



# PRODUCT SPECIFICATION

## MICRO SIM CARD CONNECTOR, 1.45mm HEIGHT, PUSH-PULL

### 1.0 SCOPE

This Product Specification covers the performance requirements of the Micro SIM CardConnector

### 2.0 PRODUCT DESCRIPTION

#### 2.1 PRODUCT NAME AND SERIES NUMBER(S)

##### Product Name

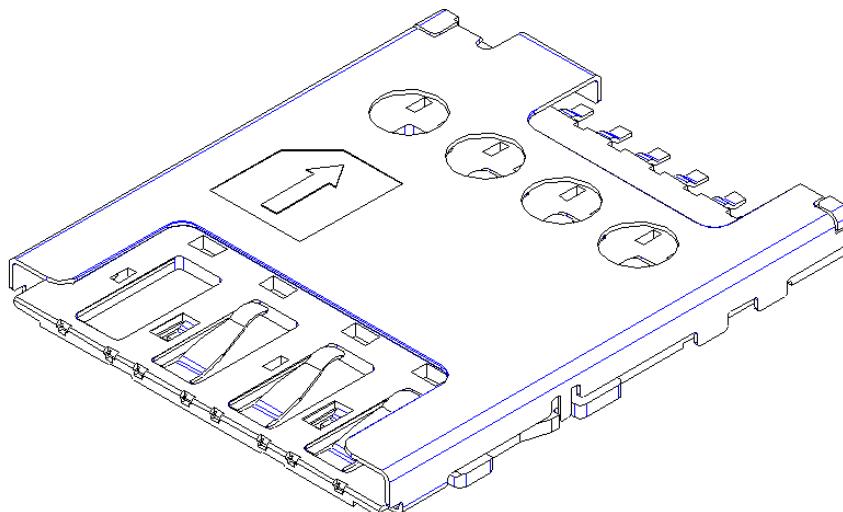
##### Part Number

MICRO SIM CARD CONNECTOR, 1.45MM HEIGHT, PUSH-PULL

78646

#### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See Sales Drawing SD-78646-001for information on dimensions, materials, platings and markings.



#### TENTATIVE RELEASE:

THIS SPECIFICATION IS BASED ON DESIGN OBJECTIVES AND IS STRICTLY TENTATIVE. PRELIMINARY TEST DATA MAY EXIST, BUT THIS SPECIFICATION IS SUBJECTED TO CHANGE BASED ON THE RESULTS OF ADDITIONAL TESTING AND EVALUATION.

<u>REVISION:</u> <b>2</b>	<u>ECR/ECN INFORMATION:</u> <u>EC No:</u> <b>S2013-0167</b> <u>DATE:</u> <b>2012/10/11</b>	<u>TITLE:</u> <b>MICRO SIM CARD CONNECTOR, 1.45mm HEIGHT, PUSH-PULL</b>	<u>SHEET No.</u> <b>1 of 10</b>
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## 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

The following documents form a part of this specification to the extended specified herewith. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence.

## 4.0 RATINGS

### 4.1 CURRENT RATING

0.5Amps Max. per contact

### 4.2 VOLTAGE RATING

15 Volt DC Max.

### 4.3 TEMPERATURE

Operating: - 30°C to + 85°C  
Storage (with packaging): - 5°C to + 85°C

## 5.0 MECHANICAL INTERFACE

### 5.1 CARD INTERFACE

SIM card interface: GSM 11.11 specification

### 5.2 PWB INTERFACE

Plating on PWB pads: OSP plated copper

## 6.0 PERFORMANCE

### 6.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	<b>Low Level Contact Resistance (LLCR)</b>	Mate connectors with dry circuit ( <b>20</b> mV, 100mA MAX) at 0.60mm away from housing top surface (see appendix 1) (IEC 60512-2-1)	<b>100</b> milliohm [MAXIMUM] [initial] Value includes bulk resistance of terminal
2	<b>Insulation Resistance</b>	Unmated connectors: apply a voltage of <b>500</b> VDC between adjacent contact for 1 minutes (IEC 60512-3-1)	<b>1000</b> Megohms [MINIMUM]

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3	<b>Dielectric Withstanding Voltage</b>	Unmated connectors: apply a voltage of <b>500VAC</b> between adjacent contact for <b>1</b> minutes (IEC 60512-3-1)	No voltage breakdown
4	<b>Temperature Rise</b>	Mated and measure the temperature rise of contact, when rated current is passed. (IEC 60512-5-1)	Temperature Rise <b>+30°C</b> [MAXIMUM]

## 6.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	<b>Contact Normal Force</b>	Apply a perpendicular force to the contact at the rate of 12.5mm/min. The min. deflection of contact is 0.27mm from surface of housing. (Refer to Appendix 2).  Note : a) All forces to be measured at returned curve. b) Force to be taken after 3X reflow.	<b>0.20N</b> min at minimum deflection
6	<b>Durability ( Life Cycle )</b>	Mate connectors 2.54cm/min to 1500 cycles. Horizontal insertion for max deflection case.	Contact resistance <b>100</b> milliohms [MAXIMUM]  No mechanical damage
7	<b>Card Insertion Force</b>	Insert the card in mating direction at a Max. rate of 12.5 mm/min	<b>6N</b> [MAXIMUM]
8	<b>Card Withdrawal Force</b>	Withdraw the card in un-mating direction at a rate of 12.5 mm/min	<b>0.50N</b> [MINIMUM]
9	<b>Solder Joint Peeling Strength</b>	Apply a load to the connector parallel to the PWB ( refer to Appendix 1 on X & Y direction )	<b>50 N</b> [MINIMUM]

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<b>10</b>	<b>Resistance to Soldering Heat</b>	Unmated sample to be passed through reflow over according to temp profiles (shown in section 9.0) three times (Sequences: above PWB – under PWB – under PWB)	No damage to connector appearance No connector drop off from PWB
<b>11</b>	<b>Solderability</b>	Solder paste is deposited on a ceramic plate via stencil. The connector are steam aged & placed on a solder paste print. The substrate is processed through a forced hot convention oven. The connector are removed from the ceramic plate & inspected.  Steam Aging : 8 hour ( ANSI-J-STD 002 )	No bridging & Good coverage

## 6.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
<b>12</b>	<b>Dry cold (steady state)</b>	At -40°C for 96 hours Recovery: 2 hours at ambient atmosphere (IEC60068-2-1Ab)	No mechanical damage  Contact resistance <b>100</b> milliohms [MAXIMUM]
<b>13</b>	<b>Dry heat (steady state)</b>	At +85°C for 96 hours Recovery: 2 hours at ambient atmosphere (IEC60068-2-2Bb)	No mechanical damage  Contact resistance <b>100</b> milliohms [MAXIMUM]
<b>14</b>	<b>Thermal Shock</b>	25 cycles at Ta = -55°C for 0.5 hours, then change of temp = 25°C MAX 5min, then, T <sub>b</sub> = +85°C for 0.5hour, then cool to ambient Recovery: 2hours at ambient atmosphere (IEC60068-2-14 Test Na)	No mechanical damage  Contact resistance <b>100</b> milliohms [MAXIMUM]

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15	<b>Vibration (Random)</b>	Frequency: 10~100 Hz, 0.0132 g <sup>2</sup> /Hz; Frequency: 100~500Hz, -3dB/Oct Applied for 1 hours in X, Y and Z axis in minimum deflection position.	No mechanical damage  Contact resistance <b>100</b> milliohms [MAXIMUM]  Discontinuity < 1 μs
16	<b>Damp Heat (Cyclic)</b>	Temp 25-55°C and 95-100%RH for 18 cycles of 24hours.  Recovery at 25°C and 75%RH for 2hours.  (Typical cycle in temp 25°C → 55°C in 3 hours; then maintain at 55°C for 9hours; temp 55°C → 25°C in 3 hours; then maintain at 25°C for 9hours ) (IEC60068-2-30Db)	No mechanical damage  Contact resistance <b>100</b> ohms [MAXIMUM]  Insulation resistance <b>1000</b> milliohms [MINIMUM]
17	<b>Shock (specified pulse)</b>	Pulse shape = half sine Peak acceleration = 490m/s <sup>2</sup> (50G) Duration of pulse = 11ms Apply 3 successive shocks in each direction along the 3 mutually perpendicular axes. (IE-C60068-2-27Ea)	No mechanical damage  Contact resistance <b>100</b> milliohms [MAXIMUM]  Discontinuity < 1 μs

## 7.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage. The parts shall be carried in reels inside boxes.

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## 8.0 TEST SEQUENCES

Test Group →	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
Test or Examination ↓							
Sample size	5	5	5	5	5	5	5
Examination of connector(s)	1	1	1	1	1	1	1
Contact Resistance	2,4,6,8			2,5	2,4,6		
Insulation Resistance		3,6					
Dielectric Withstanding Voltage		2,7					
Temperature Rise			2				
Contact Normal Force							
Durability ( Life Cycle )	3						
Solder Joint Peeling Strength ( X & Y axis )						3	
Dry Cold					3		
Dry Heat					5		
Thermal Shock	5	4					
Damp Heat (cyclic)	7	5					
Vibration				3			
Shock				4			
Solderability							2
Resistance to Soldering Heat						2	

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Screen Test Group →	Group 1	Group 2	Group 3	Group 4
Test or Examination ↓				
Sample size	5	5	5	5
Appearance	1	1	1	1
Resistance to Soldering Conditions	2	2		
Contact Resistance	3,8			
Insulation Resistance		3,6		
Dielectric Withstanding Voltage		4,7		
Contact Normal Force	4,9			
Durability ( Life Cycle )	7	5		
Solder Joint Peeling Strength				2
Solderability			2	
Card Insertion Force	5,10			
Card Withdrawal Force	6,11			

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## 9.0 SOLDERING PROFILE

### Pb-free reflow profile requirement for solderability testing

The reflow profile defined in this section describes expected minimum reflow profile. Temperature measured on solderable termination or on top of component.

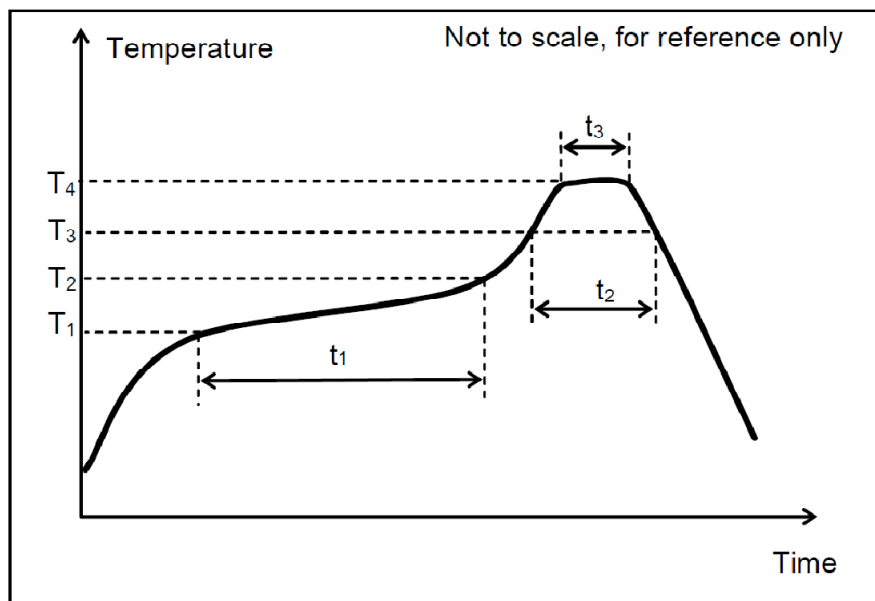


Figure 1. Reflow profile for solderability testing.

Pb-free reflow profile requirements for solderability testing		
Parameter	Reference	Specification
Preheat minimum temperature	T <sub>1</sub>	150°C
Preheat maximum temperature	T <sub>2</sub>	180°C
Preheat time	t <sub>1</sub>	60...120 s
Time above 217°C	t <sub>2</sub>	Max 30 sec
Peak temperature in reflow	T <sub>4</sub>	230°C (-0/+5°C)
Time at peak temperature	t <sub>3</sub>	10 s
Temperature gradient in cooling		Max -5°C/s

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## Reflow soldering profile for soldering heat resistance testing

The reflow profile specified in this section describes expected maximum heat exposure of components during the reflow process .

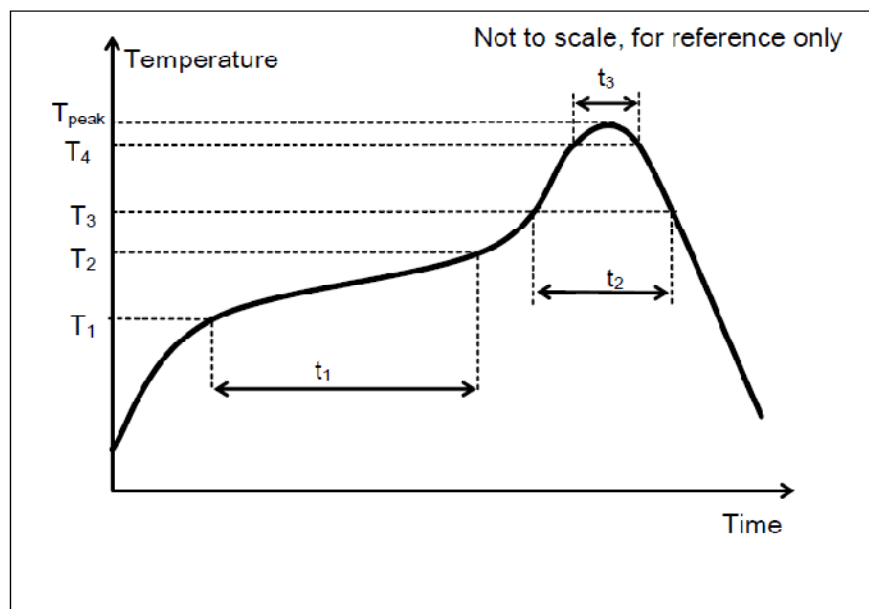


Figure 2. Reflow profile for soldering heat resistance testing.

Pb-free reflow profile requirements for soldering heat resistance		
Parameter	Reference	Specification
Preheat minimum temperature	T <sub>1</sub>	150°C
Preheat maximum temperature	T <sub>2</sub>	180°C
Preheat time	t <sub>1</sub>	120...180 s
Time above 217°C (T <sub>3</sub> )	t <sub>2</sub>	Min 65 s
Time above 250°C (T <sub>4</sub> )	t <sub>3</sub>	Min10 s
Peak temperature in reflow	T <sub>peak</sub>	255°C (-0/+5°C)
Temperature gradient in cooling		Max -5°C/s
Time from 40°C to 220°C		Min. 200 s

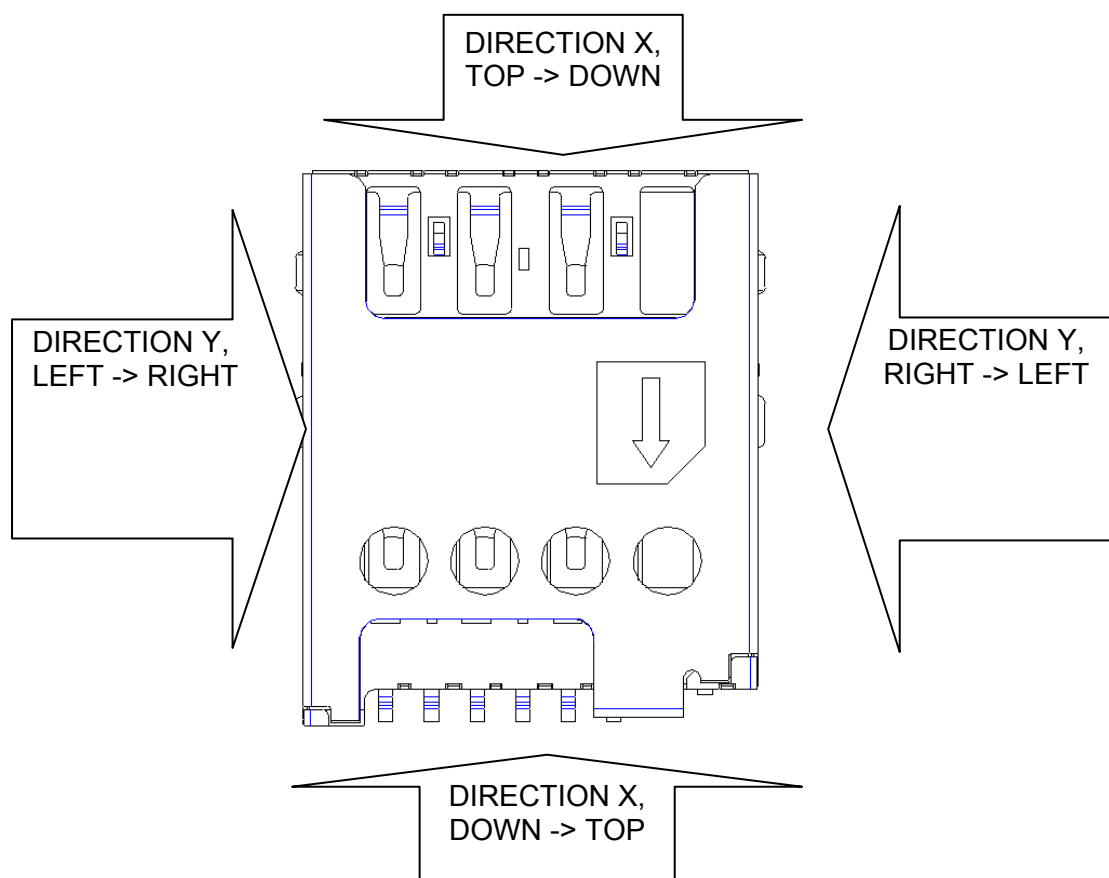
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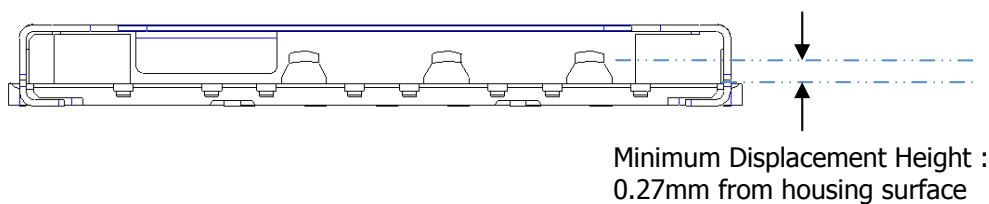
## APPENDIX 1 :

### Solder Joint Peel Strength Pushing Direction



## APPENDIX 2 :

### Minimum Displacement Height



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