

## 1.30MM HEIGHT BLOCK SIM CONNECTOR

### 1.0 SCOPE

This Product Specification covers the performance requirements of the SIM Card Connector (Block SIM)

### 2.0 PRODUCT DESCRIPTION

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

**Product Name**

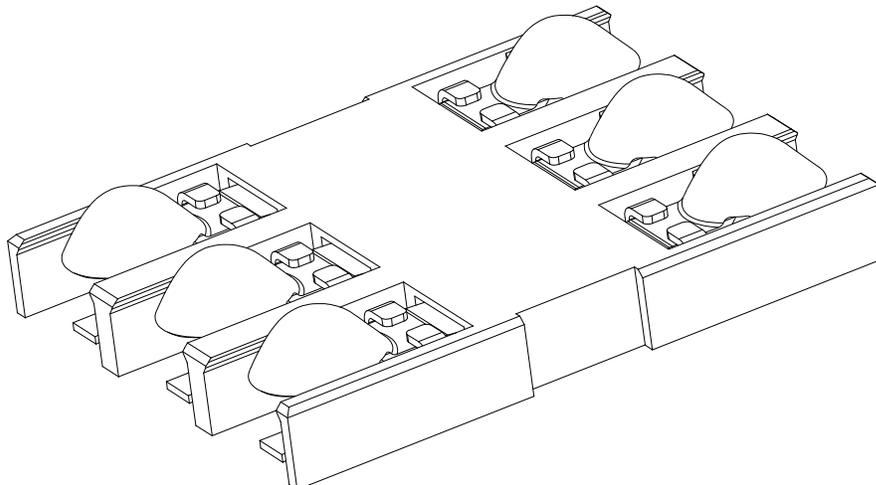
1.30MM HEIGHT BLOCK SIM CONNECTOR

**Series Number**

47550

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

See Sales Drawing SD-47550-002 for 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.

REVISION: <b>1</b>	ECR/ECN INFORMATION: EC No: <b>S2015-0672</b> DATE: <b>2014/12/16</b>	TITLE: <b>1.30MM HEIGHT BLOCK SIM CONNECTOR</b>	SHEET No. <b>1 of 8</b>
DOCUMENT NUMBER: <b>PS-47550-001</b>	CREATED / REVISED BY: <b>GMENARLY 2014/12/19</b>	CHECKED BY: <b>SCHEONG 2014/12/19</b>	APPROVED BY: <b>VICTOR LIM 2014/12/19</b>

### 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 VOLTAGE

15 Volt DC Max

#### 4.2 CURRENT

0.5Amps Max. per contact

#### 4.3 TEMPERATURE

Operating: - 30°C to + 85°C

Storage: - 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

### 6.0 PERFORMANCE

#### 6.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Low Level Contact Resistance (LLCR)	Mate connectors with dry circuit (20 mV, 100mA MAX) at minimum deflection Refer to Appendix 1) (EIA-364-23C)	Contact resistance 50 milliohms [MAXIMUM] [initial] Value includes bulk resistance of terminal.
2	Insulation Resistance	Unmated connectors: apply a voltage of 500 VDC between adjacent contact for 1 minutes	1000 Megohms MINIMUM
3	Dielectric Withstanding Voltage	Unmate connectors: apply a voltage of 500 VAC for 1 minute between adjacent contact	No voltage breakdown
4	Temperature Rise	Mated and measure the temperature rise at the rated current 0.5A after: 96 hours	Temperature rise: +30°C MAXIMUM

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## 6.2 MECHANICAL REQUIREMENTS

TEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	<b>Contact Normal Force</b>	Measure normal force at minimum deflection of terminal and maximum deflection after 3X reflow (Refer to appendix 2)	<b>0.2N</b> min at min. deflection Force measured from return curve, <b>0.6N REF</b> at max. deflection
6	<b>Terminal Retention Force</b>	Axial pullout force on the terminal in the housing at a rate of <b>25 ± 6 mm (1 ± ¼ inch)</b> per minute.	<b>3 N</b> MINIMUM PER contact
7	<b>Durability (Horizontal Direction 1)</b>	Mate connectors to <b>400-600</b> cycles/hour to 3000 cycles. Horizontal insertion for max deflection case (Refer to Appendix 3)	No mechanical damage. Contact resistance <b>100</b> milliohms [MAXIMUM] Normal force within spec.
8	<b>Durability (Horizontal Direction 2)</b>	Mate connectors to <b>400-600</b> cycles/hour to 3000cycles. Vertical insertion for max deflection case. (Refer to Appendix 3)	No mechanical damage. Contact resistance <b>100</b> milliohms [MAXIMUM] Normal force within spec
9	<b>Durability (Vertical)</b>	Mate connectors at 2.54cm/minute to 10000cycles. Vertical insertion for maximum deflection case	Normal force within spec. No mechanical damage. Contact resistance <b>100</b> milliohms MAX
10	<b>Solder Joint Peeling Strength</b>	Apply a load to the connector parallel to the PWB in direction 1 and 2 (see figure below) (Refer to Appendix 3 & 4)	No mechanical damage
11	<b>Vibration (Random)</b>	Frequency: 10~100 HZ, 0.0132 g <sup>2</sup> /Hz; Frequency: 100~500 Hz, -3dB/Oct. Applied for 1 hours in each 3 mutually perpendicular axes	No mechanical damage. No change to performance of connector. Contact resistance <b>100</b> milliohms MAXIMUM Discontinuity < 1 microsecond
12	<b>Mechanical 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. (EIA 364-27B) – Test condition A	No mechanical damage. Contact resistance <b>100</b> milliohms [MAXIMUM] & Discontinuity < 1 microsecond

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<b>13</b>	<b>Solderability</b>	<p>Solder paste is deposited on a ceramic plate via stencil.</p> <p>The connectors are steam aged and placed onto the solder paste print.</p> <p>The substrate is processed through a forced hot convection oven. Refer to section 9.0 for temp profile.</p> <p>The connectors are removed from the ceramic and inspected.</p> <p>Steam Aging: 8 hour (ANSI-J-STD 002)</p>	Min. Solder coverage = <b>95%</b>
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### 6.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
14	Thermal Shock	50 cycle at Ta=-55°C for 0.5 hours, then change of temp=25°C Maximum 5min, then Tb=+85°C for 0.5 hours, then cool to ambient Recovery: 2hours at ambient atmosphere	No mechanical damage  Contact resistance <b>100</b> milliohms [MAXIMUM]
15	Dry cold (steady state) IEC60068-2-1Ab	At -40°C for 96 hours Recovery: 2hours	No mechanical damage. No change to performance of connector.  Contact resistance <b>100</b> milliohms MAXIMUM
16	Dry heat (steady state) IEC60068-2-2Bb	At +85°C for 96 hours Recovery: 2hours	No mechanical damage. No change to performance of connector.  Contact resistance <b>100</b> milliohms MAXIMUM
17	Damp Heat (Cyclic)	Temp 25-55°C and 90-100%RH for 6 cycles of 24 hours Recovery at 25°C and 25~75%RH for 2hours. (Typical cycle in temp 25°C -> 55°C in 3 hours; then maintain at 55°C for 9hours -> 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> milliohms [MAXIMUM]
18	Resistance to Soldering Condition	Unmated samples to be passed through reflow oven according to temp profiles shown in appendix 1 three times (Sequence: above PCB—under PCB—under PCB)	No mechanical damage

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## 7.0 PACKAGING

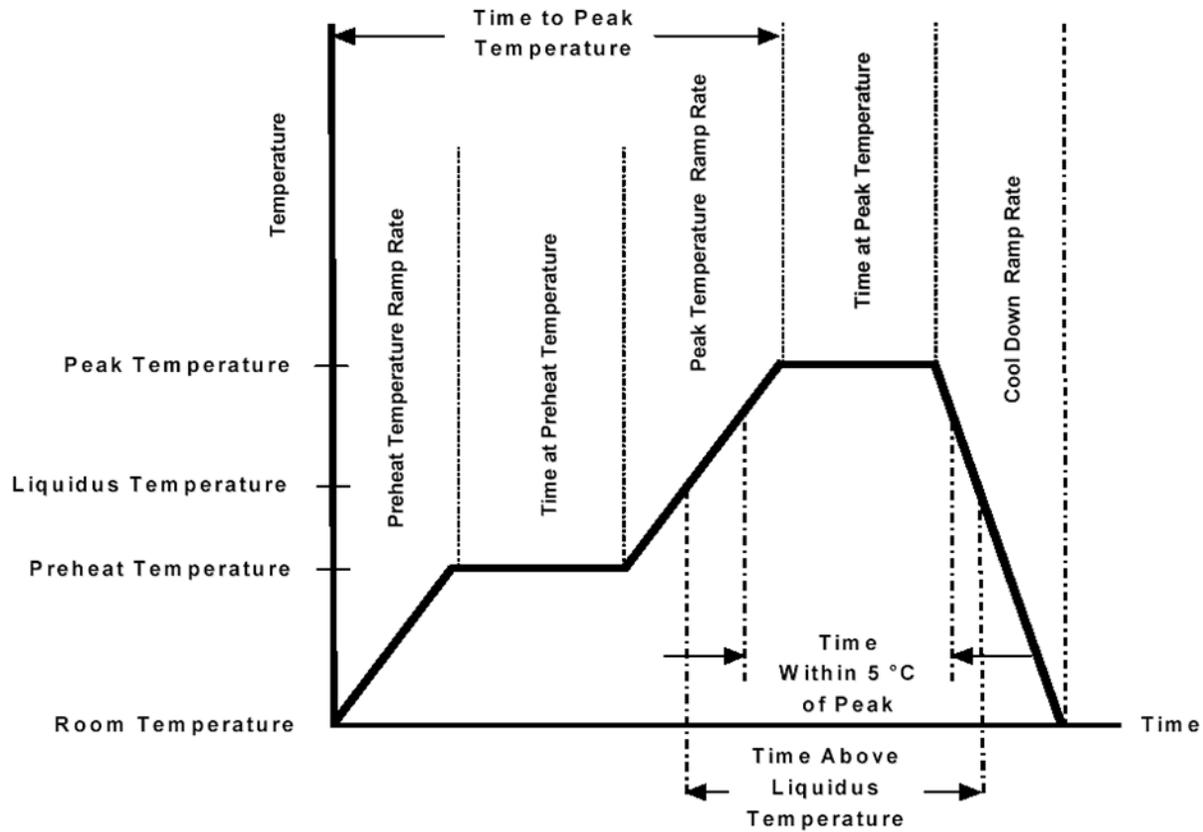
Parts shall be packaged to protect against damage during handling, transit and storage. The parts shall be carried in reels inside boxes

## 8.0 TEST SEQUENCES

Test Group →	Grp1	Grp2	Grp3	Grp4	Grp5	Grp6	Grp7
Test or Examination ↓							
Sample size	5	5	5	5	5	5	5
Contact Plating (thickness)	1		1		1		
Appearance (corrosion) check	3						
Low level Contact Resistance			3,7,9,1 2,15	2,5	3,6,8, 10		
Insulation Resistance			4,16				
Dielectric Withstanding Voltage			5,17				
Temperature Rise		1					
Contact Normal Force			10,13	3,6	4,11		
Terminal Retention Force	4						
Durability (Horizontal Direction 1&2)			11				
Durability (Vertical)				4			
Dry Cold			6				
Dry Heat			8				
Damp Heat (cyclic)	2		14				
Vibration					9		
Mechanical Shock					7		
Thermal Shock					5		
Solder joint peel strength (X axis)						2	
Solder joint peel strength (Y axis)							2
Resistance to Solder Conditions			2	1	2		
Solder ability						1	1

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## 9.0 SOLDERING PROFILE

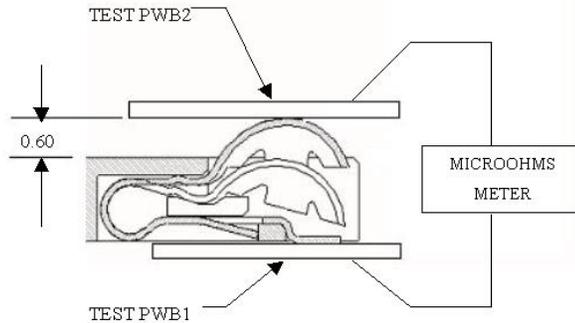


TEMPERATURE CONDITION GRAPH  
(TEMPERATURE ON BOARD PATTERN SIDE)

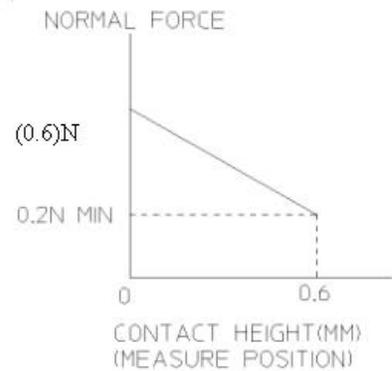
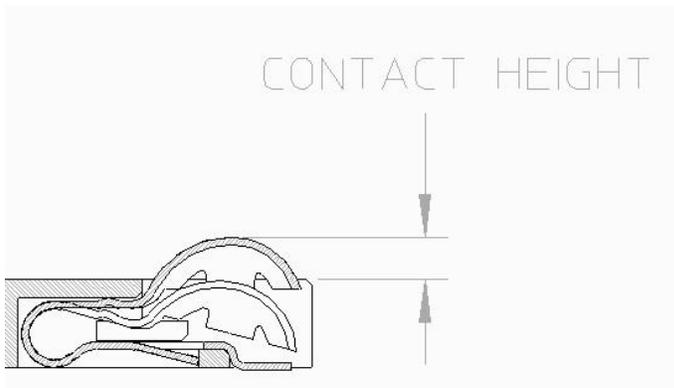
Description	Requirement
Average Ramp Rate	3°C/sec Max
Preheat Temperature	150°C Min to 200°C Max
Preheat Time	60 to 120 sec
Ramp to Peak	3°C/sec Max
Time over Liquidous (217°C)	60 to 150 sec
Peak Temperature	260°C +0/-5°C (High Temperature)
Time within 5°C of Peak	30 sec MIN
Ramp - Cool Down	6°C/sec Max
Time 25°C to Peak	8 min Max

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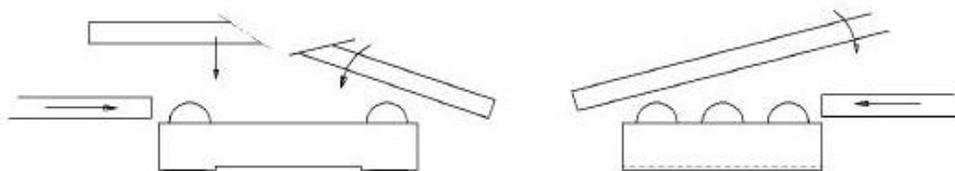
**APPENDIX 1:**  
Contact Resistance Measurement



**APPENDIX 2:**  
Contact normal force measurement



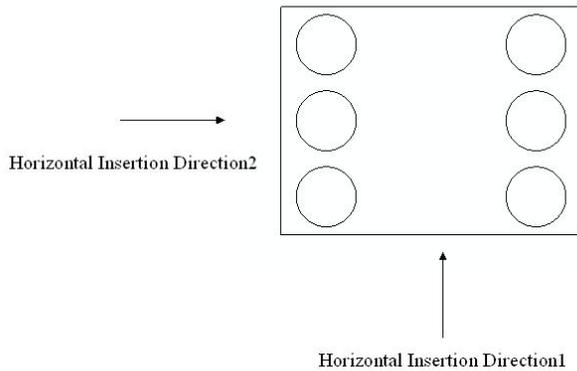
**APPENDIX 3:**  
Card Insertion directions in durability



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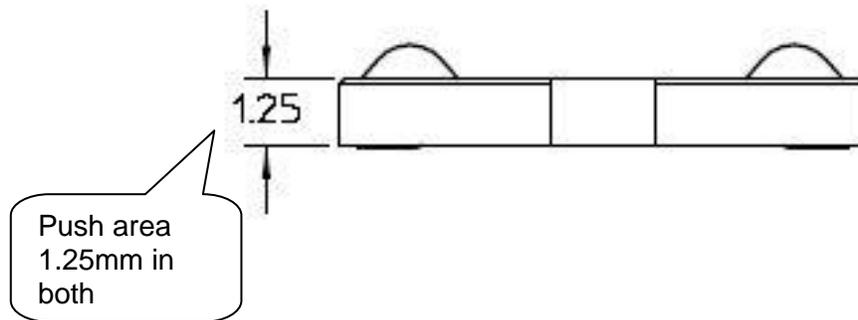
### APPENDIX 3:

#### Card Insertion directions in durability



### APPENDIX 4:

#### Solder Joint Peeling Force



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