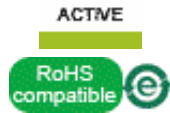


HFW4R-1STE1LF - FPC/FFC
: HFW-R series, 4 Pos, Down
Side Contact, Side Entry
Surface Mount Non-ZIF
Connector, 1 mm (0.039 in.),
Lead Free



www.fci.com

Specifications

General

Cable Insertion	Non-ZIF
Contact location	Lower
Number of contacts	4
Orientation	Right Angle
Product Series	HFW-R

Electrical

Withstanding Voltage	500V AC for 1 minute
Current rating	1A AC/DC
Resistance (Contact)	30 milli ohms max.
Resistance (Insulation)	500 M-ohms min.
Voltage rating	100V AC/DC

Mechanical

Durability (Mating cycles)	30 Cycles
----------------------------	-----------

Mounting

Mounting style (Board)	Surface Mount
------------------------	---------------

Physical

Cable Type	FPC/FFC
Material (Contact)	Phosphor Bronze, Tin Plated
Material (Housing)	Polyamide 6T, Glass Reinforced (UL94V-0)
Temperature (Operating - range)	-55°C to +105°C

Approvals / Certifications

Damp Heat per JIS C 0022	Contact Resistance 50 milli ohms max., Insulation Resistance 100 M-ohms min.
Salt Spray per JIS C 0023	Contact Resistance 50 milli ohms max.
Temperature Cycling per JIS C 0025	Contact Resistance 50 milli ohms max.
Vibration per JIS C 0040	No discontinuity > 1 µ second

Other Features

Packaging (Type)	Embossed Tape on Reel
------------------	-----------------------

CAT. NO. & DIMENSIONS

(NOTE3)	NO. OF CONTACTS (n)	CAT. NO.	DIMENSIONS (NOTE2)		
			A ± 0.2	B ± 0.2	C ± 0.1
	4	HFW4R-1/2ST__LF	6.6	3	5.14
	5	HFW5R-1/2ST__LF	7.6	4	6.14
	6	HFW6R-1/2ST__LF	8.6	5	7.14
	7	HFW7R-1/2ST__LF	9.6	6	8.14
	8	HFW8R-1/2ST__LF	10.6	7	9.14
	9	HFW9R-1/2ST__LF	11.6	8	10.14
	10	HFW10R-1/2ST__LF	12.6	9	11.14
	11	HFW11R-1/2ST__LF	13.6	10	12.14
	12	HFW12R-1/2ST__LF	14.6	11	13.14
	13	HFW13R-1/2ST__LF	15.6	12	14.14
	14	HFW14R-1/2ST__LF	16.6	13	15.14
	15	HFW15R-1/2ST__LF	17.6	14	16.14
	16	HFW16R-1/2ST__LF	18.6	15	17.14
	17	HFW17R-1/2ST__LF	19.6	16	18.14
	18	HFW18R-1/2ST__LF	20.6	17	19.14
	19	HFW19R-1/2ST__LF	21.6	18	20.14
	20	HFW20R-1/2ST__LF	22.6	19	21.14
	21	HFW21R-1/2ST__LF	23.6	20	22.14
	22	HFW22R-1/2ST__LF	24.6	21	23.14
	23	HFW23R-1/2ST__LF	25.6	22	24.14
	24	HFW24R-1/2ST__LF	26.6	23	25.14
	25	HFW25R-1/2ST__LF	27.6	24	26.14
	26	HFW26R-1/2ST__LF	28.6	25	27.14
	27	HFW27R-1/2ST__LF	29.6	26	28.14
*	28	HFW28R-1/2ST__LF	30.6	27	29.14
*	29	HFW29R-1/2ST__LF	31.6	28	30.14
	30	HFW30R-1/2ST__LF	32.6	29	31.14

CAT. NO. HFW (n) R - 1 ST __ LF

SERIES HFW

NO. OF CONTACTS (n)

RIGHT ANGLE TYPE R

FOR FPC/FFC, CONTACT DIRECTION - 1

1. LOWER CONTACT TYPE
2. UPPER CONTACT TYPE

FOR AUTOMATIC MOUNTING (SMT) ST

PACKAGE STYLE __

LEAD FREE LF

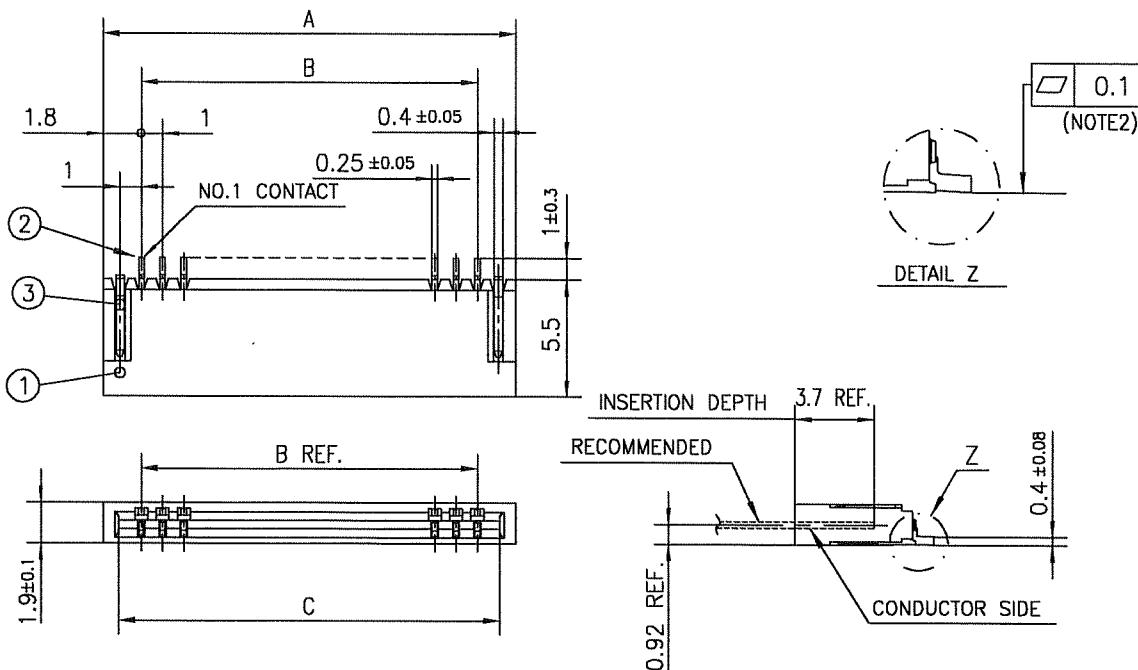
NOTES

- THIS PRODUCT IS THE CONNECTOR DESIGNED TO TERMINATE FPC/FFC AND COPE WITH AUTOMATIC MOUNTING (SMT).
- SEE PART DRAWINGS FOR DIMENSIONS A~C.
- PLEASE CONSULT US IN CASE OF USING PARTS WITH * MARK.

mat'l. code				surface 58 / ISO 1302		tolerance ISO 406 / ISO 1101		projection		product family 58NF		CODE JP
ltr	ecn no	dr	date	tolerances, unless otherwise specified				mm		title		
A	J04-0027	H.T	4/6/04	angles linear				mm		CAT. NO. TABLE FOR 1mm SPACING SMT CONNECTOR (Cat. No. HFW__R-1/2ST__LF)		
B	J05-0056	H.T	2/4/05					scale				
C	J06-0413	H.T	10/4/06					scale				
				dr	10/14/06		FCI		dwg no		sheet 1 of 1	size
				enr	10/14/06				JSA 95923			A4
				chr	10/12/06				type		Product Customer Drawing	
				appd	10/12/06							
sheet index	revision	C										Rev. C
	sheet	1										

SC-HFWR02 JSA95924 95925 95926 95927 95928 93573 93574

form: A4



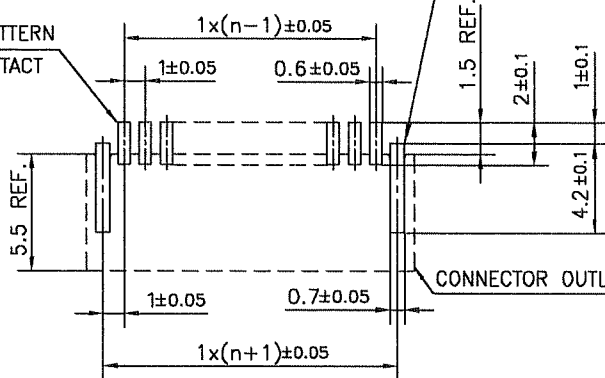
PT. NO.	PARTS NAME	MATERIAL	Q'TY	NOTE
1	HOUSING	PA6T RESIN GLASS REINFORCED (UL94V-0)	1	COLOR:BLACK
2	CONTACT	PHOSPHOR BRONZE	n	PLATING:TIN
3	MOUNTING PLATE		2	(LEAD FREE)

n : NO. OF CONTACTS

RECOMMENDED PC BOARD LAYOUT
(COMPONENT SIDE)

BASIC PATTERN

NO.1 CONTACT
POSITION

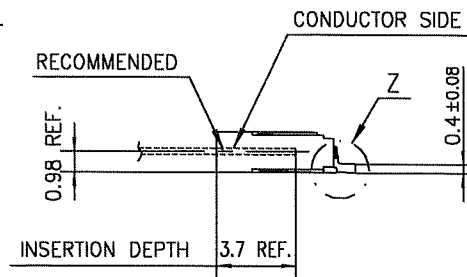
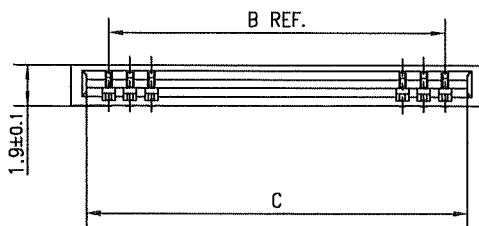
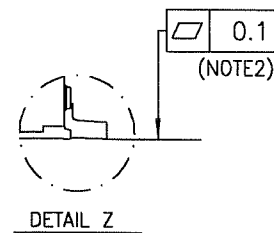
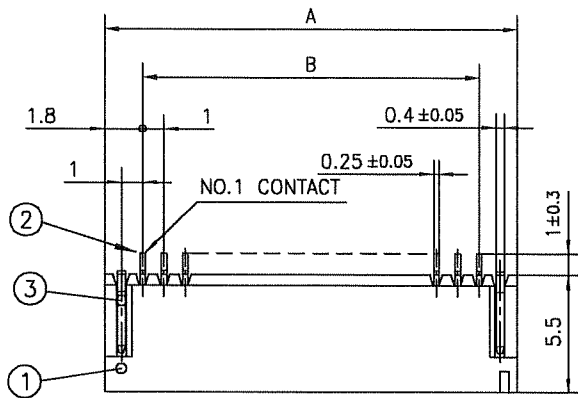


NOTES

1. THIS PRODUCT IS THE CONNECTOR DESIGNED TO TERMINATE FPC/FFC AND COTES WITH AUTOMATIC MOUNTING (SMT).
2. FLATNESS OF CONTACT TERMINAL FOR HOUSING MUST BE WITHIN TOLERANCE IN Z PORTION DETAILED DRAWING.
3. THIS PRODUCT IS LOWER CONTACT TYPE CONNECTOR.
4. THIS PRODUCT MEETS EUROPEAN UNION DIRECTIVES AND OTHER COUNTRY REGULATIONS AS DESCRIBED IN GS-22-008
5. THE HOUSING WILL WITHSTAND EXPOSURE TO 260°C PEAK TEMPERATURE FOR 10 SECONDS IN A REFLOW SOLDERING OVEN.

mat'l. code				surface 58	tolerance ISO 406	projection	product family 58NF	CODE JP
				ISO 1302	ISO 1101		title 1mm SPACING SURFACE MOUNT FPC/FFC CONNECTOR (Cat.No. HFW__R-1ST__LF)	
ltr	ecn no	dr	date	tolerances unless otherwise specified		mm		
A	J04-0027	H.T	4/6/'04	angles	linear	mm		
B	J05-0056	H.T	2/4/'05			mm		
C	J05-0732	H.T	10/28/'05			scale		
D	J06-0413	H.T	10/4/'06	dr			dwg no sheet 1 of 1 size	
				enrg			JSA 95924 A4	
				chr			type Product Customer Drawing	
				appd				
sheet index	revision	D					Rev. D	
	sheet	1						

SC-HFWR02 JSA95923
form: A4

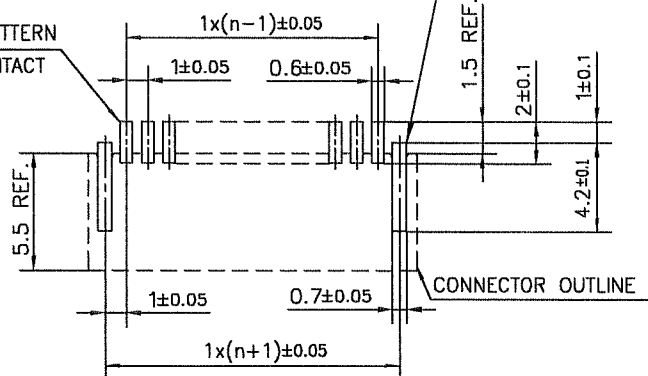


PT. NO.	PARTS NAME	MATERIAL	Q'TY	NOTE
1	HOUSING	PA6T RESIN GLASS REINFORCED (UL94V-0)	1	COLOR:BLACK
2	CONTACT	PHOSPHOR BRONZE	n	PLATING:TIN
3	MOUNTING PLATE		2	(LEAD FREE)

n : NO. OF CONTACTS

RECOMMENDED PC BOARD LAYOUT
(COMPONENT SIDE)

BASIC PATTERN
NO.1 CONTACT
POSITION



NOTES

1. THIS PRODUCT IS THE CONNECTOR DESIGNED TO TERMINATE FPC/FFC AND COPES WITH AUTOMATIC MOUNTING (SMT).
2. FLATNESS OF CONTACT TERMINAL FOR HOUSING MUST BE WITHIN TOLERANCE IN Z PORTION DETAILED DRAWING.
3. THIS PRODUCT IS UPPER CONTACT TYPE CONNECTOR.
4. THIS PRODUCT MEETS EUROPEAN UNION DIRECTIVES AND OTHER COUNTRY REGULATIONS AS DESCRIBED IN GS-22-008
5. THE HOUSING WILL WITHSTAND EXPOSURE TO 260°C PEAK TEMPERATURE FOR 10 SECONDS IN A REFLOW SOLDERING OVEN.

mat'l. code				surface 58 / tolerance ISO 1302 ✓ / ISO 406 / ISO 1101		projection		product family 58NF		CODE JP	
ltr	ecn no	dr	date	tolerances unless otherwise specified		mm		title			
A	J04-0027	H.T	4/6/'04	angles	linear	mm		1mm SPACING SURFACE MOUNT FPC/FFC CONNECTOR (Cat. No. HFW__R-2ST__LF)			
B	J05-0056	H.T	2/4/'05			scale X		dwg no sheet 1 of 1 size			
C	J05-0732	H.T	10/28/'05					JSA 95925 A4			
D	J06-0413	H.T	10/4/'06	dr	12/14/06			type Product Customer Drawing			
				enr	10/10/06						
				chr	10/12/06						
				appd	10/12/06						
sheet index	revision	D						Rev. D			
	sheet	1									

SC-HFWR02 JSA95923
form: A4

CAT. NO. & DIMENSIONS

(NOTE4)	NO. OF CONTACTS (n)	CAT. NO. (NOTE2)	DIMENSIONS (NOTE3)		
			E ± 5	F ± 0.3	G ± 0.1
	4	HFW4R-1/2STE1LF	28.4	24	—
	5	HFW5R-1/2STE1LF	28.4	24	—
	6	HFW6R-1/2STE1LF	28.4	24	—
	7	HFW7R-1/2STE1LF	28.4	24	—
	8	HFW8R-1/2STE1LF	28.4	24	—
	9	HFW9R-1/2STE1LF	28.4	24	—
	10	HFW10R-1/2STE1LF	28.4	24	—
	11	HFW11R-1/2STE1LF	28.4	24	—
	12	HFW12R-1/2STE1LF	28.4	24	—
	13	HFW13R-1/2STE1LF	28.4	24	—
	14	HFW14R-1/2STE1LF	28.4	24	—
	15	HFW15R-1/2STE1LF	36.4	32	28.4
	16	HFW16R-1/2STE1LF	36.4	32	28.4
	17	HFW17R-1/2STE1LF	36.4	32	28.4
	18	HFW18R-1/2STE1LF	36.4	32	28.4
	19	HFW19R-1/2STE1LF	48.4	44	40.4
	20	HFW20R-1/2STE1LF	48.4	44	40.4
	21	HFW21R-1/2STE1LF	48.4	44	40.4
	22	HFW22R-1/2STE1LF	48.4	44	40.4
	23	HFW23R-1/2STE1LF	48.4	44	40.4
	24	HFW24R-1/2STE1LF	48.4	44	40.4
	25	HFW25R-1/2STE1LF	48.4	44	40.4
	26	HFW26R-1/2STE1LF	48.4	44	40.4
	27	HFW27R-1/2STE1LF	48.4	44	40.4
*	28	HFW28R-1/2STE1LF	48.4	44	40.4
*	29	HFW29R-1/2STE1LF	48.4	44	40.4
	30	HFW30R-1/2STE1LF	60.4	56	52.4

CAT. NO.

HFW (n) R - 1 ST E1 LF

SERIES

NO. OF CONTACTS

RIGHT ANGLE TYPE

FOR FPC/FFC, CONTACT DIRECTION

1. LOWER CONTACT TYPE
2. UPPER CONTACT TYPE

FOR AUTOMATIC MOUNTING (SMT)

TAPE PACKAGING

LEAD FREE

NOTES

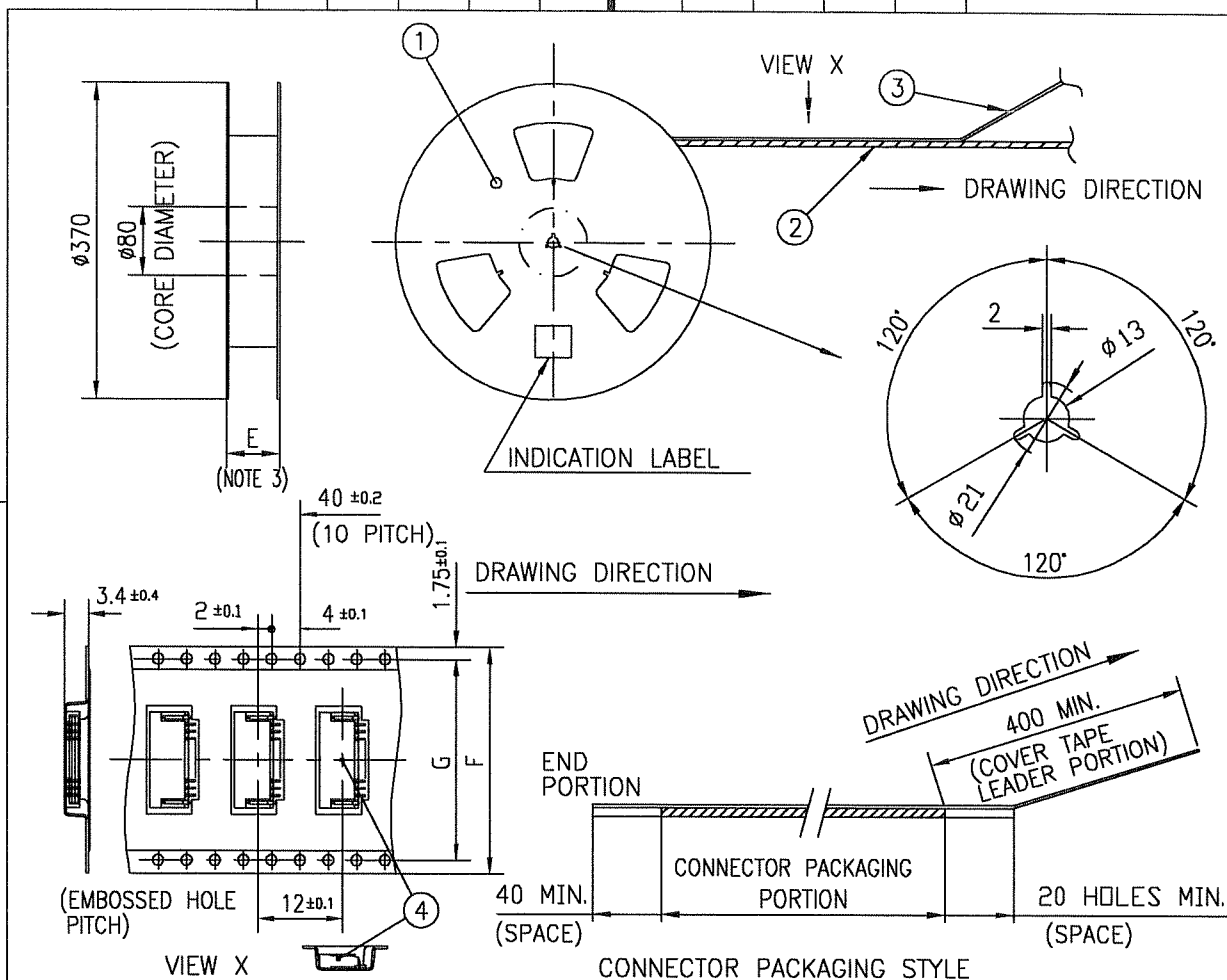
1. THIS PRODUCT IS THE CONNECTOR DESIGNED TO TERMINATE FPC/FFC AND COPE WITH AUTOMATIC MOUNTING (SMT).
2. THIS CATALOG NO. INDICATES PLASTIC TAPE PACKAGED CONNECTOR.
3. SEE PART DRAWINGS FOR DIMENSIONS E~G.
4. PLEASE CONSULT US IN CASE OF USING PARTS WITH * MARK.

mat'l. code				surface 58/ISO 1302 ✓		tolerance ISO 406 ISO 1101		projection		product family 58NF		CODE JP	
ltr	ecn no	dr	date	tolerances, unless otherwise specified				mm		title			
A	J04-0027	H.T	4/6/04	angles linear				mm		CAT. NO. TABLE FOR PLASTIC TAPE PACKAGED 1mm SPACING SMT CONN. (Cat.No. HFW__R-1/2STE1LF)			
B	J05-0056	H.T	2/4/05										
C	J06-0413	H.T	10/4/06					scale X					
				dr	10/4/06				dwg no		sheet 1 of 1		size
				enrg	10/4/06				JSA 95926				A4
				chr	10/12/06				type		Product Customer Drawing		
				appd	10/12/06								
sheet index	revision	C											Rev. C
	sheet	1											

SC-HFWR02 JSA95923 95927 95928 form: A4

1

2



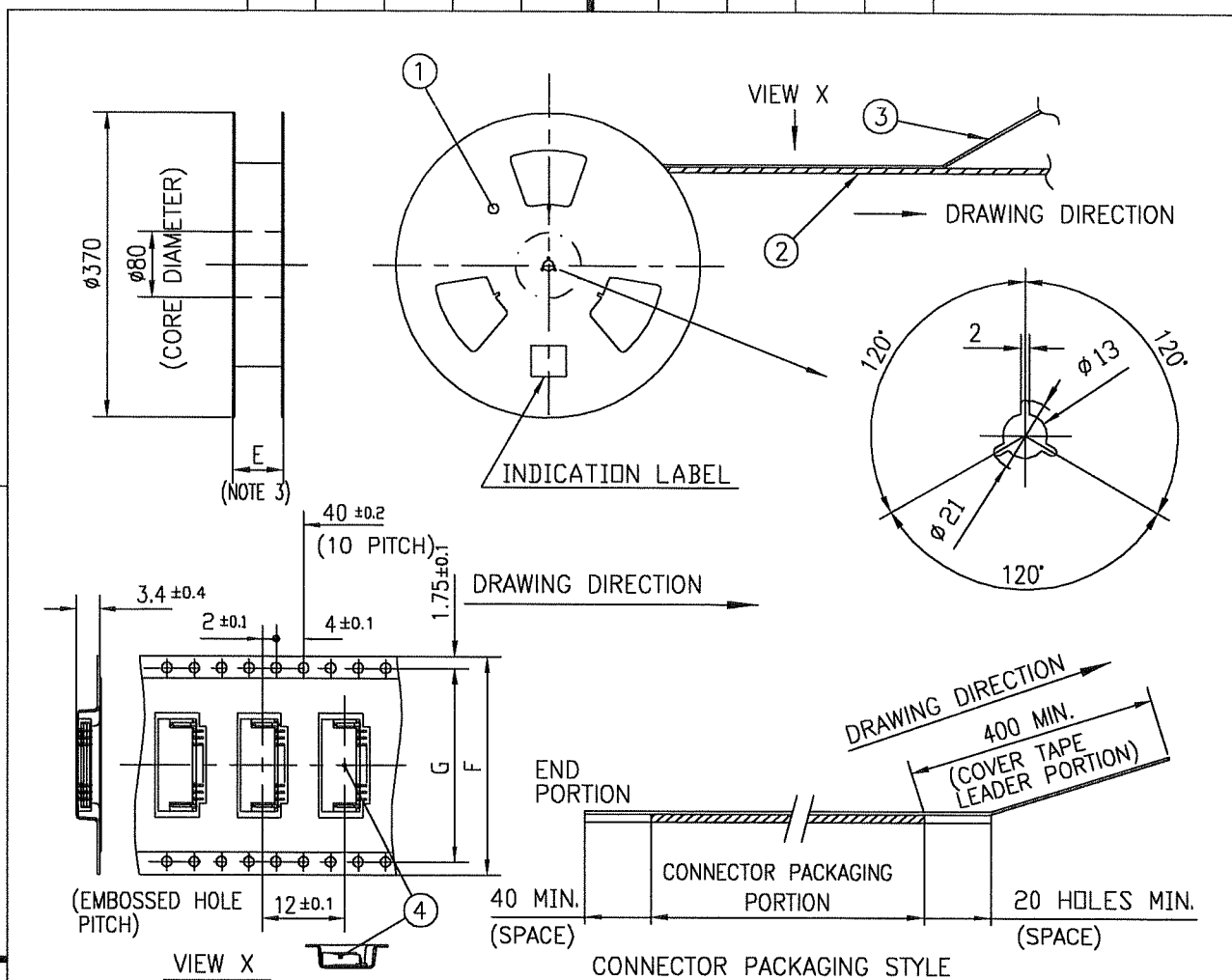
PT. NO.	PARTS NAME	CAT. NO.	MATERIAL	Q'TY	NOTE
1	REEL	—	CARDBOARD	1	COLOR:WHITE
2	PLASTIC (EMBOSSSED) TAPE	—	PET	—	COLOR:TRANSPARENCY
3	COVER	—	POLYESTER	—	COLOR:TRANSPARENCY
4	CONNECTOR	HFW__R-1ST__LF	SEE ATTACHED DWG.	2000	LOWER CONTACT TYPE

NOTES

1. THIS IS PLASTIC TAPE PACKAGED CONNECTOR DESIGNED TO TERMINATE FPC/FFC AND CYPES WITH AUTOMATIC MOUNTING (SMT).
2. SEE JIS C 0806 (PACKING OF ELECTRONIC COMPONENTS ON CONTINUOUS TAPES (SURFACE MOUNTING DEVICES)) FOR SHAPE AND DIMENSIONS OF PLASTIC (EMBOSSSED) TAPE AND REEL.
3. E DIMENSION IS PORTION OF THE CORE.

mat'l. code				surface 58	tolerance ISO 406	projection	product family 58NF	CODE JP
				ISO 1302	ISO 1101			
ltr	ecn no	dr	date	tolerances unless otherwise specified			title	
A	J04-0027	H.T	4/6/04	angles	linear	mm	1mm SPACING SMT CONNECTOR	
B	J05-0056	H.T	2/4/05				(Cat.No. HFW__R-1STE1LF)	
C	J06-0413	H.T	10/4/06	±5'		scale	dwg no sheet 1 of 1 size	
				dr			JSA 95927 A4	
				enr				
				chr				
				appd				
sheet index	revision	C					type Product Customer Drawing	
	sheet	1						

SC-HFWR02 JSA95926
form: A4



PT. NO.	PARTS NAME	CAT. NO.	MATERIAL	Q'TY	NOTE
1	REEL	—	CARDBOARD	1	COLOR:WHITE
2	PLASTIC (EMBOSSD) TAPE	—	PET	—	COLOR:TRANSPARENCY
3	COVER	—	POLYESTER	—	COLOR:TRANSPARENCY
4	CONNECTOR	HFW__R-2ST__—LF	SEE ATTACHED DWG.	2000	UPPER CONTACT TYPE

NOTES

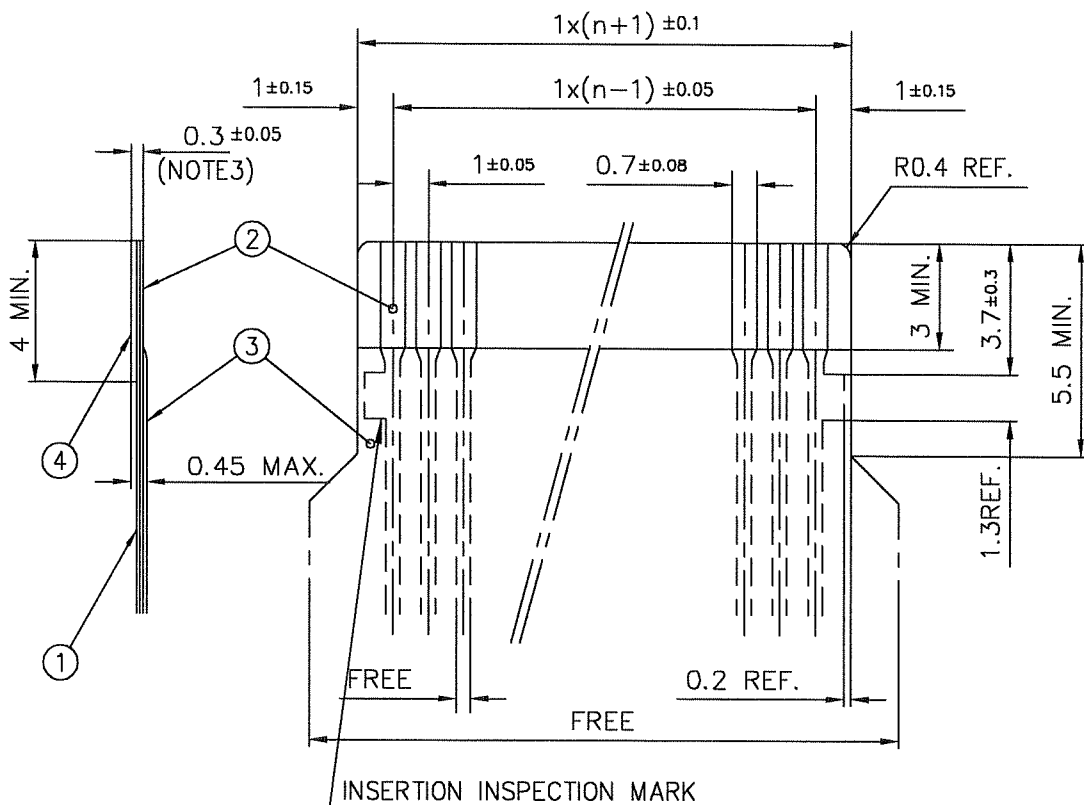
- THIS IS PLASTIC TAPE PACKAGED CONNECTOR DESIGNED TO TERMINATE FPC/FFC AND CYPES WITH AUTOMATIC MOUNTING (SMT).
- SEE JIS C 0806 (PACKING OF ELECTRONIC COMPONENTS ON CONTINUOUS TAPES (SURFACE MOUNTING DEVICES)) FOR SHAPE AND DIMENSIONS OF PLASTIC (EMBOSSD) TAPE AND REEL.
- E DIMENSION IS PORTION OF THE CORE.

mat'l. code				surface 58/ISO 1302		tolerance ISO 406 ISO 1101		projection		product family 58NF		CODE JP
ltr	ecn no	dr	date	tolerances unless otherwise specified		mm		mm		title		
A	J04-0027	H.T	4/6/'04	angles		±5		mm		1mm SPACING SMT CONNECTOR		
B	J05-0056	H.T	2/4/'05	linear				mm		(Cat.No. HFW__R-2STE1LF)		
C	J06-0413	H.T	10/4/'06	±5'				scale				
				dr		12/14/06		FCI		dwg no		sheet 1 of 1
				enr		10/14/06				JSA 95928		size A4
				chr		10/12/06				type		Product Customer Drawing
				appd		10/12/06						
sheet index		revision		C								Rev. C
sheet		1										

SC-HFWR02 JSA95926
form: A4

RECOMMENDED CABLE (FPC)

n : NO. OF CONDUCTORS



PT. NO.	DESCRIPTION	MATERIAL	THICKNESS (μm)
1	BASE FILM	POLYIMIDE OR POLYESTER OR EQUIVALENT	25
2	CONDUCTOR	COPPER FOIL(PLATING : SOLDER 1μm MIN.)	35
3	OVERLAY	POLYIMIDE OR POLYESTER OR EQUIVALENT	—
4	SUPPORTING TAPE	POLYESTER OR POLYIMIDE OR EQUIVALENT	188

NOTES

1. NO BURR AT EACH PORTION.
2. NO PEELING IN COMMON USE.
3. TOTAL THICKNESS LIMIT OF EACH MATERIAL (INCLUDING ADHESIVE AGENT) IS SPECIFIED.

mat'l. code				surface 58 / tolerance ISO 1302 ✓ / ISO 406 / ISO 1101		projection		product family 58NF		CODE JP	
ltr	ecn no	dr	date	tolerances unless otherwise specified		mm		title			
A	J06-0413	H.T	10/4/06			scale X		RECOMMENDED CABLE (Cat. No. HFW__R-1/2__)			
				angles linear				dwg no sheet 1 of 1 size			
				dr		FCJ		JSA 93573 A4			
				enr				type Product Customer Drawing			
				chr							
				appd							
sheet index	revision	A	1					Rev. A			

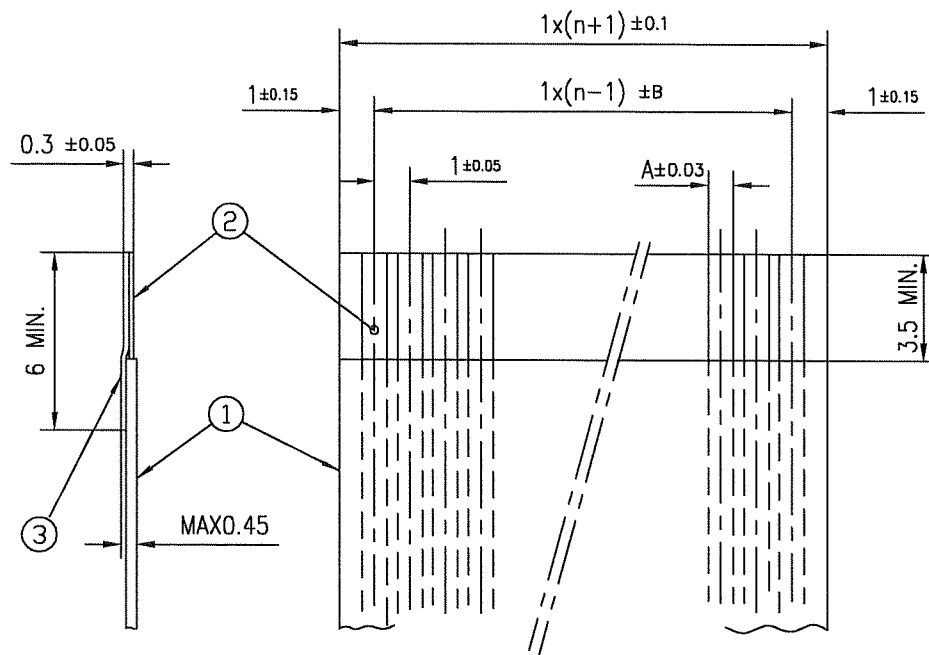
form: A4

1

2

RECOMMENDED CABLE (FFC)

n : NO. OF CONDUCTORS



(NOTE 3)	DIMENSION A	TOLERANCE B
1	0.7	0.1
2	0.6	0.07

PT. NO.	DESCRIPTION	MATERIAL	NOTE
1	INSULATOR	FLAME RESISTING POLYESTER OR EQUIVALENT	_____
2	CONDUCTOR	COPPER FOIL	PLATING: TIN OR SOLDER 1μm MIN.
3	SUPPORTING TAPE	FLAME RESISTING POLYESTER OR EQUIVALENT	_____

NOTES

1. NO BURR AT EACH PORTION.
2. NO PEELING IN COMMON USE.
3. BOTH COMBINATION IS ALLOWED.

mat'l. code				surface 58/ISO 1302		tolerance ISO 406 ISO 1101		projection		product family 58NF		CODE JP	
ltr	ecn no	dr	date	tolerances unless otherwise specified				mm		title			
1	---	T.M	4/30/'02	angles linear				mm		RECOMMENDED CABLE			
A	J06-0413	H.T	10/4/'06					scale X		(Cat. No. HFW__R-1/2__)			
				dr		10/15/06				dwg no		sheet 1 of 1	
				enr		10/14/06				JSA 93574		size A4	
				chr		10/12/06							
				appd		10/12/06							
sheet index		revision sheet		A		1						Rev. A	

form: A4

1

2