



PRODUCT SPECIFICATION

SIM CARD CONNECTOR Frame WITH PIVOT ARM

1.0 SCOPE

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

(This part is a frame only, it must be used together with Molex 0.35mm block SIM 151032 for an entire SIM pop out system)

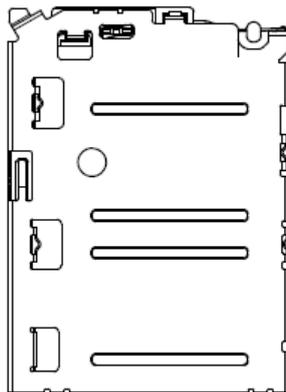
2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

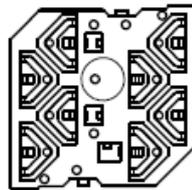
<u>Product Name</u>	<u>Series Number</u>
SIM CONNECTOR FRAME, WITH DETECT PIN	151031
SIM CONNECTOR TRAY	151031
SIM CARD CONNECTOR (BLOCK SIM)	151032

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See Sales Drawing SD-151031-0001 and SD-151032-0001 for information on dimensions, materials, platings and markings.



151031



151032

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> PS-151031-0001	<u>CREATED / REVISED BY:</u> Jzeng	<u>CHECKED BY:</u> JTAN	<u>APPROVED BY:</u> KHLIM



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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: - 30°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)	1. Mate connectors with dry circuit (20 mV, 100mA MAX) on mated connector. 2. Between Detect Spring and Detect Contact Shell (Refer to appendix 1) (EIA-364-23C)	Block sim terminal and sim card: 50 milliohm [MAXIMUM] Detect pin and detect contact shell: 100 milliohm [MAXIMUM] No mechanical damage
2	Insulation Resistance	Unmated connectors Apply a voltage of 100 V DC between adjacent terminals. Electrification Time: 1 min (EIA-364-21D)	1000 Megohms [MINIMUM] No mechanical damage

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3	Dielectric Withstanding Voltage	Unmated connectors: apply a voltage of 500 VAC between adjacent contact for 1 minutes (EIA-364-20C)	No voltage breakdown No mechanical damage
4	Temperature Rise	Mated and measure the temperature rise of contact, when rated current is passed. (IEC 60512-5-1)	Temperature Rise 30°C [MAXIMUM] No mechanical damage

6.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	Contact Normal Force	Measure contact normal force at 0.14mm away from housing top surface and at maximum deflection (0mm from housing) (refer to Appendix 2) Note : a) All forces to be measured at returned curve. b) Force to be taken after 5X cycle mate and unmate	1. 0.30N min at 0.14mm away from housing top surface No mechanical damage
6	Tray Insertion and Withdrawal (direct pull out tray) (with Card)	Insert the card at a speed rate of 12.5+/-3mm/min (EIA 364-13D) Withdraw the card at a speed rate of 12.5+/-3mm/min (EIA 364-13D)	Insertion Force: 15N Max Withdrawal Force: 3N Min No mechanical damage
7	Durability (Horizontal Insertion Direction-machine)	Mate and unmate connectors to 3000cycles at a maximum rate of 720cycles/hour. Take LLCR readings at 3000 th cycle (Refer to appendix 3.) (EIA-364-09C)	Terminal Contact resistance 50 milliohms [MAXIMUM] Detect pin and detect contact shell: 100 milliohm [MAXIMUM] No mechanical damage
8	Solder Joint Peeling Strength	Apply a load to the connector frame parallel to the PWB (X & Y direction) (refer to Appendix 4)	50N min

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9	Solderability	<p>Solder paste is deposited on a ceramic plate via stencil. The connectors are steam aged and placed onto the solder paste print. The substrate is processed through a forced hot convection oven. Refer to section 9.0 for temp profile. The connectors are removed from the ceramic and inspected. Steam Aging: 8 hour (ANSI-J-STD 002)</p>	<p>Solder coverage = 95% [MINIMUM] No mechanical damage</p>
10	Vibration (Sine)	<p>Sine Vibration, 10g peak Frequency: 10~500Hz, 2 cycles per axis 15 mins per cycle (EIA 364-28F) – Test Condition II</p>	<p>Contact resistance 50 milliohms [MAXIMUM] Detect pin and detect contact shell: 100 milliohm [MAXIMUM] Discontinuity < 1 μs</p>
11	Mechanical Shock	<p>Pulse shape = half sine Peak acceleration = 490m/s² (50G) Duration of pulse = 11ms Apply 3 successive shocks in each direction along the 3 mutually perpendicular axes. (EIA 364-27B) – Test condition A</p>	<p>Block SIM Terminal Contact resistance 50 milliohms [MAXIMUM] Detect pin and detect contact shell: 100 milliohm [MAXIMUM] Discontinuity < 1 μs No mechanical damage</p>

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6.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
12	high Temperature Exposure	Expose connector to on test module to the condition of: 85°C for 96 hours, then recover 2 hours at ambient atmosphere; Check mechanical and electrical performance	Check Contact resistance: Terminal: 50 milliohms [MAXIMUM] Detect pin: 100 milliohms [MAXIMUM] No mechanical damage
13	Low Temperature Exposure	Expose connector to on test module to the condition of: -40°C for 96 hours, then recover 2 hours at ambient atmosphere; Check mechanical and electrical performance	Check Contact resistance: Terminal: 50 milliohms [MAXIMUM] Detect pin: 100 milliohms [MAXIMUM] No mechanical damage
14	Thermal Shock	Expose the mated connectors to the following condition for 25 cycles (60 mins/cycle): -40°C (30 min) ↔ 85°C (30 min) Transit time shall be within 5 mins (Max)	No mechanical damage, corrosion and oxidation at contact area Check Contact resistance: Terminal: 50 milliohms [MAXIMUM] Detect pin and detect contact shell: 100 milliohm [MAXIMUM]
15	Cyclic Humidity	Cycle the part between 25°C+/-3°C at 80%+/-3%RH and 65°C+/-3°C at 50%+/-3%RH 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 50 milliohms [MAXIMUM] Insulation resistance 1000 Megohms [MINIMUM] No voltage breakdown
16	Salt Spray	Expose the mated connectors to the following salt mist condition: Concentration : 5±1% Temperature : 35±2°C Test time : 48h 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 (EIA-364-26B) – Test condition B	Contact resistance Terminal : 50 milliohms [MAXIMUM] Detect pin : 100 milliohms [MAXIMUM]
17	Resistance to Soldering Condition	Unmated sample to be passed through reflow over according to temp profiles (shown in section 9.0) See Graph below	No mechanical damage

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7.0 PACKAGING

7.1 Frame (151031)

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-151031-xxxx and Sale drawing SD-151031-xxxx.

7.2 Block SIM (151032)

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-151032-xxxx and Sale drawing SD-151032-xxxx

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8.0 TEST SEQUENCES

8.1:

测试项目	Test Group									
	A (screen test)	B (screen test)	C (screen test)	D	E	F	G	H	I	J
Examination of connector(s)	1 6	1 8	1 3	1	1 7	1 10	1 9	1	1 3	1 8
Normal Force	3 5									
Insertion/Withdrawal Force		4 6								
Durability (machine)	4	5				4				
Solder Joint Peeling Force				3						
Solderability			2							
Vibration (Sine)					5					
Mechanical Shock					4					
LLCR		3 7			3 6	3 5 7 9		3 5		3 5 7
Insulation Resistance							3 7			
Dielectric Withstanding Voltage							4 8			
Temperature Rise									2	
High Temperature Exposure										6
Low Temperature Exposure										4
Thermal Shock						6	5			
Cyclic Humidity						8	6			
Salt spray								4		
Resistance to Soldering Conditions	2	2	2	2	2	2	2	2		2
Sample Size	5	5	5	5	5	5	5	5	5	5

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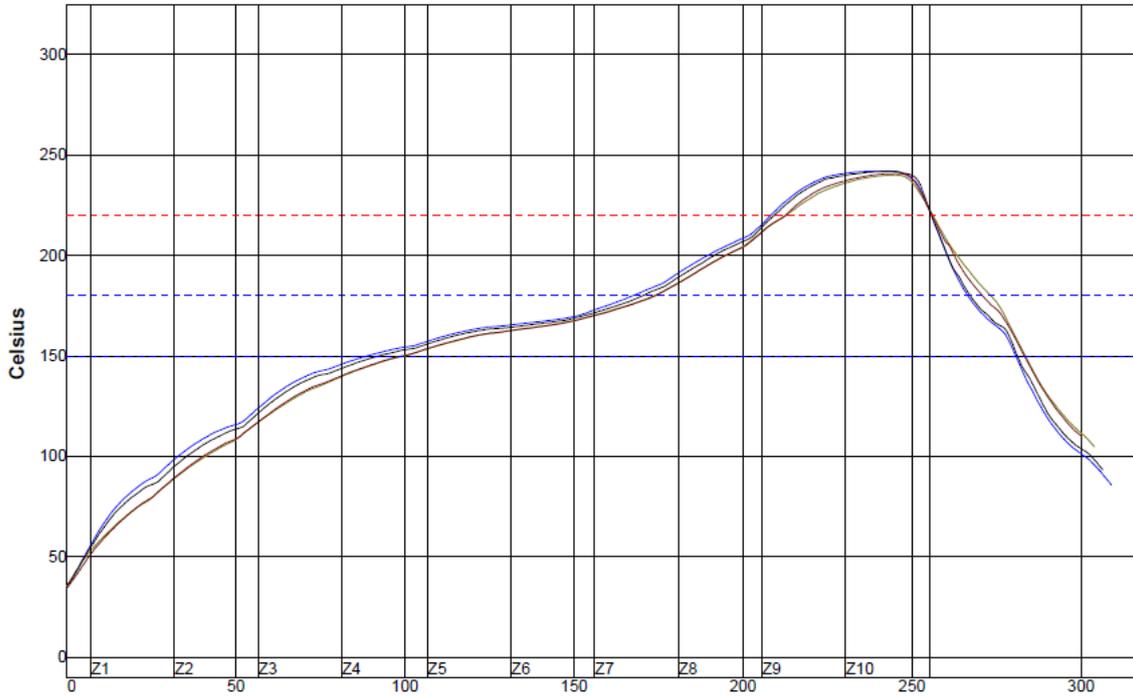


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9.0 SOLDERING PROFILE

Lenovo reflow graph

Setpoints (Celsius)										
Zone	1	2	3	4	5	6	7	8	9	10
Top	110	120	155	160	170	170	180	215	255	255
Bottom	110	120	155	160	170	170	180	215	255	255
Conveyor Speed (cm/min) : 90.0										



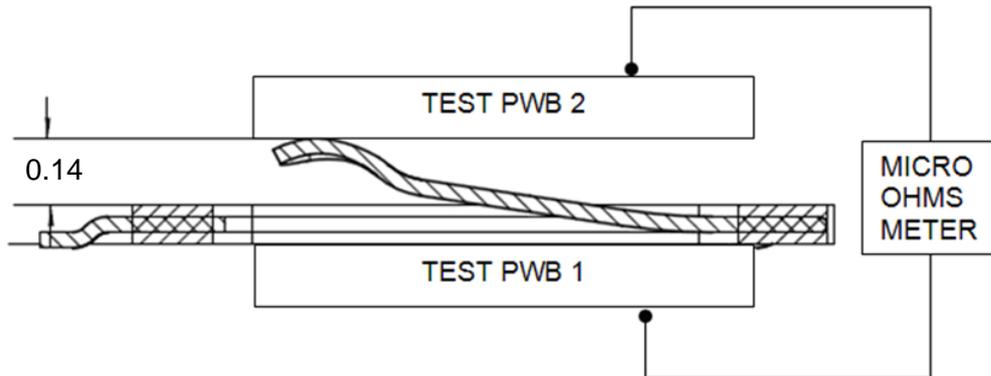
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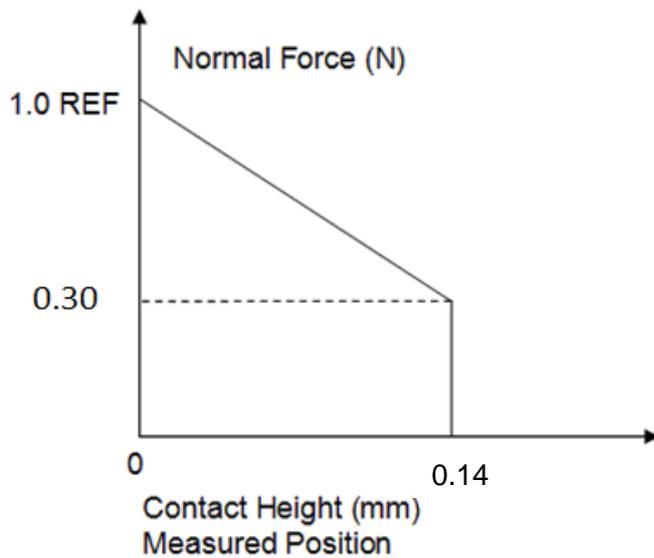
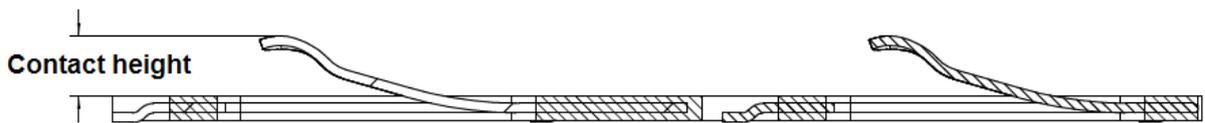
APPENDIX 1:

Contact resistance measurement

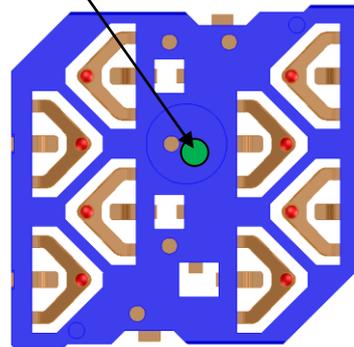


APPENDIX 2:

Contact normal force measurement



Datum Origin (Housing)



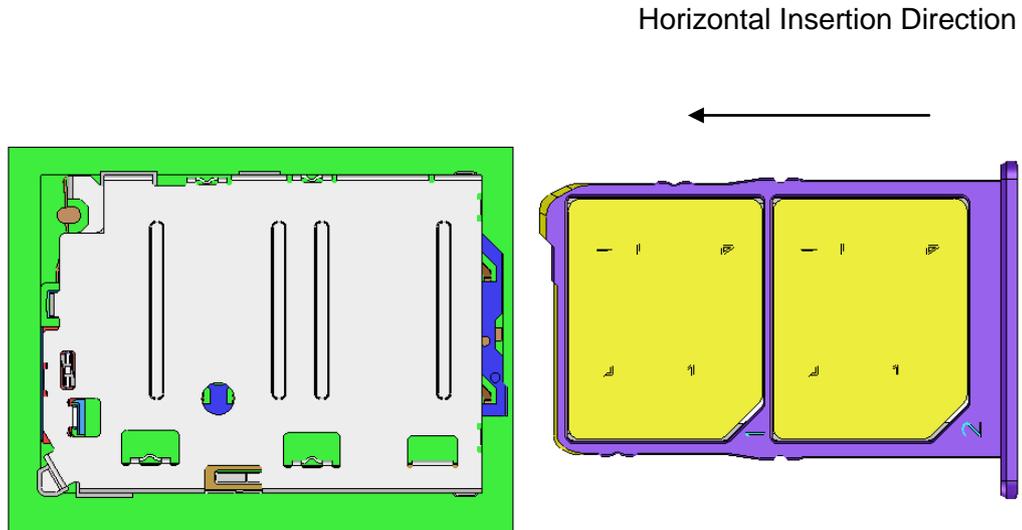
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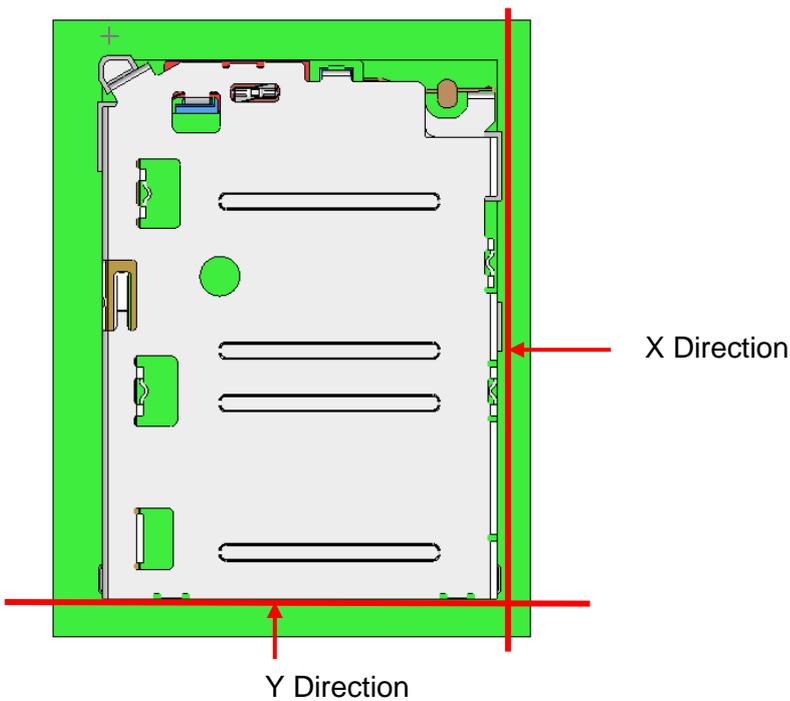
APPENDIX 3:

Card insertion directions in durability



APPENDIX 4:

Solder Joint Peeling Force Frame:



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