



# PRODUCT SPECIFICATION

## MICRO SIM CONNECTOR, PUSH PULL WITH DETECT PIN, 1.40mm HEIGHT

### 1.0 SCOPE

This Product Specification covers the performance requirements of the SIM Card Connector (Shell Type).

### 2.0 PRODUCT DESCRIPTION

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

**Product Name**

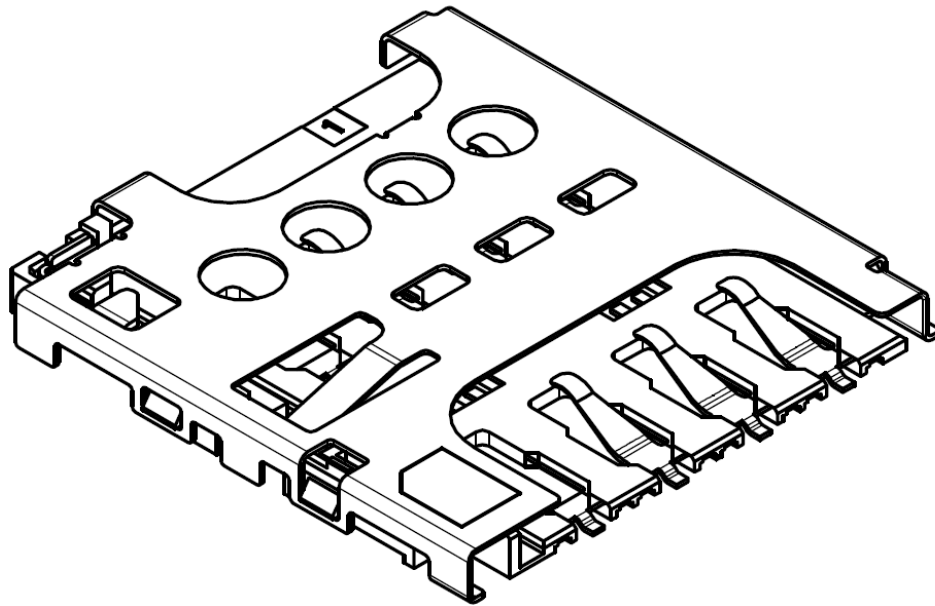
**Series Number**

MICRO SIM CONNECTOR, PUSH PULL WITH DETECT PIN,  
1.40MM HEIGHT

78727

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

See Sales Drawing SD-78727-001 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.

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| <u>DOCUMENT NUMBER:</u><br><b>PS-78727-001</b> | <u>CREATED / REVISED BY:</u><br><b>EAng 2011/12/29</b>                             | <u>CHECKED BY:</u><br><b>JTAN 2012/01/06</b>  | <u>APPROVED BY:</u><br><b>KHLIM 2012/01/06</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

10 Volt DC Max.

### 4.3 TEMPERATURE

Operating: - 40°C to + 85°C  
Storage (with packaging): - 40°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 (With Non Solder Mask Defined at terminal soldertail)

## 6.0 PERFORMANCE

### 6.1 ELECTRICAL REQUIREMENTS

| ITEM | DESCRIPTION                         | TEST CONDITION   | REQUIREMENT  |
|------|-------------------------------------|--|--|
| 1    | Low Level Contact Resistance (LLCR) | 1. Mate connectors with dry circuit (20 mV, 100mA MAX) on mated connector.<br>2. Between Detect Spring and Detect Contact<br>Refer to appendix 1.<br>(EIA-364-23C) | 100 milliohm [MAXIMUM]<br>[initial]<br>Value includes bulk resistance of terminal or Detect switch |
| 2    | Insulation Resistance               | Apply a voltage of 100 V DC between adjacent terminals.<br>Electrification Time: 1 min<br>(EIA-364-21D)  | 1000 Megohms [MINIMUM]   |

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| <b>3</b> | <b>Dielectric Withstanding Voltage</b> | Unmated connectors: apply a voltage of <b>500 VAC</b> between adjacent contact for <b>1 minutes</b><br>(EIA-364-20C) | No voltage breakdown                         |
| <b>4</b> | <b>Temperature Rise</b>                | Mated and measure the temperature rise of contact, when rated current is passed.<br>(EIA-364-70B) - Method1          | Temperature Rise<br><b>30°C</b><br>[MAXIMUM] |

## 6.2 MECHANICAL REQUIREMENTS

| ITEM     | DESCRIPTION  | TEST CONDITION   | REQUIREMENT   |
|----------|--|--|---|
| <b>5</b> | <b>Contact Normal Force</b>                        | Apply perpendicular force to terminal at the rate of 12.5mm/min. Measure contact normal force at 0.27mm working height, read at return curve.<br>Refer to appendix 2.  | 0.35N Min initial<br>0.30N Min after test<br><b>1.15N (REF) max</b>                 |
| <b>6</b> | <b>Durability (Horizontal Insertion Direction)</b> | Mate and unmate connectors to 500cycles at a maximum rate of 720cycles/hour.<br>Take LLCR readings at 500 <sup>th</sup> cycle<br>Refer to appendix 3.<br>(EIA-364-09C) | Contact resistance<br><b>100 milliohms</b><br>[MAXIMUM]                             |
| <b>7</b> | <b>Card insertion force</b>                        | Insert the card at a speed rate of 25+/- 3mm/min<br>(EIA 364-13D)  | <b>10N</b><br>[MAXIMUM]   |
| <b>8</b> | <b>Card withdrawal force</b>                       | Withdraw the card at a speed rate of 25+/- 3mm/min<br>(EIA 364-13D)  | <b>0.5N</b><br>[MINIMUM]  |
| <b>9</b> | <b>Vibration (Random)</b>                          | Random Vibration, 15g peak<br>Frequency: 10~2000Hz, 0.4 g <sup>2</sup> /Hz;<br>3 mutually perpendicular plane<br>20 min per plane, 18 shock total<br>(EIA 364-28E)     | Contact resistance<br><b>100 milliohms</b><br>[MAXIMUM]<br><br>Discontinuity < 1 μs |

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| <b>10</b> | <b>Mechanical Shock<br/>(specified pulse)</b> | Pulse shape = half sine<br>Peak acceleration = 490m/s <sup>2</sup> (50G)<br>Duration of pulse = 11ms<br>Apply 3 successive shocks in each direction along the 3 mutually perpendicular axes.<br>(EIA 364-27B) – Test condition A | Contact resistance<br><b>100 milliohms</b><br>[MAXIMUM]<br><br>Discontinuity < 1 μs |
|-----------|---|--|---|

## 6.3 ENVIRONMENTAL REQUIREMENTS

| ITEM | DESCRIPTION   | TEST CONDITION  | REQUIREMENT  |
|------|---|---|--|
| 11   | <b>High Temperature Storage Life<br/>(steady state)</b> | At +85°C for 120 hours<br>Recovery: 1~2 hours at ambient atmosphere   | Contact resistance<br><b>100 milliohms</b><br>[MAXIMUM]  |
| 12   | <b>Thermal Shock</b>                                    | Expose the mated connectors to the following condition for 5 cycles (60 mins/cycle):<br>-55°C (30 min) ↔ 105°C (30 min)<br>Transit time shall be within 5 mins (Max)<br>(EIA-364-32E) - Test condition VII  | No mechanical damage, corrosion and oxidation at contact area<br><br>Contact resistance<br><b>100 milliohms</b><br>[MAXIMUM]                         |
| 13   | <b>Cyclic Humidity</b>                                  | Cycle the part between 25°C+/-3°C at 80%+/-3%RH and 65°C+/-3°C at 50%+/-3%RH<br><br>Ramp times should be 30mins and dwell times to be 1hour. Dwell times start when temp and humidity have stabilized within the specified levels. Perform 24 cycles  | Contact resistance<br><b>100 milliohms</b><br>[MAXIMUM]<br><br>Insulation resistance<br><b>1000 Megohms</b><br>[MINIMUM]<br><br>No voltage breakdown |
| 14   | <b>Salt Spray</b>                                       | Expose the mated connectors to the following salt mist condition:<br>Concentration : 5±1%<br>Temperature : 35±2°C<br>Test time : 48h<br>Note: Remove the salt deposits by a gentle wash or dip in running water, follow by natural drying under room temperature for 2 hours before the measurement<br>(EIA-364-26B) – Test condition B | Contact resistance<br><b>100 milliohms</b><br>[MAXIMUM]  |

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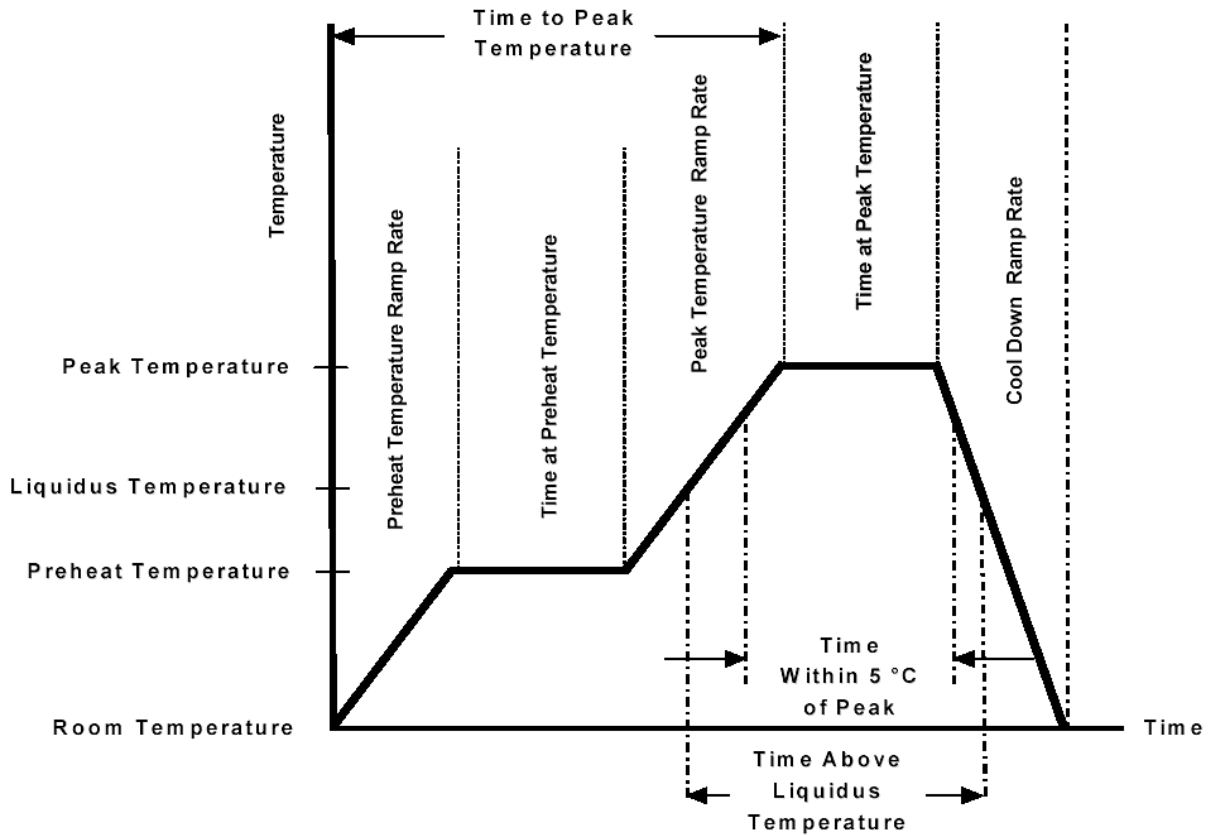
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| 15 | <b>Solderability</b>                     | Solder paste is deposited on a ceramic plate via stencil.<br>The connectors are steam aged and placed onto the solder paste print.<br>The substrate is processed through a forced hot convection oven. Refer to section 9.0 for temp profile.<br>The connectors are removed from the ceramic and inspected.<br>Steam Aging: 1 hour<br>(ANSI-J-STD 002) | Solder coverage = 95%<br>[MINIMUM] |
| 16 | <b>Resistance to Soldering Condition</b> | Unmated sample to be passed through reflow over according to temp profiles (shown in section 9.0) 3X times<br>See Graph below  | No mechanical damage               |

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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)<br>245°C +0/-5°C (Low 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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## 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. For details, kindly refer to Packaging spec PK-78712-001 and Sale drawing SD-78712-001.

## 8.0 TEST SEQUENCES

| Test Group →                       | Group 1 | Group 2 | Group 3 | Group 4 | Group 5 | Group 6 | Group 7<br>(Screen Test) | Group 8<br>(Screen Test) | Group 9<br>(Screen Test) |
|------------------------------------|---------|---------|---------|---------|---------|---------|--------------------------|--------------------------|--------------------------|
| <b>Test or Examination</b><br>↓    |         |         |         |         |         |         |                          |                          |                          |
| <b>Sample size</b>                 | 5       | 5       | 5       | 5       | 5       | 5       | 5                        | 5                        | 5                        |
| Resistance to Soldering Conditions | 1       | 1       | 1       | 1       | 1       | 1       | 1                        |                          | 1                        |
| Contact Resistance (LLCR)          | 2,5     | 2,4,6,8 |         | 2,4     | 4,6     |         | 2,7                      |                          |                          |
| Insulation Resistance              |         |         | 2,6     |         |         |         |                          |                          | 2                        |
| Dielectric Withstanding Voltage    |         |         | 3,7     |         |         |         |                          |                          | 3                        |
| Temperature Rise                   |         |         |         |         |         | 2       |                          |                          |                          |
| Contact Normal Force               |         |         |         |         |         |         | 3,8                      |                          |                          |
| Durability (Horizontal Direction)  |         | 3       |         |         |         |         | 6                        |                          |                          |
| Card Insertion Force               |         |         |         |         | 2,7     |         | 4,9                      |                          |                          |
| Card Withdrawal Force              |         |         |         |         | 3,8     |         | 5,10                     |                          |                          |
| Vibration                          | 4       |         |         |         |         |         |                          |                          |                          |
| Mechanical Shock                   | 3       |         |         |         |         |         |                          |                          |                          |
| High Temperature Storage Life      |         |         |         |         | 5       |         |                          |                          |                          |
| Thermal Shock                      |         | 5       | 4       |         |         |         |                          |                          |                          |
| Cyclic Humidity                    |         | 7       | 5       |         |         |         |                          |                          |                          |
| Salt Spray                         |         |         |         | 3       |         |         |                          |                          |                          |
| Solderability                      |         |         |         |         |         |         |                          | 1                        |                          |

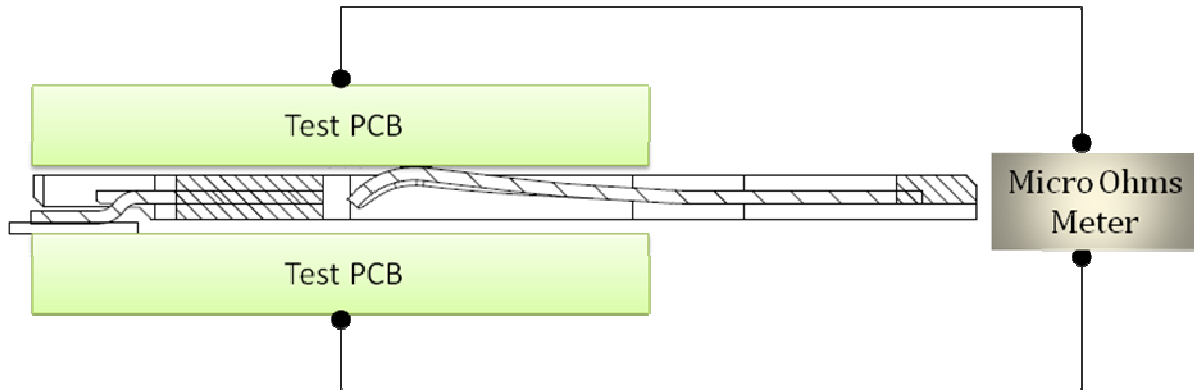
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## APPENDIX 1:

### Contact resistance measurement



## APPENDIX 2:

### Contact normal force measurement

Working Height 0.27mm



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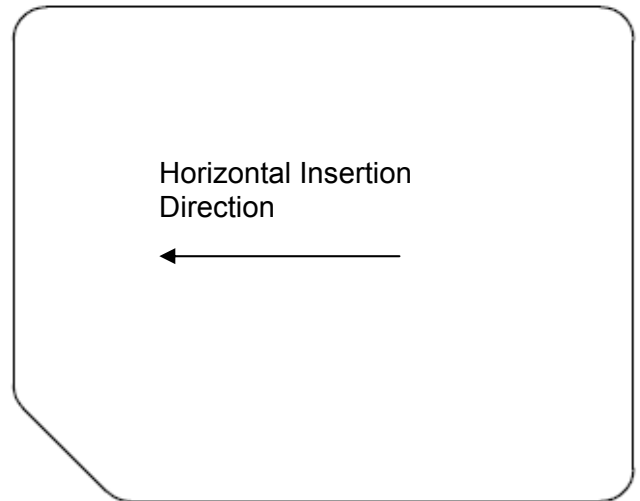
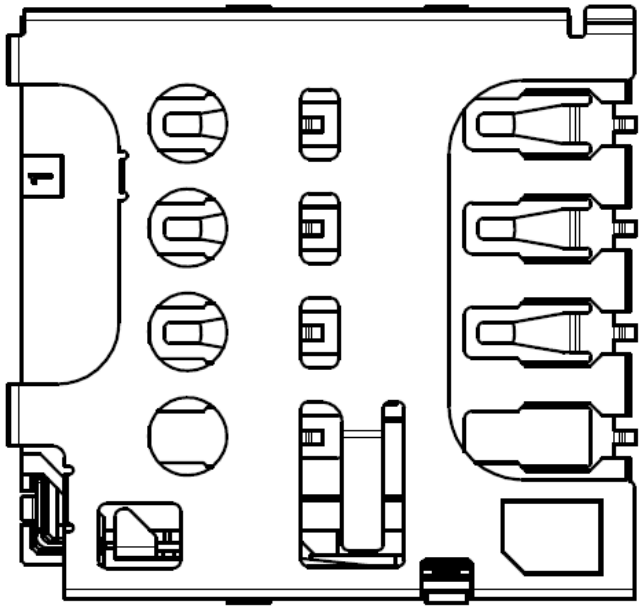




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## APPENDIX 3:

### Card insertion directions in durability



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