PRODUCT SPECIFICATION

MICRO SIM CARD CONNECTOR, 1.35MM HEIGHT, PUSH PULL

1.0 SCOPE

This Product Specification covers the performance requirements of the Micro SIM Card Connector.

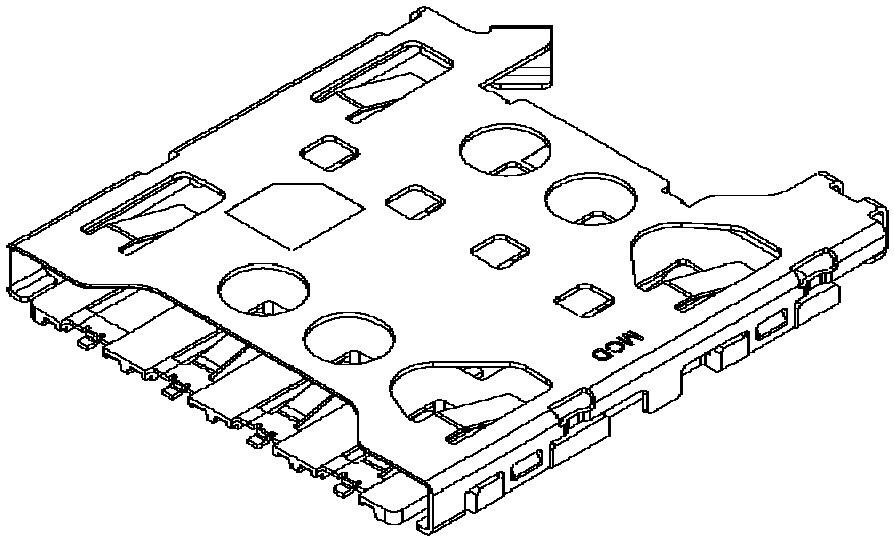
2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

Product Name	Series Number
MICRO SIM CARD CONNECTOR, 1.35MM HEIGHT, PUSH PULL	78723

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See Sales Drawing 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.

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
5 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

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) on mated connector. Refer to appendix 1. (IEC 60512-2-1)	**100** milliohm [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 (IEC 60512-3-1)	**1000** Megohms [MINIMUM]

3	**Dielectric Withstanding Voltage**	Unmated connectors: apply a voltage of **500** VAC between adjacent contact for **1** minutes (IEC 60512-3-1)	No voltage breakdown
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]

6.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	**Contact Normal Force**	Apply perpendicular force to terminal at the rate of 12.5mm/min. Measure contact normal force at 0.10mm working height, read at return curve. Refer to appendix 1.	**0.30N** min
6	**Durability (Horizontal Insertion Direction)**	Mate and unmate connectors to 500 cycles at a maximum rate of 720 cycles/hour. Take LLCR readings at 500th cycles.	Contact resistance **100** milliohms [MAXIMUM]
7	**Card insertion force**	Insert the card in mating direction at a Max. rate of 12.5 mm/min	**8N** [MAXIMUM]
8	**Card withdrawal force**	Withdraw the card in un-mating direction at a rate of 12.5 mm/min	**0.70N** [MINIMUM]
9	**Vibration (Random)**	Frequency: 10~100 Hz, 0.0132 g^2/Hz; Frequency: 100~500Hz, -3dB/Oct Applied for 1 hour in each 3 mutually perpendicular axes (IEC60068-2-64 Fh)	Contact resistance **100** milliohms [MAXIMUM] Discontinuity < 1 μs
10	**Solder Joint Peeling Strength**	Apply a load parallel to PCB (3directions). Refer to Appendix 2 for X & Y direction. Loading speed: 5mm/min.	**50N** [MINIMUM]

11	**Mechanical Shock (specified pulse)**	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. (IEC-60068-2-27 EA)	Contact resistance **100** milliohms [MAXIMUM] Discontinuity < 1 μs

6.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
12	**Low Temperature Storage Life (steady state)**	At -40°C for 96 hours Recovery: 2 hours at ambient atmosphere (IEC60068-2-1Ab)	Contact resistance **100** milliohms [MAXIMUM]
13	**High Temperature Storage Life (steady state)**	At +85°C for 96 hours Recovery: 2 hours at ambient atmosphere (IEC60068-2-2Bb)	Contact resistance **100** milliohms [MAXIMUM]
14	**Thermal Shock**	25 cycle at Ta = -55°C for 0.5 hours, then change of temp = 25°C MAX 5min, then, T_b = +85°C for 0.5hour, then cool to ambient Recovery: 2hours at ambient atmosphere (IEC60068-2-14 Test Na)	No mechanical damage, corrosion and oxidation at contact area Contact resistance **100** milliohms [MAXIMUM]
15	**Damp Heat (Cyclic)**	Temp 25-55°C and 90-100%RH for 18 cycles of 24hours. 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) (IEC60068-2-30Db)	Contact resistance **100** milliohms [MAXIMUM] Insulation resistance **1000** Megohms [MINIMUM] No voltage breakdown

16	**Salt Spray**	48 hours spray, at temp 35± 2°C, R/H 90-95%, Salt NaCl mist 5% after test was parts and return to room ambient for 1~2 hours (IEC60068-2-11 Test Ka)	Contact resistance **100** milliohms [MAXIMUM]
17	**Solderability**	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 hours (ANSI-J-STD 002)	Solder coverage = 95% [MINIMUM]
18	**Resistance to Soldering Condition**	Unmated sample to be passed through reflow over according to temp profiles (shown in section 9.0) 2X times	No mechanical damage

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-78723-001.

8.0 TEST SEQUENCES

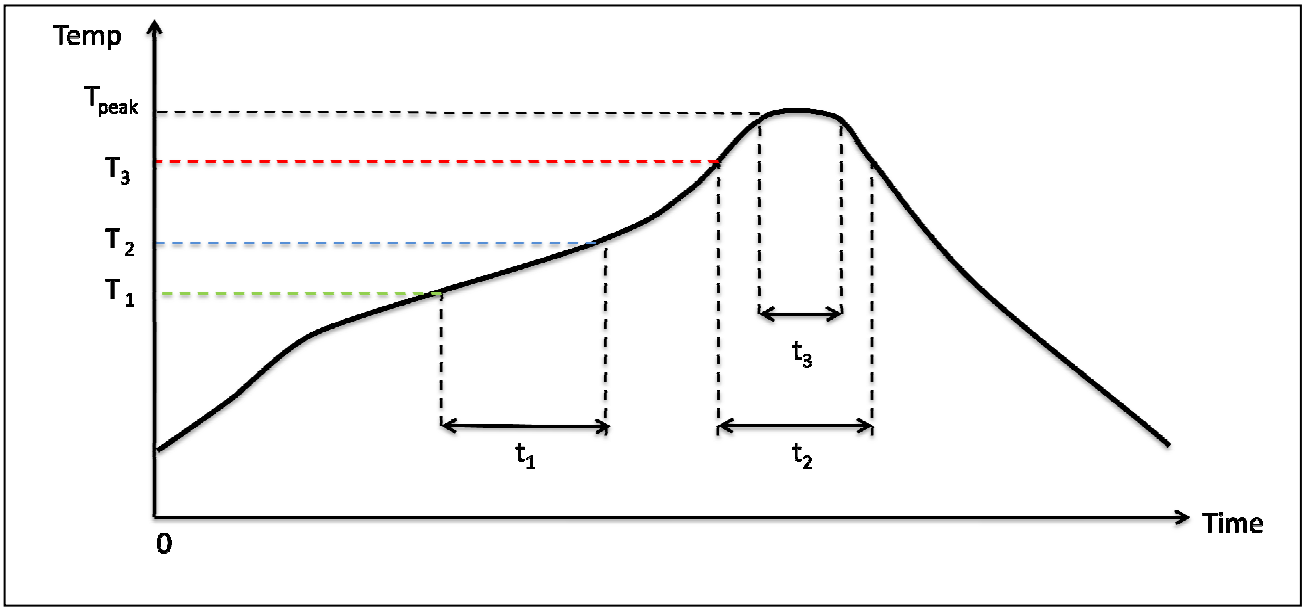
Test Group →	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Test or Examination ↓						
Sample size	5	5	5	5	5	5
Resistance to Soldering Conditions	1	1	1	1	1	1
Contact Resistance (LLCR)	2,4,6,8			2,5	2,4,6	2,4
Insulation Resistance		3,6				
Dielectric Withstanding Voltage		2,7				
Temperature Rise			2			
Contact Normal Force						
Durability (Horizontal Direction)	3					
Card Insertion Force						
Card Withdrawal Force						
Vibration				3		
Solder Joint Peeling Strength						
Mechanical Shock				4		
Low Temperature Storage Life					3	
High Temperature Storage Life					5	
Thermal Shock	5	4				
Damp Heat	7	5				
Salt Spray						3
Solderability						

Screen Test Group →	Group 1 (Screen Test)	Group 2 (Screen Test)	Group 3 (Screen Test)	Group 4 (Screen Test)
Test or Examination ↓				
Sample size	5	5	5	5
Resistance to Soldering Conditions	1	1	1	1
Contact Resistance (LLCR)	2,7			
Insulation Resistance		2,5		
Dielectric Withstanding Voltage		3,6		
Temperature Rise				
Contact Normal Force	3,8			
Durability (Horizontal Direction)	6	4		
Card Insertion Force	4,9			
Card Withdrawal Force	5,10			
Vibration				
Solder Joint Peeling Strength				2
Mechanical Shock				
Low Temperature Storage Life				
High Temperature Storage Life				
Thermal Shock				
Damp Heat				
Salt Spray				
Solderability			2	

9.0 SOLDERING PROFILE

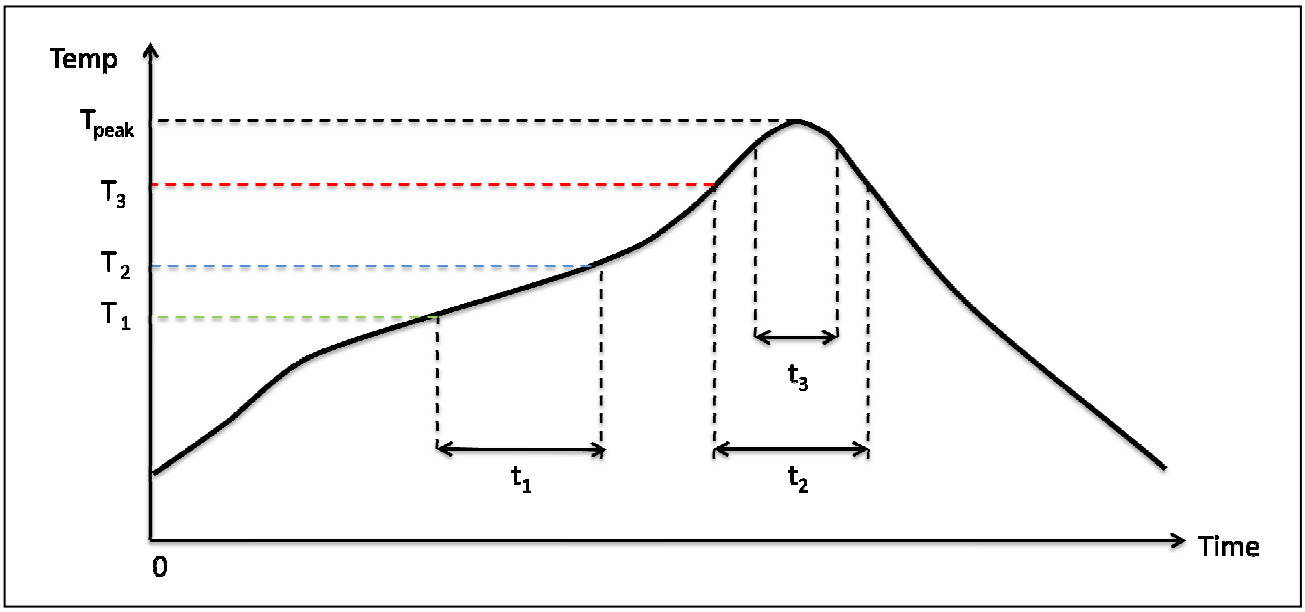
Pb-free reflow profile requirement for solderability testing

Pb-free reflow profile requirements for solderability testing		
Parameter	**Reference**	**Specification**
Average temperature gradient in preheating (25~130°C)		Max 2°C/s
Preheat temperature	T_1~T_2	130~165°C
Preheat time	t_1	60 ~ 120 s
Time above liquidus (T_3: 217°C)	t_2	Max 30s
Peak temperature in reflow	T_{peak}	230~235°C
Time within 5°C of peak	t_3	10 s
Temperature gradient in cooling		Max –5°C/s



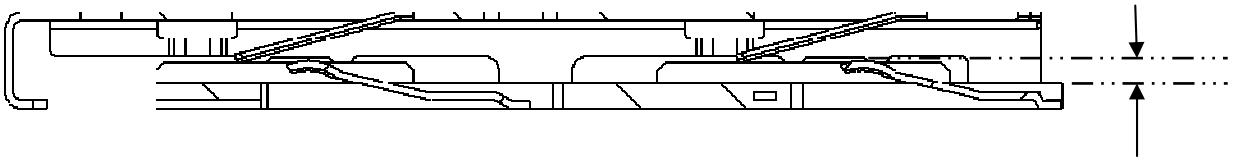
Reflow soldering profile for soldering heat resistance testing

Pb-free reflow profile requirements for soldering heat resistance		
Parameter	**Reference**	**Specification**
Average temperature gradient in preheating (25~130°C)		Max 2°C/s
Preheat temperature	T_1~T_2	130~165°C
Preheat time	t_1	60 ~ 120 s
Time above liquidus (T_3: 217°C)	t_2	35~60s
Peak temperature in reflow	T_{peak}	235~250°C
Time within 5°C of peak	t_3	Min 10 s
Temperature gradient in cooling		Max –5°C/s



APPENDIX 1:

Contact Force Measurement



APPENDIX 2:

Solder Joint Peeling Test measurement