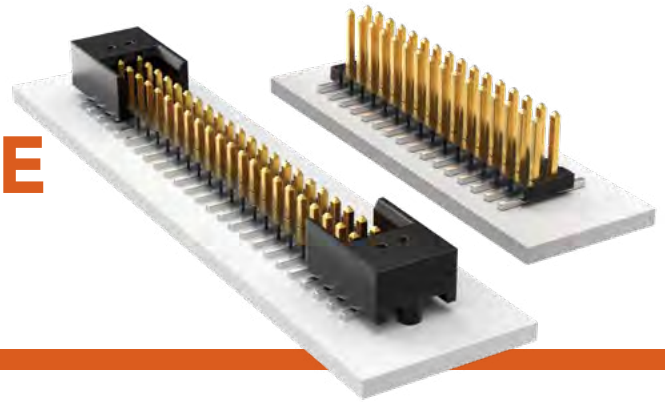
Some sizes, styles and options are non-standard, non-returnable.

See SFM/TFM for positive alignment feature.



# MICRO LOW PROFILE TERMINAL STRIPS

(1.27 mm) .050" PITCH • FTS SERIES



## FTS

Board Mates:  
CLP, FLE

Cable Mates:  
FFSD

### SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Terminal Material:**  
Phosphor Bronze  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Plating:**  
Sn or Au over 50 μ" (1.27 μm) Ni  
**Current Rating:**  
3.4 A per pin  
(2 pins powered)

### PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
.004" (0.10 mm) max

### ALSO AVAILABLE

Alignment pin  
(MOQ Required)

### OPTIONS

-TR OPTION

-SA OPTION

-P OPTION

-S OPTION

FTS	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	OTHER OPTION
-----	---	------------------	------------	----------------	------------	--------------

**02 thru 50**  
(except -S & -SA  
option = 05 thru 46)

**-01**  
= (3.05 mm)  
.120" Post  
(Mates with FFSD)

**-02**  
= (1.91 mm)  
.075" Post  
(Mates with FLE)

**-03**  
= (1.65 mm)  
.065" Post  
(Mates with CLP)

**-04**  
= (3.81 mm)  
.150" Post  
(-D & -DV only)

**-F**  
= Gold flash  
on post,  
Matte Tin  
on tail

**-L**  
= 10 μ"  
(0.25 μm)  
Gold on post,  
Matte Tin  
on tail

**-D**  
= Double  
Through-hole

**-DV**  
= Double  
Vertical SMT

**-S**  
= Single  
Through-hole

**-SV**  
= Single  
Vertical SMT

(-D & -DV only)

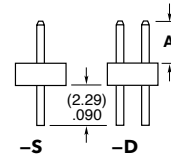
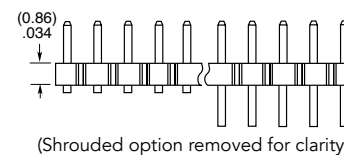
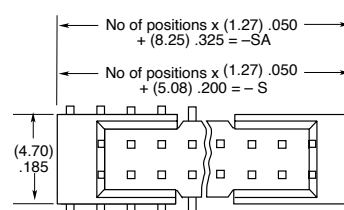
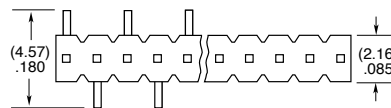
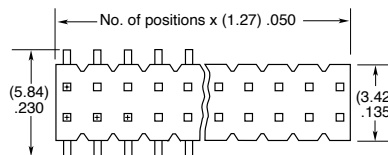
**-SA**  
= End Shroud  
with Alignment Pin  
(05 thru 46 positions.  
Style -02 & -03 only)

**-S**  
= End Shroud  
(05 thru 46 positions.  
Style -02 & -03 only)

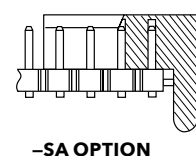
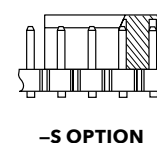
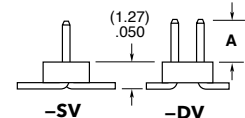
**-P**  
= Pick & Place Pad  
(04 positions min.)

**-TR**  
= Tape & Reel  
(-DV only)  
(Required callout for  
positions 02 thru 04)

**-FR**  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)  
(-DV only)



LEAD STYLE	A
-01	(3.05) .120
-02	(1.91) .075
-03	(1.65) .065
-04	(3.81) .150

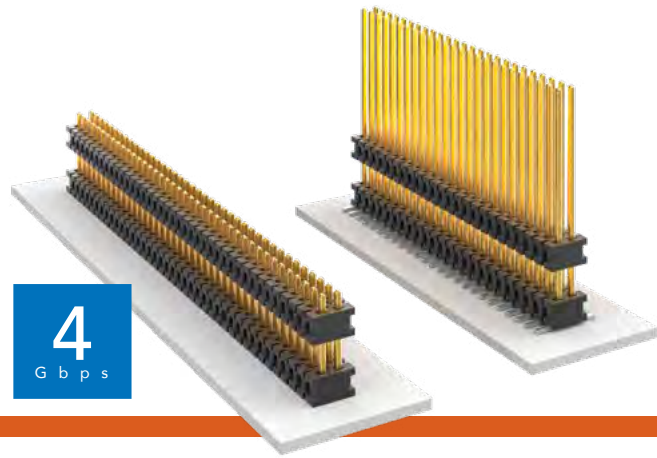


**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

# FLEX STACK

## MICRO BOARD STACKER

(1.27 mm) .050" PITCH • FW SERIES



**FW**  
**Board Mates:**  
 CLP, FLE  
**Cable Mates:**  
 FFSD

### SPECIFICATIONS

**Insulator Material:**  
 Black Liquid Crystal Polymer  
**Terminal Material:**  
 Phosphor Bronze  
**Plating:**  
 Sn or Au over 50 μ" (1.27 μm) Ni  
**Operating Temp Range:**  
 -55 °C to +125 °C

### PROCESSING

**Lead-Free Solderable:**  
 Yes  
**SMT Lead Coplanarity:**  
 (0.10 mm) .004" max (02-30)  
 (0.15 mm) .006" max (31-50)\*  
 \*(.004" stencil solution may be available; contact ipg@samtec.com)

### MATED HEIGHT

FW LEAD STYLE	CLP LEAD STYLE	MATED HEIGHT*
FW-XX-03-X-X-233-065	-02	8.13 mm) .329"
FW-XX-03-X-X-303-065		9.91 mm) .390"

\*Processing conditions will affect mated height.

### ALSO AVAILABLE

Smaller stack heights  
 (MOQ Required)

**Notes:**  
 For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.

FW	NO. OF PINS PER ROW	LEAD STYLE	PLATING OPTION	D	STACKER HEIGHT	POST HEIGHT	OPTION
----	---------------------	------------	----------------	---	----------------	-------------	--------

02 thru 50

Specify LEAD STYLE from chart

**-F**  
 = Gold flash on post, Matte Tin on tail

**-L**  
 = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail

**-G**  
 = 10 μ" (0.25 μm) Gold on post, Gold flash on tail

**-"XXX"**  
 = Stacker Height (in inches)

Example:  
 -250 = (6.35 mm) .250"

**-"XXX"**  
 = Post Height (in inches)

(1.65 mm) .065" minimum

Example:  
 -.065 = (1.65 mm) .065"

**-ES**  
 = End Shroud (-075 post height only. Mate only with CLP) (5.46 mm) .215" to (15.49 mm) .610" stacker height only 9 pins/row min.

**-EP**  
 = End Shroud with Guide Post (-075 post height only. Mate only with CLP) (5.46 mm) .215" to (15.49 mm) .610" stacker height only 9 pins/row min.

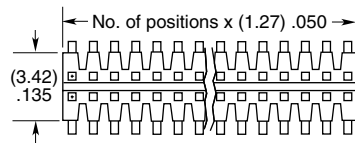
**-A**  
 = Alignment Pin (3 positions min.) (5.46 mm) .215" to (15.75 mm) .620" stacker height only (SMT only)

**-P**  
 = Pick & Place Pad (5 positions min.) (SMT only)

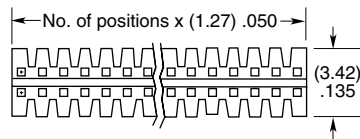
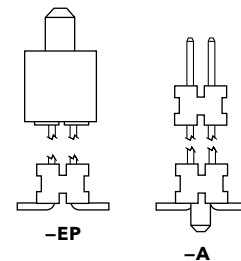
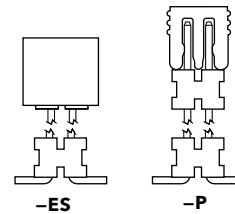
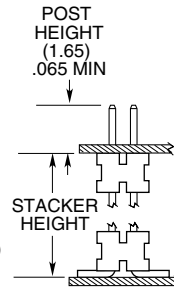
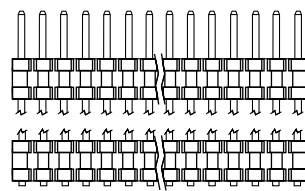
**-TR**  
 = Tape & Reel (Max overall height = Post+Stacker Height+Pad+Alignment Pin = (17.78) .700") (SMT only)

**-FR**  
 = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (SMT only)

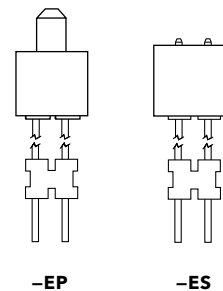
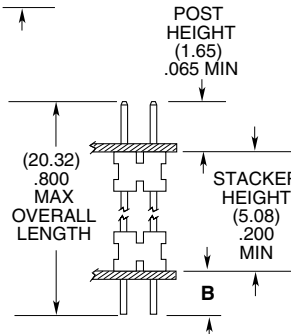
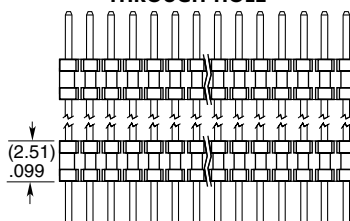
LEAD STYLE	STACKER HEIGHT	STACKER + POST
-03	(5.46) to (8.51) .215 to .335	(7.11) to (10.16) .280 to .400
-05	(8.64) to (15.49) .340 to .610	(10.29) to (17.15) .405 to .675



### SURFACE MOUNT

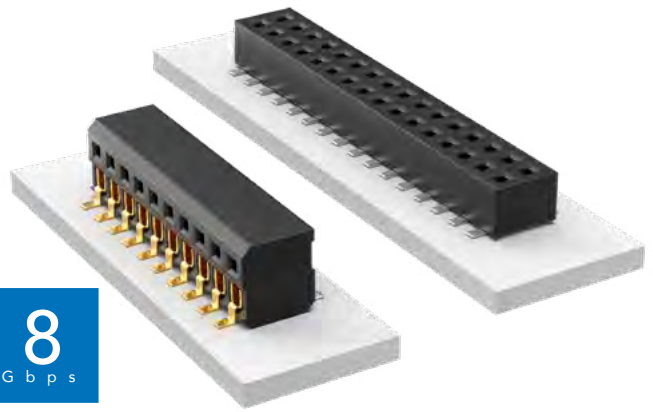


### THROUGH-HOLE



LEAD STYLE	TAIL (B)
-01	(1.14) .045
-02	(1.91) .075
-04	(2.29) .090

# LOW PROFILE DUAL WIPE SOCKET



(1.27 mm) .050" PITCH • CLP SERIES

## CLP

Mates:  
FTSH, FTS, FW



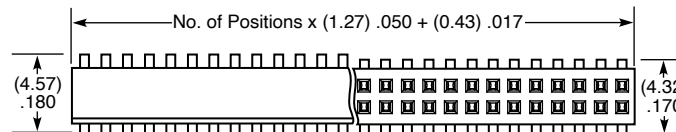
02 thru 50

### SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Sn or Au over  
50 μ" (1.27 μm) Ni  
**Current Rating (CLP/FTSH):**  
3.4 A per pin  
(2 pins powered)  
**Voltage Rating:**  
280 VAC/395 VDC  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Insertion Depth:**  
Top Entry =  
(1.40 mm) .055" minimum  
Bottom Entry =  
(2.41 mm) .095" minimum  
plus board thickness  
DH Entry =  
(2.31 mm) .091" to (2.67 mm) .105"  
**Max Cycles:**  
100 with 10 μ" (0.25 μm) Au

### PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (02-35)  
(0.15 mm) .006" max (36-50)\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)



### ALSO AVAILABLE

MOQ Required

Single row  
Other platings

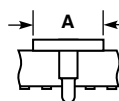


### Notes:

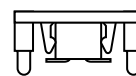
Severe Environment  
Testing qualified; aligns  
with MIL-DTL-55302.  
Visit samtec.com/set

Some lengths, styles and  
options are non-standard,  
non-returnable.

PIN/ROW	A
04-15	(3.56) .140
16-50	(7.11) .280



If odd pins/row, alignment pins are on  
middle position on centerline of the part.  
If even pins/row, then alignment pins are  
between middle two positions.



-PA OPTION

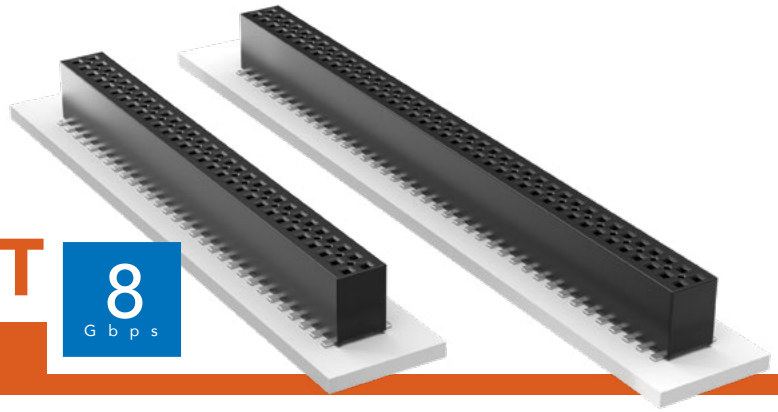


-P OPTION

- BE**  
= Bottom Entry  
(Required for bottom  
entry applications)
- A**  
= Alignment Pin  
(Not available with -PA option)  
(05, 06, 07, 08, 10, 12, 15,  
20, 25, 30, 40 positions only)  
(-DH option and other sizes.  
Contact Samtec.)
- K**  
= (4.00 mm) .157" DIA  
Polyimide film Pick & Place Pad
- P**  
= Pick & Place Pad  
(5 positions min. -D only)  
(Not always necessary  
for auto placement.  
See Flex Processing.)
- PA**  
= Pick & Place Pad  
with Alignment Pin  
(-D only)  
(Not available with -A option)
- TR**  
= Tape & Reel
- FR**  
= Full Reel Tape & Reel  
(must order maximum  
quantity per reel;  
contact Samtec for  
quantity breaks)

# COST-EFFECTIVE RELIABLE SOCKET

(1.27 mm) .050" PITCH • FLE SERIES



## FLE

**Board Mates:**  
FTSH, FTS, FW

**Cable Mates:**  
FFMD\*, FMTP

**\*Note:**  
Standard FFMD callout will not mate with FLE, SFMC. Must use gold plated callouts. (See drawing on web.)

## SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer

**Contact Material:**  
Phosphor Bronze

**Plating:**  
Au over 50 μ" (1.27 μm) Ni

**Current Rating:**  
2.9 A per pin  
(2 pins powered)

**Operating Temp Range:**  
-55 °C to +125 °C

**Insertion Depth:**  
(1.83 mm) .072" to (4.37 mm)

**Max Cycles:**  
100+

## PROCESSING

**Lead-Free Solderable:**  
Yes

**SMT Lead Coplanarity:**  
(0.10 mm) .004" max

## ALSO AVAILABLE

Other Plating  
(MOQ Required)



02 thru 50

**-G**  
= 10 μ" (0.25 μm) Gold

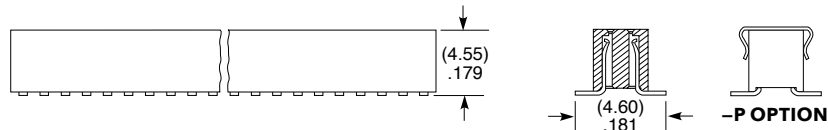
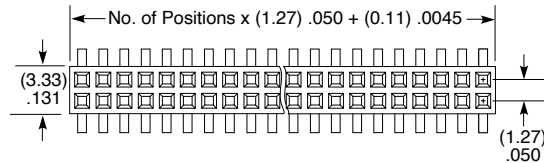
**-A**  
= Alignment Pin  
(Metal or plastic at Samtec discretion)  
(3 positions minimum)

**-K**  
= (4.25 mm) .167" DIA  
Polyimide film  
Pick & Place Pad  
(5 positions minimum)

**-P**  
= Metal Pick & Place Pad  
(5 positions minimum)

**-TR**  
= Tape & Reel

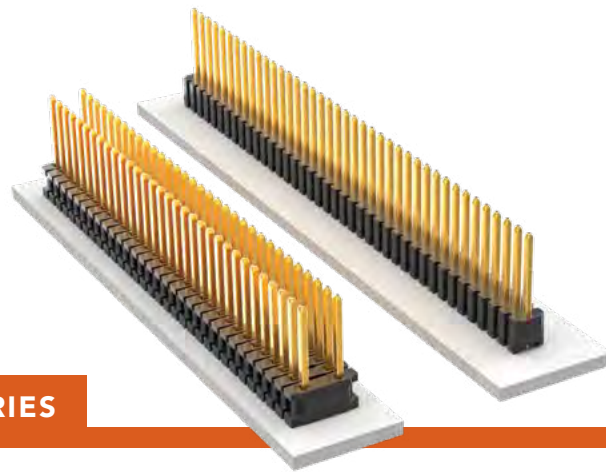
**-FR**  
= Full Reel Tape & Reel  
(must order maximum quantity per reel; contact Samtec for quantity breaks)



**Note:**  
Some lengths, styles and options are non-standard, non-returnable.



# THROUGH-HOLE MICRO HEADER



(1.27 mm) .050" PITCH • TMS/HTMS SERIES

## TMS/HTMS

Mates:  
SMS, SLM, RSM

### SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer

**Terminal Material:**  
Phosphor Bronze

**Plating:**

Au or Sn over  
50 μ" (1.27 μm) Ni

**Current Rating (TMS/SMS):**

5 A per pin  
(2 pins powered)

**Operating Temp Range:**

-55 °C to +105 °C with Tin;  
-55 °C to +125 °C with Gold

### PROCESSING

**Lead-Free Solderable:**

Yes

SERIES	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	OPTION
--------	---	------------------	------------	----------------	------------	--------

**TMS**  
= Standard

01 thru 50

Specify  
**LEAD  
STYLE**  
from  
chart

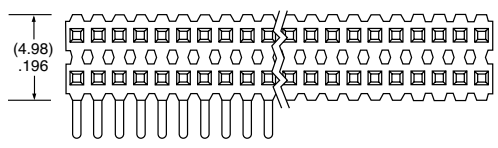
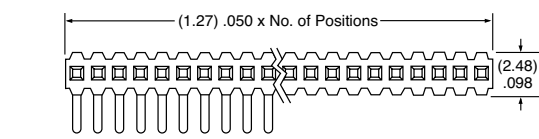
**-L**  
= 10 μ"  
(0.25 μm)  
Gold on post,  
Matte Tin  
on tail

**-S**  
= Single  
Row  
  
**-D**  
= Double  
Row

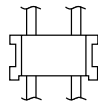
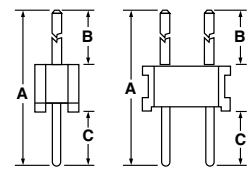
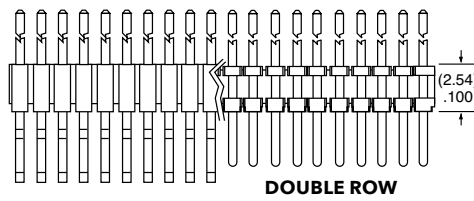
**-RA**  
= Right-  
angle  
  
**-"XXX"**  
= Polarized  
Position  
(Specify position  
of omitted pin)

**HTMS**  
= High Temp

**-G**  
= 10 μ"  
(0.25 μm)  
Gold on post,  
Gold flash  
on tail



T/H LEAD STYLE	A	B	C
-01	(11.43) .450	(5.84) .230	(3.05) .120
-02	(8.13) .320	(2.54) .100	
-21	(12.83) .505	(5.84) .230	(4.45) .175
-51	(10.41) .410	(4.83) .190	
-52	(10.80) .425	(5.21) .205	
-53	(12.83) .505	(7.24) .285	
-54	(14.10) .555	(8.51) .335	
-55	(15.49) .610	(9.91) .390	(3.05) .120
-56	(15.88) .625	(10.29) .405	
-57	(16.51) .650	(10.92) .430	
-58	(17.91) .705	(12.32) .485	
-59	(19.18) .755	(13.59) .535	
-60	(20.96) .825	(15.37) .605	



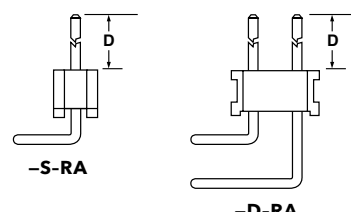
### ALSO AVAILABLE

MOQ Required

Other Plating

**Important Note:**  
Style -02 does not mate  
with SMS Series.

RA LEAD STYLE	D
-01	(5.84) .230
-02	(2.54) .100
-03	(3.18) .125



**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

# SHROUDED HEADERS & STACKERS

(1.27 mm) .050" PITCH • TML/ZML SERIES



## TML/ZML

Mates:  
SMS, RSM

### SPECIFICATIONS

#### TML

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Insulation Resistance:**  
5000 MΩ min  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Operating Temp Range:**  
-55 °C to +105 °C with Tin;  
-55 °C to +125 °C with Gold

#### ZML

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Operating Temp Range:**  
-55 °C to +105 °C with Tin;  
-55 °C to +125 °C with Gold

### PROCESSING

#### TML

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (05-20)  
(0.15 mm) .006" max (32)\*  
\*(.004" stencil solution  
may be available; contact  
IPG@samtec.com)  
**ZML**  
Same as TML except:  
**SMT Lead Coplanarity:**  
(0.15 mm) .006" max\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)

**ALSO AVAILABLE**  
MOQ Required

Other sizes  
Other platings

#### Notes:

For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

Some sizes, styles and options are non-standard, non-returnable.

TML	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	D	TAIL OPTION	OTHER OPTION
-----	---	------------------	------------	----------------	---	-------------	--------------

05, 08,  
10, 20, 32  
(Standard sizes)

Specify  
LEAD  
STYLE  
from  
chart

-L  
= 10 μ"  
(0.25 μm)  
Gold on post,  
Matte Tin  
on tail

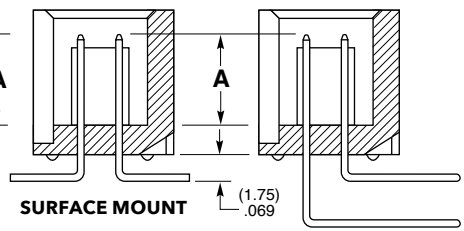
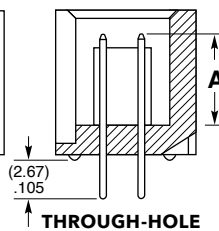
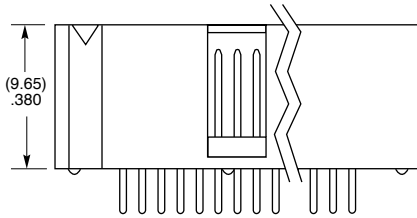
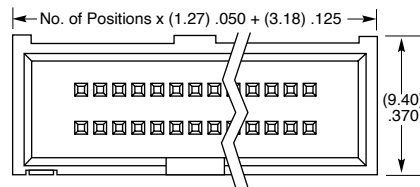
-G  
= 10 μ"  
(0.25 μm)  
Gold on post,  
Gold flash  
on tail

(Leave blank for  
Through-hole)

-RA  
= Right-angle

-SM  
= Surface Mount  
(For locking clip  
add -LC)

-“XXX”  
= Polarized  
position  
(Specify position  
of omitted pin)



LEAD STYLE	POST HEIGHT (A)
-01	(3.05) .120
-02	(5.84) .230
-03	(4.32) .170

SURFACE MOUNT

RIGHT-ANGLE

ZML	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	D	BODY HEIGHT	TAIL OPTION
-----	---	------------------	------------	----------------	---	-------------	-------------

05, 08,  
10, 20, 32  
(Standard sizes)

Specify  
LEAD  
STYLE  
from  
chart

-L  
= 10 μ"  
(0.25 μm)  
Gold on post,  
Matte Tin  
on tail

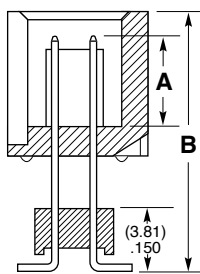
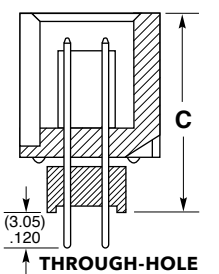
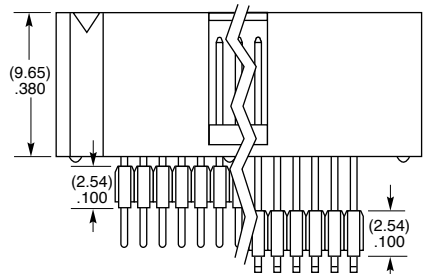
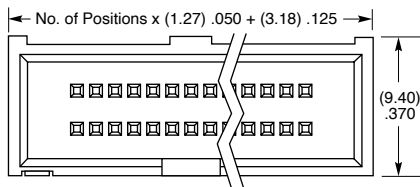
-G  
= 10 μ"  
(0.25 μm)  
Gold on post,  
Gold flash  
on tail

(Leave blank for  
Through-hole)

-“XXX”  
= -SM Body Height  
(Specify board space  
“B” in inches from  
lead style charts.)

(Leave blank for  
Through-hole)

-SM  
= Surface  
Mount



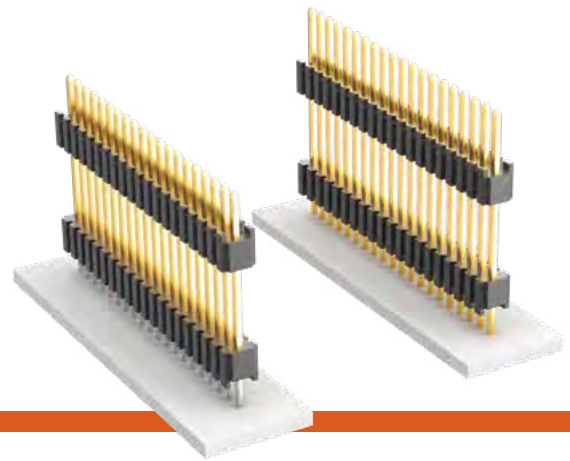
THROUGH-HOLE	
LEAD STYLE	BODY HEIGHT (C)
-01	(12.83) .505
-02	(14.22) .560
-03	(16.64) .655
-04	(19.69) .775

SURFACE MOUNT		
LEAD STYLE	POST HEIGHT (A)	BODY HEIGHT (B)
-53	(3.05) .120	(13.46) .530 to (20.19) .795
-54	(5.84) .230	(13.46) .530 to (17.40) .685

SURFACE MOUNT

# MICRO BOARD STACKER

(1.27 mm) .050" PITCH • DWM/HDWM SERIES



## DWM/HDWM

Mates:  
SMS, SLM, RSM

### SPECIFICATIONS

**Insulator Material:**  
Liquid Crystal Polymer  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over 50 μ" (1.27 μm) Ni  
**Operating Temp Range:**  
-55 °C to +105 °C with Tin  
-55 °C to +125 °C with Gold

### PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.15 mm) .006" max\*  
\*(.004" stencil solution may be available; contact ipg@samtec.com)

### ALSO AVAILABLE

Other Platings  
(MOQ Required)

DWM	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	STACKER HEIGHT	OTHER OPTION
	01 thru 50	Specify LEAD STYLE from chart	-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail  -G = 10 μ" (0.25 μm) Gold on contact, Gold flash on tail	-S = Single Row  -D = Double Row	- "XXX" = Stacker Height Example: -200 = (5.08 mm) .200"	- "XXX" = Polarized Position (Specify position of omitted pin)

OAL	
LEAD STYLE	THROUGH-HOLE
-01	(11.43) .450
-51	(10.41) .410
-52	(10.80) .425
-53	(12.83) .505
-54	(14.10) .555
-55	(15.49) .610
-56	(15.88) .625
-57	(16.51) .650
-58	(17.91) .705
-59	(19.18) .755
-60	(20.96) .825
-61	(26.67) 1.050

HDWM	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	STACKER HEIGHT	OTHER OPTION
	01 thru 50	Specify LEAD STYLE from chart	-L = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail  -G = 10 μ" (0.25 μm) Gold on contact, Gold flash on tail	-S = Single Row  -D = Double Row	- "XXX" = Stacker Height Example: -250 = (6.35 mm) .250"	- "XXX" = Polarized Position (Specify position of omitted pin)  - SM = Surface Mount (02 thru 40 positions only)  - A = Alignment Pin (6 positions minimum -D only) Metal or plastic at Samtec discretion (Not available with -LC)  - LC = Locking Clip (5 positions minimum -D only) (Not available with -A) (Manual placement required)  - P = Pick & Place Pad

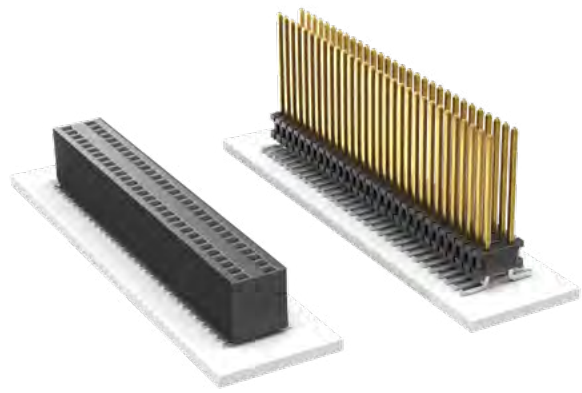
OAL		
LEAD STYLE	THROUGH-HOLE	SURFACE MOUNT
-01	(11.43) .450	(8.38) .330
-51	(10.41) .410	—
-52	(10.80) .425	—
-53	(12.83) .505	(9.78) .385
-54	(14.10) .555	(11.05) .435
-55	(15.49) .610	(12.45) .490
-56	(15.88) .625	(12.83) .505
-57	(16.51) .650	(13.46) .530
-58	(17.91) .705	(14.86) .585
-59	(19.18) .755	(15.62) .615
-60	(20.96) .825	—
-61	(26.67) 1.050	—

**Notes:**  
For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.

# SMT MICRO HEADER & SOCKET

(1.27 mm) .050" PITCH • FTR/RSM SERIES

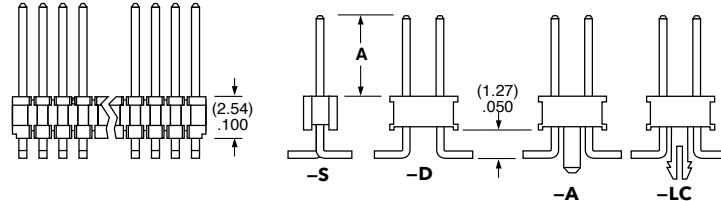
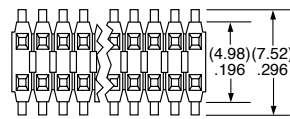
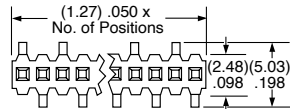


**FTR**  
Mates:  
RSM, SMS, SLM

**RSM**  
Mates:  
FTR, HTMS, HDWM,  
DWM, TML, ZML, TMS

## SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Contact Material:**  
RSM: Phosphor Bronze  
**Terminal Material:**  
FTR: Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μm (1.27 μm) Ni  
**Operating Temp Range:**  
FTR: -55 °C to +105 °C with Tin;  
FTR: -55 °C to +125 °C with Gold  
RSM: -55 °C to +125 °C  
**Current Rating (FTR/RSM):**  
3.8 A per pin  
(2 pins powered)  
**Voltage Rating:**  
290 VAC  
**Lead Size Accepted:**  
RSM: (0.46 mm) .018" SQ  
**Insertion Depth:**  
RSM: Top Entry =  
(2.64 mm) .104" to (5.84 mm) .230"  
with (0.38 mm) .015" wipe, or  
pass-through.  
RSM: Bottom Entry =  
(5.49 mm) .216" minimum  
(Add board thickness for  
correct post OAL)



FTR	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	OPTION																						
		02 thru 40	Specify LEAD STYLE from chart	<b>-L</b> = 10 μm (0.25 μm) Gold on post, Matte Tin on tail  <b>-G</b> = 10 μm (0.25 μm) Gold on post, Gold flash on tail	<b>-S</b> = Single Row  <b>-D</b> = Double Row	<b>-XX</b> = Polarized  <b>-A</b> = Alignment Pin (5 positions min. for -D) (Metal or plastic at Samtec discretion) (Not available with -LC)  <b>-LC</b> = Locking Clip (6 positions min. for -D) (Not available with -A) (Manual placement required)  <b>-P</b> = Plastic Pick & Place Pad (8 positions min. for -S)  <b>-TR</b> = Tape & Reel (4 positions min. for -S)  <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (4 positions min. for -S)																						
				<table border="1"> <thead> <tr> <th>LEAD STYLE</th> <th>A</th> </tr> </thead> <tbody> <tr><td>-01</td><td>(5.84) .230</td></tr> <tr><td>-02</td><td>(2.54) .100</td></tr> <tr><td>-03</td><td>(3.18) .125</td></tr> <tr><td>-51</td><td>(4.83) .190</td></tr> <tr><td>-52</td><td>(5.21) .205</td></tr> <tr><td>-53</td><td>(7.24) .285</td></tr> <tr><td>-54</td><td>(8.51) .335</td></tr> <tr><td>-55</td><td>(9.91) .390</td></tr> <tr><td>-56</td><td>(10.29) .405</td></tr> <tr><td>-57</td><td>(10.92) .430</td></tr> </tbody> </table>		LEAD STYLE	A	-01	(5.84) .230	-02	(2.54) .100	-03	(3.18) .125	-51	(4.83) .190	-52	(5.21) .205	-53	(7.24) .285	-54	(8.51) .335	-55	(9.91) .390	-56	(10.29) .405	-57	(10.92) .430	
LEAD STYLE	A																											
-01	(5.84) .230																											
-02	(2.54) .100																											
-03	(3.18) .125																											
-51	(4.83) .190																											
-52	(5.21) .205																											
-53	(7.24) .285																											
-54	(8.51) .335																											
-55	(9.91) .390																											
-56	(10.29) .405																											
-57	(10.92) .430																											

## PROCESSING

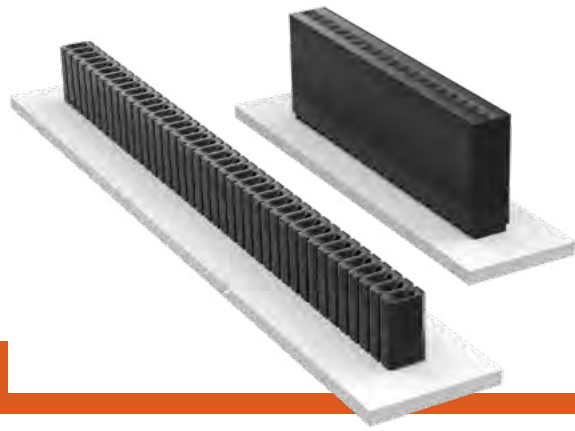
**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
RSM: (0.10 mm) .004" max  
FTR: (0.10 mm) .004" max (02-20)  
FTR: (0.15 mm) .006" max (21-40)\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)

RSM	1	NO. PINS PER ROW	02	PLATING OPTION	ROW OPTION	OPTION
		02 thru 36		<b>-L</b> = 10 μm (0.25 μm) Gold on contact, Matte Tin on tail	<b>-S</b> = Single Row  <b>-D</b> = Double Row	<b>-K</b> = (6.25 mm) .246" DIA Polyimide film Pick & Place Pad (5 positions minimum for -D) (7 positions minimum for -S)  <b>-P</b> = Plastic Pick & Place Pad (5 positions minimum for -D) (6 positions minimum for -S)  <b>-TR</b> = Tape & Reel  <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)
						<div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>ALSO AVAILABLE</b> MOQ Required Other platings Locking clips                     </div>

**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

# THROUGH-HOLE MICRO SOCKETS

(1.27 mm) .050" PITCH • SLM/SMS SERIES



## SLM

**Mates:**  
HTMS, TMS, MTMS, DWM,  
HDWM, FTR, HMTMS

## SMS

**Mates:**  
HTMS, TMS, MTMS,  
DWM, HDWM, FTR, TML,  
ZML, HMTM

### SPECIFICATIONS

**Insulator Material:**  
SLM: Black Glass Filled Polyester  
SMS: Black LCP

**Contact Material:**  
Phosphor Bronze

**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni

**Current Rating (SLM/TMS):**  
5.2 A per pin  
(2 pins powered)

**Current Rating (SMS/TMS):**  
5.0 A per pin  
(2 pins powered)

**Operating Temp Range:**  
-55 °C to +125 °C with Gold  
-55 °C to +105 °C with Tin

**Insertion Depth:**  
SLM: (2.03 mm) .080"  
to (3.05 mm) .120"  
SMS: (3.43 mm) .135" to  
(6.35 mm) .250" with  
(0.38 mm) .015" wipe

### PROCESSING

**Lead-Free Solderable:**  
SLM: No, Lead Wave Only  
SMS: Yes

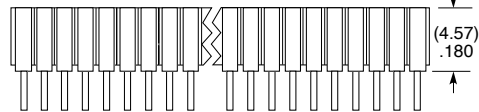
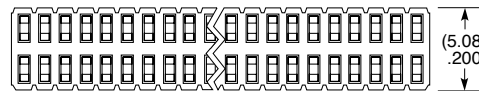
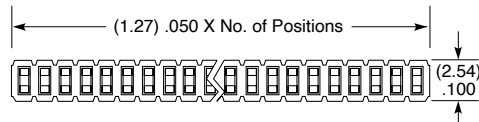
### ALSO AVAILABLE

Other Platings  
(MOQ Required)

**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

SLM	-	1	NO. PINS PER ROW	-	01	PLATING OPTION	-	ROW OPTION
-----	---	---	------------------	---	----	----------------	---	------------

01 thru 50

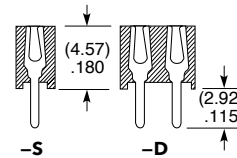


**-L**  
= 10 μ" (0.25 μm) Gold on contact,  
Matte Tin on tail

**-G**  
= 20 μ" (0.51 μm) Gold on contact,  
Gold flash on balance

**-S**  
= Single Row

**-D**  
= Double Row



SMS	-	1	NO. PINS PER ROW	-	LEAD STYLE	PLATING OPTION	-	ROW OPTION
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01 thru 50

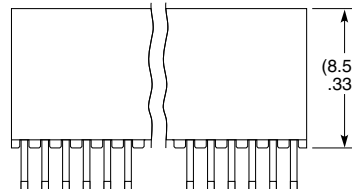
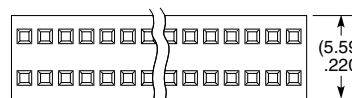
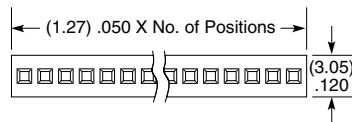
Specify  
LEAD  
STYLE  
from  
chart

**-L**  
= 10 μ" (0.25 μm) Gold on contact,  
Matte Tin on tail

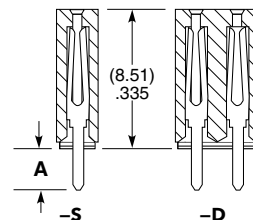
**-G**  
= 20 μ" (0.51 μm) Gold on contact,  
Gold flash on balance

**-S**  
= Single Row

**-D**  
= Double Row



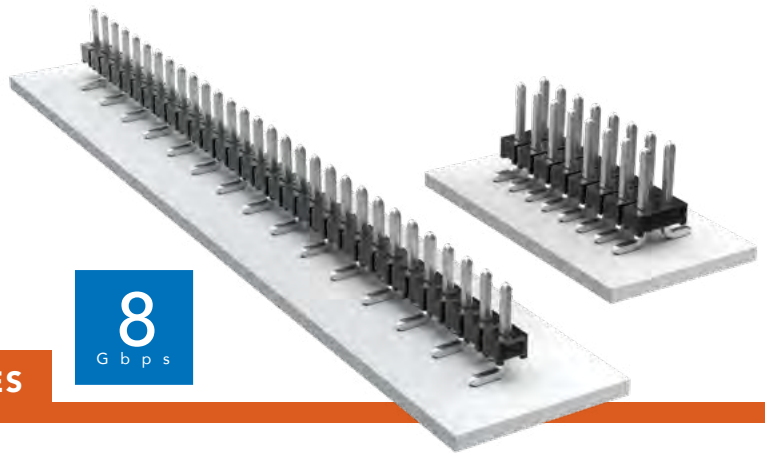
LEAD STYLE	A
-01	(2.54) .100
-02	(4.83) .190





# LOW PROFILE SMT HEADER

(2.00 mm) .0787" PITCH • TMM SERIES



## TMM

**Board Mates:**  
CLT, SQT, SQW, ESQT,  
TLE, SMM, MMS

**Cable Mates:**  
TCSD

## SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Sn or Au over  
50 μ" (1.27 μm) Ni  
**Current Rating:**  
3.2 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +105 °C with Tin;  
-55 °C to +125 °C with Gold  
**Voltage Rating:**  
281 VAC mated with SQW;  
250 VAC mated with SQT

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.15 mm) .006" max\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)

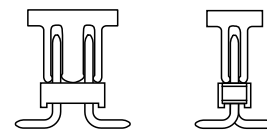
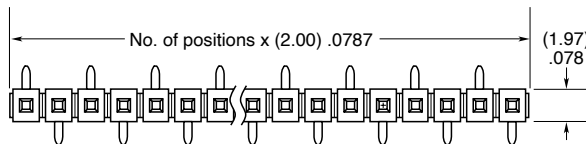
## ALSO AVAILABLE

Other plating  
(MOQ Required)

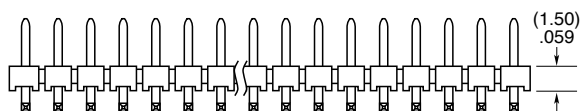
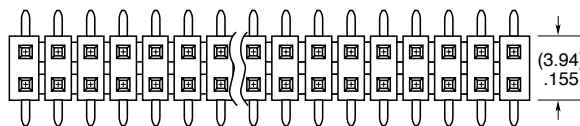


**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

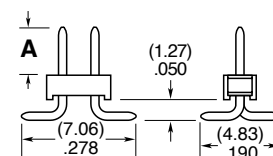
TMM	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	SM	OTHER OPTION
		02 thru 40	Specify LEAD STYLE from chart	<p><b>-F</b> = Gold flash on post, Matte Tin on tail</p> <p><b>-L</b> = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail</p> <p><b>-S</b> = 30 μ" (0.76 μm) Gold on post, Matte Tin on tail</p> <p><b>-T</b> = Matte Tin</p>	<p><b>-S</b> = Single Row</p> <p><b>-D</b> = Double Row</p>		<p><b>-A</b> = Alignment Pin (Metal or plastic at Samtec's discretion) (5 positions minimum) (-D only)</p> <p><b>-"XXX"</b> = Polarized Position (Specify position of omitted pin)</p> <p><b>-P</b> = Pick &amp; Place Pad (3 positions minimum)</p> <p><b>-TR</b> = Tape &amp; Reel (3 thru 36 positions only)</p> <p><b>-FR</b> = Full Reel Tape &amp; Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (3 thru 36 positions only)</p>



-P



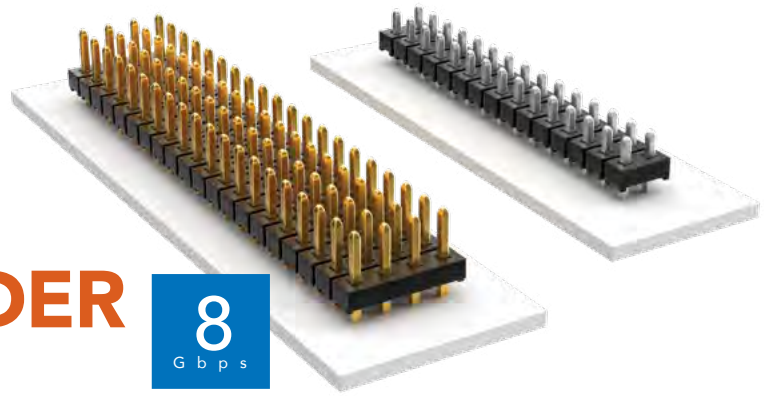
LEAD STYLE	A	MATES WITH
-01	(3.20) .126	SQT, SQW, ESQT, TLE, SMM, MMS, TCSD
-04	(1.91) .075	CLT
-05	(1.65) .065	
-06	(4.27) .168	CLT-BE



-D

-S

# THROUGH-HOLE LOW PROFILE HEADER



(2.00 mm) .0787" PITCH • TMM SERIES

## TMM

**Board Mates:**  
CLT, SQT, SQW, ESQT,  
TLE, SMM, MMS

**Cable Mates:**  
TCSD

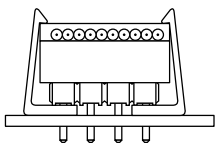
## SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Sn or Au over  
50 μ" (1.27 μm) Ni  
**Current Rating (SMM/TMM):**  
3.2 A per row  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +105 °C with Tin;  
-55 °C to +125 °C with Gold  
**Voltage Rating:**  
281 VAC mated with SQW;  
250 VAC mated with SQT

## PROCESSING

**Lead-Free Solderable:**  
Yes

## APPLICATION



Retention Clip Option (-RC)

## ALSO AVAILABLE

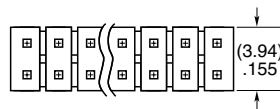
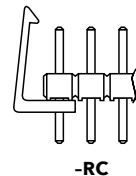
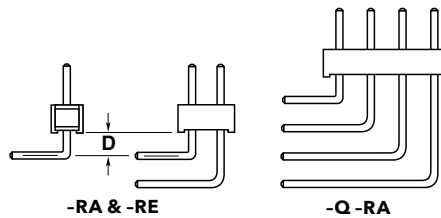
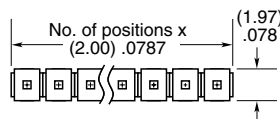
MOQ Required

Other Platings

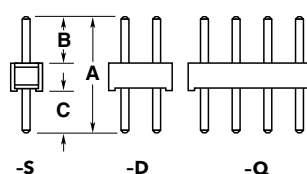
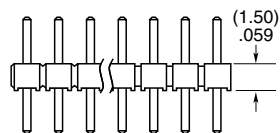
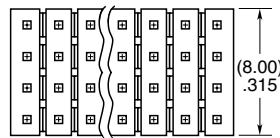


**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

TMM	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	OTHER OPTION
		02 thru 50	Specify LEAD STYLE from chart	<p><b>-F</b> = Gold flash on post, Matte Tin on tail</p> <p><b>-L</b> = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail</p> <p><b>-S</b> = 30 μ" (0.76 μm) Gold on post, Matte Tin on tail</p> <p><b>-T</b> = Matte Tin</p>	<p><b>-S</b> = Single Row</p> <p><b>-D</b> = Double Row</p> <p><b>-Q</b> = Four Row</p>	<p><b>-RA &amp; -RE</b> = Right-angle (Lead Style -01 only) (2 positions minimum, -Q row)</p> <p><b>-RC</b> = Retention Clip (Mates with TCSD) (Double row only, 4 positions minimum, only available -06 lead style)</p> <p><b>-"XXX"</b> = Polarized Position (Specify position of omitted pin)</p>



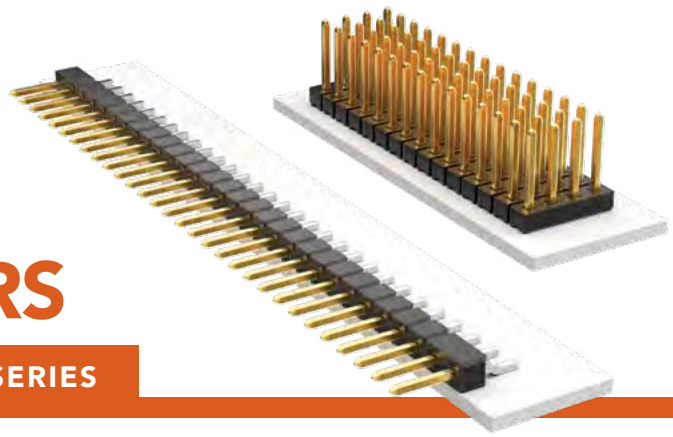
OPTION	D
-RA	(1.27) .050
-RE	(3.56) .140



LEAD STYLE	A	B	C
-01		(3.20) .126	(3.50) .138
-02	(8.20) .323	(3.70) .146	(3.00) .118
-03		(4.00) .158	(2.70) .106
-04	(5.69) .224	(1.91) .075	(2.29) .090
-05	(5.43) .214	(1.65) .065	
-06	(9.58) .377	(3.20) .126	(4.88) .192

# HORIZONTAL & MODIFIED HEADERS

(2.00 mm) .0787" PITCH • MMT/MTMM SERIES



## MMT/MTMM

### Board Mates:

CLT, SQT\*, SQW, ESQT, TLE, SMM, MMS

### Cable Mates:

TCSD

### \*Important Note:

SQT will not mate to the MMT -02 lead style.

## SPECIFICATIONS

### Insulator Material:

Black Liquid Crystal Polymer

### Terminal Material:

Phosphor Bronze

### Plating:

Au or Sn over 50 μ" (1.27 μm) Ni

### Operating Temp Range:

-55 °C to +105 °C with Tin; -55 °C to +125 °C with Gold

## PROCESSING

### Lead-Free Solderable:

Yes

### SMT Lead Coplanarity (MMT):

(0.10 mm) .004" max (02-25)  
(0.15 mm) .006" max (26-36)\*  
\*(.004" stencil solution may be available; contact ipg@samtec.com)

MMT	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	OPTION
		02 thru 36	-01 = (3.20 mm) .126" post -02 = (4.45 mm) .175" post	-F = Gold flash on post, Matte Tin on tail -L = 10 μ" (0.25 μm) Gold post, Matte Tin on tail -T = Matte Tin	-SH = Single Row -DH = Double Row -MT = Double Row Mixed Technology	-K = (4.00 mm) .157" DIA Polyimide Film Pick & Place Pad (3 positions min.) -P = Pick & Place Pad (2 positions min.) -"XXX" = Polarized Position Specify position of omitted pin -TR = Tape & Reel -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

**ALSO AVAILABLE**  
 MOQ Required  
 Alignment pins  
 Locking clips  
 Molded pick & place pads

MTMM	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	POST HEIGHT	OPTION
		01 thru 50	Specify LEAD STYLE from chart	-F = Gold flash on post, Matte Tin on tail -L = 10 μ" (0.25 μm) Gold post, Matte Tin on tail -T = Matte Tin	-S = Single Row -D = Double Row -Q = Quad Row	-"XXX" = Post Height in inches (0.13 mm) .005" increments Example: -070 = (1.78 mm) .070"	-"XXX" = Polarized Position Specify position of omitted pin

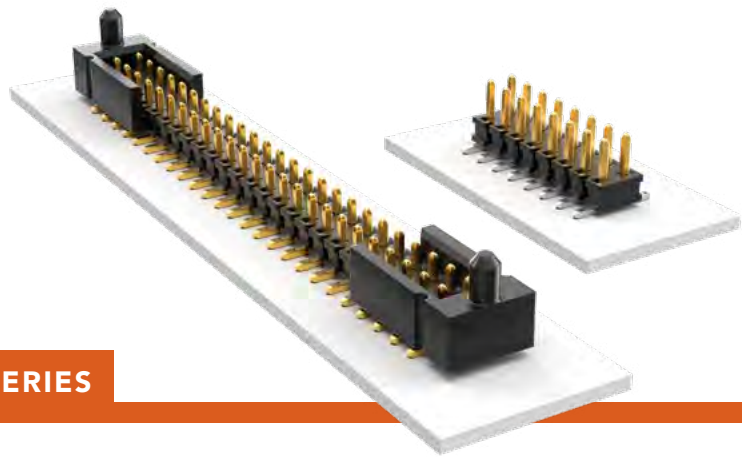
LEAD STYLE	OAL
-02	(6.48) .255
-03	(7.67) .302
-04	(8.20) .323
-05	(9.58) .377
-06	(10.08) .397
-07	(11.58) .456
-08	(12.09) .476
-09	(13.59) .535
-10	(14.10) .555
-11	(15.09) .594
-12	(15.60) .614
-13	(17.09) .673
-14	(19.08) .751
-15	(21.08) .830

### Note:

Some lengths, styles and options are non-standard, non-returnable.

# FLEXIBLE SMT HEADER

(2.00 mm) .0787" PITCH • TMMH SERIES



## TMMH

### Board Mates:

CLT, SQT, SQW, ESQT, TLE, SMM, MMS

### Cable Mates:

TCSD

## SPECIFICATIONS

### Insulator Material:

Black Liquid Crystal Polymer

### Terminal Material:

Phosphor Bronze

### Plating:

Sn or Au over 50 μ" (1.27 μm) Ni

### Current Rating (TMMH/ESQT):

4.5 A per pin

(2 pins powered)

### Current Rating (TMMH/SQT):

5.1 A per pin

(2 pins powered)

### Operating Temp Range:

-55 °C to +105 °C with Tin;

-55 °C to +125 °C with Gold

### Voltage Rating:

281 VAC mated with SQW;

250 VAC mated with SQT

## PROCESSING

### Lead-Free Solderable:

Yes

### SMT Lead Coplanarity:

(0.10 mm) .004" max

TMMH	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	DV	FLEX SHROUD OPTIONS	OTHER OPTIONS
------	---	------------------	------------	----------------	----	---------------------	---------------

03 thru 50

Specify LEAD STYLE from chart

**-F**  
= Gold flash on post, Matte Tin on tail

**-L**  
= 10 μ" (0.25 μm) Gold on post, Matte Tin on tail

**-T**  
= Matte Tin

All Flex Shroud options require 9 pins/row minimum (For board-to-board interfaces. Will not mate with TCSD)

**-ES**  
= End Shroud (For best cost also see TSH Series)

**-EC**  
= End Shroud with Locking Clip (For best cost also see TSH Series) (Manual placement required)

**-EP**  
= End Shroud with Guide Post

**-EL**  
= End Shroud with Board Lock (Boards are positively locked and cannot be unmated)

**-EBC**  
= End Shroud with Board Lock and Locking Clip (Boards are positively locked and cannot be unmated)

**-EPC**  
= End Shroud with Guide Post and Locking Clip (Manual placement required)

**-"XXX"**  
= Polarized Position. Specify position of omitted pin

**-A**  
= Alignment Pin (3 positions minimum) (Not available with -LC)

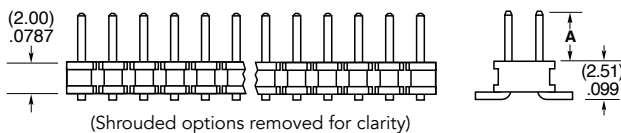
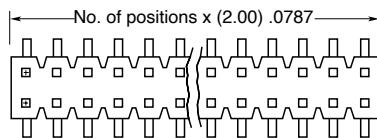
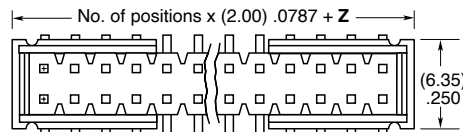
**-LC**  
= Locking Clip (5 positions minimum) (Not available with -A) (Manual placement required)

**-M**  
= Pick & Place Pad (5 positions minimum)

**-TR**  
= Tape & Reel Packaging (36 positions maximum) (Flex Shroud options not available except -ES, -EP & -EL)

**-FR**  
= Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (36 positions maximum) (Flex Shroud options not available except -ES, -EP & -EL)

OPTION	Z
-ES	(2.92) .115
-EC	(4.70) .185
-EP & -EPC	(6.10) .240
-EL & -EBC	(4.45) .175



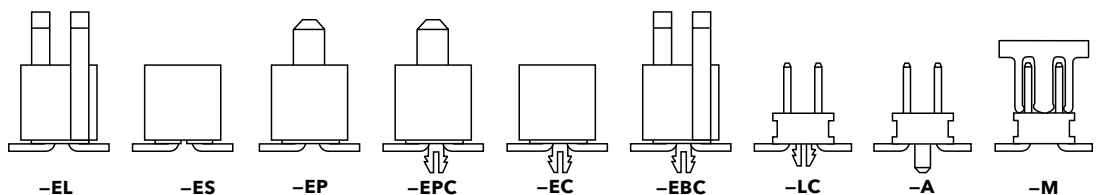
LEAD STYLE	A	MATES WITH
-01	(3.20) .126	SQT, SQW, ESQT, TLE, SMM, MMS, TCSD
-04	(1.91) .075	CLT
-05	(1.65) .065	



## ALSO AVAILABLE

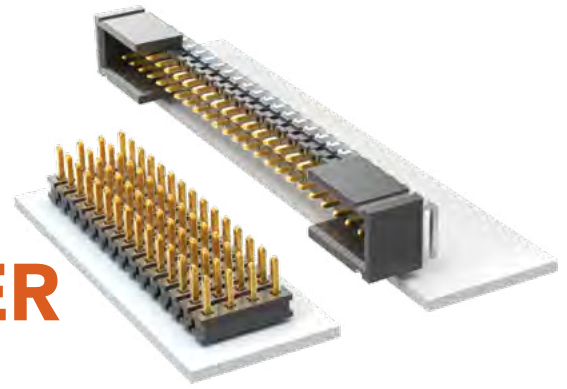
MOQ Required

Other Platings



**Note:** Some lengths, styles and options are non-standard, non-returnable.

# FLEXIBLE THROUGH-HOLE HEADER



(2.00 mm) .0787" PITCH • TMMH SERIES

## TMMH

### Board Mates:

CLT, SQT, SQW, ESQT, TLE, SMM, MMS

### Cable Mates:

TCSD

## SPECIFICATIONS

### Insulator Material:

Black Liquid Crystal Polymer

### Terminal Material:

Phosphor Bronze

### Plating:

Sn or Au over 50 μ" (1.27 μm) Ni

**Current Rating (TMMH/ESQT):**

4.5 A per pin

(2 pins powered)

**Current Rating (TMMH/SQT):**

5.1 A per pin

(2 pins powered)

### Operating Temp Range:

-55 °C to +105 °C with Tin;

-55 °C to +125 °C with Gold

### Voltage Rating:

281 VAC mated with SQW;

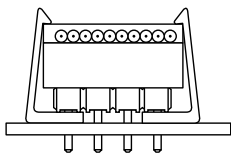
250 VAC mated with SQT

## PROCESSING

### Lead-Free Solderable:

Yes

## APPLICATION



Retention Clip Option (-RC)

TMMH	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	TAIL OPTION	FLEX SHROUD OPTIONS	OTHER OPTIONS
------	---	------------------	------------	----------------	------------	-------------	---------------------	---------------

03  
thru  
50

Specify  
LEAD  
STYLE  
from  
chart

**-F**  
= Gold  
flash  
on post,  
Matte Tin  
on tail

**-D**  
= Double  
Row  
(Required  
for Flex  
Shroud  
option)

**-RA**  
= Right-  
angle  
(Double  
& Triple  
Row only)  
(-ES, -EP,  
-EL Double  
Row only)  
(-EC, -EBC  
and -EPC  
not available)  
(-06 Lead  
style not  
available)

Flex Shroud  
requires -D row  
& 9 pins/row  
minimum  
(For board-to-  
board interfaces.  
Will not mate  
with TCSD)

**-"XXX"**  
= Polarized  
Position  
(Specify  
position of  
omitted pin)

**-RC**  
= Retention  
Clip  
(Mates to  
TCSD)  
(Double row  
only, minimum  
position 4 and  
available only  
-06 lead style)

OPTION	Z
-ES	(2.92) .115
-EC	(4.70) .185
-EP & -EPC	(6.10) .240
-EL & -EBC	(4.45) .175

**-L**  
= 10 μ"  
(0.25 μm)  
Gold on  
post,  
Matte Tin  
on tail

**-T**  
= Triple  
Row

**-Q**  
= Four  
Row

**-5**  
= Five  
Row

**-6**  
= Six  
Row

**-ES**  
= End Shroud

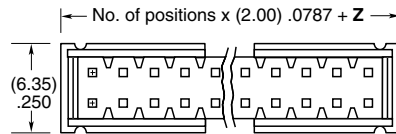
**-EC**  
= End Shroud  
with Locking  
Clip  
(Manual  
placement  
required)

**-EP**  
= End Shroud  
with Guide Post

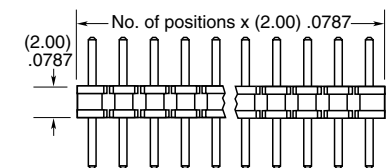
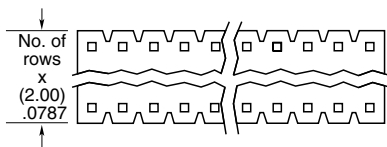
**-EL**  
= End Shroud  
with Board Lock  
(Boards are  
positively locked  
and cannot be  
unmated)

**-EBC**  
= End Shroud  
with Board Lock  
and Locking Clip  
(Boards are  
positively locked  
and cannot be  
unmated)

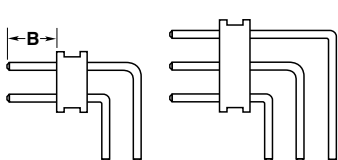
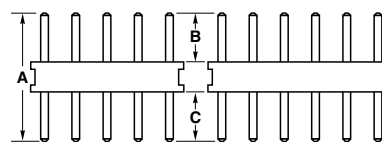
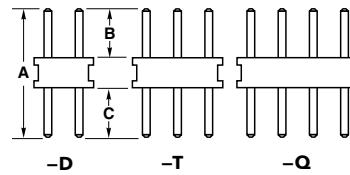
**-EPC**  
= End Shroud  
with Guide Post  
and Locking Clip  
(Manual  
placement  
required)



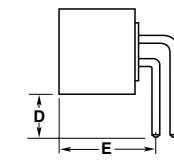
(Shrouded option requires -D)



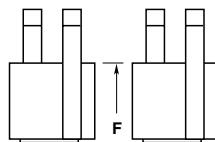
(Shrouded options removed for clarity)



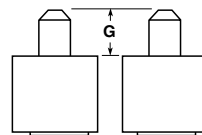
**-RA**  
**-T-RA**  
(Lead style -01 only)



**-D-RA-ES**  
(-RA also available with  
other flex shroud options)



**-D-EL**   **-D-EBC**



**-D-EPC**   **-D-EP**

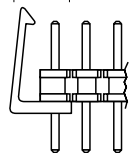
LEAD STYLE	A	B	C	D	E	F	G
-01	(7.67) .302	(3.20) .126	(2.46) .097	(2.34) .092	(6.60) .260	(5.84) .230	(4.45) .175
-04	(6.45) .254	(1.91) .075	(2.57) .101	(2.62) .103	(5.26) .207	(4.50) .177	(3.02) .119
-05	(6.45) .254	(1.65) .065	(2.29) .090	(3.12) .123	(5.26) .207		
-06	(8.74) .344	(3.20) .126	(3.53) .139	N/A	N/A	N/A	N/A



**-D-ES**



**-D-EC**



**-RC**

## ALSO AVAILABLE

MOQ Required

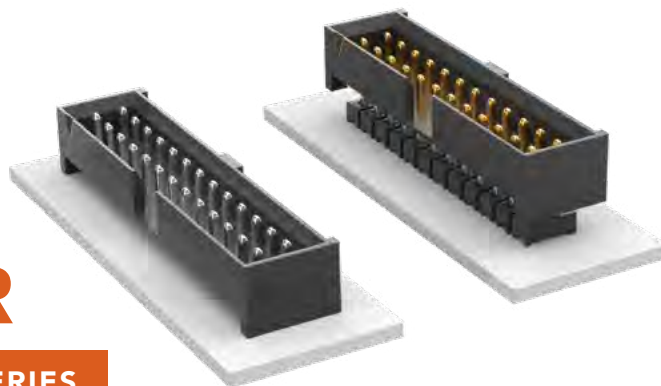
Other Platings



**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.



## SHROUDED HEADER & STACKER



(2.00 mm) .0787" PITCH • LTMM/ZLTTM SERIES

### LTMM/ZLTTM

#### Mates:

SQT, SQW, ESQT, SMM

#### SPECIFICATIONS

##### Insulator Material:

Black Liquid Crystal Polymer

##### Terminal Material:

Phosphor Bronze

##### Plating:

Sn or Au over

50 μ" (1.27 μm) Ni

##### Operating Temp Range:

-55 °C to +105 °C with Tin;

-55 °C to +125 °C with Gold

#### PROCESSING

##### Lead-Free Solderable:

Yes

##### SMT Lead Coplanarity:

(0.10 mm) .004" max

LTMM	1	NO. PINS PER ROW	PLATING OPTION	D	TAIL OPTION	OTHER OPTION
		04, 05, 06, 07, 08, 10, 12, 13, 15, 17, 20, 22, 25 (Standard sizes)	-F = Gold flash on post, Matte Tin on tail  -L = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail  -T = Matte Tin		Leave blank for Through-hole  -RA = Right-angle  -SM = Surface Mount	-“XX” = Polarized Position  -LC = Locking Clip (-SM only) (Manual placement required)  -K = (7.50 mm) .295" DIA Film Pick & Place Pad (-SM only)  -TR = Tape & Reel (-SM only)  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-SM only)

### ALSO AVAILABLE

MOQ Required

Other sizes

Other plating

ZLTTM	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	D	BODY HEIGHT	OTHER OPTION
		04, 05, 06, 07, 08, 10, 12, 13, 15, 17, 20, 22, 25 (Standard sizes)	Specify LEAD STYLE from chart	-F = Gold flash on post, Matte Tin on tail  -L = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail  -T = Matte Tin		-“XXX” = Body Height	-“XX” = Polarized Position

LEAD STYLE	B (OAL)	MAX BODY HEIGHT
-75	(9.58) 0.377	(7.42) 0.292
-62	(10.08) 0.397	(7.92) 0.312
-65	(10.49) 0.413	(8.33) 0.328
-73	(12.09) 0.476	(9.93) 0.391
-63	(14.10) 0.555	(11.94) 0.470
-66	(15.09) 0.594	(12.93) 0.509
-69	(15.60) 0.614	(13.44) 0.529
-74	(17.09) 0.673	(14.94) 0.588
-70	(17.60) 0.693	(15.44) 0.608
-71	(21.08) 0.830	(18.92) 0.745
-72	(21.62) 0.851	(19.46) 0.766

#### Note:

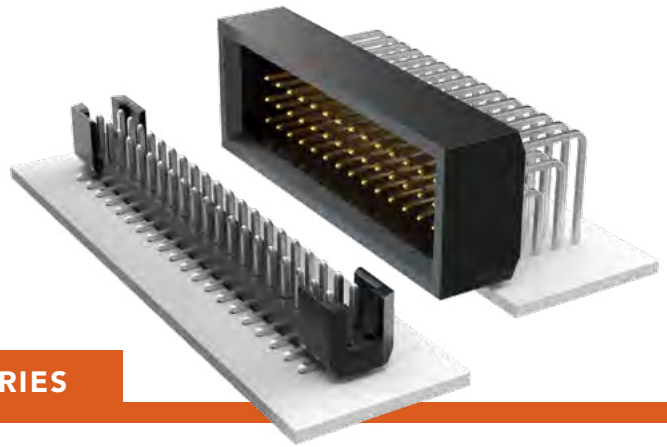
This Series is non-standard, non-returnable.

#### Note:

For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

# SHROUDED HEADERS

(2.00 mm) .0787" PITCH • TSH/TMMS SERIES



## TSH

### Mates:

CLT, SQT, SQW, ESQT,  
TLE, SMM, MMS, PTF

## TMMS

### Mates:

SQT, SQW, ESQT

TSH	-	1	NO. PINS PER ROW	-	01	PLATING OPTION	-	ROW OPTION	-	OTHER OPTION
-----	---	---	------------------	---	----	----------------	---	------------	---	--------------

05, 10, 15, 20, 25,  
30, 35, 40, 45  
(40 & 45 = -D & -RA only)  
(Standard sizes)

**-F**  
= Gold flash on post, Matte Tin on tail

**-D**  
= Vertical Through-hole

**-LC**  
= Locking Clip (-DV only)  
(Not available with -A)  
(Manual placement required)

**-L**  
= 10 μ" (0.25 μm) Gold on post, Matte Tin on tail

**-DV**  
= Vertical Surface Mount

**-A**  
= Alignment Pin (-DV only)  
(Not available with -LC)

**-RA**  
= Right-angle Through-hole

**-SL**  
= Solder Locks (-DH only)

**-T**  
= Matte Tin

**-DH**  
= Horizontal Surface Mount

**-K**  
= (4.50 mm) .177" DIA Polyimide Film Pick & Place Pad (-DH only)  
(Not available with 15 - 30 positions)

**-TR**  
= Tape & Reel

**-FR**  
= Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

## SPECIFICATIONS

### Insulator Material:

Black Liquid Crystal Polymer

### Terminal Material:

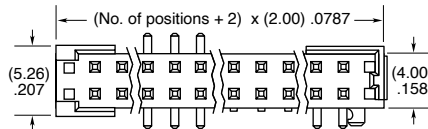
Phosphor Bronze

### Plating:

Sn or Au over 50 μ" (1.27 μm) Ni

### Operating Temp Range:

-55 °C to +105 °C with Tin;  
-55 °C to +125 °C with Gold



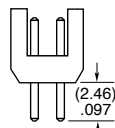
## PROCESSING

### Lead-Free Solderable:

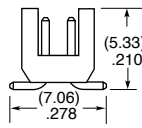
Yes

### SMT Lead Coplanarity (TSH):

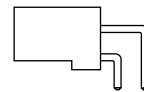
(0.15 mm) .006" max\*  
\*(.004" stencil solution may be available; contact ipg@samtec.com)



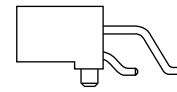
-D



-DV



-RA



-DH

TMMS	-	1	NO. PINS PER ROW	-	01	PLATING OPTION	-	Q	OPTION	-	FS
------	---	---	------------------	---	----	----------------	---	---	--------	---	----

05, 10, 15,  
20, 30, 40, 50

**-F**  
= Gold flash on post, Matte Tin on tail

**-RA**  
= Right-angle

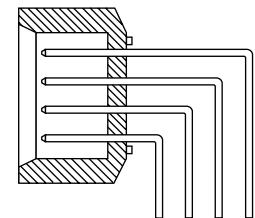
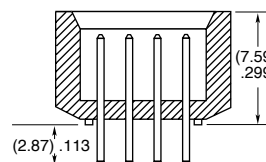
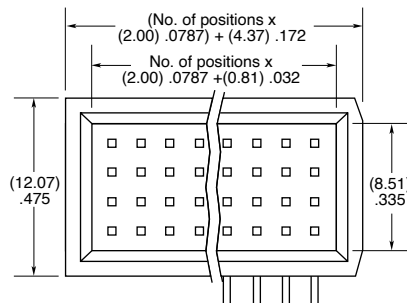
**-L**  
= 10 μ" (0.25 μm) Gold on post, Matte Tin on tail

## ALSO AVAILABLE

MOQ Required

Other sizes

Other plating



-RA

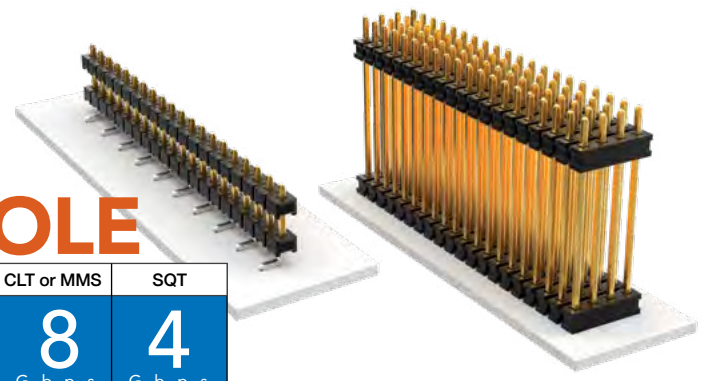
### Note:

Some lengths, styles and options are non-standard, non-returnable.

# SMT & THROUGH-HOLE BOARD STACKERS

(2.00 mm) .0787" PITCH • TW SERIES

CLT or MMS	SQT
8	4
G b p s	G b p s



**TW**  
**Board Mates:**  
 CLT, SQT, SQW, ESQT,  
 TLE, SMM, MMS

**Cable Mates:**  
 TCS D

## SPECIFICATIONS

**Insulator Material:**  
 Black Liquid Crystal Polymer  
**Terminal Material:**  
 Phosphor Bronze  
**Plating:**  
 Sn or Au over  
 50 μ" (1.27 μm) Ni  
**Current Rating:**  
 TW-SM = 4.9 A per pin  
 (2 pins powered)  
 TW-TH = 5.2 A per pin  
 (2 pins powered)  
**Operating Temp Range:**  
 -55 °C to +105 °C with Tin;  
 -55 °C to +125 °C with Gold

## PROCESSING

**Lead-Free Solderable:**  
 Yes  
**SMT Lead Coplanarity:**  
 (0.15 mm) .006" max\*  
 \*(.004" stencil solution  
 may be available; contact  
 ipg@samtec.com)

## ALSO AVAILABLE

MOQ Required

Other Platings  
 End shrouds with or  
 without guide post

**Notes:**  
 For added mechanical  
 stability, Samtec  
 recommends  
 mechanical board spacers be  
 used in applications with gold or  
 selective gold plated connectors.  
 Contact ipg@samtec.com for  
 more information.

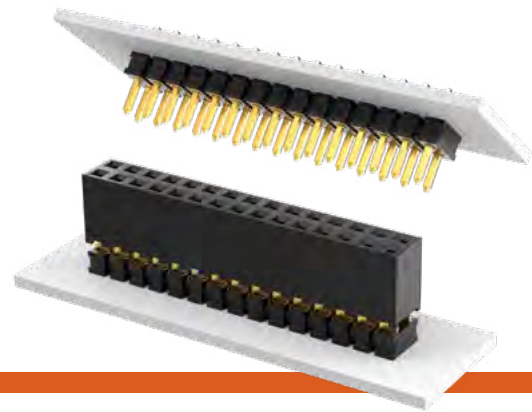
This Series is non-standard,  
 non-returnable.

TW	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	STACKER HEIGHT	SM	OTHER OPTION																						
	02 thru 36	Specify LEAD STYLE from chart	-F = Gold flash on post, Matte Tin on tail  -L = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail  -T = Matte Tin	-S = Single Row  -D = Double Row	- "XXX" = Stacker Height in inches (0.13 mm) .005" increments  Example: -250 = (6.35 mm) .250"		- "XXX" = Polarized Position  -A = Alignment Pin (Metal or plastic at Samtec discretion) (4.83 mm) .190" min. board space (-D only)  -P = Pick & Place Pad (1.91 mm) .075" min. post height (04-36 only)  - "X"R = Specify "T" for Tape & Reel Specify "F" for Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-07 lead style N/A) (-06 lead style with -P option N/A as standard)																						
		<table border="1"> <thead> <tr> <th>LEAD STYLE</th> <th>OAL</th> </tr> </thead> <tbody> <tr><td>-02</td><td>(7.85) .309</td></tr> <tr><td>-03</td><td>(11.86) .467</td></tr> <tr><td>-04</td><td>(12.37) .487</td></tr> <tr><td>-06</td><td>(15.37) .605</td></tr> <tr><td>-07</td><td>(17.35) .683</td></tr> <tr><td>-09</td><td>(9.86) .388</td></tr> </tbody> </table>		LEAD STYLE	OAL	-02	(7.85) .309	-03	(11.86) .467	-04	(12.37) .487	-06	(15.37) .605	-07	(17.35) .683	-09	(9.86) .388	<table border="1"> <thead> <tr> <th>ROW OPTION</th> <th>A</th> </tr> </thead> <tbody> <tr><td>-S</td><td>(5.08) .200</td></tr> <tr><td>-D</td><td>(6.35) .250</td></tr> </tbody> </table>		ROW OPTION	A	-S	(5.08) .200	-D	(6.35) .250				
LEAD STYLE	OAL																												
-02	(7.85) .309																												
-03	(11.86) .467																												
-04	(12.37) .487																												
-06	(15.37) .605																												
-07	(17.35) .683																												
-09	(9.86) .388																												
ROW OPTION	A																												
-S	(5.08) .200																												
-D	(6.35) .250																												

TW	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	STACKER HEIGHT	TAIL SPEC																																	
	02 thru 50	Specify LEAD STYLE from chart	-F = Gold flash on post, Matte Tin on tail  -L = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail  -T = Matte Tin	-S = Single Row  -D = Double Row  -T = Triple Row  -Q = Four Row  -5 = Five Row  -6 = Six Row	- "XXX" = Stacker Height in inches (0.13 mm) .005" increments  Example: -250 = (6.35 mm) .250"	- "XXX" = Tail Length in inches (0.13 mm) .005" increments  Example: -150 = (3.81 mm) .150"  - "XXX" = Polarized Position (Specify position to be removed)																																	
		<table border="1"> <thead> <tr> <th>LEAD STYLE</th> <th>OAL</th> </tr> </thead> <tbody> <tr><td>-01</td><td>(8.20) .323</td></tr> <tr><td>-02</td><td>(9.60) .377</td></tr> <tr><td>-03</td><td>(13.60) .535</td></tr> <tr><td>-04</td><td>(14.10) .555</td></tr> <tr><td>-05</td><td>(15.10) .594</td></tr> <tr><td>-06</td><td>(17.10) .673</td></tr> <tr><td>-07</td><td>(19.10) .751</td></tr> <tr><td>-08*</td><td>(21.10) .830</td></tr> <tr><td>-09</td><td>(11.60) .456</td></tr> <tr><td>-10</td><td>(15.60) .614</td></tr> <tr><td>-11</td><td>(10.08) .397</td></tr> <tr><td>-12*</td><td>(28.19) 1.110</td></tr> </tbody> </table>		LEAD STYLE	OAL	-01	(8.20) .323	-02	(9.60) .377	-03	(13.60) .535	-04	(14.10) .555	-05	(15.10) .594	-06	(17.10) .673	-07	(19.10) .751	-08*	(21.10) .830	-09	(11.60) .456	-10	(15.60) .614	-11	(10.08) .397	-12*	(28.19) 1.110	<table border="1"> <thead> <tr> <th>ROW OPTION</th> <th>STACKER HEIGHT</th> </tr> </thead> <tbody> <tr><td>-S, -D*, -Q</td><td>(3.05) .120 MIN</td></tr> <tr><td>-T, -5, -6</td><td>(4.06) .160 MIN</td></tr> </tbody> </table>		ROW OPTION	STACKER HEIGHT	-S, -D*, -Q	(3.05) .120 MIN	-T, -5, -6	(4.06) .160 MIN	<p>*-D with stacker height greater than (4.06 mm) .160" will not have standoffs.                  *Style -08 &amp; -12 = S &amp; D only</p>	
LEAD STYLE	OAL																																						
-01	(8.20) .323																																						
-02	(9.60) .377																																						
-03	(13.60) .535																																						
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ROW OPTION	STACKER HEIGHT																																						
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-T, -5, -6	(4.06) .160 MIN																																						

# PRESS-FIT HEADERS & SOCKETS

(2.00 mm) .0787" PITCH • PTT/PTF SERIES



**PTT**  
**Mates:**  
 PTF, ESQT, PTHF,  
 SQW, SQT, SMM

**PTF**  
**Mates:**  
 PTT, TMMH, TMM, MTMM,  
 MMT, TW, LTMM, ZLTMM

## SPECIFICATIONS

**Insulator Material:**  
 Black Liquid Crystal Polymer  
**Contact Material:**  
 Phosphor Bronze  
**Plating:**  
 Au or Sn over  
 50  $\mu$ " (1.27  $\mu$ m) Ni  
**Current Rating:**  
 2.9 A per pin  
 (2 pins powered)  
**Operating Temp Range:**  
 -55 °C to +125 °C  
**Insertion Depth:**  
 (2.67 mm) .105" to  
 (3.56 mm) .140"  
**Max Cycles:**  
 100 with 30  $\mu$ " (0.76  $\mu$ m) Au



02 thru 50

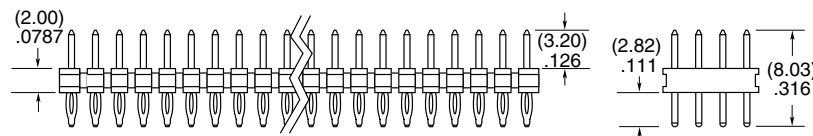
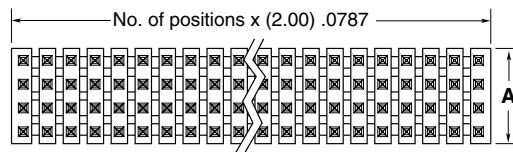
**-L**  
 = 10  $\mu$ " (0.25  $\mu$ m)  
 Gold contact,  
 Matte Tin on tail

**-S**  
 = Single Row  
**-D**  
 = Double Row

**-"XXX"**  
 = Polarized  
 Position

ROW OPTION	A
-S	(2.00) .079
-D	(4.00) .158
-T	(6.00) .236
-Q	(8.00) .314
-5	(10.00) .393
-6	(12.00) .472

**-T**  
 = Triple Row  
**-Q**  
 = Four Row  
**-5**  
 = Five Row  
**-6**  
 = Six Row



## ALSO AVAILABLE

MOQ Required

Other Platings



02 thru 50

Specify  
**LEAD  
 STYLE**  
 from  
 chart

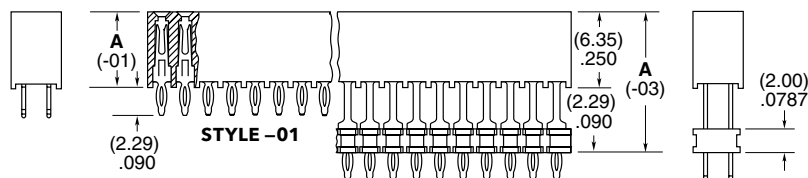
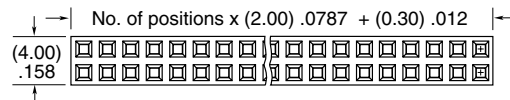
**-L**  
 = 10  $\mu$ " (0.25  $\mu$ m)  
 Gold on post,  
 Matte Tin on tail

**-"XXX"**  
 = Polarized  
 Position

LEAD STYLE	A
-01	(6.35) .250
-03	(9.14) .360

## TOOLING

Press-Fit  
 PHT: CAT-PT-PH-1XX-X-X  
 PHF: CAT-PT-PH-1XX-X-B  
 For more information,  
 visit [www.samtec.com/tooling](http://www.samtec.com/tooling)

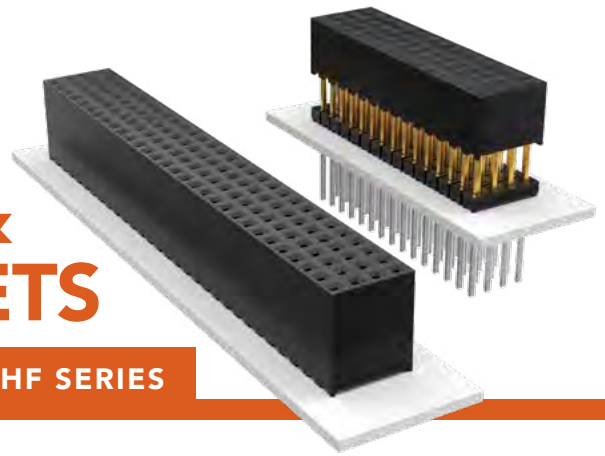


STYLE -01  
 STYLE -03

**Note:**  
 Some lengths, styles and  
 options are non-standard,  
 non-returnable.

# FLEXIBLE ELEVATED & SELF-NESTING SOCKETS

(2.00 mm) .0787" PITCH • ESQT/ESQT (-368)/PTHF SERIES



## ESQT

**Board Mates:**  
TMMH, TMM, MTMM,  
MMT, TW, LTMM, ZLTMM,  
ESQT, PTT, TSH, TMMS

**Cable Mates:**  
TCMD

### SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Sn or Au over  
50 μ" (1.27 μm) Ni  
**Current Rating (ESQT/TMMH):**  
4.5 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Insertion Depth:**  
(2.62 mm) .103" to  
(5.03 mm) .198" with  
(0.38 mm) .015" wipe  
**Max Cycles:**  
100 with 10 μ" (0.25 μm) Au  
**Lead-Free Solderable:**  
Yes, for -S, -D & -Q  
(Wave only for -T, -5 & -6)

ESQT	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	BODY HEIGHT	OTHER OPTION
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02 thru 50

Specify  
**LEAD  
STYLE**  
from  
chart

**-F**  
= Gold flash on contact,  
Matte Tin on tail

**-S**  
= Single Row

**"-XXX"**  
= Body Height  
(in inches)

**"-XXX"**  
= Polarized  
Position  
(Indicate  
position  
number)

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact,  
Matte Tin on tail

**-D**  
= Double Row

(7.87 mm) .310"  
minimum for  
-S, -D, -Q

**-T**  
= Triple Row

(9.53 mm) .375"  
minimum for  
-T, -5, -6

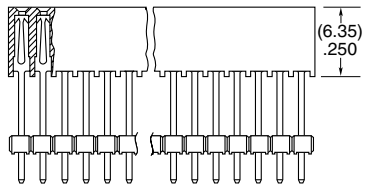
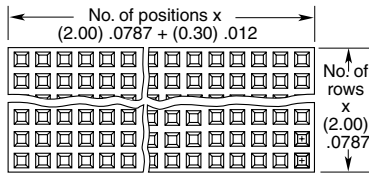
**-M**  
= 20 μ" (0.51 μm)  
Gold on contact,  
Matte Tin on tail

**-Q**  
= Quad Row

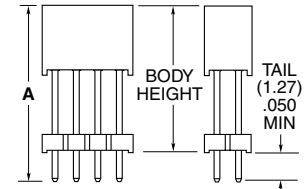
**-5**  
= Five Row

**-GF**  
= 15 μ" (0.38 μm)  
Gold on contact,  
Gold flash on tail  
(Recommended  
for self-nesting)  
(-02 lead style only)

**-6**  
= Six Row



LEAD STYLE	A	MAX TAIL	MAX BODY HEIGHT
-02	(21.59) .850	(13.72) .540	(20.32) .800
-03	(11.63) .458	(3.76) .148	(10.36) .408



## ESQT (-368)/PTHF

**Mates:**  
ESQT, PTHF

### SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer (ESQT-368)  
Black High Temp Nylon (PTHF)  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Max Cycles:**  
100 with 10 μ" (0.25 μm) Au  
**Lead-Free Solderable:**  
Yes (ESQT-368)

SERIES	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	Q	368
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**ESQT**  
= Solder Tails

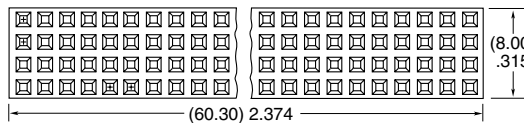
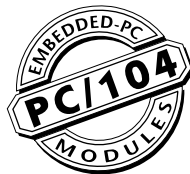
30

Specify  
**LEAD  
STYLE**  
from  
chart

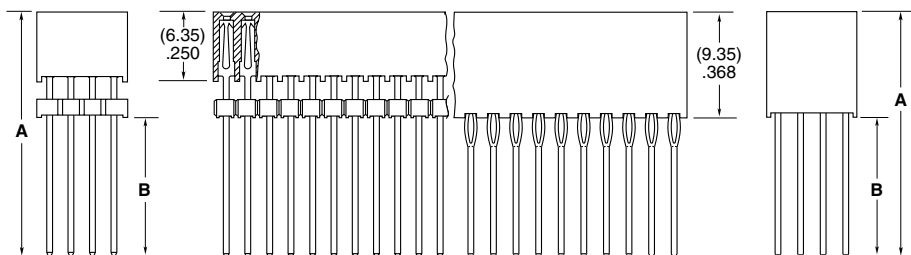
**-GF**  
= 15 μ" (0.38 μm)  
Gold on contact,  
Gold flash on tail  
(-02 Lead Style only)

**PTHF**  
= Press-fit Tails

**-M**  
= 20 μ" (0.51 μm)  
Gold on contact,  
Matte Tin on tail  
(-03 Lead Style only)



LEAD STYLE	ESQT		PTHF	
	A	B	A	B
-02	(21.59) .850	(12.24) .482	(21.59) .850	(12.24) .482
-03	(11.63) .458	(2.29) .090	(12.34) .486	(3.00) .118



ESQT (-368) SERIES

PTHF SERIES

### TOOLING

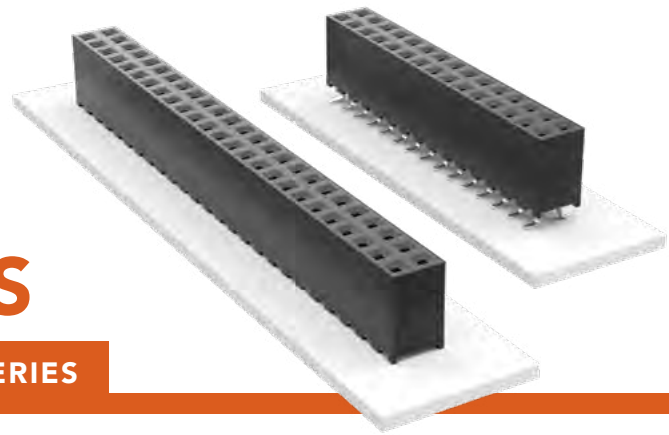
Press-Fit  
CAT-PT-130-A-4  
For more information, visit  
[www.samtec.com/tooling](http://www.samtec.com/tooling)

**Note:**  
This Series is non-standard,  
non-returnable.



# COST-EFFECTIVE RUGGED SOCKETS

(2.00 mm) .0787" PITCH • SQW/SQT SERIES



## SQW/SQT

### Board Mates:

TMMH, TMM5, TMM, MTMM, MMT, TW, TSH, LTMM, ZLTMM, PTT

### Cable Mates:

TCMD

## SPECIFICATIONS

### Insulator Material:

Black Liquid Crystal Polymer

### Contact Material:

Phosphor Bronze

### Plating:

Sn or Au over  
50 μ" (1.27 μm) Ni

### SQW Current Rating (SQW/TMMH):

3.8 A per pin (2 pins powered)

### SQT Current Rating (TMMH/SQT):

5.1 A per pin (2 pins powered)

### Voltage Rating:

281 VAC mated with TMM;

250 VAC mated with TMMH

### Operating Temp Range:

-55 °C to +125 °C

### SQW Insertion Depth:

(2.62 mm) .103" to

(5.03 mm) .198" with

(0.38 mm) .015" wipe

### SQT Insertion Depth:

(2.62 mm) .103" to

(5.03 mm) .198"

### Max Cycles:

100 with 10 μ" (0.25 μm) Au

<b>SQW</b>	-	<b>1</b>	<b>NO. PINS PER ROW</b>	-	<b>01</b>	<b>PLATING OPTION</b>	-	<b>ROW OPTION</b>	-	<b>OPTION</b>
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02 thru 50

### -F

= Gold flash on contact, Matte Tin on tail

### -L

= 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail

### -D

= Double Row

### -D-VS

= Double Row Surface Mount

### -T

= Triple Row

### -Q

= Four Row

### -5

= Five Row

### -6

= Six Row

### -“XXX”

= Polarized Position  
-D-VS only options:

### -A

= Alignment Pin (5 positions minimum)  
Metal or plastic at Samtec discretion. (Not available with -LC)

### -LC

= Locking Clip (5 positions minimum) (Not available with -A) (Manual placement required)

### -K

= (4.25 mm) .167" DIA Polyimide Film Pick & Place Pad (4 positions minimum)

### -P

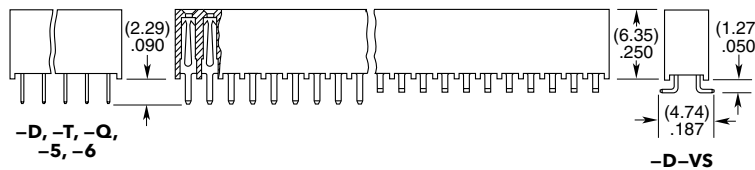
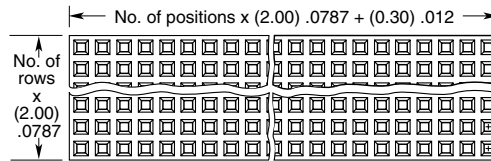
= Pick & Place Pad (4 positions minimum)

### -TR

= Tape & Reel (4-28 positions only)

### -FR

= Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (4-28 positions only)



## PROCESSING

### SQW Lead-Free Solderable:

Yes, for -D & -D-VS

(Wave only for -T, -Q, -5 & -6)

### SQT Lead-Free Solderable:

Yes

### SMT Lead Coplanarity:

(0.10 mm) .004" max (02-10)

(0.15 mm) .006" max (11-50)\*

\*(.004" stencil solution may be available; contact

ipg@samtec.com)

<b>SQT</b>	-	<b>1</b>	<b>NO. PINS PER ROW</b>	-	<b>LEAD STYLE</b>	-	<b>PLATING OPTION</b>	-	<b>ROW OPTION</b>	-	<b>OTHER OPTION</b>
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02 thru 50

Specify LEAD STYLE from chart

### -F

= Gold flash on contact, Matte Tin on tail

### -L

= 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail

### -S

= Single Row

### -D

= Double Row

### -T

= Triple Row

### -Q

= Four Row

### -5

= Five Row

### -6

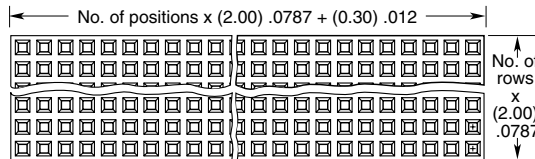
= Six Row

### -RA

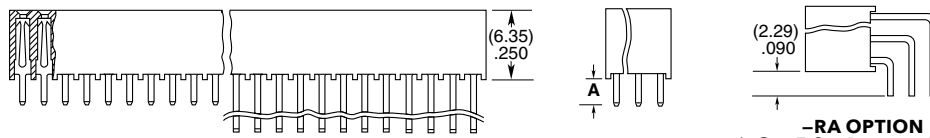
= Right-angle (-Q, -5 & -6 Row not available) (Lead Style -01 only)

### -“XXX”

= Polarized Position (Indicate position number)



LEAD STYLE	A
-01	(2.29) .090
-02	(15.24) .600
-03	(5.28) .208

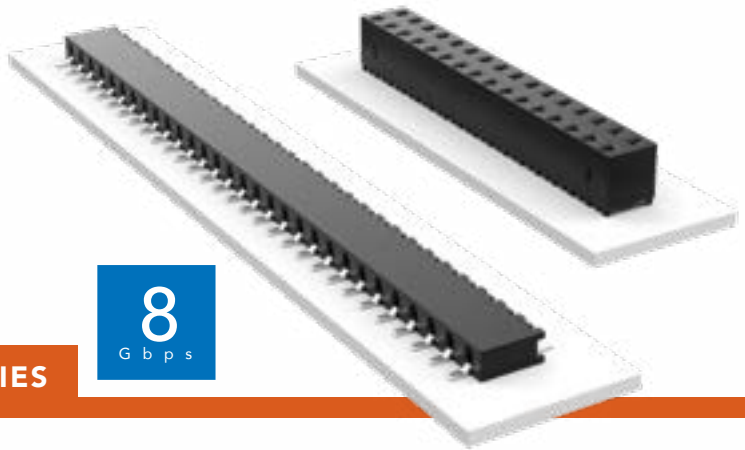


### Note:

Some lengths, styles and options are non-standard, non-returnable.

# TIGER CLAW™ SOCKET STRIP

(2.00 mm) .0787" PITCH • MMS SERIES



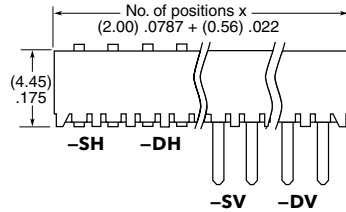
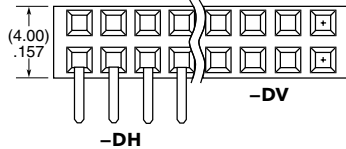
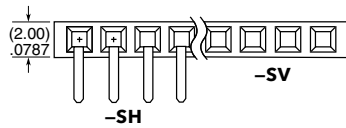
## MMS

**Board Mates:**  
TMMH, TMM, MTMM, MMT,  
TW, LTMM, ZLTMM, TSH

**Cable Mates:**  
TCMD

<b>MMS</b>	<b>1</b>	<b>NO. PINS PER ROW</b>	<b>01</b>	<b>PLATING OPTION</b>	<b>ROW OPTION</b>	<b>OPTION</b>
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02 thru 40



**-F**  
= Gold flash on contact,  
Matte Tin on tail

**-L**  
= 10 μ" (0.25 μm)  
Gold contact,  
Matte Tin on tail

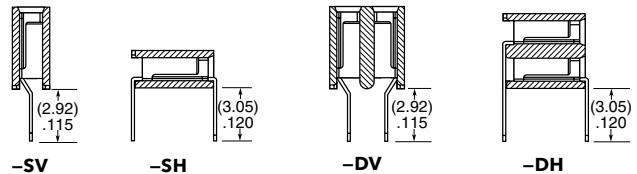
**-SV**  
= Single Vertical

**-SH**  
= Single Horizontal

**-DV**  
= Double Vertical

**-DH**  
= Double Horizontal

**-XX**  
= Polarized Position



## SPECIFICATIONS

**Insulator Material:**  
Black LCP

**Contact Material:**  
Phosphor Bronze

**Plating:**  
Sn or Au over  
50 μ" (1.27 μm) Ni

**Current Rating (MMS/TMM):**  
3.9 A per pin  
(2 pins powered)

**Operating Temp Range:**  
-55 °C to +125 °C with Gold  
-55 °C to +105 °C with Tin

**Insertion Depth:**  
DH = (2.13 mm) .084" to  
(2.79 mm) .110"  
SH = (2.13 mm) .084"  
minimum or pass-through  
Top Entry DV/SV =  
(2.13 mm) .084" to  
(4.32 mm) .170"  
Bottom Entry DV/SV =  
(4.27 mm) .168" minimum  
(Plus board)

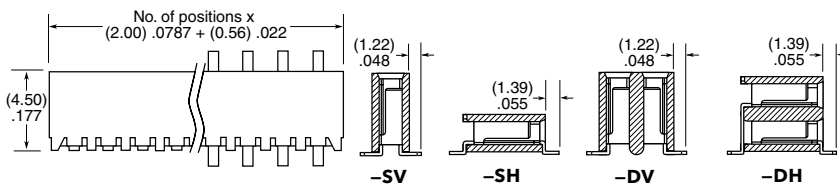
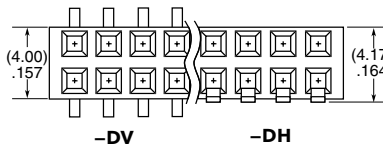
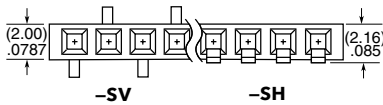
## PROCESSING

**Lead-Free Solderable:**  
Yes

**SMT Lead Coplanarity:**  
(0.15 mm) .006" max\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)

<b>MMS</b>	<b>1</b>	<b>NO. PINS PER ROW</b>	<b>02</b>	<b>PLATING OPTION</b>	<b>ROW OPTION</b>	<b>OTHER OPTION</b>
------------	----------	-------------------------	-----------	-----------------------	-------------------	---------------------

02 thru 40



**-F**  
= Gold flash on contact,  
Matte Tin on tail

**-L**  
= 10 μ" (0.25 μm)  
Gold contact,  
Matte Tin on tail

**-SV**  
= Single Vertical

**-SH**  
= Single Horizontal

**-DV**  
= Double Vertical

**-DH**  
= Double Horizontal

**-XX**  
= Polarized Position

**-K**  
= (5.50 mm) .217" DIA  
Polyimide Film  
Pick & Place Pad  
(3 positions min.)  
(-SV & -DV only)

**-M**  
= Metal Pick & Place Pad  
(4 positions min.)  
(-DV only)

**-P**  
= Plastic Pick & Place Pad  
(4 positions min.)  
(-SV & -DV only)

**-TR**  
= Tape & Reel



**-FR**  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)

## ALSO AVAILABLE

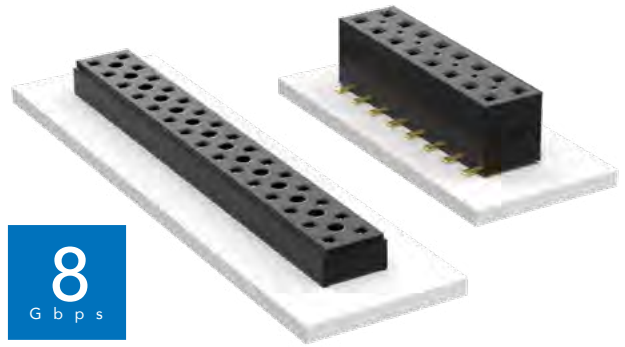
MOQ Required

Alignment Pin (-DV only)  
Locking clips and Through-hole  
pass-through options  
Other platings

**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

# COST-EFFECTIVE & DUAL WIPE SOCKETS

(2.00 mm) .0787" PITCH • TLE/CLT SERIES



## TLE

**Mates:**  
TMMH, TMM, MTMM,  
MMT, TW, LTMM, ZLTMM,  
TCMD, TSH

## CLT

**Mates:**  
TMM, TMMH, MTMM,  
MMT, TW, TSH

## SPECIFICATIONS

### TLE

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Au over 50 μ" (1.27 μm) Ni  
**Current Rating (TLE/TMMH):**  
3.2 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Insertion Depth:**  
(2.08 mm) .082" to  
(4.37 mm) .172" with  
(0.38 mm) .015" wipe,  
pass-through, or  
(3.35 mm) .132" min  
for bottom entry

### CLT

Same as TLE except:  
**Plating:**  
Sn or Au over 50 μ" (1.27 μm) Ni  
**Current Rating (TMMH/CLT):**  
4.1 A per pin  
(2 pins powered)  
**Insertion Depth:**  
Top Entry=  
(1.40 mm) .055" minimum  
Bottom Entry=  
(2.57 mm) .101" minimum  
(add board thickness for  
correct post OAL)  
**Max Cycles:**  
100 with 10 μ" (0.25 μm) Au

## PROCESSING

### TLE

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (02-26)  
(0.15 mm) .006" max (27-50)\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)

### CLT

Same as TLE except:  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (02-25)  
(0.15 mm) .006" max (26-34)\*  
(0.20 mm) .008" max (35-50)\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)

**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

TLE	- 1	NO. PINS PER ROW	- 01	PLATING OPTION	- DV	OPTIONS
-----	-----	------------------	------	----------------	------	---------



02 thru 50

-G  
= 10 μ" (0.25 μm)  
Gold

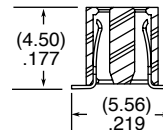
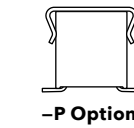
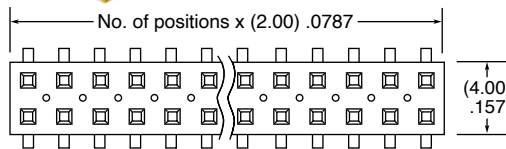
-A  
= Alignment Pin  
(3 positions minimum)

-K  
= (5.00 mm) .197" DIA  
Polyimide Film Pick & Place Pad  
(3 positions minimum)

-P  
= Metal Pick & Place Pad  
(4 positions minimum)

-TR  
= Tape & Reel Packaging  
(2-37 positions only)

-FR  
= Full Reel Tape & Reel  
(must order maximum  
quantity per reel; contact  
Samtec for quantity breaks)  
(2-37 positions only)



CLT	- 1	NO. PINS PER ROW	- LEAD STYLE	PLATING OPTION	- D	OTHER OPTIONS
-----	-----	------------------	--------------	----------------	-----	---------------



02 thru 50

-01  
= Through-hole

-F  
= Gold flash  
on contact,  
Matte Tin on tail

All options require  
Style -02

-BE  
= Bottom Entry  
(Required for bottom  
entry applications)

-A  
= Alignment Pin  
(3 positions minimum)  
Metal or plastic at  
Samtec's discretion

-K  
= (5.00 mm) .197" DIA  
Polyimide Film  
Pick & Place Pad  
(04 thru 50 only)

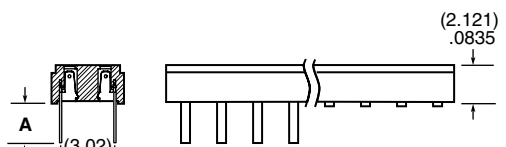
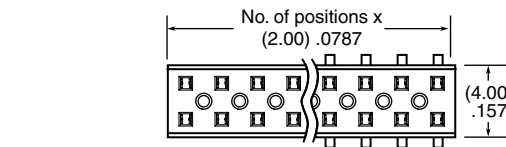
-P  
= Pick & Place Pad  
(4 positions minimum)  
(Not always necessary  
for auto placement.)

-TR  
= Tape & Reel  
(36 positions max)

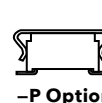
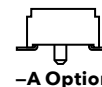
-FR  
= Full Reel Tape & Reel  
(must order maximum  
quantity per reel;  
contact Samtec for  
quantity breaks)  
(36 positions max)

**ALSO AVAILABLE**  
MOQ Required

Other Platings

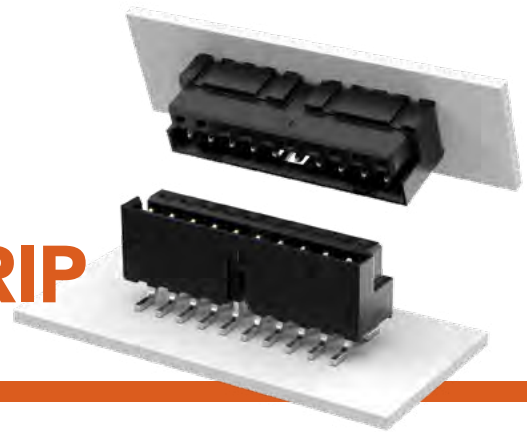


LEAD STYLE	A
-01	(2.16) .085
-03	(2.95) .116



# SELF MATING HERMAPHRODITIC STRIP

(2.00 mm) .0787" PITCH • LS2 SERIES



**LS2**  
Mates:  
LS2

LS2	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	D	TAIL OPTION	OPTION
-----	---	------------------	------------	----------------	---	-------------	--------

05, 10, 15,  
20, 25, 30

**-01**  
= Through-hole

**-02**  
= Surface Mount

**-F**  
= Gold flash on contact,  
Matte Tin on tail

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact,  
Matte Tin on tail

-01 only

**-RA1**  
= Right-angle  
(Shroud Down)

**-RA2**  
= Right-angle  
(Shroud Up)

**-K**  
= (6.30 mm)  
.248" DIA  
Polyimide  
Film Pick &  
Place Pad  
(-02 only)

**-TR**  
= Tape &  
Reel

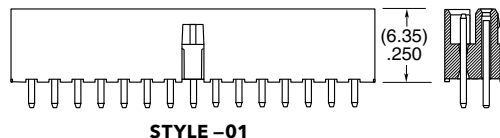
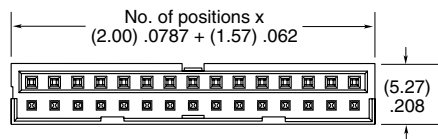
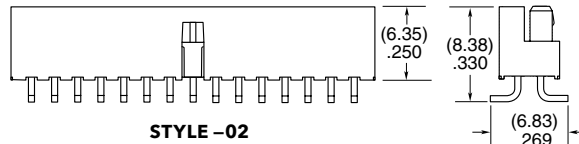
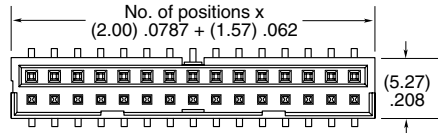
**-FR**  
= Full Reel  
Tape & Reel  
(must order  
max. quantity  
per reel;  
contact  
Samtec for  
quantity  
breaks)

## SPECIFICATIONS

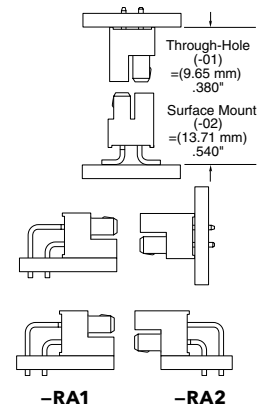
**Insulator Material:**  
Black Liquid Crystal  
Polymer  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Current Rating:**  
3.2 A per pin  
(6 adjacent pins powered)  
**Voltage Rating:**  
475 VAC mated with LS2  
**Operating Temp Range:**  
-55 °C to +125 °C

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.15 mm) .006" max\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)



## APPLICATION



## ALSO AVAILABLE

MOQ Required

Alignment pin  
Other platings  
Other stack heights

**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

# PRESS-FIT HEADERS & SOCKETS

(2.54 mm) .100" PITCH • PHT/PHF SERIES



## PHT

**Board Mates:**  
SSW, SSQ, ESW,  
ESQ, BCS, BSW,  
CES, SLW, PHF, SSM

**Cable Mates:**  
IDSD, IDSS

## PHF

**Board Mates:**  
TSW, MTSW, MTLW,  
EW, ZW, TSS, ZSS,  
TSM, TSSH, PHT, DW, HW

### SPECIFICATIONS

**Insulator Material:**  
Liquid Crystal Polymer  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μm (1.27 μm) Ni  
**Current Rating (PHT/PHF):**  
4.8 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +125 °C with Gold  
**(PHF) Insertion Depth:**  
(3.68 mm) .145" to  
(6.35 mm) .250"



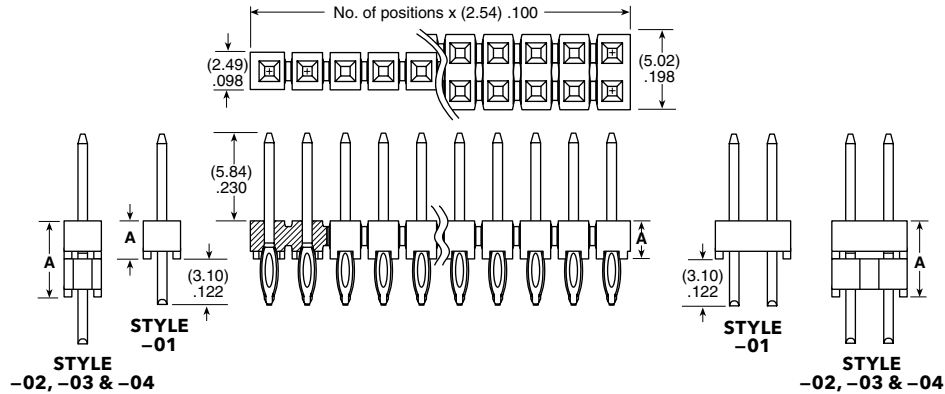
**01**  
= (single row only)  
**02 thru 50**

Specify  
**LEAD  
STYLE**  
from  
chart

**-L**  
= 10 μm (0.25 μm)  
Gold on post,  
Matte Tin on tail

**-S**  
= Single  
Row  
**-D**  
= Double  
Row

**-"XXX"**  
= Polarized  
Position



LEAD STYLE	A
-01	(2.54) .100
-02	(5.08) .200
-03	(7.62) .300
-04	(10.16) .400

### PROCESSING

Contact [ipg@samtec.com](mailto:ipg@samtec.com)



**01**  
= (single row only)  
**02 thru 50**

Specify  
**LEAD  
STYLE**  
from  
chart

**-L**  
= 10 μm (0.25 μm)  
Gold on post,  
Matte Tin on tail

**-S**  
= Single  
Row  
**-D**  
= Double  
Row

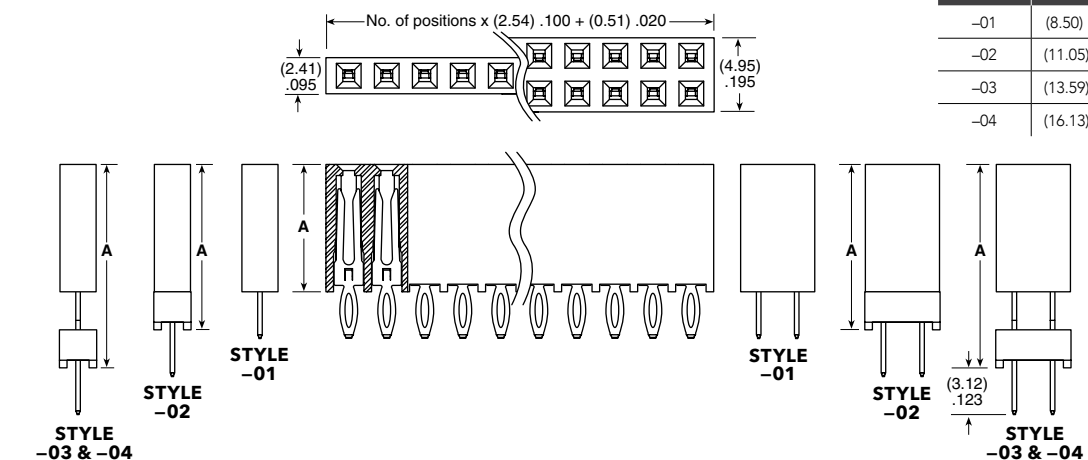
**-"XXX"**  
= Polarized  
Position

### ALSO AVAILABLE

Other Platings  
(MOQ Required)

### TOOLING

Press-Fit  
PHT: CAT-PT-PH-1XX-X-X  
PHF: CAT-PT-PH-1XX-X-B  
For more information, visit  
[www.samtec.com/tooling](http://www.samtec.com/tooling)

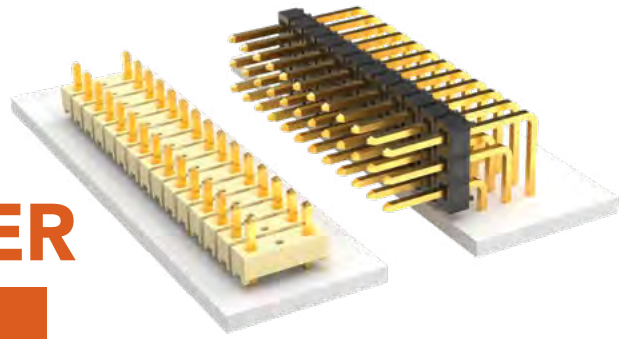


LEAD STYLE	A
-01	(8.50) .335
-02	(11.05) .435
-03	(13.59) .535
-04	(16.13) .635

**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.



# THROUGH-HOLE .025" SQ POST HEADER



(2.54 mm) .100" PITCH • TSW/HTSW SERIES

## TSW/HTSW

### Board Mates:

SSW, SSQ, SSM, ESW, ESQ,  
BCS, BSW, CES, SLW

### Cable Mates:

IDSD, IDSS

## SPECIFICATIONS

### Insulator Material:

TSW: PBT

HTSW: Natural LCP

### Terminal Material:

Phosphor Bronze

### Plating:

Au or Sn over 50 μm (1.27 μm) Ni

### Operating Temp Range:

-55 °C to +125 °C with Gold

-55 °C to +105 °C with Tin

### Voltage Rating:

550 VAC mated with SSW;

500 VAC mated with BCS;

515 VAC mated with ESQ;

450 VAC -RA/-RE mated

with BCS or SSM;

400 VAC mated with CES

### Lead-Free Solderable:

HTSW: Yes

TSW: No, Lead Wave Only

## CURRENT RATING (PER PIN)

### TSW mated with

ESW	SSW	SLW	SSQ	SSM	BCS	SNT
5.2 A	5.7 A	5.2 A	6.3 A	5.2 A	4.6 A	4.3 A

2 POSITIONS POWERED

## SERIES

**TSW**  
= Standard Strip

**HTSW**  
= Hi-Temp Strip

## PIN CENTERS

**-1**  
= .100" (2.54 mm) Centers,  
(All positions filled)

**-2**  
= .200" (5.08 mm) Centers,  
(Every other position filled)

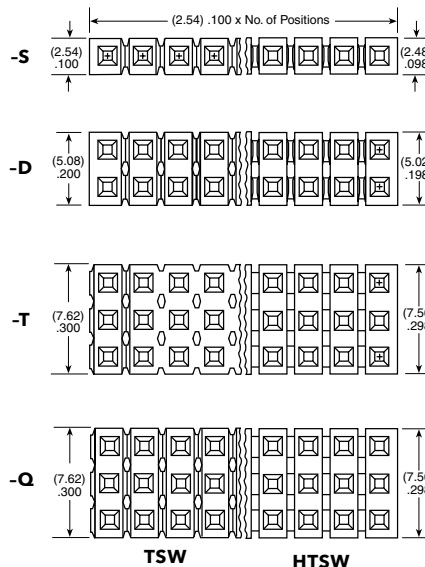
## NO. PINS PER ROW

**01 thru 50**  
= .100" (2.54 mm)  
Center Version

**02 thru 25**  
= .200" (5.08 mm)  
Center Version

## LEAD STYLE

Specify  
**LEAD STYLE**  
from chart



TSW

HTSW

Straight Pin Versions

## ALSO AVAILABLE

MOQ Required

Other Platings

## OTHER SOLUTIONS

Elevated Right-angle option  
Shunts

## STRAIGHT PIN VERSIONS

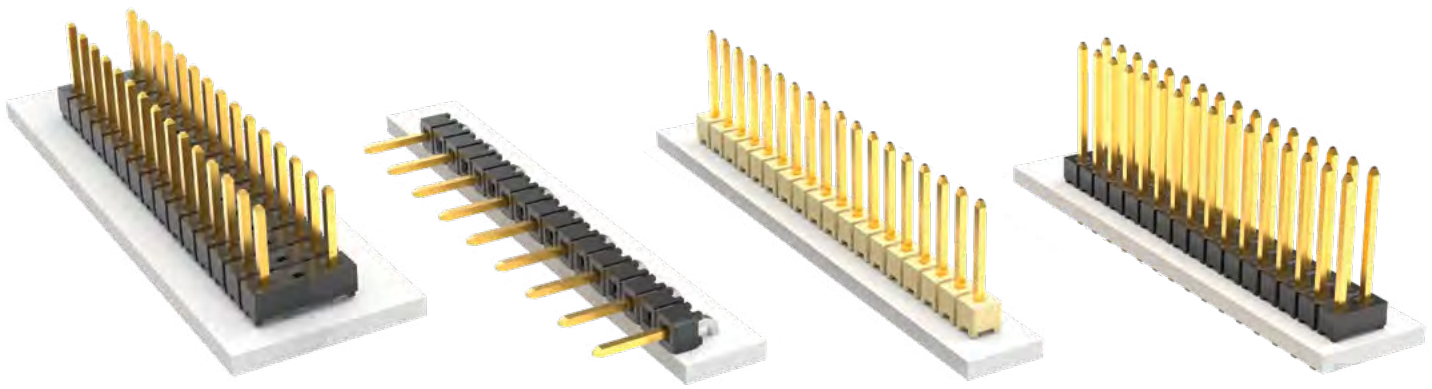
LEAD STYLE	A	B	C
*-05	(8.51) .335	(3.30) .130	(2.67) .105
*-06	(7.62) .300	(2.41) .095	(2.67) .105
*-07	(10.92) .430	(2.54) .100	
*-08	(13.46) .530	(5.08) .200	
-09	(18.54) .730	(10.16) .400	
-10	(21.08) .830	(12.70) .500	(5.84) .230
-11	(23.62) .930	(15.24) .600	
-12	(26.16) 1.030	(17.78) .700	
-13	(31.24) 1.230	(22.86) .900	
-14	(13.46) .530	(2.79) .110	(8.13) .320
*-15	(18.54) .730	(7.87) .310	(13.21) .520
*-16		(8.13) .320	(8.13) .320
*-17	(21.08) .830	(2.79) .110	(15.74) .620
*-18	(23.62) .930		(18.29) .720

\* Available with -LL (Locking Lead) Option  
Specify -07 for best mate with IDXX Series IDC Cable

## STRAIGHT PIN VERSIONS

LEAD STYLE	A	B	C
*-19	(26.16) 1.030	(2.79) .110	(20.83) .820
*-20	(31.24) 1.230		(25.91) 1.020
*-21	(36.32) 1.430	(2.79) .110	(30.99) 1.220
*-22	(16.00) .630	(7.62) .300	(5.84) .230
*-23	(11.30) .445	(2.92) .115	(6.73) .265
*-24	(12.15) .480		(8.13) .320
*-25	(16.00) .630	(5.33) .210	
▲-26	(11.58) .456	(3.20) .126	
-27	(33.78) 1.330	(25.40) 1.000	(5.84) .230
-28	(28.70) 1.130	(20.32) .800	
-29	(33.78) 1.330	(23.11) .910	(8.13) .320
-30	(28.70) 1.130	(18.03) .710	
+ -41	(9.27) .365	(0.89) .035	(5.84) .230
+ -42	(11.94) .470	(1.27) .050	(8.13) .320

† Style -41 & -42 available with HTSW only.  
▲ Except: Style -26 (0.46) .018 DIA Tail



### PLATING OPTION

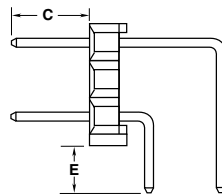
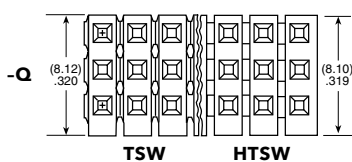
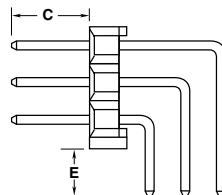
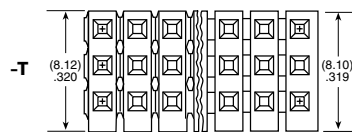
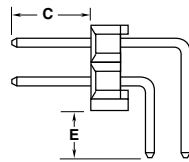
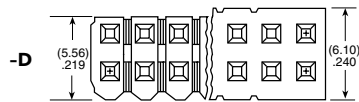
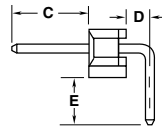
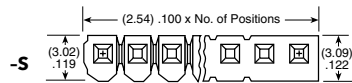
- F**  
= Gold flash on post, Matte Tin on tail
- L**  
= 10 μ" (0.25 μm) Gold on post, Matte Tin on tail
- G**  
= 10 μ" (0.25 μm) Gold on post, Gold flash on balance
- T**  
= Matte Tin

### ROW OPTION

- S**  
= Single Row
- D**  
= Double Row
- T**  
= Triple Row
- Q**  
= Double Row  
(5.08 mm).200" row space

### OTHER OPTION

- RA or -RE**  
= Right-angle
- NA**  
= Right-angle  
(Using straight body for coplanar mating with SSW-RA series)
- LL**  
= Locking Lead  
See charts for available styles.  
Not available with single row  
1 or 2 positions.  
Recommended hole size  
(1.02 mm ± 0.03 mm) .040" ± .001
- LC**  
= Locking Clip  
(Styles -08 thru -13 & -22 only)  
(Requires 4 pin minimum)  
(Not available with T, -Q, -RA or -RE)
- LA**  
= -RA Option with -LL Option
- "XXX"**  
= Polarized Position



### Right-Angle Versions

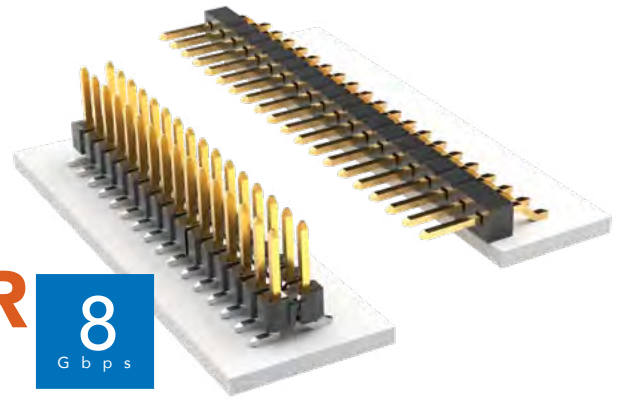
LEAD STYLE	D
-RA	(1.52) .060
-RE	(4.06) .160

RIGHT-ANGLE VERSIONS		
-RE LEAD STYLE	C	SINGLE E
-09	(5.84) .230	(4.83) .190
-10		(7.37) .290
-11		(9.91) .390
-12		(12.45) .490
-13		(17.53) .690
-16	(8.13) .320	(2.54) .100
-21	(5.84) .230	(22.61) .890
-22		(2.29) .090
-27		(20.07) .790
-28		(14.99) .590

-RA LEAD STYLE	RIGHT-ANGLE VERSIONS			
	SINGLE (-S)		DOUBLE (-D)	TRIPLE (-T & -Q)
	C	E	E	E
-08	(5.84) .230	(2.29) .090	(2.29) .090	(2.29) .090
-09		(7.37) .290	(7.37) .290	(7.37) .290
-10		(9.91) .390	(9.91) .390	(9.91) .390
-11		(12.45) .490	(12.45) .490	(12.45) .490
-12		(14.99) .590	(14.99) .590	(14.99) .590
-13		(20.07) .790	(20.07) .790	N/A
*-16		(8.13) .320	(5.08) .200	(5.08) .200
-21	(5.84) .230	(25.15) .990	N/A	N/A
*-22		(4.83) .190	(4.83) .190	(4.83) .190
*-25	(8.13) .320	(2.54) .100	(2.54) .100	(2.54) .100
-27	(5.84) .230	(22.61) .890	N/A	N/A
-28		(17.53) .690	(17.53) .690	
-29		(20.32) .800	N/A	
-30	(8.13) .320	(15.24) .600	(15.24) .600	

\* Available with -LA (Locking Lead) Option

# SURFACE MOUNT .025" SQ POST HEADER



(2.54 mm) .100" PITCH • TSM SERIES

## TSM

### Board Mates:

SSW, SSQ, SSM, BSW, ESW,  
ESQ, BCS, SLW, CES, HLE

### Cable Mates:

IDSS, IDSD



02 thru 36

Specify  
LEAD STYLE  
from chart

## SPECIFICATIONS

### Insulator Material:

Black Liquid Crystal Polymer

### Terminal Material:

Phosphor Bronze

### Plating:

Au or Sn over

50  $\mu$ m (1.27  $\mu$ m) Ni

### Operating Temp Range:

-55 °C to +105 °C with Tin;

-55 °C to +125 °C with Gold

### Voltage Rating:

495 VAC -SV/-DV

mated with the BCS

475 VAC -SV/-DV

mated with the SSM

## PROCESSING

### Lead-Free Solderable:

Yes

### -DH/-SH/-SV Lead Coplanarity:

(0.15 mm) .006" max (02-36)\*

### -DV Lead Coplanarity:

(0.10 mm) .004" max (02-05)

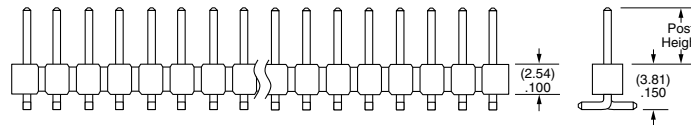
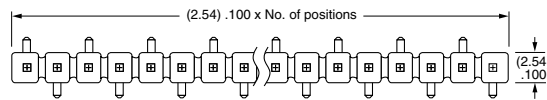
(0.13 mm) .005" max (06-10)\*

(0.15 mm) .006" max (11-36)\*

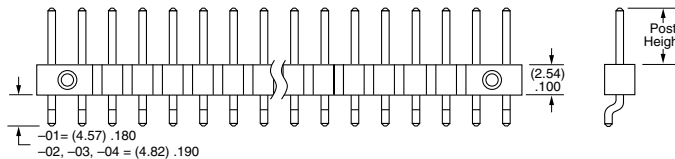
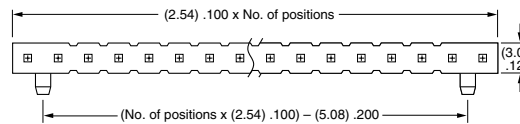
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)

MATES	CURRENT RATING (PER PIN)
TSM/SSW	4.7 A
TSM/SSM	5.4 A
TSM/HLE	4.1 A
TSM/BCS	5.0 A

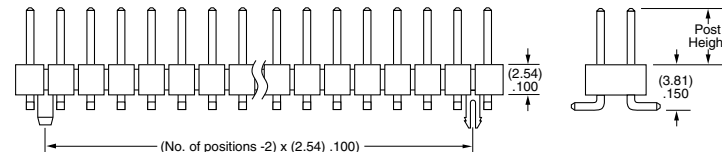
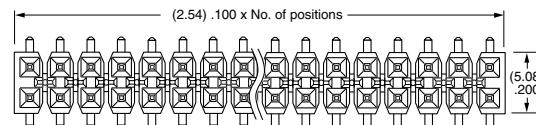
2 POSITIONS POWERED



-SV Row Option



-SH Row Option



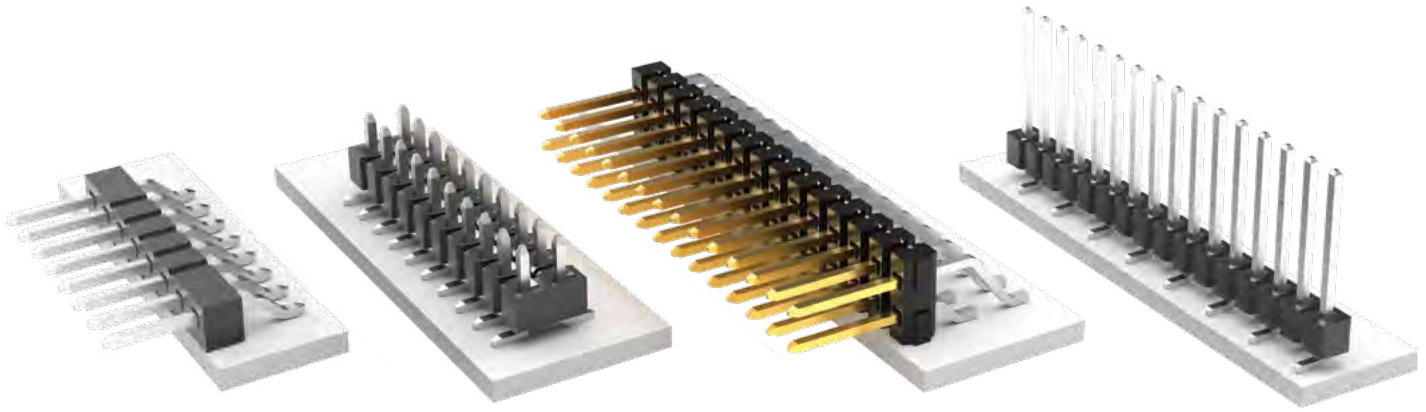
-DV Row Option

LEAD STYLE	POST HEIGHT	MATES WITH
-01	(5.84) .230	SSW, BCS, SSM, IDSS, IDSD
-02	(8.13) .320	SSM -DH
-03	(10.67) .420	Bottom Mount & Pass Through
-04	(3.05) .120	SLW, CES, HLE

### Notes:

Severe Environment  
Testing qualified; aligns  
with MIL-DTL-55302.  
Visit samtec.com/set

Some sizes, styles and  
options are non-standard,  
non-returnable.



### PLATING OPTION

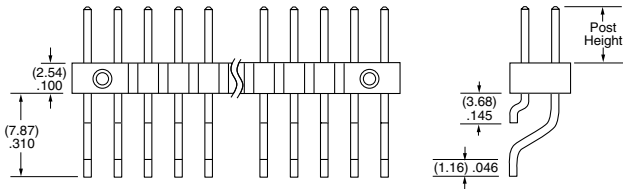
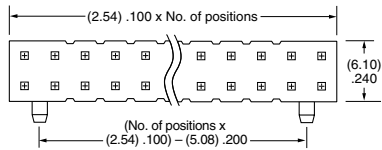
- F**  
= Gold flash on post, Matte Tin on tail
- L**  
= 10  $\mu$ " (0.25  $\mu$ m) Gold on post, Matte Tin on tail
- S**  
= 30  $\mu$ " (0.76  $\mu$ m) Gold on post, Matte Tin on tail
- T**  
= Matte Tin

### ROW OPTION

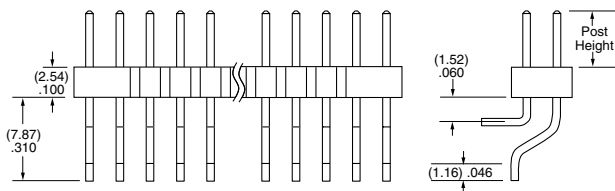
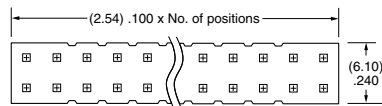
- SV**  
= Single Row Vertical Pin
- DV**  
= Double Row Vertical Pin
- SH**  
= Single Row Horizontal Pin
- DH**  
= Double Row Horizontal Pin (Style -01, -02 or -03 only)
- TM**  
= Triple Row Vertical Mixed Technology (Style -01 only) (02 thru 30 positions only)
- MT**  
= Mixed Technology Pin (Style -01, -02 or -03 only)

### OTHER OPTIONS

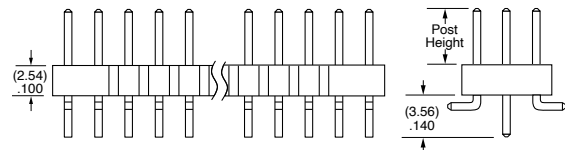
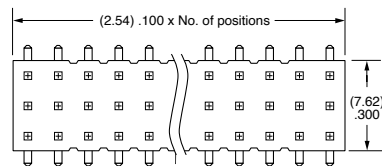
- "XXX"**  
= Polarized Position
- A**  
= Alignment Pin  
metal or plastic at Samtec discretion (Not available with -TM or -MT) (02 positions minimum) (Not available with -LC)
- LC**  
= Locking Clip  
(Not available with -TM) (3 positions minimum) (Not available with -A) (Manual placement required)
- K**  
= (6.50 mm) .256" DIA Polyimide Film Pick & Place Pad  
(-SH: 4 positions minimum without -TR; 2 & 3 positions available with -TR) (-DH: 4 positions minimum without -TR)
- P**  
= Plastic Pick & Place Pad  
(-DV: 4 positions minimum without -TR; 2 & 3 positions available with -TR) (-SH: 4 positions minimum without -TR; 2 & 3 positions available with -TR) (-DH: 5 positions minimum without -TR) (-SV: 4 positions minimum without -TR; 2 & 3 positions available with -TR)
- TR**  
= Tape & Reel  
-SV: 02-22 positions, -DV: 02-28 positions, -SH: 02-30 positions, -DH: 02-29 positions (Not available with -MT or -TM)
- FR**  
= Full Reel Tape & Reel  
(must order maximum quantity per reel; contact Samtec for quantity breaks)  
-SV: 02-22 positions, -DV: 02-28 positions, -SH: 02-30 positions, -DH: 02-29 positions (Not available with -MT or -TM)



**-DH Row Option**



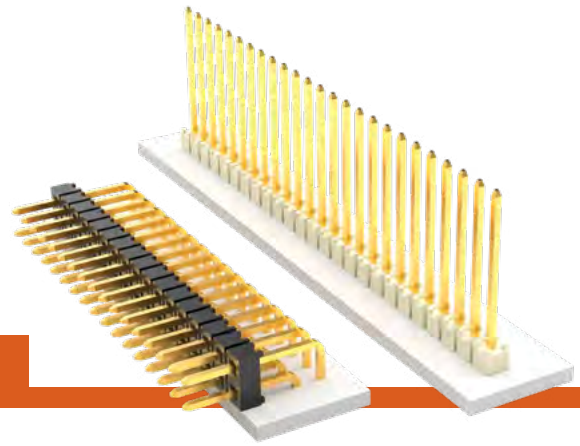
**-MT Row Option**



**-TM Row Option**

## MODIFIED .025" SQ POST HEADERS

(2.54 mm) .100" PITCH • MTSW/HMTSW SERIES



### MTSW/HMTSW

#### Board Mates:

SSW, SSQ, ESW,  
ESQ, BCS, BSW  
CES, SLW, HLE, SSM

#### Cable Mates:

IDSD, IDSS

### SPECIFICATIONS

#### Insulator Material:

MTSW: Black Glass  
Filled Polyester  
HMTSW: Natural Liquid  
Crystal Polymer

#### Terminal Material:

Phosphor Bronze

#### Plating:

Au or Sn over  
50 μm (1.27 μm) Ni

#### Operating Temp Range:

-55 °C to +125 °C with Gold  
-55 °C to +105 °C with Tin

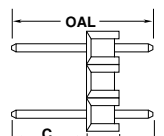
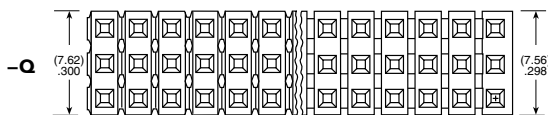
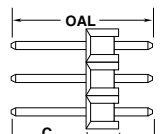
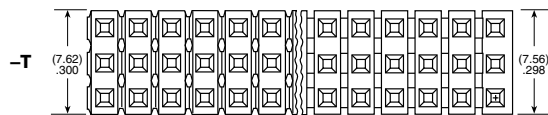
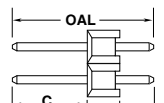
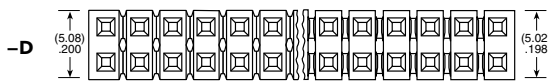
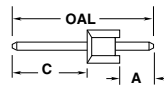
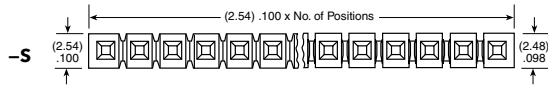
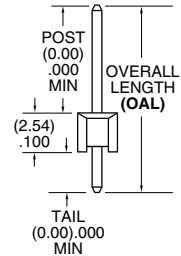
### PROCESSING

#### Lead-Free Solderable:

MTSW: No, Lead Wave Only  
HMTSW: Yes

SERIES	PIN CENTERS	NO. PINS PER ROW	LEAD STYLE
<b>MTSW</b> = Modified Strip	<b>-1</b> = (2.54 mm) .100" Pitch (All positions filled)	<b>01 thru 50</b> = .100" (2.54 mm) Center Version	Specify <b>LEAD STYLE</b> from chart
<b>HMTSW</b> = Hi-Temp Modified Strip	<b>-2</b> = (5.08 mm) .200" Pitch (Every other position filled)	<b>02 thru 25</b> = .200" (5.08 mm) Center Version	

LEAD STYLE	OAL
-06	(7.62) .300
-07	(10.92) .430
-08	(13.46) .530
-09	(18.54) .730
-10	(21.08) .830
-11	(23.62) .930
-12	(26.16) 1.030
-13	(31.24) 1.230
-21	(36.32) 1.430
-22	(16.00) .630
-23	(11.30) .445
-24	(12.19) .480
-27	(33.78) 1.330
-28	(28.70) 1.130



MTSW

HMTSW

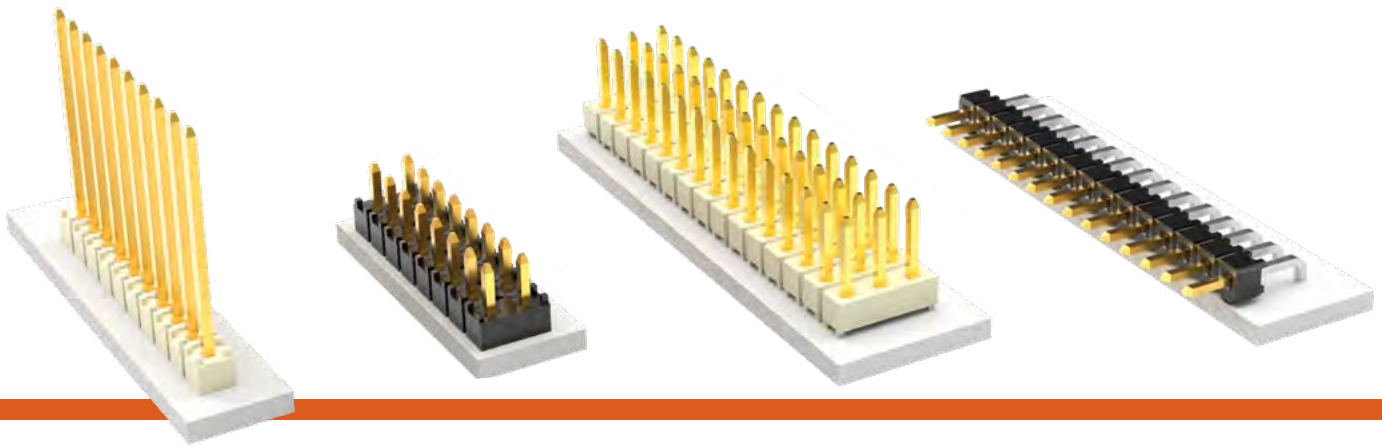
Straight Pin Versions: A=OAL-C- (2.54) .100"

FOR "A" = (2.29) .090		
LEAD STYLE	OAL	C MAXIMUM STRAIGHT
-06	(7.62) .300	(2.79) .110
-07	(10.92) .430	(6.10) .240
-08	(13.46) .530	(8.64) .340
-09	(18.54) .730	(13.72) .540
-10	(21.08) .830	(16.26) .640
-11	(23.62) .930	(18.80) .740
-12	(26.16) 1.030	(21.34) .840
-13	(31.24) 1.230	(26.42) 1.040
-21	(36.32) 1.430	(31.50) 1.240
-22	(16.00) .630	(11.18) .440
-23	(11.30) .445	(6.48) .255
-24	(12.19) .480	(7.37) .290
-27	(33.78) 1.330	(28.96) 1.140
-28	(28.70) 1.130	(23.88) .940

#### Note:

These Series are non-standard, non-returnable.





**PLATING OPTION**

- F**  
= Gold flash on post,  
Matte Tin on tail
- L**  
= 10 μ" (0.25 μm)  
Gold on post,  
Matte Tin on tail
- G**  
= 10 μ" (0.25 μm)  
Gold on post,  
Gold flash on balance
- T**  
= Matte Tin

**ROW OPTION**

- S**  
= Single Row
- D**  
= Double Row
- T**  
= Triple Row
- Q**  
= Double Row  
.200" (5.08 mm)  
row space

**POST HEIGHT**

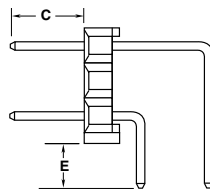
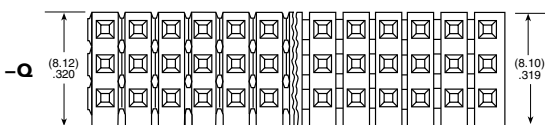
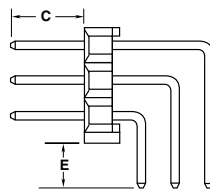
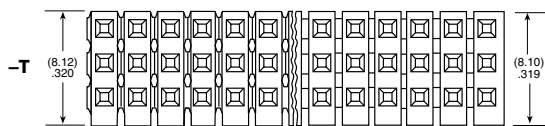
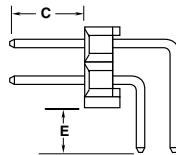
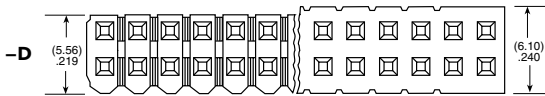
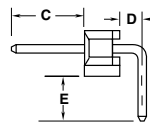
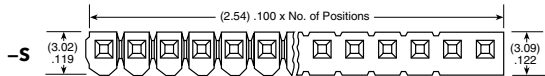
**"XXXX"**  
= "C" Dimension  
(Specify post height in  
INCHES  
.005" (0.13 mm) increments)

**OTHER OPTION**

- RA or -RE**  
= Right-angle  
(HMTSW -S & -D =  
36 positions maximum)
- LL**  
= Locking Lead  
(not available with -RE, not available  
in single row 1 or 2 positions)  
(Available on tails from (2.29 mm) .090"  
to (10.16 mm) .400" only)
- LA**  
= -RA option with -LL Option  
(Maximum "C" = (13.46 mm) .530")

**POLARIZED OPTION**

**"XXX"**  
= Polarized  
(Specify 'XXX' as position number)



MTSW

HMTSW

-RX OPTION	D
-RA	(1.52) .060
-RE	(4.06) .160

FOR "E" = (2.29) .090 MIN FOR -RA & -RE			
LEAD STYLE	OAL	C MAXIMUM with/-RA	C MAXIMUM with/-RE
-06	(7.62) .300	Not Available	Not Available
-07	(10.92) .430	(3.30) .130	Not Available
-08	(13.46) .530	(5.84) .230	(3.30) .130
-09	(18.54) .730	(10.92) .430	(8.38) .330
-10	(21.08) .830	(13.46) .530	(10.92) .430
-11	(23.62) .930	(16.00) .630	(13.46) .530
-12	(26.16) 1.030	(18.54) .730	(16.00) .630
*-13	(31.24) 1.230	(23.62) .930	(21.08) .830
*-21	(36.32) 1.430	(28.70) 1.130	(26.16) 1.030
-22	(16.00) .630	(8.38) .330	(5.84) .230
*-23	(11.30) .445	(3.68) .145	Not Available
*-24	(12.19) .480	(4.57) .180	
*-27	(23.78) 1.330	(26.16) 1.030	(23.62) .930
*-28	(28.70) 1.130	(21.08) .830	(18.54) .730

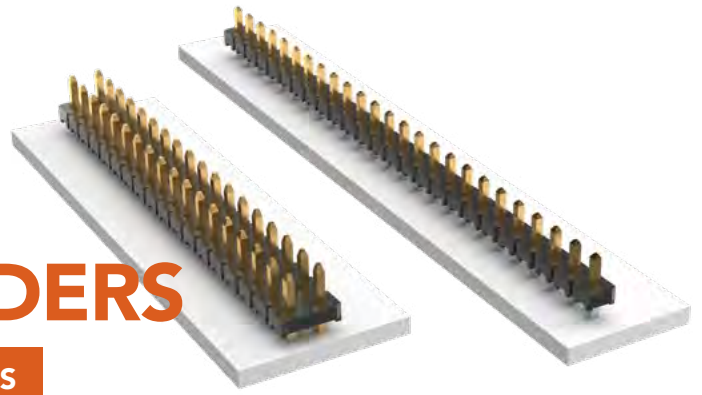
\* Styles -21, -23, -24, -27 not available with -D Right-angle  
Styles -13, -21, -23, -24, -27, -28 not available with -T or -Q Right-angle

**Right-Angle Versions (- RA Options):** E=OAL-C- (5.33) .210"

**Right-Angle Versions (-RE Options) Single Row Only:** E=OAL-C- (7.87) .310"

## LOW PROFILE .025" SQ POST HEADERS

(2.54 mm) .100" PITCH • TLW/MTLW SERIES



### TLW/MTLW

**Board Mates:**  
BSW, CES, SLW, HLE

#### FEATURES

These headers provide the ultimate low profile (0.64 mm) .025" square post board stacking system. The high quality Phosphor Bronze terminals are available with a standard short post height (TLW Series) for mating with low profile sockets, or the post height can be Modified (MTLW Series) to accommodate IDC assemblies and other applications.

#### SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Current Rating (TLW/SLW):**  
5.2 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-55 °C to +105 °C with Tin  
-55 °C to +125 °C with Gold

#### PROCESSING

**Lead-Free Solderable:**  
Yes

#### ALSO AVAILABLE

MOQ Required

Other platings  
Notch option

**Note:**  
Some lengths, styles and options are non-standard, non-returnable. MTLW Series is non-standard, non-returnable.

TLW	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	OTHER OPTION
-----	---	------------------	------------	----------------	------------	--------------

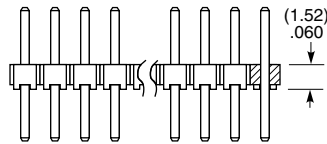
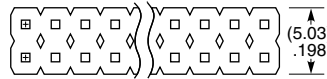
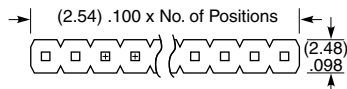
**01 thru 40**  
= Single Row  
**01 thru 36**  
= Double Row

Specify  
**LEAD STYLE**  
from chart

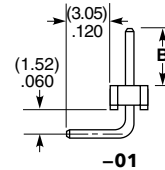
**-F**  
= Gold flash on post, Matte Tin on tail  
**-G**  
= 10 μ" (0.25 μm) Gold on post, Gold flash on tail  
**-T**  
= Matte Tin

**-S**  
= Single Row  
**-D**  
= Double Row

**-RA**  
= Right-angle (-01 Lead Style only)  
**-"XX"**  
= Polarized Position Specify position for omitted pin.



-05 & -06



LEAD STYLE	A	B
-01	N/A	(5.84) .230
-05	(4.32) .170	(2.67) .105
-06	(3.43) .135	

MTLW	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	POST HEIGHT
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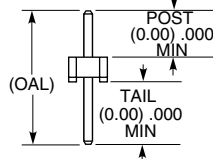
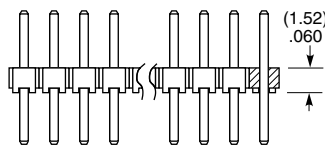
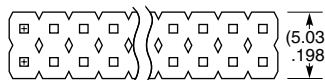
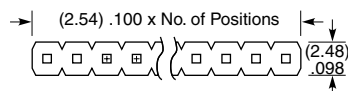
**01 thru 40**  
= Single Row  
**01 thru 36**  
= Double Row

Specify  
**LEAD STYLE**  
from chart

**-F**  
= Gold flash on post, Matte Tin on tail  
**-L**  
= 10 μ" (0.25 μm) Gold on post, Matte Tin on tail  
**-G**  
= 10 μ" (0.25 μm) Gold on post, Gold flash on tail  
**-T**  
= Matte Tin

**-S**  
= Single Row  
**-D**  
= Double Row

**-"XXX"**  
= Post Height Dimension (In inches)

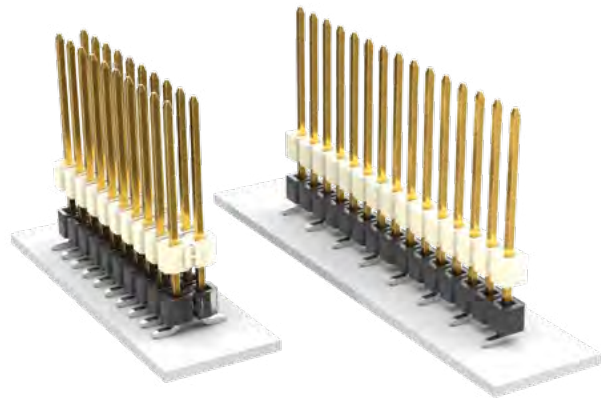


LEAD STYLE	OAL
-05	(8.51) .335
-06	(7.62) .300
-07	(10.92) .430
-08	(13.46) .530
-09	(18.54) .730
-10	(21.08) .830
-22	(16.00) .630
-23	(11.30) .445
-24	(12.19) .480

# FLEX STACK

## FLEXIBLE .025" SQ BOARD STACKERS

(2.54 mm) .100" PITCH • HW SERIES



### HW

#### Board Mates:

SSW, SSQ, ESW, ESQ, CES, SLW, BSW, BCS, SSM, HLE, PHF

#### Cable Mates:

IDSS, IDSD

### SPECIFICATIONS

#### Insulator Material:

HW-SM Top = Natural LCP  
HW-SM Bottom = Black LCP  
HW-TH = Natural LCP

#### Terminal Material:

Phosphor Bronze

#### Plating:

Au or Sn over  
50 μm (1.27 μm) Ni

#### Operating Temp Range:

-55 °C to +125 °C with Gold  
-55 °C to +105 °C with Tin

### PROCESSING

#### Lead-Free Solderable:

Yes

#### SMT Lead Coplanarity:

(0.15 mm) .006" max\*  
\*(.004" stencil solution may be available; contact ipg@samtec.com)

### ALSO AVAILABLE MOQ Required

#### Other platings

Locking Clip available with double row HW-SM  
(Manual placement required)

#### Notes:

For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.

HW	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	STACKER HEIGHT	SM	OTHER OPTION
----	------------------	------------	----------------	------------	----------------	----	--------------

01 thru 50  
(Through-hole)

02 thru 36  
(Surface mount)

Specify LEAD STYLE from chart

**-F**  
= Gold flash on contact, Matte Tin on tail

**-L**  
= 10 μm (0.25 μm) Gold on contact area of longer tail, Matte Tin on tail

**-G**  
= 10 μm (0.25 μm) Gold on contact area of longer tail, Gold flash on balance

**-T**  
= Matte Tin

**-S**

= Single Row

**-D**

= Double Row

**-T**

= Triple Row (Through-hole only)

**-Q**

= Double Row .200"

(5.08 mm) row space (Through-hole only)

**-"XXX"**

= Stacker Height (in inches)

Through-hole = (5.08 mm) .200" Min.

Surface mount = (6.35 mm) .250" Min.

**SM**

Leave blank for Through-hole

**-"XXX"**

= HW-TH Tail Length (in inches)

(1.40 mm) .055" min. Example: -250

= (6.35 mm) .250"

**-LL**

= Locking Lead (Through-hole only) (Shortest dimension

between the tail and the post is the end that will be crimped.

Available on tails from (2.29 mm) .090" to (7.87 mm) .310" only.)

Single row, 01 & 02 positions & -Q row not available

**-"XXX"**

= Polarized (Specify omitted pin position)

**-A**

= Alignment Pin (Metal or plastic at Samtec discretion) (Surface mount only)

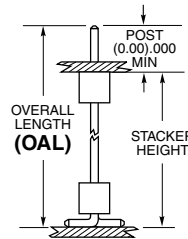
**-TR**

= Tape & Reel (4-27 pins per row only) (Not Available on Lead Styles 10, 11, 12 & 20) (Surface mount only)

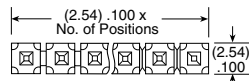
**-FR**

= Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (4-27 pins per row only) (Not Available on Lead Styles 10, 11, 12 & 20) (Surface mount only)

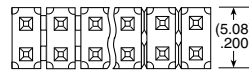
LEAD STYLE	OAL (TH)
-07	(10.92) .430
-08	(13.46) .530
-09	(18.54) .730
-10	(21.08) .830
-11	(23.62) .930
-12	(26.16) 1.030
-13	(31.24) 1.230
-14	(36.32) 1.430
-15	(16.00) .630
-16	(11.30) .445
-17	(12.19) .480
-19	(33.78) 1.330
-20	(28.70) 1.130



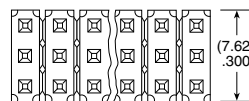
LEAD STYLE	OAL (SMT)
-08	(11.81) .465
-09	(16.89) .665
-10	(19.43) .765
-11	(21.97) .865
-12	(24.51) .965
-15	(14.35) .565
-16	(9.65) .380
-17	(10.54) .415
-20	(27.05) 1.065



**-S**

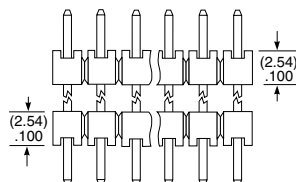


**-D**

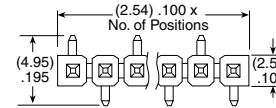


**-T or -Q\***

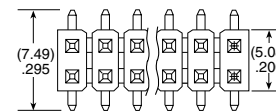
-Q\* same as -T except middle row pins are removed



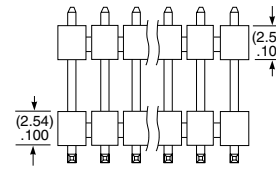
**HW-TH**



**-S**



**-D**



**HW-SM**

## FLEXIBLE .025" SQ BOARD STACKERS

(2.54 mm) .100" PITCH • DW/EW/ZW SERIES



### DW/EW/ZW

#### Board Mates:

SSW, SSQ, ESW, ESQ, CES, SLW, BSW, BCS, SSM, HLE, PHF

#### Cable Mates:

IDSS, IDSD

### SPECIFICATIONS

#### Insulator Material:

Black Glass Filled Polyester

#### Terminal Material:

Phosphor Bronze

#### Plating:

Au or Sn over  
50 μ" (1.27 μm) Ni

#### Operating Temp Range:

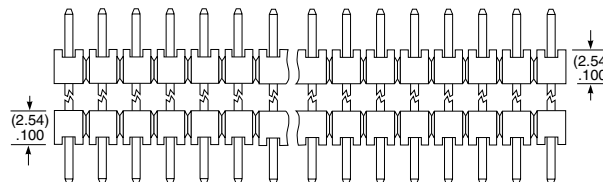
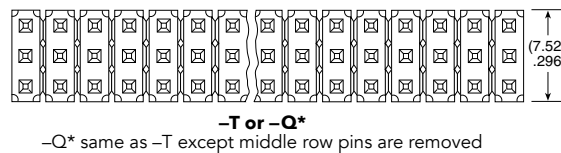
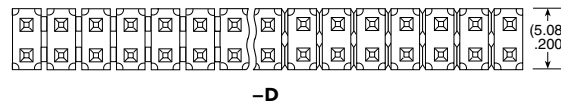
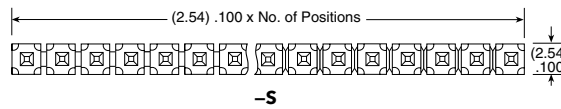
-55 °C to +125 °C with Gold  
-55 °C to +105 °C with Tin

### PROCESSING

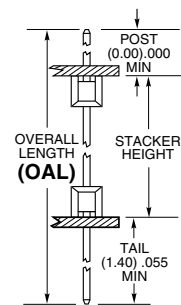
#### Lead-Free Solderable:

No, Lead Wave Only

SERIES	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	STACKER HEIGHT	OTHER OPTION
<b>DW</b> = (2.79 mm) .110" Tail	<b>01 thru 50</b>	<b>Specify LEAD STYLE from chart</b>	<b>-F</b> = Gold flash on contact, Matte Tin on tail	<b>-S</b> = Single Row	<b>-"XXX"</b> = Stacker Height (in inches) (5.08 mm) .200" minimum	<b>-"XXX"</b> = ZW Tail Length (in inches) (1.40 mm) .055" minimum
<b>EW</b> = (8.38 mm) .330" Tail			<b>-L</b> = 10 μ" (0.25 μm) Gold on contact area of longer tail, Matte Tin on tail	<b>-D</b> = Double Row	Example: -250 = (6.35 mm) .250"	Example: -250 = (6.35 mm) .250"
<b>ZW</b> = Custom Tail			<b>-G</b> = 10 μ" (0.25 μm) Gold on contact area of longer tail, Gold flash on balance	<b>-T</b> = Triple Row		<b>-LL</b> = Locking Lead (Shortest dimension between the tail and the post is the end that will be crimped. Available on tails from (2.29 mm) .090" to (7.87 mm) .310" only.) Single row, 01 & 02 positions & -Q row not available
			<b>-T</b> = Matte Tin	<b>-Q</b> = Double Row .200" (5.08 mm) row space		<b>-"XXX"</b> = Polarized (Specify omitted pin position)



LEAD STYLE	OAL
-07	(10.92) .430
-08	(13.46) .530
-09	(18.54) .730
-10	(21.08) .830
-11	(23.62) .930
-12	(26.16) 1.030
-13	(31.24) 1.230
-14	(36.32) 1.430
-15	(16.00) .630
-16	(11.30) .445
-17	(12.19) .480
-19	(33.78) 1.330
-20	(28.70) 1.130



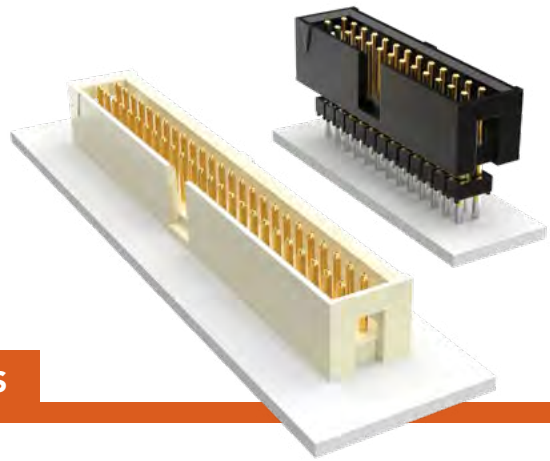
#### Notes:

For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact [jpg@samtec.com](mailto:jpg@samtec.com) for more information.

This Series is non-standard, non-returnable.

# SHROUDED .025" SQ POST HEADERS

(2.54 mm) .100" PITCH • TSS/HTSS/ZSS SERIES



## TSS/HTSS/ZSS

**Mates:**  
SSW, SSQ, ESW, ESQ,  
SSM, BCS

### SPECIFICATIONS

**Insulator Material:**  
TSS, ZSS=Black Glass Filled Polyester  
HTSS=Natural PCT  
**Insulation Resistance:**  
5000 MΩ min  
**Terminal Material:**  
Phosphor Bronze  
**Plating:** Au or Sn over 50 μ" (1.27 μm) Ni  
**Operating Temp Range:**  
-55 °C to +125 °C with Gold  
-55 °C to +105 °C with Tin  
**Withstanding Voltage:**  
1000 VRMS

### PROCESSING

**Lead-Free Solderable:**  
HTSS=Yes  
TSS, ZSS=No, Lead Wave only  
**SMT Lead Coplanarity:**  
(0.15 mm) .006" max\*  
\*(.004" stencil solution may be available; contact ipg@samtec.com)

SERIES	1	NO. PINS PER ROW	03	LEAD STYLE	Specify LEAD STYLE from chart	PLATING OPTION	-F = Gold flash on post, Matte Tin on tail (Not available on -DV)	-L = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail	-T = Matte Tin	ROW OPTION	-D = Double Row Through-hole (lead style -01, -02 & -03 only)	-DV = Double Row Surface Mount (lead style -01 only) (HTSS only)	-D-RA = Double Row Right-angle (lead style -04 & -05 only)
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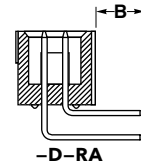
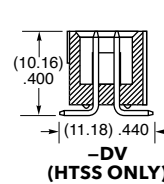
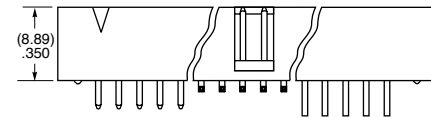
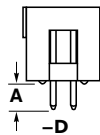
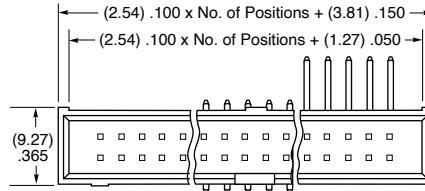
**TSS**  
= Connector Strip

**HTSS**  
= High Temp Connector Strip

03  
(TSS only)

05, 07, 08, 10,  
12, 13, 15, 17,  
20, 25, 32, 36  
(Standard sizes)

LEAD STYLE	T/H (A)
-01	(2.92) .115
-02	(4.19) .165
-03	(14.35) .565

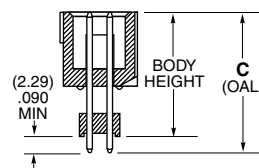
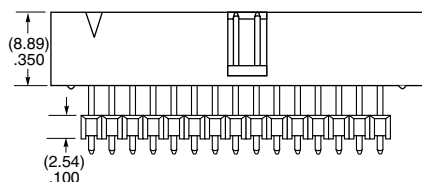
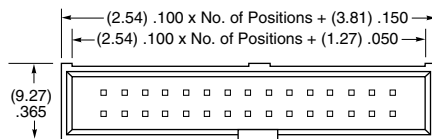


ZSS	1	NO. PINS PER ROW	03, 05, 07, 08, 10, 12, 13, 15, 17, 20, 25, 32, 36 (Standard sizes)	LEAD STYLE	Specify LEAD STYLE from chart	PLATING OPTION	-F = Gold flash on post, Matte Tin on tail	-L = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail	-T = Matte Tin	D	-	BODY HEIGHT	"-XXXX" = Body Height
-----	---	------------------	------------------------------------------------------------------------------	------------	-------------------------------	----------------	-----------------------------------------------	---------------------------------------------------------	-------------------	---	---	-------------	--------------------------

### ALSO AVAILABLE

MOQ Required

Other sizes  
Other platings  
Alignment Pins  
Single Row  
Locking Leads  
Polarized



LEAD STYLE	C (OAL)	MAX BODY HEIGHT
-01	(16.00) .630	(13.72) .540
-02	(18.54) .730	(16.26) .640
-03	(21.08) .830	(18.80) .740
-04	(23.62) .930	(21.34) .840
-05	(26.16) 1.030	(23.88) .940
-06	(28.70) 1.130	(26.42) 1.040
-07	(31.24) 1.230	(28.96) 1.140
-08	(33.78) 1.330	(31.50) 1.240
-09	(36.32) 1.430	(34.04) 1.340

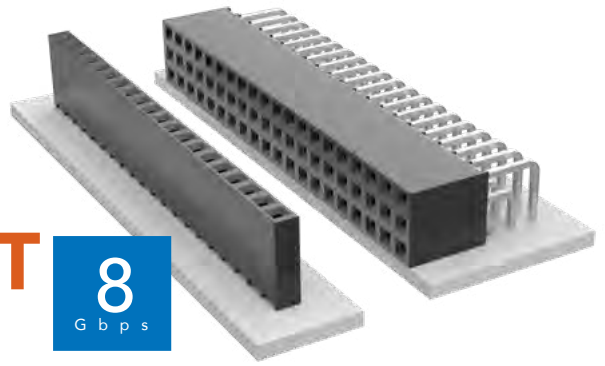
**Note:**  
Some lengths, styles and options are non-standard, non-returnable. ZSS is non-standard, non-returnable.

**Note:**  
For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.



# THROUGH-HOLE .025" SQ POST SOCKET

(2.54 mm) .100" PITCH • SSW/SSQ SERIES



## SSW/SSQ

### Mates:

TSW, MTSW, MTLW,  
DW, EW, ZW, TSS, ZSS,  
TSM, TSSH, HTSS

### SPECIFICATIONS

#### Insulator Material:

Black Liquid Crystal Polymer (-S & -D) or  
Black High Temperature Thermoplastic (-T)

#### Contact Material:

Phosphor Bronze

#### Plating:

Au or Sn over

50 μ" (1.27 μm) Ni

#### Current Rating (SSW/TSM):

4.7 A per pin

(2 pins powered)

#### Current Rating (SSQ/TSW):

6.3 A per pin

(2 pins powered)

#### Operating Temp Range:

-55 °C to +125 °C with Gold

-55 °C to +105 °C with Tin

#### Insertion Depth:

(3.68 mm) .145" to

(6.35 mm) .250"

#### Max Cycles:

100 with 10 μ" (0.25 μm) Au

#### Voltage Rating:

465 VAC / 655 VDC

### PROCESSING

#### Lead-Free Solderable:

Yes:

-S and -D row option

No, Lead Wave only:

-P, -T and -Q row option

SERIES	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	TAIL OPTION	OTHER OPTION
--------	---	------------------	------------	----------------	------------	-------------	--------------

**SSW**  
= Solder Tail

01 thru 50

Specify  
**LEAD STYLE**  
from chart

**-F**  
= Gold flash on contact,  
Matte Tin on tail

**-S**  
= Single Row

Leave blank for straight pin version)

**-LL**  
= Locking Lead

**SSQ**  
= Square Tail

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact,  
Matte Tin on tail

**-P**  
= Single Row  
(36 pins max)

**-RA**  
= Right-angle

Available on tails from  
(2.29 mm) .090" to  
(7.87 mm) .310" only.  
Not Available with single row 1 or 2 positions)

**-G**  
= 20 μ" (0.51 μm)  
Gold on contact,  
Gold flash on tail

**-D**  
= Double Row

**-T**  
= Triple Row

**-Q**  
= Double Row  
.200"  
(5.08 mm)  
row space  
(outer rows filled only)

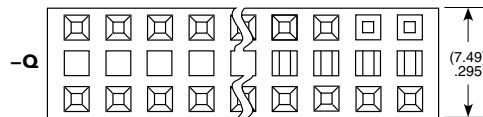
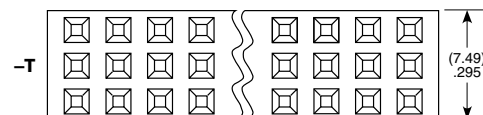
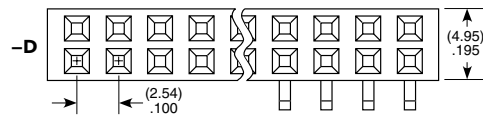
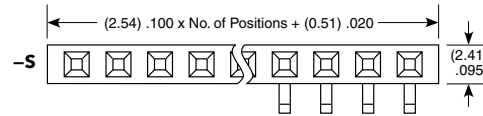
**"XXX"**  
= Polarized  
(Specify "XXX" as position number)

**-T**  
= Matte Tin  
(-T N/A on LIF contacts)

THROUGH-HOLE		
LEAD STYLE		SINGLE DOUBLE OR TRIPLE A
Standard Insertion Force	Low Insertion Force*	
-01	-21	(2.64) .104
-02	-22	(4.93) .194
-03	-23	(10.00) .394
-04	-24	(14.83) .584
-06**	N/A	(3.15) .124

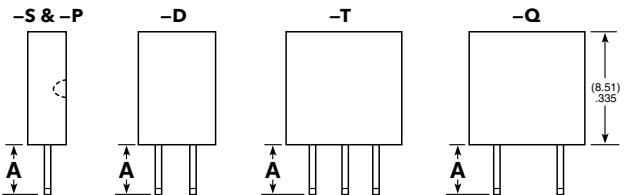
\* LIF not available with Tin Plating

\*\*Style -06 Not available with SSQ



Through-hole

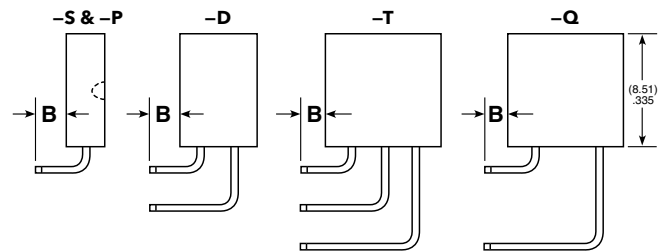
Right-angle



Straight Pin Versions

RIGHT-ANGLE				
LEAD STYLE		SINGLE	DOUBLE	TRIPLE
Standard Insertion Force	Low Insertion Force*	(-S) B	(-D) B	(-T & -Q) B
-02	-22	(2.54) .100	(2.54) .100	(2.54) .100
-03	-23	(7.62) .300	(7.62) .300	N/A
-04	-24	(12.45) .490	N/A	N/A

\*LIF not available with Tin Plating



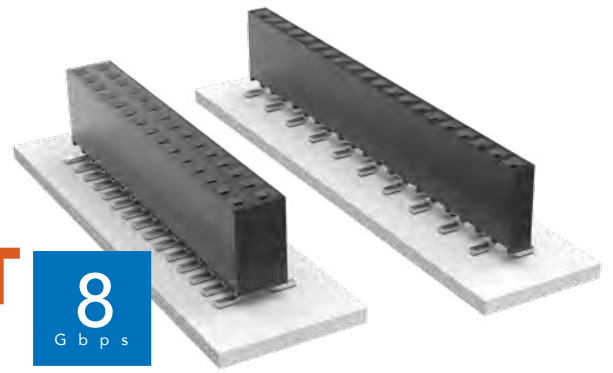
Right-angle Versions

#### Note:

Some lengths, styles and options are non-standard, non-returnable.

# SURFACE MOUNT .025" SQ POST SOCKET

(2.54 mm) .100" PITCH • SSW SERIES



## SSW

### Mates:

TSW, MTSW, HTSW,  
HMTSW, MTLW, EW, ZW,  
TSS, HTSS, ZSS, TSM,  
TSSH, DW, HW

## SPECIFICATIONS

### Insulator Material:

Black LCP

### Contact Material:

Phosphor Bronze

### Plating:

Au or Sn over

50 μ" (1.27 μm) Ni

### Current Rating (SSW/TSM):

4.7 A per pin

(2 pins powered)

### Operating Temp Range:

-55 °C to +125 °C with Gold

-55 °C to +105 °C with Tin

### Insertion Depth:

(3.68 mm) .145" to

(6.35 mm) .250"

### Max Cycles:

100 with 10 μ" (0.25 μm) Au

### Voltage Rating:

465 VAC / 655 VDC

## PROCESSING

### Lead-Free Solderable:

Yes

### SMT Lead Coplanarity:

(0.10 mm) .004" max

## ALSO AVAILABLE

MOQ Required

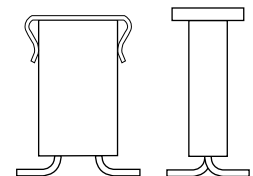
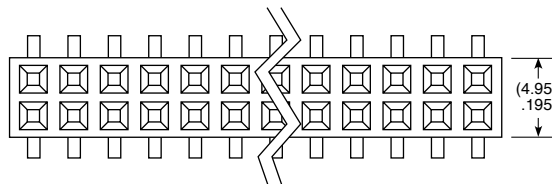
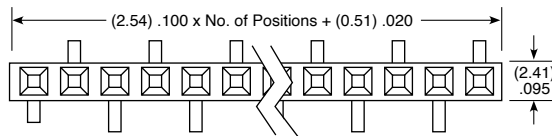
Other platings

Notch option

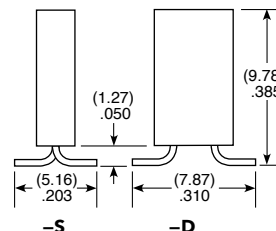
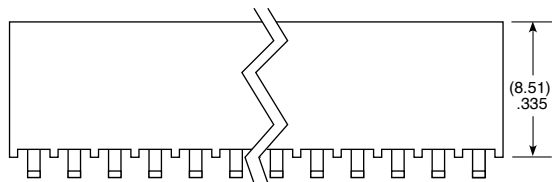
### Note:

Some lengths, styles and options are non-standard, non-returnable.

SSW	1	NO. PINS PER ROW	22	PLATING OPTION	ROW OPTION	VS	OTHER OPTION
		02 thru 36		<b>-F</b> = Gold flash on contact, Matte Tin on tail  <b>-L</b> = 10 μ" (0.25 μm) Gold on contact, Matte Tin on tail  <b>-G</b> = 20 μ" (0.51 μm) Gold on contact, Gold flash on tail	<b>-S</b> = Single Row  <b>-D</b> = Double Row		<b>-XX</b> = Polarized Position  <b>-K</b> = -S: (3.50 mm) .138" DIA, -D: (6.50 mm) .256" DIA Polyimide film Pick & Place Pad (03 positions min.)  <b>-P</b> = Pick & Place Pad (05 positions min.)  <b>-TR</b> = Tape & Reel (-02 thru -28)  <b>-FR</b> = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-02 thru -28)



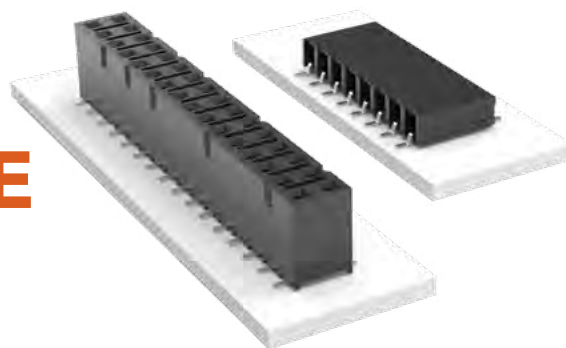
-P OPTION



-S

-D

# TIGER CLAW™ SURFACE MOUNT SOCKET



(2.54 mm) .100" PITCH • SSM SERIES

## SSM

### Mates:

TSW, MTSW,  
TST, TSS, ZST, ZSS,  
DW, EW, ZW, TSM,  
HMTSW, HTSW, TSSH,  
BST, HTSS, TLW, MTLW

## SPECIFICATIONS

### Insulator Material:

Black Liquid Crystal Polymer

### Contact Material:

Phosphor Bronze

### Plating:

Au or Sn over  
50 μ" (1.27 μm) Ni

### Current Rating (SSM/TSW):

5.2 A per pin  
(2 pins powered)

### Voltage Rating:

405 VAC / 572 VDC

### Operating Temp Range:

-55 °C to +125 °C with Gold  
-55 °C to +105 °C with Tin

### Insertion Depth:

SV/DV = (4.34 mm) .171" to  
(7.24 mm) .285" or pass-through  
from top; (5.56 mm) .219"  
plus board thickness minimum  
from bottom;  
SH/DH = (4.34 mm) .171" to  
(6.35 mm) .250"

## PROCESSING

### Lead-Free Solderable:

Yes

### -DH Coplanarity:

Less than 28 positions  
(0.15 mm) .006" max\*  
More than 27 positions  
(0.20 mm) .008" max\*

### -SH, -SV, -DV Coplanarity:

(0.15 mm) .006" max\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)

## ALSO AVAILABLE

MOQ Required

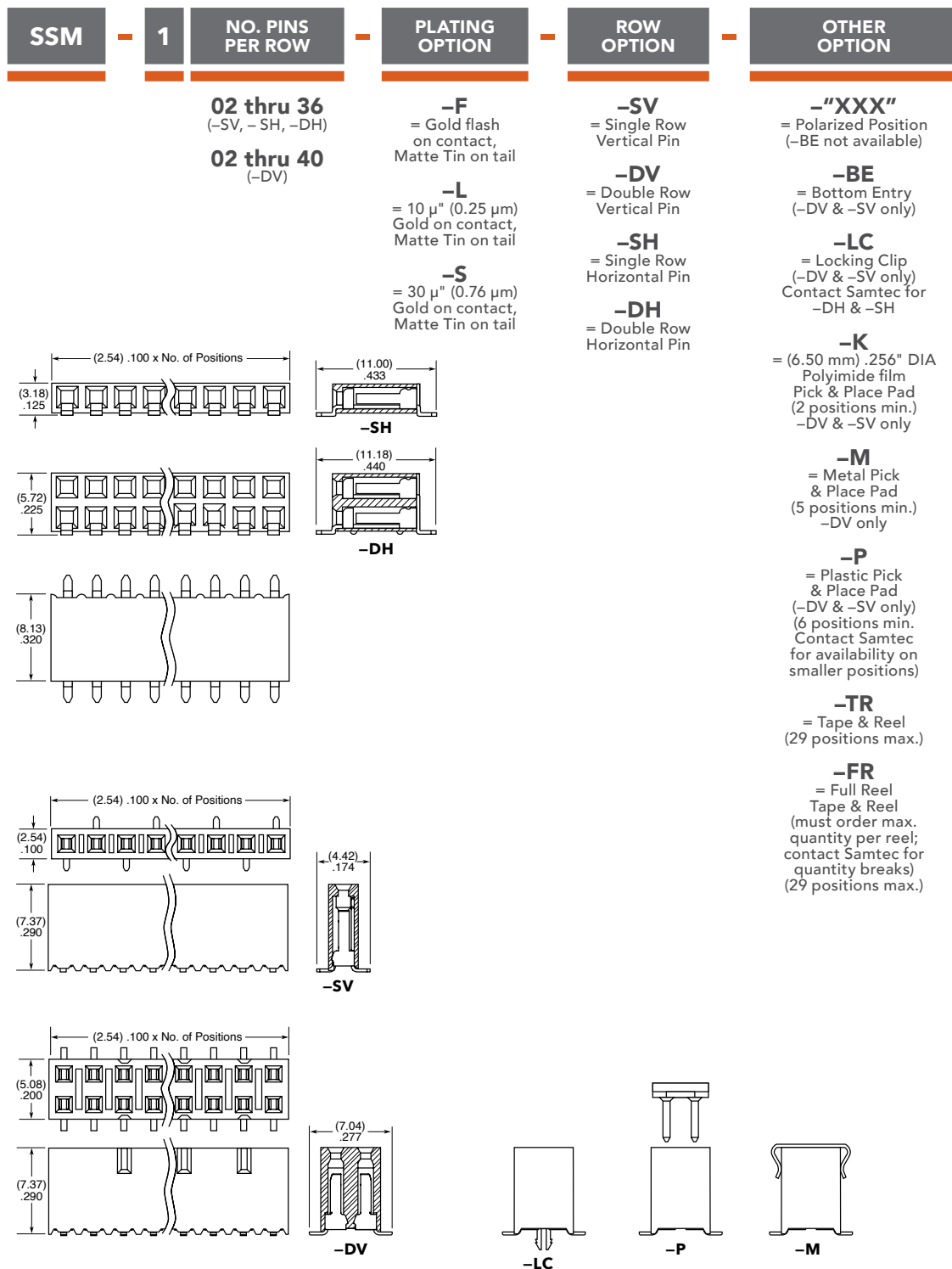
Alignment pin



### Notes:

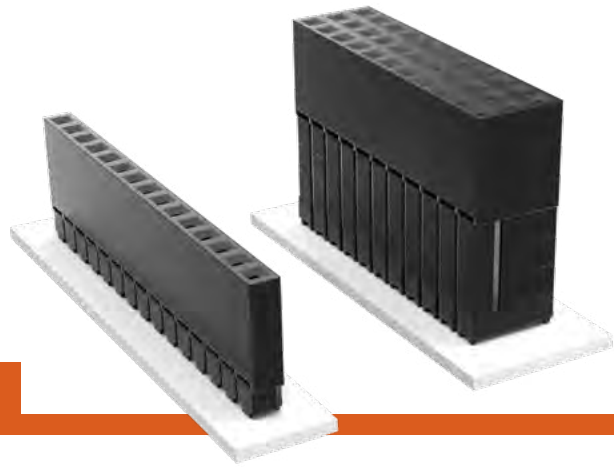
Severe Environment  
Testing qualified; aligns  
with MIL-DTL-55302.  
Visit samtec.com/set

Some sizes, styles and  
options are non-standard,  
non-returnable.



# ELEVATED SOCKETS

(2.54 mm) .100" PITCH • ESW/ESQ SERIES



## ESW/ESQ

### Mates:

TSW, MTSW, EW, MTLW, TSS, ZSS, TSM, DW, ZW, HW, TSSH, HTSS

### SPECIFICATIONS

#### Insulator Material:

Black Glass Filled Polyester

#### Contact Material:

Phosphor Bronze

#### Plating:

Au or Sn over 50 μ" (1.27 μm) Ni

#### Current Rating (ESW/TSW):

5.2 A per pin (2 pins powered)

#### Current Rating (ESQ/TSW):

5.7 A per pin (2 pins powered)

#### Voltage Rating:

515 VAC mated with TSW or ESQ

#### Operating Temp Range:

-55 °C to +125 °C with Gold  
-55 °C to +105 °C with Tin

#### Insertion Depth:

(3.68 mm) .145" to (6.35 mm) .250"

#### Max Cycles:

100 with 10 μ" (0.25 μm) Au

### PROCESSING

#### Lead-Free Solderable:

No, Lead Wave only

SERIES	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	OTHER OPTION
--------	---	------------------	------------	----------------	------------	--------------

**ESW**  
= Solder Tail

**01 thru 36**

Specify **LEAD STYLE** from chart

**ESQ**  
= Square Tail

**-L**  
= 10 μ" (0.25 μm) Gold contact, Matte Tin on tail

**-S**  
= Single Row

**-LL**  
= Locking Lead (Two leads per strip crimped. Not available with single row 1 or 2 positions)

**-D**  
= Double Row

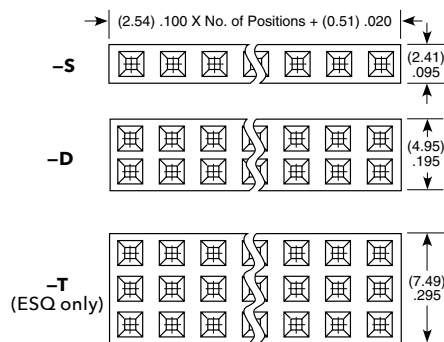
**-G**  
= 20 μ" (0.51 μm) Gold contact, Gold Flash on Balance

**-T**  
= Triple Row (ESQ only)

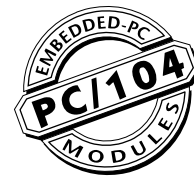
**"XXX"**  
= Polarized

**-T**  
= Matte Tin (Not available with LIF contact)

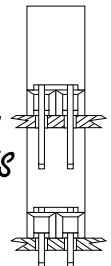
LEAD STYLE			
STANDARD INSERTION FORCE	LOW INSERTION FORCE	A	B
-12	-37	(2.29) .090	(11.05) .435
-13	-38	(7.36) .290	
-23	-48	(4.83) .190	(13.59) .535
-33	-58	(2.29) .090	(16.13) .635
-14	-39	(12.19) .480	(11.05) .435
-24	-49	(9.65) .380	(13.59) .535
-34	-59	(7.11) .280	(16.13) .635
-44	-69	(4.57) .180	(18.67) .735



### APPLICATIONS



Self Nesting Sockets



(ESQ SERIES)

### ALSO AVAILABLE

MOQ Required

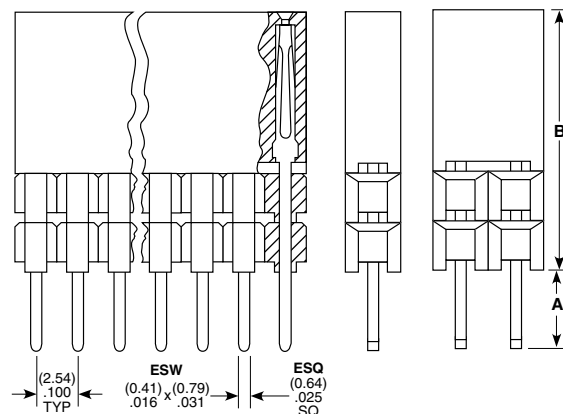
Other Platings

PC/104™ J1/P1 "Stackthrough" Connectors	
Standard Insertion Force	ESQ-132-14-G-D
Low Insertion Force	ESQ-132-39-G-D
PC/104™ J1 "Non-Stackthrough" Connectors	
Standard Insertion Force	ESQ-132-12-G-D
Low Insertion Force	ESQ-132-37-G-D
PC/104™ J2/P2 "Stackthrough" Connectors	
Standard Insertion Force	ESQ-120-14-G-D
Low Insertion Force	ESQ-120-39-G-D

PC/104 is a trademark of the PC/104 Consortium.

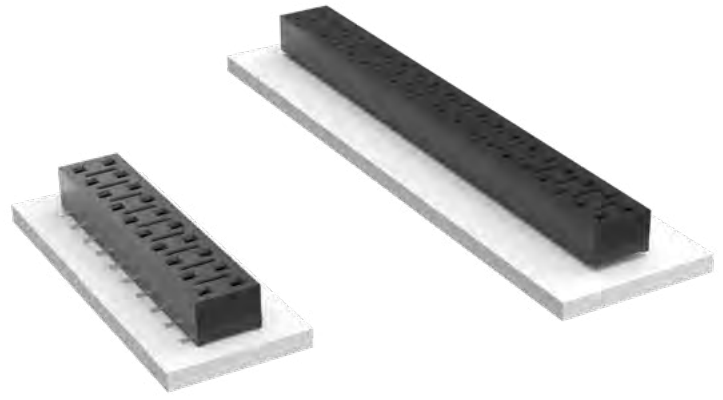
### Note:

Some lengths, styles and options are non-standard, non-returnable.



# COST-EFFECTIVE RELIABLE SOCKET

(2.54 mm) .100" PITCH • HLE SERIES



**HLE**

**Board Mates:**  
TSW, MTSW, DW, EW,  
ZW, TLW, TSM, MTLW, HW



02 thru 50

**-F**  
= Gold flash on contact,  
Matte Tin on tail

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact,  
Matte Tin on tail

Leave blank for  
Surface Mount  
(Requires -BE for  
Bottom Entry)

**-TE**  
= Through-hole  
Top Entry

**-PE**  
= Through-hole  
Pass-through  
Entry  
(Requires -BE for  
Bottom Entry)

**-BE**  
= Bottom Entry  
(Not available  
with -TE)

**-A**  
= Alignment Pin  
(4 positions min.)  
Metal or plastic at  
Samtec discretion  
(Not available with  
-TE, -PE & -LC)

**-LC**  
= Locking Clip  
(2 positions min.)  
(Not available with -A)  
(Manual placement  
required)

**-K**  
= (6.50 mm)  
.256" DIA  
Polyimide Film  
Pick & Place Pad  
(3 positions min.)  
Not available  
with -TE or  
-PE tail option

**-P**  
= Metal Pick  
& Place Pad  
(3 positions min.)

**-TR**  
= Tape & Reel  
(29 positions max.)

**-FR**  
= Full Reel  
Tape & Reel  
(must order max.  
quantity per reel;  
contact Samtec for  
quantity breaks)

**SPECIFICATIONS**

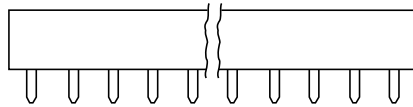
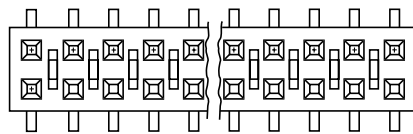
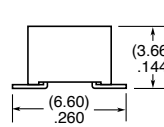
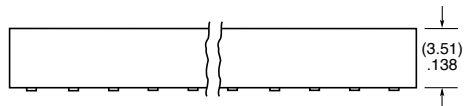
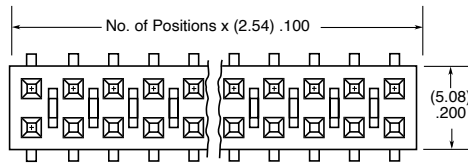
**Insulator Material:**  
Black Liquid Crystal Polymer  
**Contact Material:**  
BeCu  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Current Rating (HLE/TSM):**  
4.1 A per pin  
(2 pins powered)  
**Voltage Rating:**  
400 VAC  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Insertion Depth:**  
(1.78 mm) .070" to  
(3.43 mm) .135" pass-through,  
or (2.59 mm) .102" min  
plus board thickness for  
bottom entry

**PROCESSING**

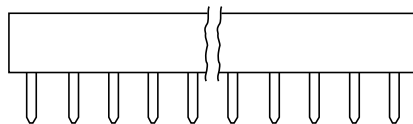
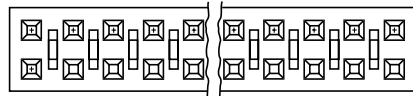
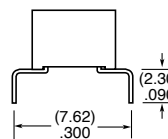
**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (02-20)  
(0.15 mm) .006" max (21-50)\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)

**ALSO AVAILABLE**  
MOQ Required

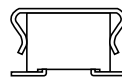
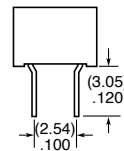
Other Platings



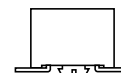
**-PE**



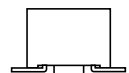
**-TE**



**-P**



**-LC**



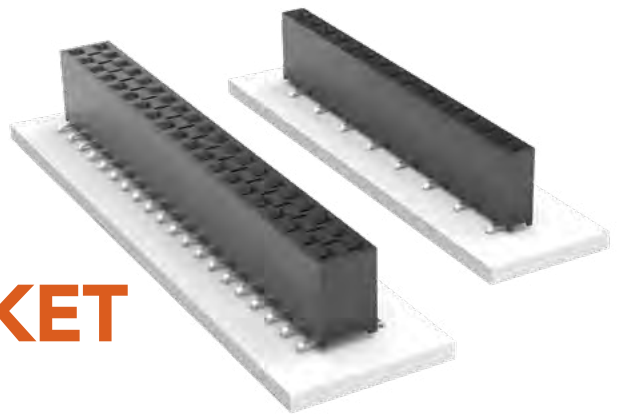
**-A**

**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.



# TIGER CLAW™ PASS-THROUGH SOCKET

(2.54 mm) .100" PITCH • BCS SERIES



**BCS**

**Mates:**

TSW, MTSW, HTSW,  
HMTSW, TSS, ZSS, DW, EW,  
ZW, HW, TSM, MTLW, PHT

**SPECIFICATIONS**

**Insulator Material:**

Black Liquid Crystal Polymer

**Contact Material:**

Phosphor Bronze

**Plating:**

Au or Sn over  
50 μ" (1.27 μm) Ni

**Voltage Rating:**

495 VAC  
(-TE/-DE/-PE mated with TSM)  
450 VAC  
(-HE mated with TSW)

**Operating Temp Range:**

-55 °C to +125 °C

**Insertion Depth:**

(4.34 mm) .171" to  
(7.24 mm) .285" from top,  
(5.64 mm) .222" plus board  
thickness minimum from bottom.  
-HE is (4.34 mm) .171"  
to (6.35 mm) .250"

**PROCESSING**

**Lead-Free Solderable:**

Yes

MATES	CURRENT RATING (PER PIN)
BCS/TSW	4.6 A
BCS/TSM	5.0 A

**2 POSITIONS POWERED**

**ALSO AVAILABLE**  
MOQ Required

Other Platings



01 thru 50

**-F**  
= Gold flash on contact,  
Matte Tin on tail

**-L**  
= 10 μ" (0.25 μm)  
Gold on contact,  
Matte Tin on tail

**-S**  
= Single

**-D**  
= Double

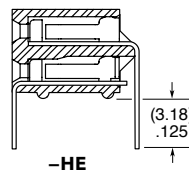
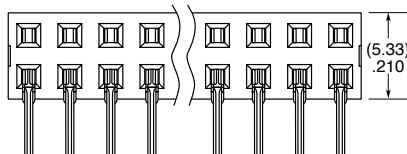
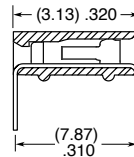
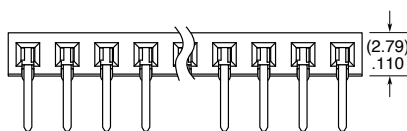
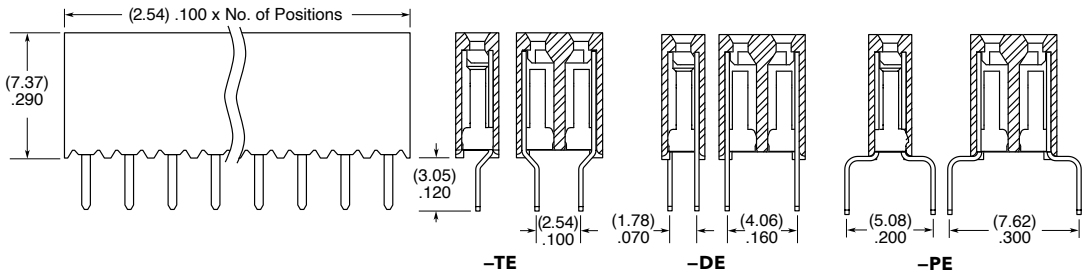
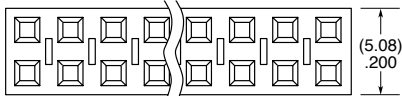
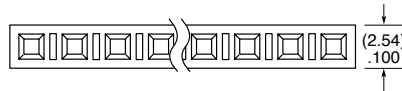
**-TE**  
= Top Entry

**-DE**  
= Top Entry  
(For Bottom Entry  
specify -DE-BE)  
Cannot be used with  
plated through-holes

**-PE**  
= Pass-through Entry  
(For Bottom Entry  
specify -PE-BE)

**-HE**  
= Horizontal Entry

**-"XXX"**  
= Polarized Position  
(-BE not available)

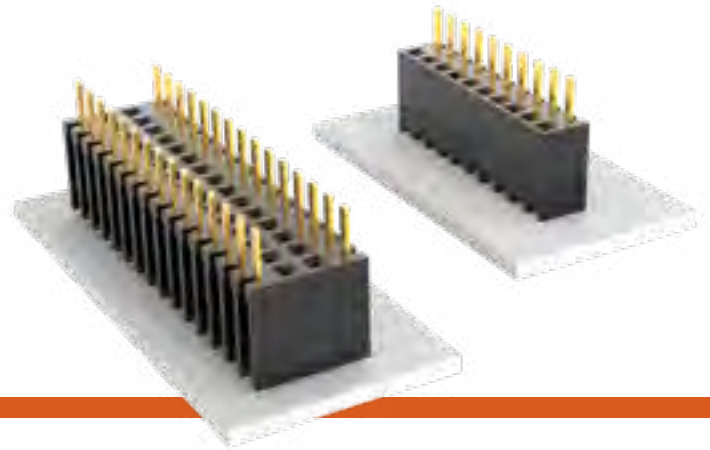


**Note:**

Some lengths, styles and  
options are non-standard,  
non-returnable.

# BOTTOM MOUNT SOCKET STRIPS

(2.54 mm) .100" PITCH • BSW SERIES



## BSW

### Mates:

TSW, MTSW, HTSW,  
MTLW, TSM, EW, ZW,  
HW, DW, PHT

## FEATURES

- Bottom mount socket strips accept .025" SQ terminals.
- Ideal for soldering and plugging from the same side of the board.
- For low profile connections and high temperature soldering.

## SPECIFICATIONS

### Insulator Material:

Black Thermoplastic

### Insulation Resistance:

5000 MΩ min

### Contact Material:

Phosphor Bronze

### Plating:

Au or Sn over

50 μ" (1.27 μm) Ni

### Operating Temp Range:

-55 °C to +125 °C with Gold

-55 °C to +105 °C with Tin

### Withstanding Voltage:

1000 VRMS @ 60 Hz

### Insertion Depth:

(3.68 mm) .145" to

(6.35 mm) .250"

## PROCESSING

### Lead-Free Solderable:

Wave only

## ALSO AVAILABLE

MOQ Required

Other Platings

BSW	- 1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION
-----	-----	------------------	------------	----------------	------------

02 thru 36

**-04**  
= Standard Lead

**-24**  
= Low Insertion Force

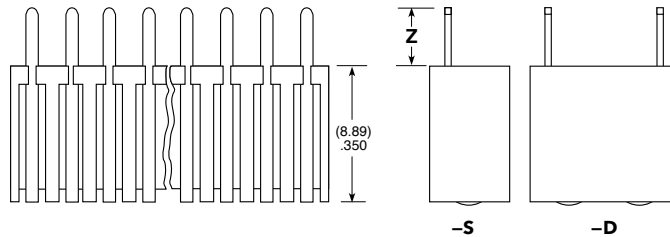
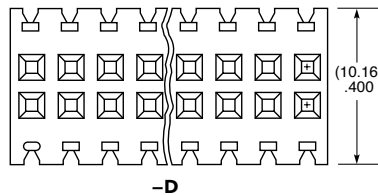
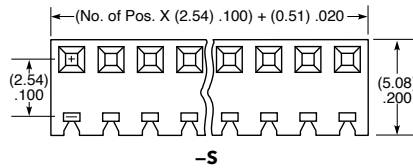
**-L**  
= 10 μ" (0.25 μm)  
Gold contact,  
Matte Tin on tail

**-G**  
= 20 μ" (0.51 μm)  
Gold contact,  
Gold Flash on tail

**-T**  
= Matte Tin  
(Not available with  
Low Insertion Force)

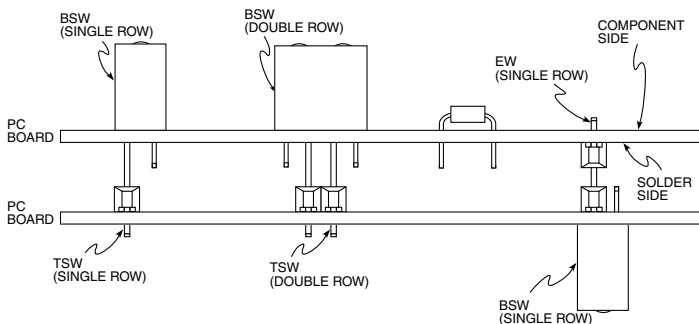
**-S**  
= Single Row

**-D**  
= Double Row



ROW OPTION	Z
-S	(4.31) .170
-D	(4.32) .170

## APPLICATIONS

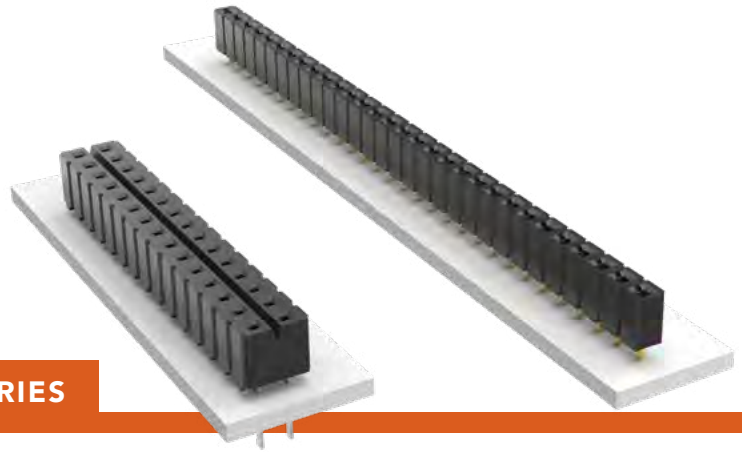


### Note:

Some lengths, styles and options are non-standard, non-returnable.

# LOW PROFILE SOCKET STRIPS

(2.54 mm) .100" PITCH • SLW/CES SERIES



## SLW

**Mates:**  
TLW, TSW, MTLW, MTSW,  
HW, EW, ZW, HTSW,  
HMTSW, TSM

## CES

**Mates:**  
TLW, TSW, MTLW,  
MTSW, HW, EW, ZW,  
DW, HTSW, PHT, HMTSW

SLW	-	1	NO. PINS PER ROW	-	01	PLATING OPTION	-	ROW OPTION
-----	---	---	------------------	---	----	----------------	---	------------

01 thru 50

-F

= Gold flash on contact,  
Matte Tin on tail

-S

= Single Row

-L

= 10  $\mu$ " (0.25  $\mu$ m) Gold on contact,  
Matte Tin on tail

-D

= Double Row

-G

= 20  $\mu$ " (0.51  $\mu$ m) Gold on contact,  
Gold flash on balance

-T

= Matte Tin



## SPECIFICATIONS

### Insulator Material:

Black G.F. Polyester

### Contact Material:

Phosphor Bronze

### Plating:

Au or Sn over  
50  $\mu$ " (1.27  $\mu$ m) Ni

### SLW Current Rating (SLW/TSW):

5.2 A per pin  
(2 pins powered)

### CES Current Rating (TSW/CES):

5.5 A per pin  
(2 pins powered)

### Voltage Rating:

SLW: 406 VAC  
CES: 400 VAC

### Operating Temp Range:

-55 °C to +125 °C with Gold

-55 °C to +105 °C with Tin

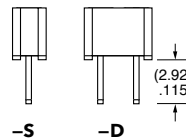
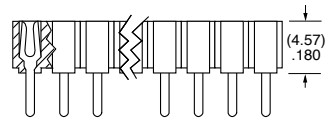
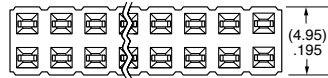
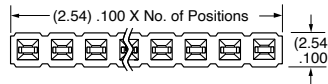
### Insertion Depth:

SLW: (2.16 mm) .085" to  
(2.92 mm) .115"

CES: (2.62 mm) .103" to  
(4.06 mm) .160"

### Lead-Free Solderable:

No, Lead Wave only



CES	-	1	NO. PINS PER ROW	-	LEAD STYLE	-	PLATING OPTION	-	ROW OPTION	-	RA OPTION
-----	---	---	------------------	---	------------	---	----------------	---	------------	---	-----------

01 thru 50

Specify  
LEAD  
STYLE  
from  
chart

-L

= 10  $\mu$ " (0.25  $\mu$ m)  
Gold contact,  
Matte Tin on tail

-S

= Single Row

-RA

= Right-angle  
version  
(Style -02 only  
Single Row only)

-T

= Matte Tin

-D

= Double Row

## PROCESSING

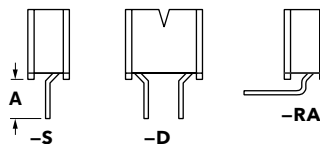
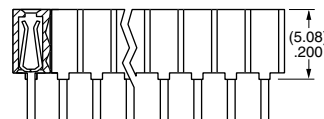
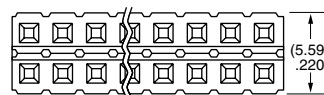
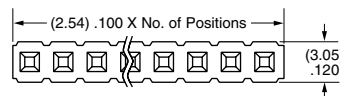
### Lead-Free Solderable:

No, Lead Wave only

## ALSO AVAILABLE

MOQ Required

Other Platings



LEAD STYLE	A
-01	(3.25) .128
-02	(5.66) .223

### Note:

Some lengths, styles and  
options are non-standard,  
non-returnable.

# SHUNTS & JUMPERS



(2.54 mm) .100" PITCH • SNT/MNT/2SN/SNM/PK/JL SERIES

## SNT/MNT

**Mates:**  
TSW, HTSW, MTSW,  
HMTSW, TLW, DW, EW,  
ZW, HW, TSM, BST, PHT

## 2SN

**Mates:**  
TMMH, TMM,  
MTMM, MMT, TW,  
LTMM, ZLTMM, TSH, EHT

## SNM

**Mates:**  
TMS, MTMS, DWM

### SPECIFICATIONS

## SNT

**Insulator Material:**  
Glass Filled Polyester  
**Contact Material:**  
Phosphor Bronze  
**Current Rating (SNT/TSW):**  
4.3 A per pin  
(1 pin powered per row)  
**Operating Temp Range:**  
-55 °C to +125 °C  
**Insertion Depth:**  
(4.32 mm) .170" minimum  
**Lead Size accepted:**  
(0.64 mm) .025" SQ

## MNT

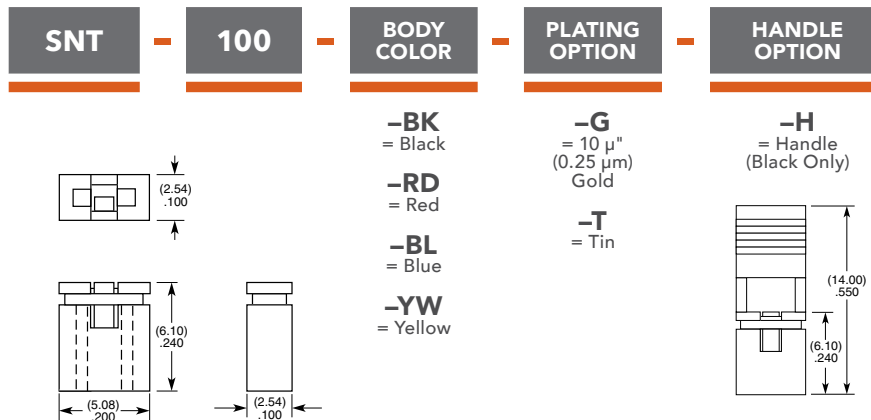
Same as SNT except:  
**Current Rating (MNT/TSM):**  
3.9 A per pin  
(1 pin powered per row)  
**Working Voltage:**  
450 VAC

## 2SN

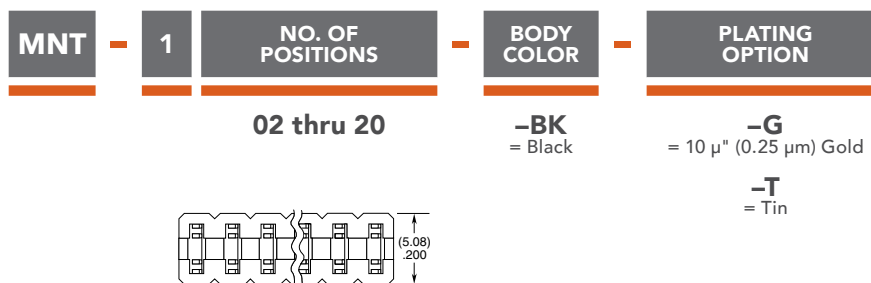
Same as SNT except:  
**Insertion Depth:**  
(2.29 mm) .090" minimum  
**Lead Size accepted:**  
(0.51 mm) .020" SQ

## SNM

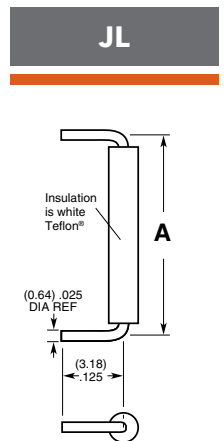
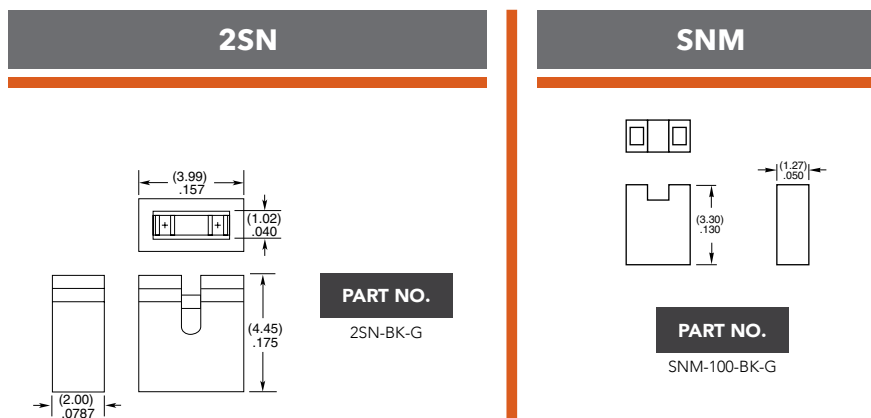
Same as SNT except:  
**Insertion Depth:**  
(3.43 mm) .135" minimum  
**Max Processing Temp:**  
Not recommended for IR/VPT



**Note:**  
Other Gold plating options available.



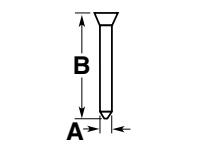
**Note:**  
Some lengths, styles and options are non-standard, non-returnable.



PART NO.	A
JL-100-25-T	(2.54) .100
JL-250-25-T	(6.35) .250
JL-400-25-T	(10.16) .400

**Note:**  
For complete specifications see [www.samtec.com?JL](http://www.samtec.com?JL)

## PK



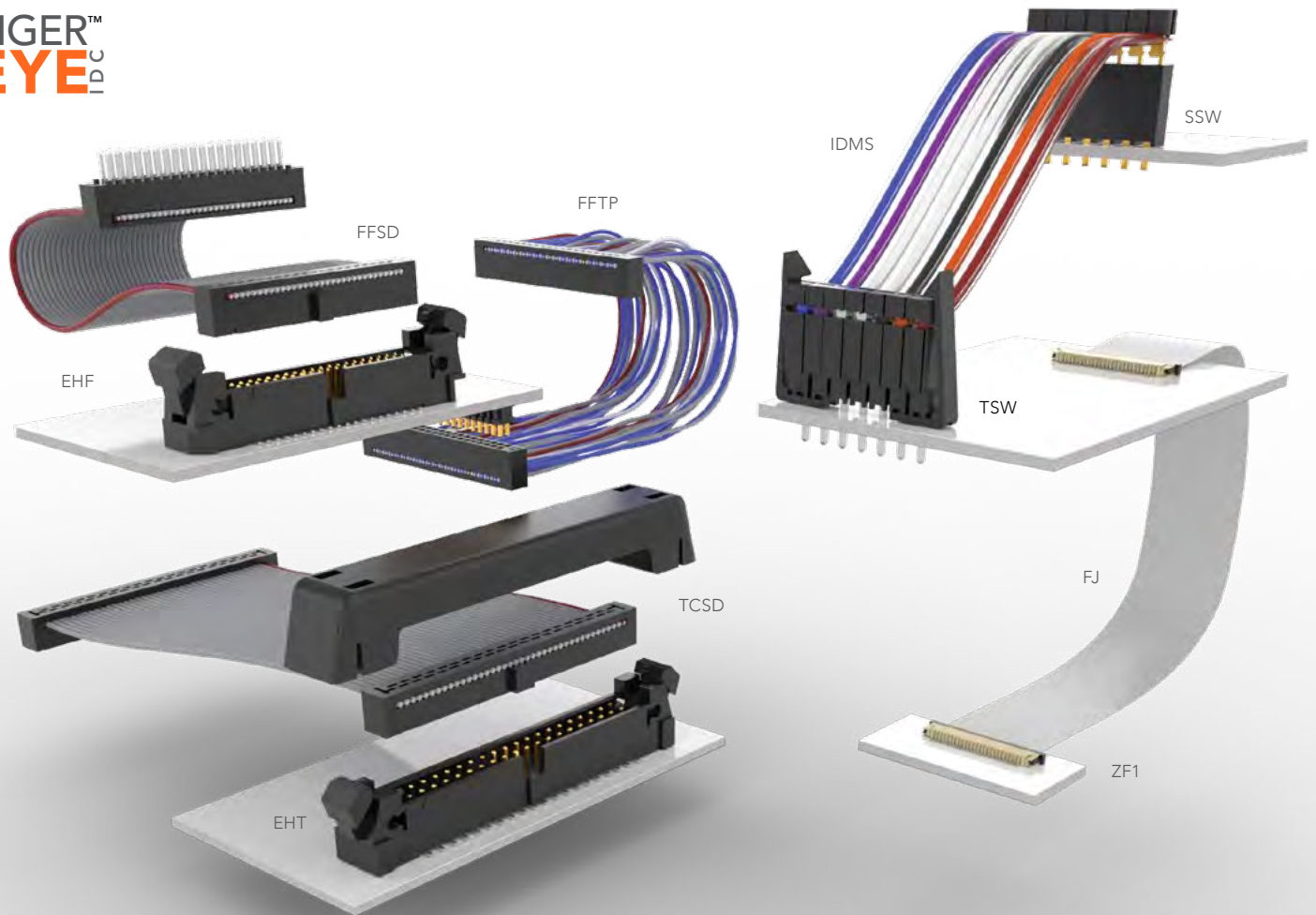
PART NO.	A	B
PK-01-06	(0.64) .025 SQ	(5.84) .230
PK-01-07	(0.51) .020 SQ	(3.18) .125

**Insulator Material:**  
Natural Thermoplastic

**Note:**  
Order per wheel.  
6 pins per wheel.

# IDC/FLAT FLEXIBLE CABLE SYSTEMS

TIGER EYE™ CONTACTS • MULTIPLE PITCHES • LOW PROFILE • SHROUDED EJECTOR TERMINALS



## 314-325

### IDC ASSEMBLIES AND HEADERS

.100" (2.54 mm) Pitch (IDSX, IDMX, EJH, TST, HTST, ZST) .....	314-317
2.00 mm (.0787") Pitch (TCSD, TCMD, EHT, EC2, STMM, ZSTMM, ETMM) .....	318-321
.050" (1.27 mm) Pitch (FFSD, FFMD, FFTP, FMTP, EHF, SHF, ESHF) .....	322-325

## 326

### FLEX JUMPERS

0.50 mm (.0197") Pitch FFC Jumper & Sockets (FJH, ZF5S) .....	326
---------------------------------------------------------------	-----



# SLIM BODY FLAT RIBBON IDC CABLES

(2.54 mm) .100" PITCH • IDSS/IDSD/IDMS/IDMD SERIES



## IDSS/IDMS/IDMD

### Mates:

TSW, MTSW, TSM, EJH, PHT, HMTSW, HTSW, HW, DW, EW, ZW, MTLW

## IDSD

### Mates:

TST, HTST, ZST, EJH

SERIES	ROW OPTION	NO. PINS PER ROW
<b>IDM</b> = Standard Tail Male Plug	<b>S</b> = Single	<b>-02 thru -32</b> = IDMS/IDMD
<b>IDS</b> = Socket	<b>D</b> = Double (Color coded cable Not available for 31 thru 36 pins/row. See -G option.)	<b>-02 thru -36</b> = IDSS/IDSD

## SPECIFICATIONS

### Insulator Material:

Black Glass Filled Polyester

### Contact (IDSS/IDSD):

BeCu

### Terminal (IDMS/IDMD):

Phosphor Bronze

### Plating:

Au over 50  $\mu$ " (1.27  $\mu$ m) Ni or Sn over 100  $\mu$ " (2.54  $\mu$ m) Cu or 50  $\mu$ " (1.27  $\mu$ m) Ni

### Wire:

28 AWG 7/36 stranded  
Tinned Copper Web footer

### Current Rating (IDMD):

3 A per pin  
(2 pins powered)

### Temperature Range:

-20 °C to +105 °C

(Rainbow Cable)

-40 °C to +105 °C

(Gray Cable)

### Voltage Rating:

425 VAC/600 VDC

### Lead Size Range:

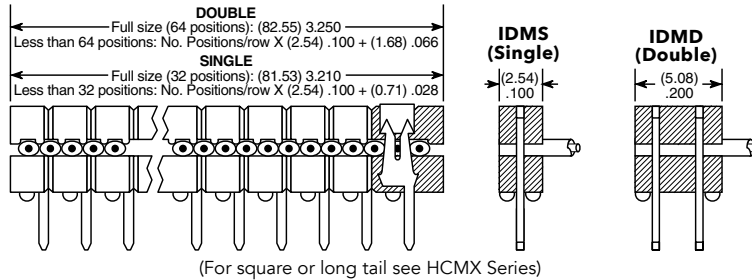
(0.56 mm) .022" SQ to

(0.71 mm) .028" SQ

### Lead Insertion Depth:

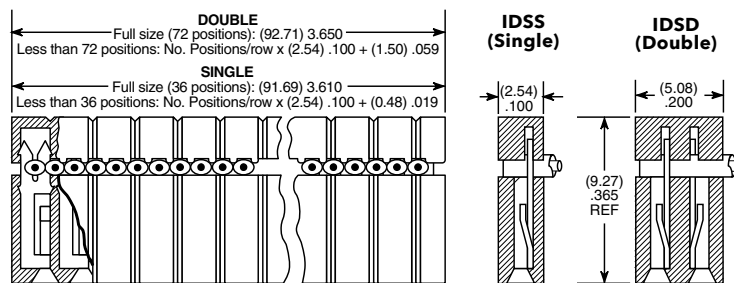
(5.59 mm) .220" to

(6.22 mm) .245"



(For square or long tail see HCMX Series)

IDMX shown



IDSX shown

## ALSO AVAILABLE

### Molded-To-Position IDC Assemblies

Low Profile

Skinny side locks

Dual beam contacts

Single and double row

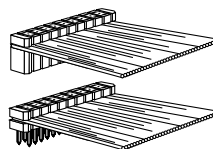
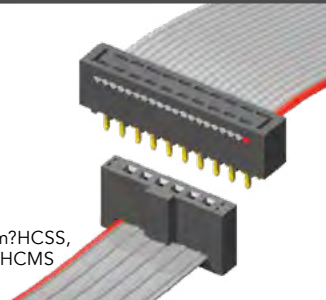
(6.35mm) .025" square and

(5.84mm) .230" length tail available

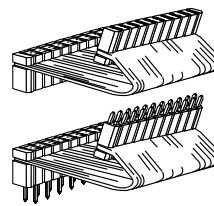
Visit [samtec.com?HCSD](http://samtec.com?HCSD), [samtec.com?HCSS](http://samtec.com?HCSS),

[samtec.com?HCMD](http://samtec.com?HCMD) or [samtec.com?HCMS](http://samtec.com?HCMS)

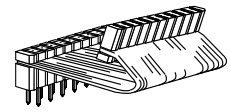
for more detailed information.



Single End (-S)



Double End (-D)



Transfer End (-T)

### Note:

This Series is non-standard, non-returnable.



### END ASSEMBLY

**-S**  
= Single End  
(Socket or Male Plug on one end)

**-D**  
= Double End  
(Socket or Male Plug on each end)

**-T**  
= Transfer End  
(Male Plug on one end with socket on other.  
Begin part number with IDM)

### ASSEMBLED LENGTH

**-"XX.XX"**  
= Assembled Length

### OPTION

**-T**  
= Tin Plating  
(Both Ends)

**-C**  
= Tin IDM,  
10  $\mu$ " (0.25  $\mu$ m) Gold IDS  
(-T End Assembly Required)

**-A**  
= Tin IDS,  
10  $\mu$ " (0.25  $\mu$ m) Gold IDM  
(-T End Assembly Required)

**-P "XX"**  
= Polarized  
Specify "XX" as position.  
For Double the same position  
will be polarized on both ends.  
(Not available on IDM unless transfer,  
then only the socket is polarized.)

**-G**  
= Gray Cable  
Specify -G for Gray cable.  
Gray cable has one red edge.  
IDSS and IDMS uses  
(2.54 mm) .100" centerline cable.  
IDSD and IDMD uses  
(1.27 mm) .050" centerline cable.  
Cable is 28 AWG 7/36 copper wire.  
Standard cable is same as  
above except color

**-ST "X"**  
= Stripped & Tinned  
(Specify Suffix from table)  
(All dimensions are  $\pm 1/16$ " (1.59 mm)  
(Not available in 28 positions and higher)

**-B "XX"**  
= Breakout  
(Specify "XX" as number of  
conductors to be broken out)  
(Breakout starts with Number 1 lead  
indicated by brown wire or red stripe.  
Shown on top side)

**-RW**  
= Reverse Wiring  
(#1 wire opposite position #1)

**-S "XX"**  
= Daisy Chain, Single  
(When mating double row  
connector with two single row  
connectors, the outer most single will  
be connected to Conductor #1 and  
the inside single to Conductor #2)

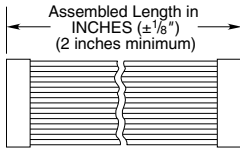
**-D "XX"**  
= Daisy Chain, Double

**-W "XX"**  
= Wiring Reverse Daisy Chain, Single  
(Same as -S "XX" except outer strip  
connected to Conductor #2 and inside  
strip connected to Conductor #1)

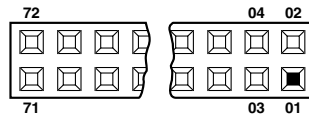
**-R**  
= Reversed

**-M**  
= Middle Reversed  
(Requires -SXX, -WXX or -DXX)

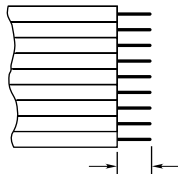
**-O**  
= Outside Reversed  
(Requires -SXX, -WXX or -DXX)



Assembled Length (-"XX.XX")

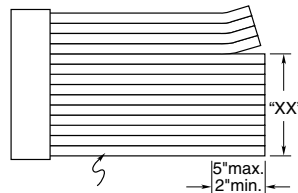


Polarized (-P "XX")



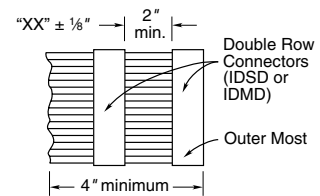
-ST8	1/8" (3.18)
-ST4	1/4" (6.35)
-ST2	1/2" (12.70)
-ST3	3/8" (9.53)

Stripped & Tinned (-ST "X")

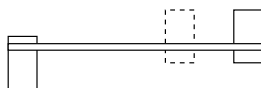


Breakout starts with  
Number 1 lead indicated  
by brown wire or red stripe.  
Shown on top side.

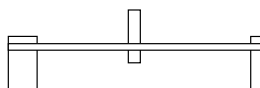
Breakout (-B "X")



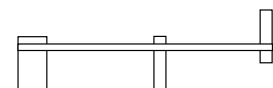
Daisy Chain Single (-S "XX")



Reversed (-R)



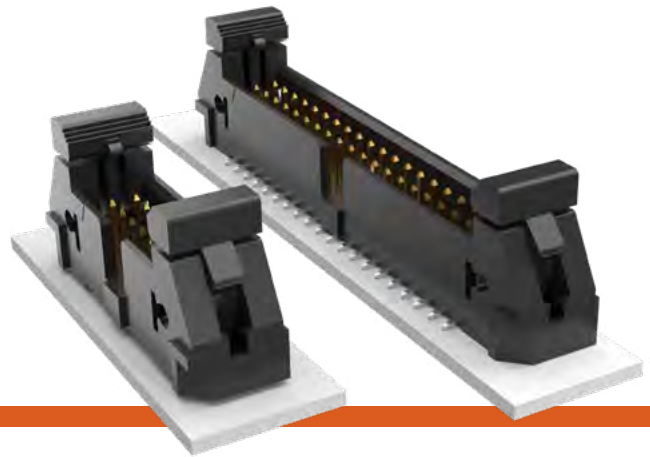
Middle Reversed (-M)



Outside Reversed (-O)

# SHROUDED IDC EJECTOR HEADERS

(2.54 mm) .100" PITCH • EJH SERIES



## EJH

### Mates:

IDSD (EJH-01 Required),  
HCSD (EJH-02 Required)

## SPECIFICATIONS

### Insulator Material:

-01=Black LCP

-02=Natural LCP

### Terminal Material:

Phosphor Bronze

### Plating:

Sn or Au over 50 μ" (1.27 μm) Ni

### Operating Temp Range:

-55 °C to +125 °C

## PROCESSING

### Lead-Free Solderable:

Yes

### SMT Lead Coplanarity:

(0.10 mm) .004" max

## ALSO AVAILABLE

MOQ Required

Other sizes

Other platings

EJH	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	D	TAIL OPTION	OTHER OPTION
-----	---	------------------	------------	----------------	---	-------------	--------------

05, 07,  
08, 10,  
13, 15,  
17, 20, 25  
(Standard sizes)

-01  
= Standard  
(Mates to IDSD)

-02  
= Extended  
(Mates to HCSD)

-F  
= Gold flash  
on post,  
Matte Tin  
on tail

-L  
= 10 μ"  
(0.25 μm)  
Gold on post,  
Matte Tin  
on tail

-SM  
= Surface  
Mount

-TH  
= Through-hole

-RA  
= Right-angle

-“XX”  
= Polarized  
Position

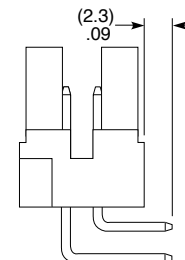
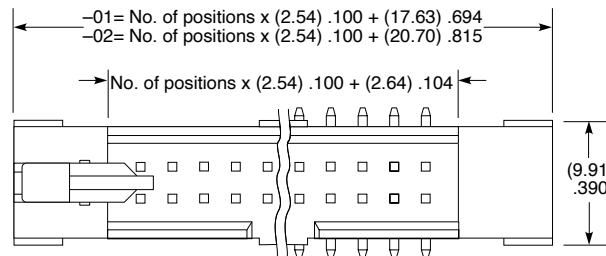
-LC  
= Locking Clip  
(-SM only)  
(Manual  
placement  
required)

-K  
= .475"  
(12.00 mm)  
DIA  
Polyimide  
Film Pick &  
Place Pad  
(-SM only)

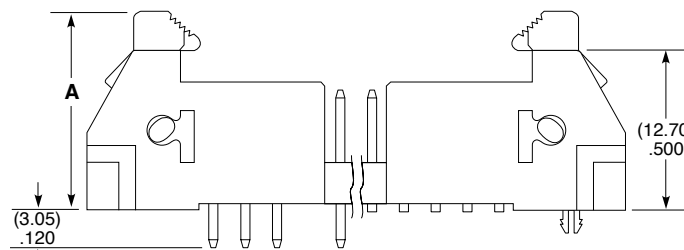
-P  
= Pick &  
Place Pad  
(-SM only)

-TR  
= Tape &  
Reel  
(-SM only)  
(25 position  
not available)

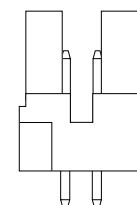
-FR  
= Full Reel  
Tape & Reel  
(must order  
max. quantity  
per reel;  
contact  
Samtec for  
quantity  
breaks)  
(-SM only)  
(25 position  
not available)



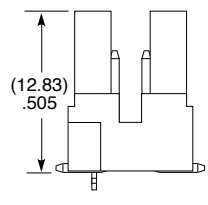
-RA OPTION



-LC OPTION



-TH OPTION



-SM OPTION

(Latch removed for clarity)

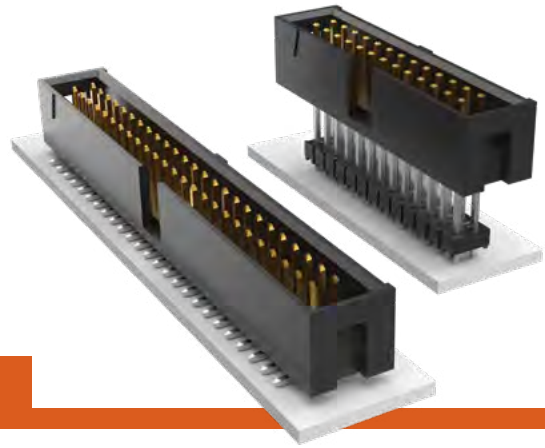
LEAD STYLE	A
-01	(16.88) .665
-02	(17.39) .685

### Note:

Some lengths, styles and options are non-standard, non-returnable.

## SHROUDED .025" SQ POST IDC HEADERS

(2.54 mm) .100" PITCH • TST/HTST/ZST SERIES



### TST/HTST/ZST

Mates:  
IDSD, HCSD

#### SPECIFICATIONS

##### Insulator Material:

TST, ZST=Black Glass Filled Polyester  
HTST=Natural LCP

##### Insulation Resistance:

5000 MΩ min

##### Terminal Material:

Phosphor Bronze

##### Plating:

Au or Sn over  
50 μ" (1.27 μm) Ni

##### Operating Temp Range:

-55 °C to +125 °C with Gold

-55 °C to +105 °C with Tin

##### Voltage Rating:

425 VAC/600 VDC

#### PROCESSING

##### Lead-Free Solderable:

HTST=Yes

TST, ZST= No, Lead Wave only

##### SMT Lead Coplanarity:

(0.10 mm) .004" max (05-15)

(0.15 mm) .006" max (17-36)\*

\*(.004" stencil solution may be available; contact ipg@samtec.com)

SERIES	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	ROW OPTION	OTHER OPTION
--------	---	------------------	------------	----------------	------------	--------------

**TST**  
= Cable Strip

**HTST**  
= High Temp Cable Strip

**05, 07, 08, 10, 12, 13, 15, 17, 20, 25, 32, 36**  
(Standard sizes)

Specify **LEAD STYLE** from chart

**-F**  
= Gold flash on post, Matte Tin on tail (Not available on -DV)

**-L**  
= 10 μ" (0.25 μm) Gold on post, Matte Tin on tail

**-T**  
= Matte Tin

**-D**  
= Double Row Through-hole (lead style -01, -02 & -03 only)

**-DV**  
= Double Row Surface Mount (lead style -01 only) (HTST only)

**-D-RA**  
= Double Row Right-angle (lead style -04 & -05 only)

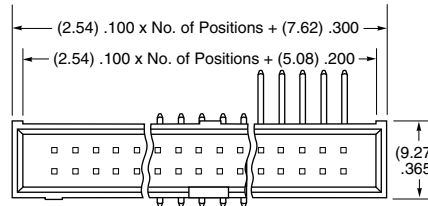
Surface Mount (lead style -01 only) (HTST only)

**-P**  
= Pick & Place Pad

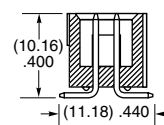
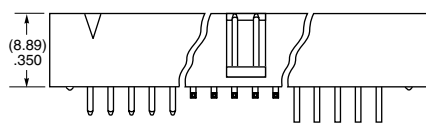
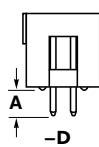
**-TR**  
= Tape & Reel

**-FR**  
= Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

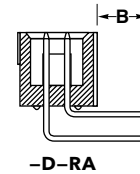
LEAD STYLE	THROUGH-HOLE (A)
-01	(2.92) .115
-02	(4.19) .165
-03	(14.35) .565



-D -DV -D-RA



-DV (HTST ONLY)



LEAD STYLE	RIGHT-ANGLE (B)
-04	(3.30) .130
-05	(5.84) .230

#### ALSO AVAILABLE MOQ Required

Other platings & sizes

Alignment Pins

Single Row

Locking Leads

Polarized

ZST	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	D	BODY HEIGHT
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**05, 07, 08, 10, 12, 13, 15, 17, 20, 25, 32, 36**  
(Standard sizes)

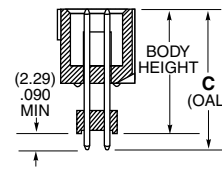
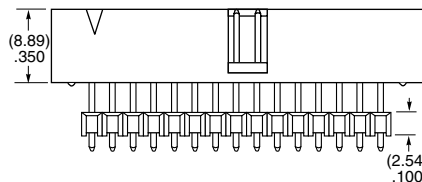
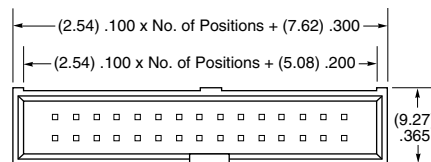
Specify **LEAD STYLE** from chart

**-F**  
= Gold flash on post, Matte Tin on tail

**-L**  
= 10 μ" (0.25 μm) Gold on post, Matte Tin on tail

**-T**  
= Matte Tin

**-"XXXX"**  
= Body Height



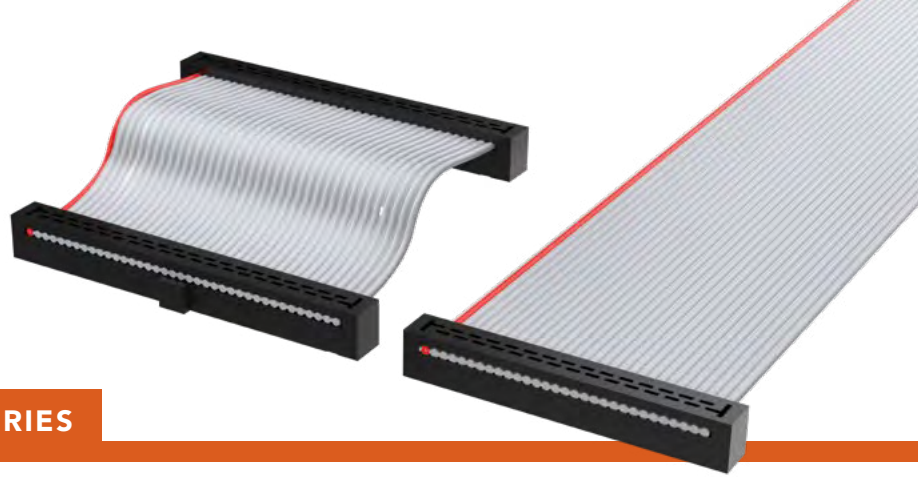
LEAD STYLE	C (OAL)	MAX BODY HEIGHT
-01	(16.00) .630	(13.72) .540
-02	(18.54) .730	(16.26) .640
-03	(21.08) .830	(18.80) .740
-04	(23.62) .930	(21.34) .840
-05	(26.16) 1.030	(23.88) .940
-06	(28.70) 1.130	(26.42) 1.040
-07	(31.24) 1.230	(28.96) 1.140
-08	(33.78) 1.330	(31.50) 1.240
-09	(36.32) 1.430	34.04) 1.340

##### Note:

For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

**Note:**  
Some lengths, styles and options are non-standard, non-returnable. ZST is non-standard, non-returnable.

# TIGER EYE™ IDC SOCKET CABLE



(2.00 mm) .0787" PITCH • TCSD SERIES

**TCSD**

**Mates:**  
TMM, TMMH, STMM,  
MMT, TW, MTMM, EHT,  
ETMM (-SR), ZSTMM

**SPECIFICATIONS**

**Insulator Material:**  
Black Glass Filled Polyester  
**Contact:**  
BeCu  
**Plating:**  
Au or Sn over  
50 μ" (1.27 μm) Ni  
**Wire:**  
28 AWG 7/36 Stranded,  
Tinned, Copper with  
Gray PVC Insulator  
**Current Rating  
(TCSD/STMM):**  
2.8 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-40 °C to +105 °C  
**Lead Size Accepted:**  
(0.48 mm) .019" to  
(0.53 mm) .021"  
**Insertion Depth:**  
(2.87 mm) .113" to  
(3.17 mm) .125"

**ALSO AVAILABLE**  
MOQ Required

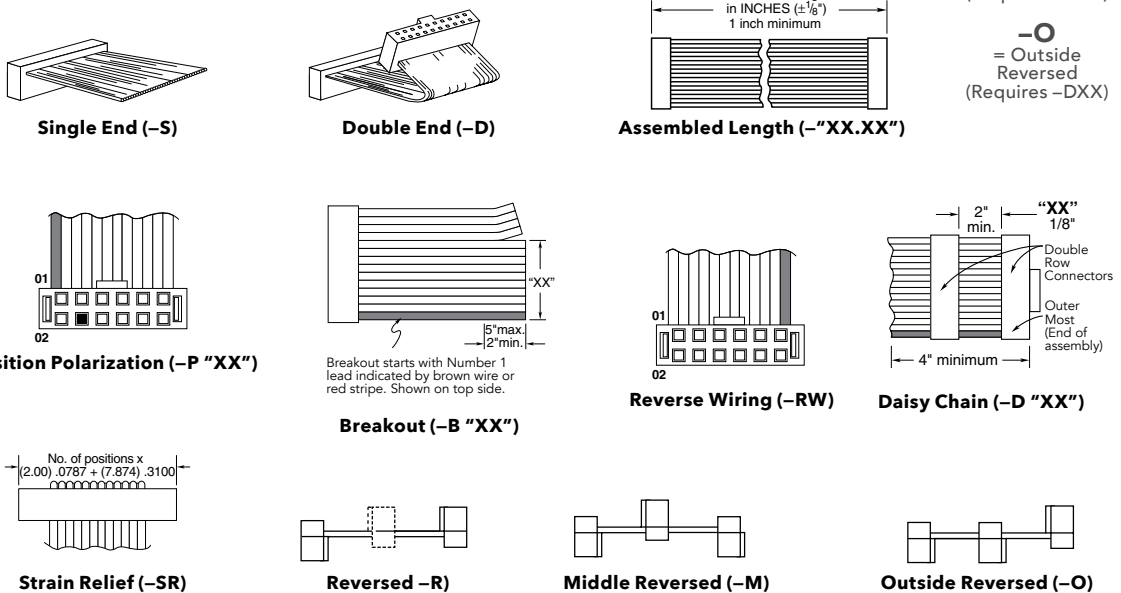
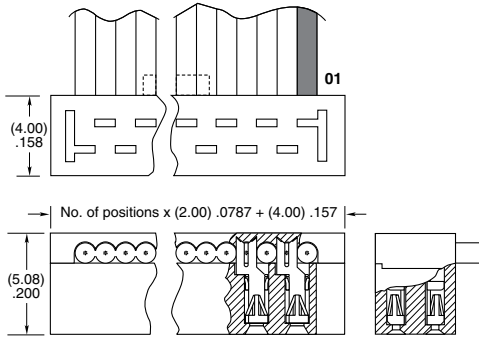
Other sizes  
Other platings

**POLARIZING KEY**

Specify PK-01-07 for polarizing key  
(Available in wheels of six each).  
Also polarizes SMM Series  
socket strips.

SERIES	NO. PINS PER ROW	END OPTION	OVERALL LENGTH	01	PLATING OPTION	N	OTHER OPTION
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<b>TCSD</b> = Socket Strip	<b>-04, -05, -07, -08, -10, -12, -13, -15, -17, -20, -22, -25</b> (Standard sizes)	<b>-S</b> = Single End  <b>-D</b> = Double End	<b>-"XX.XX"</b> = Assembled Length	<b>01</b>	Leave blank for standard plating 30 μ" (0.76 μm) Gold on contact area  <b>-F</b> = Gold flash on contact	<b>-N</b> = Notch Polarization	<b>-P "XX"</b> = Position Polarization (Specify "XX" as position number. Same position will be polarized on both ends)  <b>-B "XX"</b> = Breakout (Specify "XX" as number of conductors to be broken out)  <b>-RW</b> = Reverse Wiring (Blue or black wire opposite position #1)  <b>-D "XX"</b> = Daisy Chain  <b>-SR</b> = Strain Relief (Not available with -O, -M, -R, -DXX or -BXX)  <b>-R</b> = Reversed  <b>-M</b> = Middle Reversed (Requires -DXX)  <b>-O</b> = Outside Reversed (Requires -DXX)
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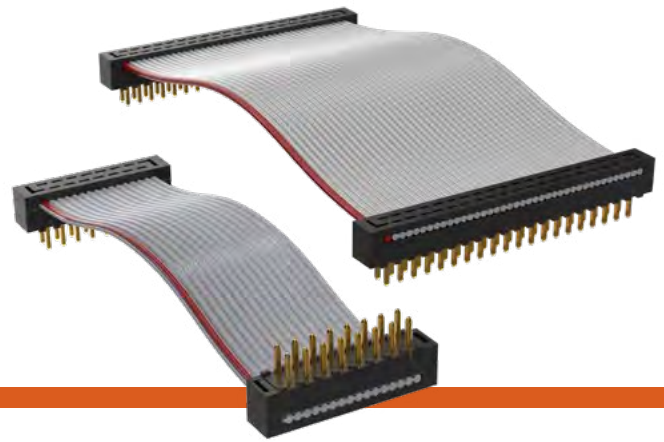


**Note:**  
TCSD Series assemblies are non-standard, non-returnable.



# HIGH-RELIABILITY IDC HEADER CABLE

(2.00 mm) .0787" PITCH • TCMD SERIES



## TCMD

### Mates:

SMM\*, MMS\*, ESQT,  
PTF, SQT, SQW, TLE

## SPECIFICATIONS

### Insulator Material:

Black Glass Filled Polyester

### Terminal:

Phosphor Bronze

### Plating:

Au or Sn over  
50 μ" (1.27 μm) Ni

### Wire:

28 AWG 7/36 Stranded, Tinned,  
Copper with  
Gray PVC Insulator

### Current Rating:

2.6 A per pin  
(2 pins powered)

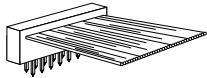
### Operating Temp Range:

-40 °C to +105 °C

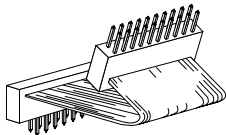
## ALSO AVAILABLE

MOQ Required

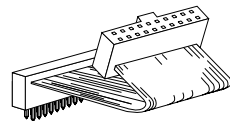
Other sizes



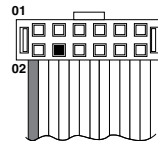
Single End (-S)



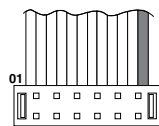
Double End (-D)



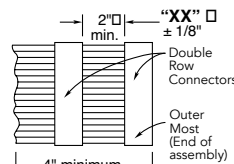
Transfer End (-T)



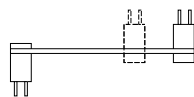
Position Polarization (-P "XX")



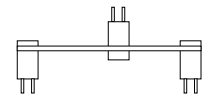
Reverse Wiring (-RW)



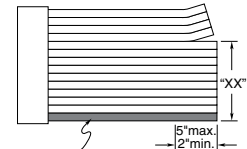
Daisy Chain (-D "XX")



Reversed (-R)

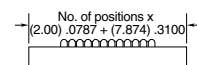


Middle Reversed (-M)

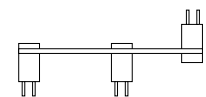


Breakout starts with Number 1 lead indicated by brown wire or red stripe. Shown on top side.

Breakout (-B "XX")



Strain Relief (-SR)



Outside Reversed (-O)

SERIES	NO. PINS PER ROW	END OPTION	OVERALL LENGTH	01	TRANSFER OPTION	OTHER OPTION
--------	------------------	------------	----------------	----	-----------------	--------------

TCMD  
= Terminal Strip

-04, -05, -07  
-08, -10, -12,  
-13, -15, -17,  
-20, -22, -25  
(Standard sizes)

-S  
= Single End  
  
-D  
= Double End  
  
-T  
= Transfer End

-"XX.XX"  
= Assembled Length

Leave blank for  
-S and -D  
End Options.  
For -T End  
Option Specify  
"-N"  
(Socket has notch  
polarization)

-P "XX"  
= Position  
Polarization  
(Specify "XX" as  
position number.  
Requires Transfer  
End. Only Socket  
is polarized.)

-B "XX"  
= Breakout  
(Specify "XX"  
as number of  
conductors to  
be broken out)

-RW  
= Reverse Wiring  
(Blue or black  
wire opposite  
position #1)

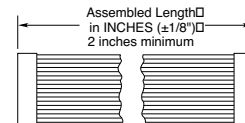
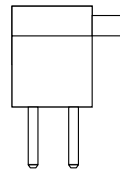
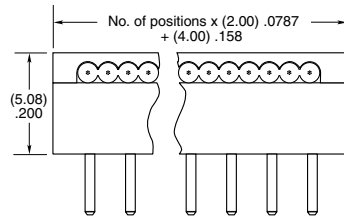
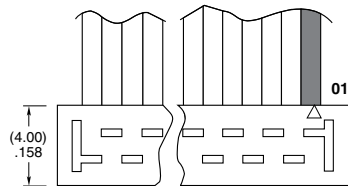
-D "XX"  
= Daisy Chain

-SR  
= Strain Relief  
(Not available  
with -O, -M, -R,  
-DXX or -BXX)

-R  
= Reversed

-M  
= Middle Reversed  
(Requires -DXX)

-O  
= Outside  
Reversed  
(Requires -DXX)



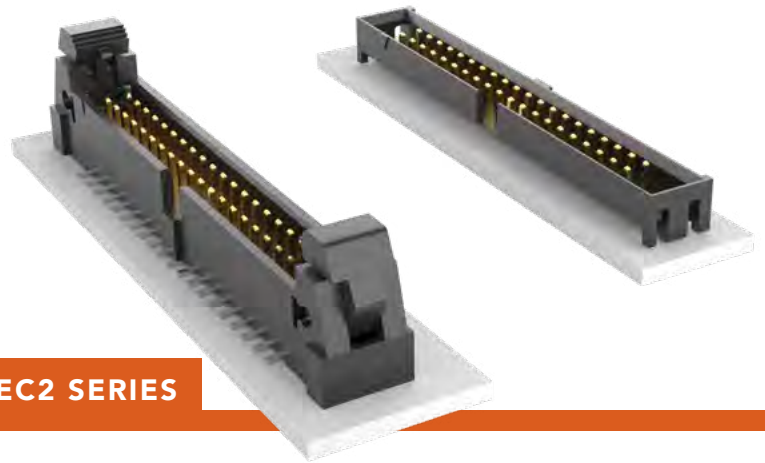
Assembled Length (-"XX.XX")

**\*Note:**  
Standard TCMD callout will not mate with SMM, MMS. Must use gold plated callouts. (See drawing on web.)  
When mated with a socket, Wire 1 mates with Pin 2; Wire 2 mates with Pin 1, etc.

**Note:**  
TCMD Series assemblies are non-standard, non-returnable.

# SHROUDED IDC HEADERS

(2.00 mm) .0787" PITCH • ETMM/EHT/EC2 SERIES



## ETMM

Mates:  
TCSD, TCMD

## EHT

Mates:  
TCSD

### SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Sn or Au over  
50 μ" (1.27 μm) Ni  
**Operating Temp Range:**  
-55 °C to +125 °C

### PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
EHT = (0.10 mm) .004" max  
ETMM = (0.13 mm) .005" max\*  
\*(.004" stencil solution  
may be available; contact  
ipg@samtec.com)

TYPE STRIP	1	NO. PINS PER ROW	02	PLATING OPTION	D	TAIL OPTION	OTHER OPTION
ETMM		05, 08, 10, 12, 13, 15, 17, 20, 22, 25 (Standard sizes)		-F = Gold Flash on post, Matte Tin on tail  -L = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail		-TH = Through-hole  -RA = Right-angle  -SM = Surface Mount	-“XX” = Polarized Position  -LC = Locking Clip (N/A with -RA) (Manual placement required)  -K = (7.50 mm) .295" DIA Polyimide Film Pick & Place Pad (-SM only)  -TR = Tape & Reel (-SM only)  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-SM only)

EHT	1	NO. PINS PER ROW	01	PLATING OPTION	D	TAIL OPTION	OTHER OPTION
EHT		05, 08, 10, 12, 13, 15, 17, 20, 22, 25		-F = Gold flash on post, Matte Tin on tail  -L = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail		Leave blank for Through-hole  -RA = Right-angle  -SM = Surface Mount	-“XX” = Polarized Position  -SR = Strain Relief (Leave Blank for no strain relief)  -LC = Locking Clip (-SM only) (Manual placement required)  -K = (7.50 mm) .295" DIA Polyimide Film Pick & Place Pad (-SM only)  -P = Pick & Place Pad (-SM only)  -TR = Tape & Reel (-SM only)  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-SM only)

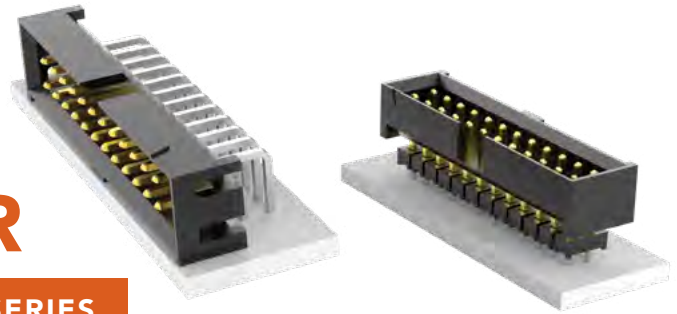
**EJECTOR HEADER CAP**  
(Locks TCSD cable to EHT header)

**EC2** - NO. PINS PER ROW  
05, 08, 10, 12, 13,  
15, 17, 20, 22, 25

**Note:**  
Some lengths, styles and  
options are non-standard,  
non-returnable.

## SHROUDED IDC HEADER & STACKER

(2.00 mm) .0787" PITCH • STMM/ZSTMM SERIES



### STMM/ZSTMM

Mates:  
TCSD (except -SR)

#### SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Sn or Au over  
50 μ" (1.27 μm) Ni  
**Operating Temp Range:**  
-55 °C to +105 °C with Tin;  
-55 °C to +125 °C with Gold

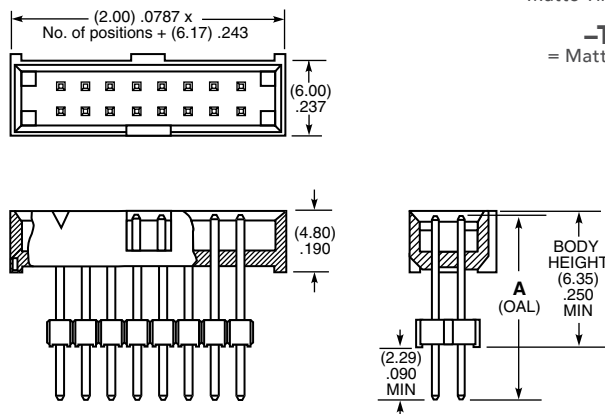
#### PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max

STMM	1	NO. PINS PER ROW	02	PLATING OPTION	D	TAIL OPTION	OTHER OPTION
		04, 05, 06, 07, 08, 10, 12, 13, 14, 15, 17, 20, 22, 25 (Standard sizes)		-F = Gold flash on post, Matte Tin on tail  -L = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail  -T = Matte Tin		Leave blank for Through-hole  -RA = Right-angle  -SM = Surface Mount	-“XX” = Polarized Position  -LC = Locking Clip (-SM only) (Manual placement required)  -K = (7.50 mm) .295" DIA Film Pick & Place Pad (-SM only)  -TR = Tape & Reel (-SM only)  -FR = Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-SM only)

ZSTMM	1	NO. PINS PER ROW	LEAD STYLE	PLATING OPTION	D	BODY HEIGHT	OTHER OPTION
		04, 05, 06, 07, 08, 10, 12, 13, 14, 15, 17, 20, 22, 25 (Standard sizes)	Specify LEAD STYLE from chart	-F = Gold flash on post, Matte Tin on tail  -L = 10 μ" (0.25 μm) Gold on post, Matte Tin on tail  -T = Matte Tin		-“XXX” = Body Height	-“XX” = Polarized Position

LEAD STYLE	A (OAL)	MAX BODY HEIGHT
-75	(9.58) 0.377	(7.42) 0.292
-62	(10.08) 0.397	(7.92) 0.312
-65	(10.49) 0.413	(8.33) 0.328
-73	(12.09) 0.476	(9.93) 0.391
-63	(14.10) 0.555	(11.94) 0.470
-66	(15.09) 0.594	(12.93) 0.509
-69	(15.60) 0.614	(13.44) 0.529
-74	(17.09) 0.673	(14.94) 0.588
-70	(17.60) 0.693	(15.44) 0.608
-71	(21.08) 0.830	(18.92) 0.745
-72	(21.62) 0.851	(19.46) 0.766



#### ALSO AVAILABLE

MOQ Required

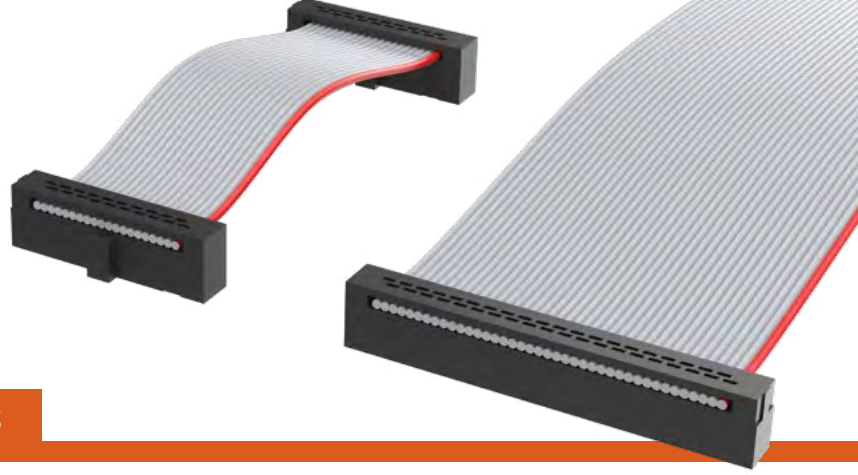
Other sizes  
Other platings

**Notes:**  
For added mechanical stability, Samtec recommends mechanical board spacers be used in applications with gold or selective gold plated connectors. Contact ipg@samtec.com for more information.

This Series is non-standard, non-returnable.

# TIGER EYE™ FLAT IDC WIRE CABLES

(1.27 mm) .050" PITCH • FFSD SERIES



## FFSD

### Mates:

FTS, FTSH, EHF,  
SHF, ESHF

## SPECIFICATIONS

### Insulator Material:

PBT

### Contact:

BeCu

### Plating:

10 μ" (0.25 μm) Au over 50 μ"  
(1.27 μm) Ni on contact area;  
Sn over 50 μ" (1.27 μm) Ni  
on balance

### Wire:

30 AWG

### Current Rating (FFSD/FTSH):

2.3 A per pin  
(2 pins powered)

### Operating Temp Range:

-40 °C to +105 °C

### Lead Size Accepted:

(0.41 mm) .016" SQ

### Insertion Depth:

(2.64 mm) .104" to  
(3.17 mm) .125"

## ALSO AVAILABLE

MOQ Required

Other Sizes

SERIES	NO. PINS PER ROW	END OPTION	OVERALL LENGTH	01	N	OTHER OPTION
--------	------------------	------------	----------------	----	---	--------------

**FFSD**  
= Socket Strip

**-04, -05, -06, -08, -10, -11, -12, -13, -15, -17, -20, -25**  
(Standard sizes)

**-S**  
= Single End  
**-D**  
= Double End

**-"XX.XX"**  
= Assembled Length

**-N**  
= Notch Polarization  
(Notch option not available with -04 position)

**-RW**  
= Reverse Wiring  
(Red wire opposite position #1)

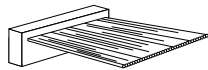
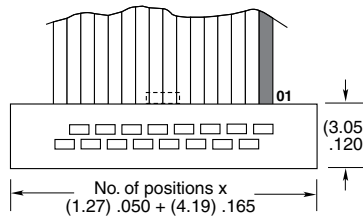
**-D "XX"**  
= Daisy Chain

**-SR**  
= Strain Relief  
(Mates only with ESHF Series)  
(Not available with -O, -M, -R or -DXX)

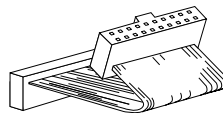
**-R**  
= Reversed

**-M**  
= Middle Reversed  
(Requires -DXX)

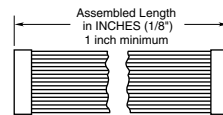
**-O**  
= Outside Reversed  
(Requires -DXX)



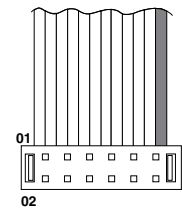
Single End (-S)



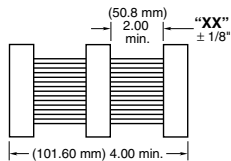
Double End (-D)



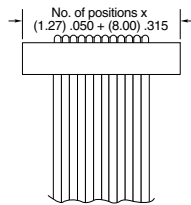
Assembled Length (-"XX.XX")



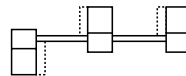
Reverse Wiring (-RW)



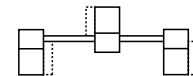
Daisy Chain (-D "XX")



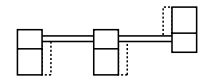
Strain Relief (-SR)



Reversed (-R)



Middle Reversed (-M)

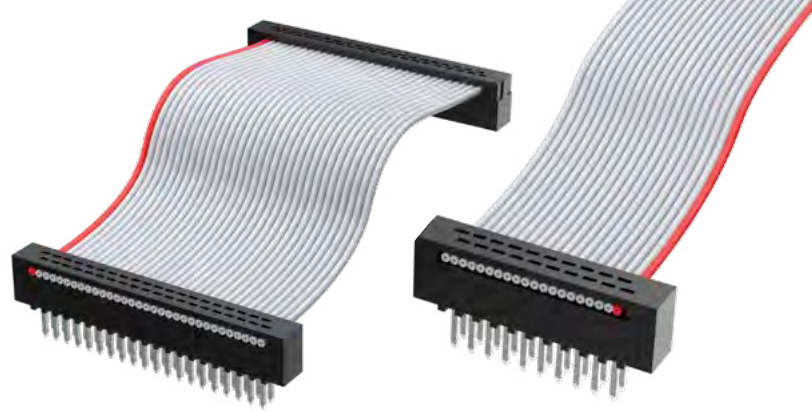


Outside Reversed (-O)

**Note:**  
This Series is non-standard,  
non-returnable.

# TIGER EYE™ FLAT IDC WIRE CABLES

(1.27 mm) .050" PITCH • FFMD SERIES



## FFMD

Mates:  
FLE\*, SFMC\*

## TRANSFER END

Mates:  
FTS, FTSH, EHF,  
SHF, ESHF

### SPECIFICATIONS

#### Insulator Material:

PBT  
**Terminal:**  
Phosphor Bronze  
**Contact:**  
BeCu (-T)  
**Plating:**  
Sn over 50 μ" (1.27 μm) Ni  
**Wire:**  
30 AWG  
**Current Rating:**  
2.5 A per pin  
(2 pins powered)  
**Operating Temp Range:**  
-40 °C to +105 °C  
**Voltage Rating:**  
215 VAC / 304 VDC

### ALSO AVAILABLE

MOQ Required

Other sizes

SERIES	NO. PINS PER ROW	END OPTION	OVERALL LENGTH	01	TRANSFER OPTION	OTHER OPTION
--------	------------------	------------	----------------	----	-----------------	--------------

**FFMD**  
= Terminal Strip

-04, -05,  
-08, -10,  
-13, -17,  
-20, -25  
(Standard sizes)

-S  
= Single End  
-D  
= Double End  
-T  
= Transfer End

-“XX.XX”  
= Assembled Length

Leave blank for -S and -D End Options.

-N  
= Notch Polarization on socket (-T end only) (Not available with -04 position)

-RW  
= Reverse Wiring (Red wire opposite position #1)

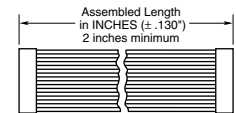
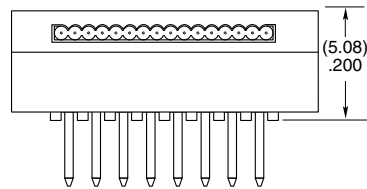
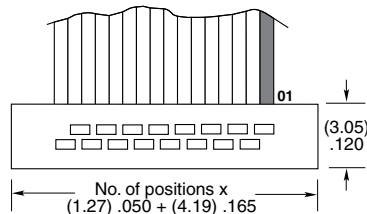
-D “XX”  
= Daisy Chain

-SR  
= Strain Relief (Mates only with ESHF Series) (Not available with -O, -M, -R or -DXX)

-R  
= Reversed

-M  
= Middle Reversed (Requires -DXX)

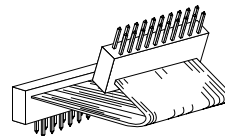
-O  
= Outside Reversed (Requires -DXX)



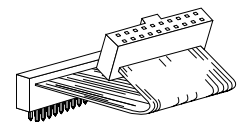
Assemble Length (-“XX.XX”)



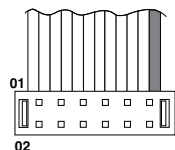
Single End (-S)



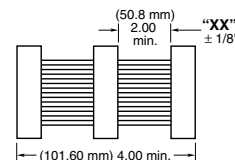
Double End (-D)



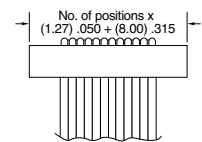
Transfer End (-T)



Reverse Wiring (-RW)



Daisy Chain (-D “XX”)



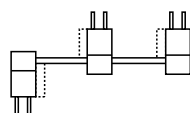
Strain Relief (-SR)

#### \*Note:

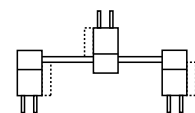
Standard FFMD callout will not mate with FLE, SFMC. Must use gold plated callouts. (See drawing on web.) When mated with a socket, Wire 1 mates with Pin 2; Wire 2 mates with Pin 1, etc.

#### Note:

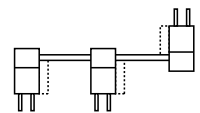
This Series is non-standard, non-returnable.



Reversed (-R)



Middle Reversed (-M)

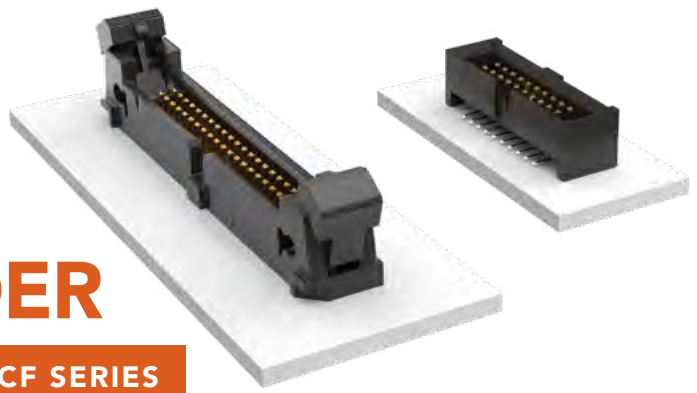


Outside Reversed (-O)



# SHROUDED AND EJECTOR IDC HEADER

(1.27 mm) .050" PITCH • SHF/ESHF/EHF/ECF SERIES



## SHF/ESHF

Mates:  
FFSD, FFTP (SHF)

## EHF

Mates:  
FFSD\*, FFTP

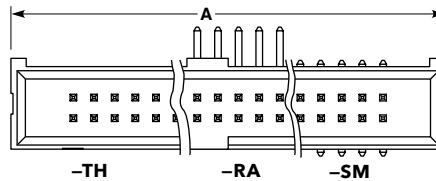
**\*Important Note:**  
EHF will not mate to FFSD with strain relief (-SR option), see ESHF series.

SERIES	1	NO. PINS PER ROW	01	PLATING OPTION	D	TAIL OPTION		OTHER OPTION	
--------	---	------------------	----	----------------	---	-------------	--	--------------	--

<b>SHF</b> = Mates with FFSD without Strain Relief	<b>04, 05, 06, 08, 10, 11, 12, 13, 15, 17, 20, 25</b> (Standard sizes)	<b>-L</b> = 10 μm (0.25 μm) Gold on post, Matte Tin on tail	<b>-TH</b> = Through-hole	<b>-LC</b> = Locking Clip (Not available with -RA) (Manual placement required)
<b>ESHF</b> = Mates with FFSD with Strain Relief			<b>-RA</b> = Right-angle	<b>-K</b> = (6.50 mm) .256" DIA Polyimide Film Pick & Place Pad (-SM only)
			<b>-SM</b> = Surface Mount	<b>-TR</b> = Tape & Reel

## SPECIFICATIONS

**Insulator Material:**  
Black Liquid Crystal Polymer  
**Terminal Material:**  
Phosphor Bronze  
**Plating:**  
Sn or Au over 50 μm (1.27 μm) Ni  
**Operating Temp Range:**  
-55 °C to +125 °C

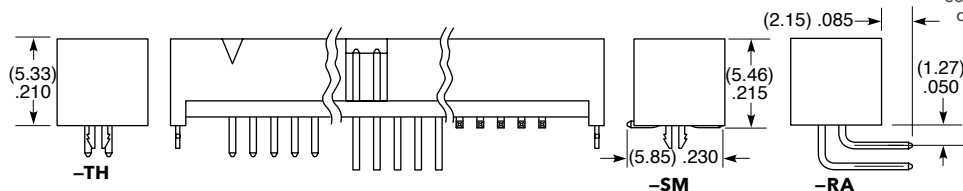


TYPE STRIP	A
SHF	No. of pins x (1.27) .050 + (6.35) .250
ESHF	No. of pins x (1.27) .050 + (10.16) .400

**-FR**  
= Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks)

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max



EHF	1	NO. PINS PER ROW	01	PLATING OPTION	D	TAIL OPTION		OTHER OPTION	
-----	---	------------------	----	----------------	---	-------------	--	--------------	--

**04, 05, 08, 10, 13, 17, 20, 25**  
(Standard sizes)

**-F**  
= Gold flash on post, Matte Tin on tail

**-L**  
= 10 μm (0.25 μm) Gold on post, Matte Tin on tail

Leave blank for Through-hole version

**-SM**  
= Surface Mount

**-RA**  
= Right-angle

**-XX**  
= Polarized Position (-RA not available)

**-LC**  
= Locking Clip (-SM only) (Manual placement required)

**-K**  
= (7.50 mm) .295" DIA Polyimide Film Pick & Place Pad

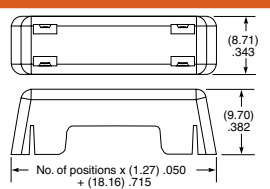
**-P**  
= Pick & Place Pad (-SM only)

**-TR**  
= Tape & Reel (-LC not available)

**-FR**  
= Full Reel Tape & Reel (must order max. quantity per reel; contact Samtec for quantity breaks) (-LC not available)

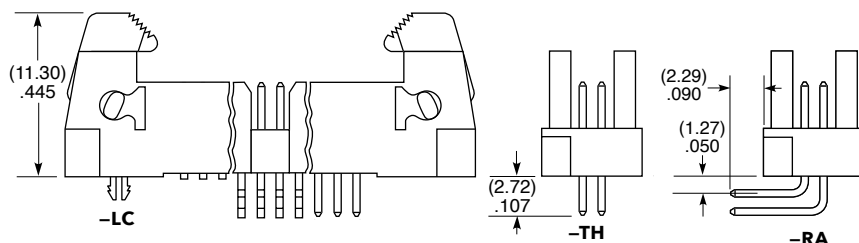
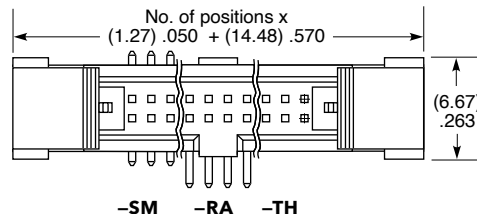
## EJECTOR HEADER CAP

(Locks FFSD cable to EHF header)



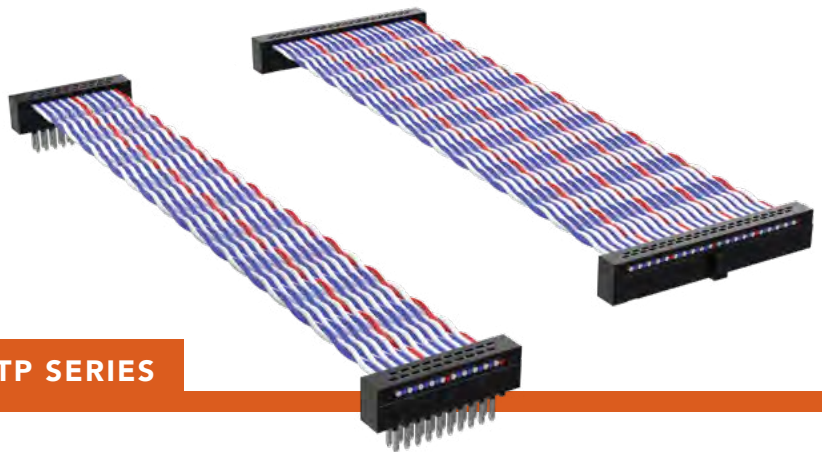
**ECF** - NO. PINS PER ROW

**05, 08, 10, 13, 17, 20, 25**



**Note:**  
Some lengths, styles and options are non-standard, non-returnable.

# TWISTED PAIR IDC CABLES



(1.27 mm) .050" PITCH • FFTP/FMTP SERIES

**FFTP**  
Mates:  
FTS, FTSH, EHF, SHF

**FMTP**  
Mates:  
FLE\*, SFMC\*

**SPECIFICATIONS**

**Insulator Material:**  
PBT  
**Contact:**  
FFTP=BeCu  
**Terminal:**  
FMTP=Phosphor Bronze  
**Plating (FFTP):**  
FFTP=10 μ" (0.25 μm)  
Au over 50 μ" (1.27 μm)  
Ni on contact area; Sn over 50 μ" (1.27 μm) Ni  
FMTP=Sn over 50 μ" (1.27 μm) Ni on balance  
**Wire:**  
30 AWG 7/38, Tinned, Twisted Pair with PVC insulator  
**Operating Temp Range:**  
-40 °C to +105 °C  
**Lead Size Accepted:**  
(0.41 mm) .016" SQ  
**Insertion Depth (FFTP):**  
FFTP=(2.64 mm) .104" to (3.17 mm) .125"

FFTP	NO. PINS PER ROW	END ASSEMBLY	ASSEMBLY LENGTH	01	N	OPTION
	-05, -08, -10, -13, -17, -20, -25 (Standard sizes)	-D = Double End	-03.85 = (97.79 mm) 3.85"  -08.77 = (222.76 mm) 8.77"  -18.00 = (457.20 mm) 18.00" (Standard lengths)		-N = Notch Polarization (Standard)	-R = Reverse Connector

**ALSO AVAILABLE**  
MOQ Required

Other sizes

FMTP	NO. PINS PER ROW	END ASSEMBLY	ASSEMBLY LENGTH	01	TRANSFER OPTION	OPTION
	-05, -08, -10, -13, -17, -20, -25 (Standard sizes)	-D = Double End  -T = Transfer End	-03.85 = (97.79 mm) 3.85"  -08.77 = (222.76 mm) 8.77"  -18.00 = (457.20 mm) 18.00" (Standard lengths)		Leave blank for -D End Assembly. For -T End Assembly Specify "-N" (Socket has notch polarization)	-R = Reverse Connector

**\*Note:** Standard FMTP callout will not mate with FLE, SFMC. Must use gold plated callouts. (See drawing on web.)  
When mated with a socket, Wire 1 mates with Pin 2; Wire 2 mates with Pin 1, etc.

**Note:**  
This Series is non-standard, non-returnable.

# FLAT FLEXIBLE CABLE (FFC) JUMPER & SOCKET



(0.50 mm) .0197" PITCH • FJH/ZF5S SERIES

**FJH**  
Mates:  
ZF5S

## SPECIFICATIONS

**Conductor:**  
Tin Plated Copper  
**Conductor Resistance:**  
1000 Ω/km max  
**Current Rating:**  
1.8 A per pin  
(1 pin powered)  
**Operating Temp Range:**  
-55 °C to +80 °C  
**Voltage Rating:**  
195 VAC

**ALSO AVAILABLE**  
MOQ Required

Other Platings

## OTHER SOLUTIONS

For 1.00 mm pitch flat flexible cable series, visit:  
[www.samtec.com?FJ](http://www.samtec.com?FJ)  
[www.samtec.com?ZF1](http://www.samtec.com?ZF1)  
[www.samtec.com?FC1](http://www.samtec.com?FC1)

FJH	NO. OF POSITIONS	STYLE	LENGTH	STRIP LENGTH
-----	------------------	-------	--------	--------------

-10, -15,  
-20, -25, -30,  
-40, -43, -50  
(Standard sizes)

-D  
= Double End  
  
-R  
= Reversed End

Length in inches

-03.00  
= (76.2 mm) 3.00"

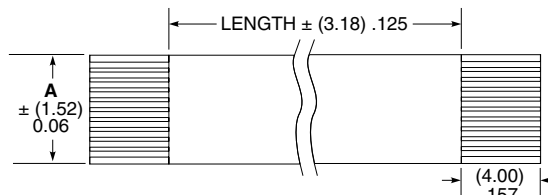
-06.00  
= (152.4 mm) 6.00"

-12.00  
= (304.8 mm) 12.00"

-24.00  
= (609.6 mm) 24.00"

(Standard Lengths)

-4  
= (4.00 mm)  
.157"



NO. OF POSITIONS	A
-10	(5.50) .217
-15	(8.00) .315
-20	(10.50) .413
-25	(13.00) .512
-30	(15.50) .610
-40	(20.50) .807
-43	(22.00) .866
-50	(25.50) 1.00

**Notes:**  
Stiffener color will be blue or black at Samtec's discretion.  
Some sizes, styles and options are non-standard, non-returnable.

-D STYLE

-R STYLE

**ZF5S**  
Mates:  
FJH

## SPECIFICATIONS

**Insulator Material:**  
Natural LCP  
**Contact Material:**  
Phosphor Bronze  
**Plating:**  
Sn over 50 μ" (1.27 μm) Ni  
**Weld Tab:**  
Phosphor Bronze  
**Operating Temp Range:**  
-55 °C to +105 °C  
**Current Rating:**  
1.8 A per pin  
(1 pin powered)

## PROCESSING

**Lead-Free Solderable:**  
Yes  
**SMT Lead Coplanarity:**  
(0.10 mm) .004" max (10-30)  
(0.15 mm) .006" max (40-50)\*  
\*(.004" stencil solution may be available; contact [ipg@samtec.com](mailto:ipg@samtec.com))

**Note:**  
Some sizes, styles and options are non-standard, non-returnable.

ZF5S	NO. OF POSITIONS	LEAD STYLE	PLATING OPTION	WT	OPTION
------	------------------	------------	----------------	----	--------

-10, -15, -20, -25,  
-30, -40, -43, -50  
(Standard sizes)

-01  
= Contact Bottom

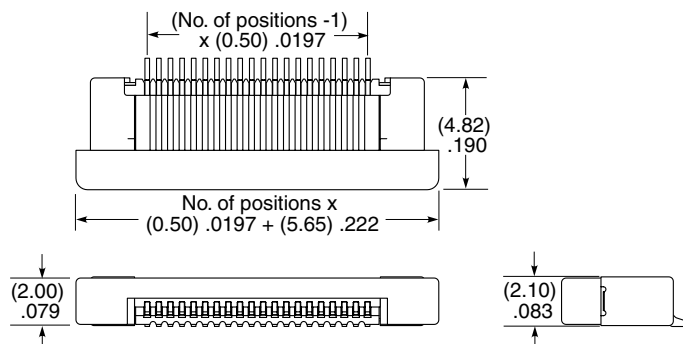
-T  
= Matte Tin

-WT  
= Weld Tab

-K  
= (3.00 mm)  
.118" DIA  
Polyimide Film  
Pick &  
Place Pad

-TR  
= Tape &  
Reel

-FR  
= Full Reel  
Tape & Reel  
(must order  
max. quantity  
per reel;  
contact  
Samtec for  
quantity breaks)



**ALSO AVAILABLE**  
MOQ Required

Vertical  
Contact top  
Other positions

# RUGGED FEATURES

OPTIONS FOR HIGH-RELIABILITY, HIGH-RETENTION AND HIGH-CYCLE LIFE

## RUGGEDIZING OPTIONS



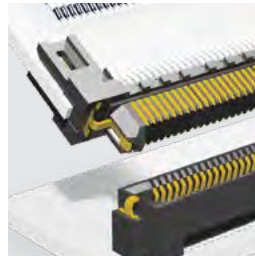
### JACK SCREWS

Ideal for high normal force, zippering and other rugged applications



### POSITIVE LATCHING

Manually activated latches increase unmating force by up to 200%



### FRICTION LOCKS

Metal or plastic friction locks increase retention/withdrawal force



### RETENTION PINS

Increase unmating force by up to 50%



### BOARD LOCKS

Boards are mechanically locked together



### WELD TABS

Significantly increase shear resistance of connector to PCB



### GUIDE POSTS

Easy and secure mating



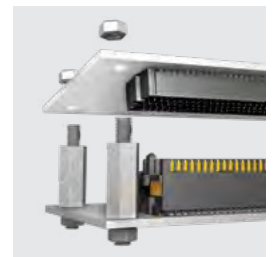
### SHIELDING

360° shielding reduces EMI



### SCREW DOWNS

Secure mechanical attachment to the board



### BOARD STANDOFFS

Precision machined standoffs for 5 mm to 30 mm board spacing

## CONTACT SYSTEMS

**TIGER EYE**  
CONTACT



High-reliability  
High Mating Cycles  
Multi-finger Contact

**TIGER CLAW**  
CONTACT



Dual Wipe Contact  
Pass-through Applications  
Ultra-low Profile

**BLADE & BEAM**  
CONTACT



Mating/Alignment "Friendly"  
Cost-effective  
Micro Pitch

**TIGER BEAM**  
CONTACT



Best Cost  
Reliable Performance  
Post & Beam Contact

**EDGE RATE**  
CONTACT



Designed for Signal Integrity  
Superior Impedance Control  
Reduced Broadside Coupling

**MICRO-HYPERBOLOID**



High-reliability  
Four Points of Contact  
Extreme Mating Cycles

# INDUSTRY STANDARDS

## PRODUCT SUPPORT & EXPERTISE

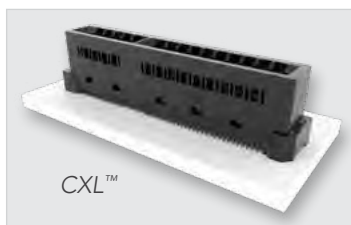
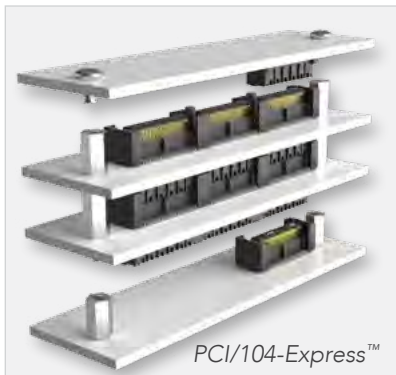
Samtec provides products that interact with many types of hardware and software. This drives our need to adhere to a variety of Industry Standards. The majority of Industry Standards we engage with address the following:

- Interconnection (cables & connectors)
- Sub-systems (typically daughter or carrier cards, which include functional compliance specifications defining electro-mechanicals and mechanicals)
- Transmission protocols (primarily software and firmware defining machine language to allow communication)
- Hardware (physical electro-mechanical devices)

Visit [samtec.com/standards](http://samtec.com/standards) to learn more or contact [standards@samtec.com](mailto:standards@samtec.com) to discuss your application.

STANDARD	PRODUCT	SERIES	PAGE
VITA 42 XMC	SamArray®	YFS/YFT, JSOM	Contact Samtec.
VITA 57.1 FMC	SEARRAY™	SEAM/SEAF, JSOM	25
VITA 57.4 FMC+	SEARRAY™	SEAM/SEAF, JSOM	25
VITA 74 VNX	SEARRAY™	SEAM/SEAF, JSOM	25
VITA 88 XMC+	SEARRAY™	SEAM/SEAF, JSOM	25
VITA 90 VNX+	SEARRAY™	SEAM/SEAF-RA	25-26
COM-HPC®	AcceleRate® HP	APM6/APF6	19
PCI/104-EXPRESS™ & PCI/104-EXPRESS™ ONEBANK	Q2™	QMS/QFS	40
COAXPRESS®	High-Density BNC/FireFly™	HDBNC-TH, HDBNC-BH, HDBNC-EM, ECUO-B04	131, 178
QSFP	QSFP	FQSFP/QSFPC	99
USB/USBR	USB/AccliMate™	USB/USBR/MUSB/MUSBS/SPM, BCU/BPCU/BRU/RCU/RPCU/RPBU/SCPU/SCRUS/SCRU	216-218, <a href="http://samtec.com/usb">samtec.com/usb</a>
COMPUTE EXPRESS LINK™ (CXL™)	Edge Rate®	HSEC6	65

For more industry standards and products that meet them, visit [samtec.com/standards](http://samtec.com/standards).





## V42 XMC

### Rugged Mezzanine System for High-Performance VPX Card Cages

- 3.125 Gbps performance rating
- 10 mm & 12 mm stack heights
- 96 total pins (6 x 16 configuration) with multiple points of contact
- Drop-in ready JSOM ejector jackscrews and mating high-density array cable assemblies available
- SOSA™ aligned connectors

## V57.1 FMC

### Leading VPX Mezzanine System for Advanced FPGA Integration

- FPGA Industry Standard connector for development applications
- 10 Gbps performance
- HPC & LPC versions (400 & 160 selectively loaded pins)
- 8.5 mm & 10 mm stack heights
- Many high-speed cable & loopback card options available
- Optional JSOM ejector jackscrews available
- SOSA™ aligned connectors

## V57.4 FMC+

### Advanced State-of-the-Art FPGA Mezzanine Integration

- HSPC Main Connector has 560 pins (14 x 40 configuration), 24 multi-gigabit interfaces, up to 28 Gbps
- HSPCe Extension Connector has 80 pins (4 x 20 configuration) adding 8 multi-gigabit interfaces, 32 in total
- 8.5 mm, 10 mm and 15.5 mm stack heights
- SOSA™ aligned connectors

## V57.5 FMC+

### Development Tools Aid with FMC+ Applications

- Board connectors for increased stack heights to 15.5 mm
- Standoffs, loopback cards and connector extender cards
- User friendly JSOM ejector jackscrews and mating high-density array cable assemblies available

## V90 VNX+

### VNX+ Small Form Factor Modules

- Rugged, high-performance, scalable, low power consumption embedded controllers
- 200, 240, 320 & 400 pin connector choices (Right-angle SEARAY™)
- Optimized pinout for improved SI performance and density
- VITA 90.2: Expanded optical and coaxial connectivity provides routing flexibility (FireFly™ and GPCC 50/75 Ω contacts)
- VITA 90.3: Specialized pinout for PSU and filter modules
- 12.5 mm & 19 mm stack heights
- Mating high-density array cable assemblies available
- SOSA™ aligned connectors

PCI-SIG®, PCI Express®, and the PCIe® design marks are registered trademarks and/or service marks of PCI-SIG.

## V88 XMC+

### Improved Mezzanine Connectors for XMC Applications

- Compatible with VITA 42 footprints
- Improved mating/unmating forces
- PCIe® 5.0+ speeds
- SOSA™ aligned connectors

## COM-HPC®

### Next-Gen Embedded System Design Scalability & Performance

- Supports edge server & robust embedded computing design applications
- System based on Samtec's AcceleRate® HP high-performance arrays
- 5 mm and 10 mm stack heights
- 400 pin count connectors
- Supports interfaces such as PCIe® 5.0 (32 GT/s) & up to 100 Gb Ethernet

## PCI/104-Express™ & PCI/104-Express™ OneBank

### Rugged, Stackable & Scalable Embedded Computer Applications

- Q2™ connectors with ground planes
- 3-banks have 156 signal pins, OneBank has 52 pins
- 2.5 Gbps performance
- 15.24 mm & 22 mm stack heights
- Mating high-speed, high density cable assemblies available

## COAXPRESS®

### Industrial/Professional Application High-Speed Imaging Standard

- Coaxial cable combined with high-speed serial data technology
- Up to 12.5 Gbps data rate per cable
- High-Density BNC 75 Ω connectors and components
- Supports 12G-SDI protocol

## QSFP

### Compact, Hot-Pluggable Transceiver I/O Connector

- Flyover® solution for optimized signal integrity
- Cage and 38-pin connector
- 30 AWG 100 Ω twinax cable
- 4 high-speed Tx pairs, 4 high-speed Rx pairs
- 28 Gbps NRZ/56 Gbps PAM4 performance per channel
- Meets high-speed protocols including 40/200/400 Gb Ethernet, PCIe®, OIF-CEI-28G, SAS and SATA

## USB/USBR

### Standardized Connection, Communication & Power Supply

- Type A, Type B, Mini, high retention and sealed versions
- IP67/IP68 sealed circular and rectangular cable systems

## COMPUTE EXPRESS LINK™ (CXL™)

### Open Systems Interconnect Offering Memory-Semantic Access to Data and Devices Via Multiple Network Topologies

- High-speed, low-latency access to memory across the data center
- 0.60 mm pitch Edge Rate® high-speed edge card connectors

# EVALUATION & DEVELOPMENT KITS

From concept and prototype to development and production, Samtec-designed Evaluation and Development Kits simplify the design process and reduce time to market. Kits are available for many of our high-performance connector sets, standard high-speed cable assembly, and optical configurations. Custom kits are also available via our "mix-and-match" design approach. Visit [samtec.com/kits](http://samtec.com/kits) or contact [kitsandboards@samtec.com](mailto:kitsandboards@samtec.com) for a current list of kit availability.

## OPTICS/FPGA DEVELOPMENT KITS

Visit [samtec.com/kits](http://samtec.com/kits) for more information.



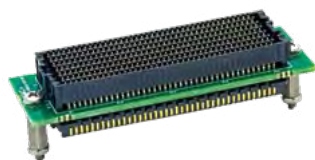
VITA 57.4 FMC+ HSPC Loopback Card  
(Extender Card Available)



VITA 57.4 FMC+ HSPC / HSPCe  
Loopback Card (Extender Card Available)



VITA 57.1 FMC Extender Card



VITA 57.4 FMC+ Extender Card



PCIe®-Over-Fiber  
Adaptor Card (PCUO/PCOA)



10 Gbps FireHawk™ Kit



25/28 Gbps FireFly™ FMC+ Kit



14 Gbps FireFly™ FMC Kit



28 Gbps FireFly™ Kit

## PRECISION RF EVALUATION KITS

Visit [samtec.com/kits](http://samtec.com/kits) for more information.



Bulls Eye® 50 GHz  
High-Performance Test System  
(BE40A)



Bulls Eye® 70 GHz  
High-Performance Test System  
(BE70A)

# SI EVALUATION KITS: BOARD-TO-BOARD

Visit [samtec.com/kits](http://samtec.com/kits) for more information.



Edge Rate® 0.60 mm Pitch High-Speed Edge Card (HSEC6-DV)



Edge Rate® Differential Pair Edge Card (HSEC8-DP)



Edge Rate® 0.635 Pitch High-Speed Strips (ERM6/ERF6)



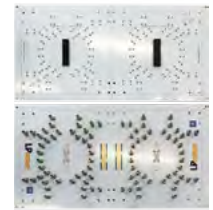
AccelRate® HP High-Performance Arrays (APM6/APF6)



AccelRate® HD High-Density Arrays (ADM6/ADF6)



NovaRay™ Extreme Density Arrays (NVAM/NVAF)



LP Array™ Low Profile Arrays (LPAM/LPAF)



FireFly™ 20+ Gbps Edge Card Socket (UEC5-2)



SEARAY™ High-Density Arrays (SEAM/SEAM-RA & SEAF/SEAF-RA)



ExaMAX® High-Speed Backplane Traditional Connectors (EBTF/EBTM)

# SI EVALUATION KITS: CABLE

Visit [samtec.com/kits](http://samtec.com/kits) for more information.



AccelRate® Flyover® Slim Cable Assembly (ARC6/ARF6)



Flyover® QSFP28 Cable System (FQSFP to ARC6 and other End 2 options)



Flyover® QSFP Double-Density Cable System (FQSFP-DD to NVAC/ARC6)



NovaRay® Flyover® Extreme Performance Cable Assembly (NVAC/NVAM-C)



Si-Fly™ Low Profile Cable System (CPC/CPI)



ExaMAX® Backplane Cable System (EBCM/EBTF-RA)

# HIGH-SPEED CHANNEL PERFORMANCE

## CHARACTERIZATION THAT ACCOUNTS FOR THE ENTIRE SIGNAL PATH

Samtec uses a channel-based approach to estimate connector performance in a system. The result is a realistic one number designation for all of Samtec's high-speed interconnects, called **Channel Performance Metric (CPM)**.

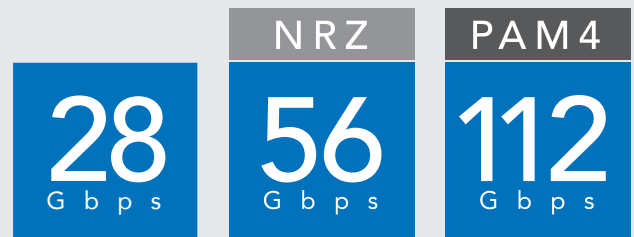
This one number designation allows for a side-by-side comparison of Samtec components. Noise contributions from, and interactions with, other parts of a predefined channel are considered. An example of a predefined channel is shown below.

Samtec's CPM reports connector capability that is more representative of actual performance in a system, replacing the connector only data of the past.

This real-world approach factors in all impairments, such as the crosstalk and reflections, inherent in a complete channel. Through Samtec's use of a common set of channel assumptions, relative comparison can then be made across the entire Samtec offering which is practical and realizable. Because Samtec's CPM is a function of necessary channel assumptions made, it is important to note that Samtec's CPM can and will vary from a customer specific application.

Visit [samtec.com](http://samtec.com) or contact [SIG@samtec.com](mailto:SIG@samtec.com) for technical support prior to final connector selection in any specific application.

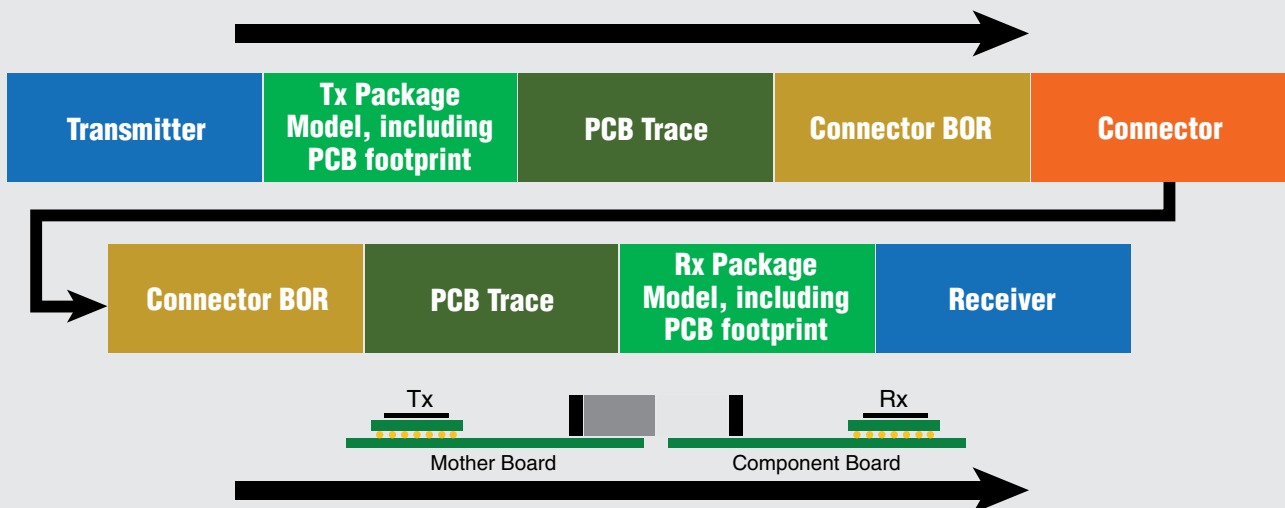
Throughout the high-speed sections of this catalog, look for badges indicating Samtec's CPM one number rating for specific product series, for example:



\*Note: For speeds of 28 Gbps or less, NRZ encoding scheme is assumed.

### Predefined Channel

Board-to-Board



# SPECIFICATIONS & TESTING



## SPECIFICATIONS & STANDARD TEST PROCEDURES

Samtec products are subject to the following general specifications and standard test procedures.\*

### QUALITY ASSURANCE

Quality Program Certifications	ISO-9001 and/or IATF 16949
UL File Number	Visit <a href="http://samtec.com/quality">samtec.com/quality</a>
Sampling Procedures	ANSI/ASQ Z1.4
Calibration System Requirements	Per IATF 16949

### INSULATOR

#### Specifications

Molding Plastics, Thermoplastic Polyesters	MIL-M-24519 Rev E
--------------------------------------------	-------------------

#### Applied Tests\*\*\*

Dielectric Breakdown Voltage	ASTM/ISO
AC Loss Characteristics	ASTM/ISO
Impact Resistance of Plastics	ASTM/ISO
DC Resistance	ASTM/ISO
High-Voltage, Low-Current Arc Resistance	ASTM/ISO
Water Absorption of Plastics	ASTM/ISO
Test for Tensile Properties of Plastics	ASTM/ISO
Deflection Temperature of Plastics	ASTM/ISO
Compressive Properties of Plastics	ASTM/ISO
Coefficient of Linear Thermal Expansion	ASTM/ISO
Shear Strength of Plastics	ASTM/ISO
Rockwell Hardness of Plastics	ASTM/ISO
Flexural Properties of Plastics	ASTM/ISO
Specific Gravity and Density of Plastics	ASTM/ISO

### PLATING

#### Specifications

Gold	ASTM-B488
Tin	ASTM-B545**

#### Under Plating Specifications

Nickel	QQ-N-290**
Copper	AMS 2418

#### Applied Tests

Coating thickness (X-Ray Fluorescence)	ASTM-A-754-79
----------------------------------------	---------------

### CONTACT & TERMINAL

#### Specifications\*\*\*

Brass	ASTM/ISO
Phosphor Bronze	ASTM/ISO
Beryllium Copper	ASTM/ISO

### ASSEMBLY

#### Testing Specifications

Test Methods for Electrical Connectors	EIA-364
Test Methods for Electronic/Electrical Components	EIA-364
Connections, Electrical, Solderless, Wrapped	EIA-364
Environmental Test Methods	EIA-364
Sockets (Lead, Electronic Components), General	EIA-364
Sockets, Plug-in Electronic Components, General	EIA-364

#### Packaging Specifications

Tape and Reel Packaging of Connectors	Visit <a href="http://samtec.com/packaging">samtec.com/packaging</a>
Tray Packaging of Connectors	ANSI/EIA-960
Packaging Materials for ESD Sensitive Items	ANSI/ESD S541
Package Testing Procedures	ISTA-3A

### OTHER SPECIFICATIONS

Insulation Resistance	5000 MΩ min
Flammability Rating	UL 94V-0 **** (Typically)

### PRODUCT ENVIRONMENTAL COMPLIANCE

Product environmental compliance is a part specific issue for Samtec. To confirm the environmental compliance status of any Samtec product please contact the Product Environmental Compliance Group at [PEC@samtec.com](mailto:PEC@samtec.com) and/or visit [samtec.com/quality](http://samtec.com/quality).

Samtec has offered both lead-bearing and lead-free products for many years and will continue to support customers requiring products not compliant with the EU Directives, such as those specified for military, aerospace and specialty applications.

Proposition 65 statement: These products could expose you to chemicals which are known to the State of California to cause birth defects or other reproductive harm. For more information, visit [P65Warnings.ca.gov](http://P65Warnings.ca.gov).

### LEAD FREE PROCESSING GUIDELINES

Lead-Free Wave Solderable	This product is compatible with wave solder pot temperatures between 260 °C and 270 °C with maximum exposure of the termination pins to the solder wave for 4 seconds.
Lead-Free Reflow Solderable	This product can withstand a maximum peak temperature of 260 °C; 255 °C for up to 30 seconds, and the longer dwell times required for lead-free reflow processing.

### AUTOMOTIVE CERTIFICATION (ACD SERIES)

Samtec offers design and manufacture of electronic connectors, marketed as "ACD Series" (Automotive Certified Designs) for printed circuit boards. Samtec shall only comport with ISO/IATF 16949 on products it certifies as Automotive Custom Design ("ACD") or those designated with "A." in the Samtec part number preface of the Automotive Solutions Catalog.

Download the Automotive Solutions catalog at [samtec.com/catalog](http://samtec.com/catalog), or contact [AutoSalesGroup@samtec.com](mailto:AutoSalesGroup@samtec.com) for qualifying products and alternative automotive application solutions.

#### Notes:

\*Products with specifications other than those listed above are noted on the product's website page.

\*\*With the exception of thickness.

\*\*\*As dictated by material grade.

\*\*\*\*Contact [UL@samtec.com](mailto:UL@samtec.com) for additional flammability ratings.



# INDEX BY BRAND NAME

## AcceleRate<sup>®</sup>, AcceleRate<sup>®</sup> HD, AcceleRate<sup>®</sup> HP, AcceleRate<sup>®</sup> Mini & AcceleRate<sup>®</sup> mP

APF6	0.635 mm AcceleRate <sup>®</sup> HP High-Performance Socket	19
APM6	0.635 mm AcceleRate <sup>®</sup> HP High-Performance Header	19
ADM6	0.635 mm AcceleRate <sup>®</sup> HD High-Density Header	21
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UDF6	0.635 mm AcceleRate <sup>®</sup> mP Power/Signal Socket	23
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APF6-L	0.635 mm AcceleRate <sup>®</sup> HP High-Performance Socket	111
ARP6	0.635 mm AcceleRate <sup>®</sup> HP High-Performance Cable	111
ARC6	0.635 mm AcceleRate <sup>®</sup> Slim Cable	113
ARF6	0.635 mm AcceleRate <sup>®</sup> Slim Socket	113
AMF6	0.635 mm AcceleRate <sup>®</sup> Mini Small Form Factor Cable Socket	115
ARM6	0.635 mm AcceleRate <sup>®</sup> Mini Small Form Factor Cable	115

## AccliMate<sup>™</sup>

ACX	AccliMate <sup>™</sup> IP68 Sealed 12, 16 & 22 mm Assemblies	217
MCX	AccliMate <sup>™</sup> IP67 Mini Push-Pull Cable Assemblies	217
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P1PD(T)	<b>URSA™ I/O Ultra Rugged Panel Mount Terminal Cable</b>	<b>214</b>	SEM	0.80 mm Tiger Eye™ Micro Socket	227	TSW	2.54 mm Through-Hole .025" SQ Post Header	294
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PCIE	1 mm PCI Express™ 3.0 Edge Card Socket	79	SESDT	0.80 mm Tiger Eye™ Discrete Wire Socket Cable Assembly	241	T1PS(T)	1 mm Micro Mate™ Panel Mount Terminal, Single Row	236
PCIE-G4	<b>1 mm PCI Express™ 4.0 Edge Card Socket</b>	<b>80</b>	SFC	1.27 mm Tiger Eye™ Cost-Efficient Reliable Socket	223	T1SD(T)	1 mm Micro Mate™ Terminal Assembly, Double Row	237
PCIE-G5	<b>1 mm PCI Express™ 5.0 Edge Card Socket</b>	<b>80</b>	SFM	1.27 mm Tiger Eye™ High-Reliability Socket	221	T1SS(T)	1 mm Micro Mate™ Terminal Assembly, Single Row	236
PCIE-LP	1 mm PCI Express™ Low Profile Edge Card Socket	79	SFMC	1.27 mm Tiger Eye™ Flexible Pin Count Socket	225	TW-SM	2 mm Flex Stack, Flexible Board Stacker, SMT	286
PCIEC	1 mm PCI Express™ 3.0 Internal Cable Assembly	125	SFML	1.27 mm Tiger Eye™ High-Reliability Locking Socket	221	TW-TH	2 mm FlexYZ™ Flexible Board Stacker, Through-Hole	286
PCIEC-G4	<b>1 mm PCI Express™ 4.0 Internal Cable Assembly</b>	<b>125</b>	SFPC	SFP+ Transceiver Cage for MECT/SFPE	**	2SN	2 mm Shunt	312
PCIEC-G5	<b>1 mm PCI Express™ 5.0 Internal Cable Assembly</b>	<b>125</b>	SFPE	SFP+ Copper I/O Cable Assembly	**	UCC8	FireFly™ Positive Latching Receptacle	135
PCOA	PCle™-Over-Fiber FireFly™ Adaptor Card	136	SFPK	SFP+ Cage and Connector Kit	**	UDF6	<b>AcceleRate™ mP Signal/Power Combo Socket</b>	<b>23</b>
PCRF-G4	<b>PCI Express™ 4.0 High-Speed Test Cable</b>	<b>126</b>	SFSD(T)	1.27 mm Tiger Eye™ Discrete Wire Cable, Double Row	239	UDM6	<b>AcceleRate™ mP Signal/Power Combo Terminal</b>	<b>23</b>
PCRF-G5	<b>PCI Express™ 5.0 High-Speed Test Cable</b>	<b>126</b>	SFSS(T)	1.27 mm Tiger Eye™ Discrete Wire Cable, Single Row	238	UEC5	FireFly™ Edge Card Socket	135
PCUE	PCle™-Over-Fiber™ Copper Flyover™ Cable	124	SHF	1.27 mm Shrouded IDC Header	324	UMPC(T)	<b>mPOWER™ Ultra Micro Power Cable</b>	<b>195</b>
PCUO	PCle™-Over-Fiber™ FireFly™ Optical Flyover™ Cable	134	SIB	2.54 mm One-Piece Interfaces	255	UMPE(T)	<b>mPOWER™ Cable-to-Cable Assembly, Terminal</b>	<b>196</b>
PES	6.35 mm PowerStrip™/40 Amp High Power Socket	206	SIBF	1.27 mm One-Piece Interfaces	**	UMPI(T)	<b>mPOWER™ Cable-to-Cable Panel Mount Assembly, Socket</b>	<b>197</b>
PESC	PowerStrip™/40 Amp Signal/Power Socket	207	SIR1	2.54 mm One-Piece Right-Angle Interfaces	255	UMPS	2 mm mPOWER™ Ultra Micro Power Socket	193
PESS	6.35 mm PowerStrip™/40 Amp Cable Assembly	248	SL	2.54 mm Low Profile Single Row Machined Socket	**	UMPT	2 mm mPOWER™ Ultra Micro Power Terminal	194
PET	6.35 mm PowerStrip™/40 Amp High Power Terminal	206	SLM	1.27 mm Tiger Buy™ Low Profile Micro Socket	278	UPPT	PowerStrip™/20 Amp Hermaphroditic Power System	203
PETC	PowerStrip™/40 Amp Signal/Power Terminal	207	SLW	2.54 mm Tiger Buy™ Low Profile Socket Strip	311	UPS	3.81 mm PowerStrip™/20 Amp Dual Leaf Power Socket	203
PHF	2.54 mm Press-Fit Socket	293	SMH	2.54 mm SMT Horizontal Socket	**	UPT	3.81 mm PowerStrip™/20 Amp Dual Blade Power Terminal	203
PHT	2.54 mm Press-Fit Terminal	293	SMM	2 mm Tiger Eye™ High-Reliability Socket	230	USB-A	Standard USB 2.0, A-Type	**
PMSD(T)	4.19 mm Power Mate™ Discrete Wire Cable, Double Row	243	SMS	1.27 mm Through-Hole Micro Socket	278	USB-AM	Standard USB 2.0, A-Type Plug	**
PMS(T)	4.19 mm Power Mate™ Discrete Wire Cable, Single Row	243	SNM	2.54 mm Micro Shunt	312	USB-B	Standard USB 2.0, B-Type	**
PTF	2 mm Press-Fit Socket	287	SNT	2.54 mm Shunt	312	USBR-A	High-Retention USB 2.0 Interface, A-Type	**
PTHF	2 mm PC/104-Plus™ Self-Nesting Socket	288	SO	Precision Board Stacking Standoff	60	USBR-B	High-Retention USB 2.0 Interface, B-Type	**
PIT	2 mm Press-Fit Terminal	287	SOLC	0.635 mm FOURRAY™ Quad Row SMT Socket	267	ZF1	1 mm Flat Flexible Cable (FFC) Socket	326
PTUO	<b>PCle™-Over-Fiber FireFly™ Extended Temp Optical Cable</b>	<b>134</b>	SQT	2 mm FlexYZ™ Cost-Effective Rugged Socket, Square Tail	289	ZF5S	0.50 mm Flat Flexible Cable (FFC) Socket	326
QFS	0.635 mm Q2™ Rugged Ground Plane Socket	40	SQW	2 mm FlexYZ™ Cost-Effective Rugged Socket, Solder Tail	289	ZLTM	2 mm Flex Stack, Shrouded Elevated Terminal Strip	284
QFS-EM	0.635 mm Q2™ Ground Plane Socket, Edge Mount	45	SS	2.54 mm Single Row Screw Machined Socket	**	ZML	1.27 mm Flex Stack, Shrouded Elevated Stacker	275
QFS-RA	0.635 mm Q2™ Ground Plane Socket, Right-Angle	45	SS4	0.40 mm Micro Blade & Beam Ultra-Fine Pitch Socket	57	ZSS	2.54 mm Flex Stack, Elevated Shrouded Header	303
QFSS	0.635 mm Q2™ Shielded Ground Plane Socket	41	SS5	0.50 mm Micro Blade & Beam Low Profile Socket	58	ZST	2.54 mm Flex Stack, Elevated Shrouded Cable Header	317
QMS	0.635 mm Q2™ Rugged Ground Plane Header	40	SSM	2.54 mm Tiger Claw™ Pass-Through SMT Socket	306	ZSTMM	2 mm Flex Stack, Shrouded Elevated Cable Header	321
QMS-EM	0.635 mm Q2™ Ground Plane Header, Edge Mount	45	SSQ	2.54 mm Tiger Buy™ Socket .025" SQ Post	304	ZW	2.54 mm Flex Stack, Flexible .025" SQ Board Stacker	302
QMS-RA	0.635 mm Q2™ Ground Plane Header, Right-Angle	45	SSW	2.54 mm Tiger Buy™ Through-Hole Socket	304			
QMSS	0.635 mm Q2™ Shielded Ground Plane Header	41						
QRF8	0.80 mm Q Rate™ Slim Body Ground Plane Socket	42						
QRF8-RA	0.80 mm Q Rate™ Slim Body Socket, Right-Angle	45						
QRM8	0.80 mm Q Rate™ Slim Body Ground Plane Header	42						
QRM8-RA	0.80 mm Q Rate™ Slim Body Header, Right-Angle	45						
QSE	0.80 mm Q.Strip™ High-Speed Ground Plane Socket	38						
QSFP	Cage for QSFP	99						
QSFP-D8	<b>Cage for QSFP-D8</b>	<b>97</b>						
QSFP-DD	Cage for QSFP-DD	98						
QSH	0.50 mm Q.Strip™ High-Speed Ground Plane Socket	37						
QSH-RA	0.50 mm Q.Strip™ High-Speed Socket, Right-Angle	44						
QSS	0.635 mm Q.Strip™ High-Speed Ground Plane Socket	39						
QSS-RA	0.635 mm Q.Strip™ Ground Plane Socket, Right-Angle	44						
QTE	0.80 mm Q.Strip™ High-Speed Ground Plane Header	38						
QTH	0.50 mm Q.Strip™ High-Speed Ground Plane Header	37						

## RF PRODUCTS

See page 335 for available RF Solutions.

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### Notes:

\*\*Products available on website. **New products highlighted in bold.**

Most older products not shown in the catalog are still available. Visit [www.samtec.com](http://www.samtec.com) and the homepage search bar for availability and specifications.

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