



PRODUCT SPECIFICATION

8.5*8.5 CAMERA SOCKET CONNECTOR TOP MOUNT

1.0 SCOPE

This Product Specification covers the requirement of the Camera Socket Connector with series 105028 used in mobile phone.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

Product name: Camera Socket Connector

Series number: 105028

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See sales drawing SD-105028-101

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

See sales drawings and other sections of this specification for the relevant reference documents. In cases where the specification differs from the drawings, the sales drawings take precedence.

4.0 RATINGS

4.1 VOLTAGE

50 Volts DC Max.

4.2 CURRENT

0.5 Amps Max. per contact

4.3 TEMPERATURE

Operating: - 55°C to + 85°C

Storage : - 40°C to + 85°C

4.4 HUMIDITY

Storage : +15~70% RH

Test : +40~85% RH

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5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.1.1	Contact Resistance	Mate connectors with dry circuit (20mV, 10mA Max) at min. deflection position	60 milliohms Max.
5.1.2	Insulation Resistance	Mate connectors, apply 150 VDC between adjacent terminal or ground. Per MIL-STD-202 Method 302	400 Megaohms Min.
5.1.3	Dielectric Withstanding Voltage	Mate connectors, apply 150 VAC(RMS) for 1 minute between adjacent terminal or ground. Per MIL-STD-202 Method 301	No breakdown
5.1.4	Peak Current	Peak current capacity (per contact) Minimum 1.5 AMPS for 1 Minutes	No breakdown
5.1.5	Temperature Rise	Mated connectors: measure the temperature rise at the rated current after 4 hours Per EIA-364-70 Method 1	30°C Max.

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.2.1	Terminal / Housing Retention Force	Apply axial pull out force at the speed rate of 25±3 mm/minute on the terminal assembled in the housing.	1.0 N (0.10kgf) Min.
5.2.2	Durability	When mated up to 20 cycles repeatedly by the rate of 10 cycles per minute	No mechanical damage Contact resistance not exceed 80 milliohms

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5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.3.1	Solderability testing	Dip solder tails into the molten solder (held at 245+5°C for 5s)	Solder coverage: 95% Min. No mechanical damage or change to appearance.
5.3.2	Heat resistance testing	Samples to be passed through reflow oven according to temp profiles shown in Appendix 1	No mechanical damage or change to appearance.
5.3.3	Dry cold (steady state)	Terminal loaded under minimum deflection -40±3°C for 96 hours Recovery: 2hours Per MIL-STD-202 Method 108	No damage. Contact resistance not exceed 80 milliohms.
5.3.4	Dry heat (steady state)	Terminal loaded under minimum deflection 85±2°C for 96 hours Recovery: 2hours Per MIL-STD-202 Method 108	No damage. Contact resistance not exceed 80 milliohms.
5.3.5	Operating Temperature and Humidity	Mate connectors, 240 cycles at temperature 60±2°C at 95% relative humidity Per EIA-364-31	No mechanical damage. Contact resistance not exceed 80 milliohms. Insulation resistance not less than 50 Megaohms. Dielectric strength must meet Item 5.1.3
5.3.6	Thermal Cycle	Terminal loaded under minimum deflection Temperature under load: -55°C : 30 minutes +105°C : 30 minutes Quantity of cycles: 100	No mechanical damage. Contact resistance not exceed 80 milliohms.
5.3.7	Salt Spray	48 hours spray, at temp 35+/-2°C, R/H 90-95%, Salt NaCl mist 5% After test wash parts and return to room ambient for 2hours Per EIA-364-26B	No mechanical damage and visible corrosion. Contact resistance not exceed 80 milliohms.

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5.3.8	Vibration (random)	<p>Mate a test camera module, and at load current of 100mA DC, apply vibration to the connector in three different mutually perpendicular directions, below is the test spec.</p> <table border="1" data-bbox="560 392 1066 616"> <tr> <td colspan="2">Operating Random Vibration</td> </tr> <tr> <td colspan="2">3 axes, 30 minutes per axis, 1.67 Grms</td> </tr> <tr> <td>Frequency(Hz)</td> <td>A. S. D. (G²/Hz)</td> </tr> <tr> <td>10~200</td> <td>0.01</td> </tr> <tr> <td>200~500</td> <td>0.003</td> </tr> </table> <p>(EIA 364-28 Condition I)</p>	Operating Random Vibration		3 axes, 30 minutes per axis, 1.67 Grms		Frequency(Hz)	A. S. D. (G ² /Hz)	10~200	0.01	200~500	0.003	<p>No mechanical damage Contact resistance not exceed 80 milliohms. Signal discontinuity < 1 μs.</p>
Operating Random Vibration													
3 axes, 30 minutes per axis, 1.67 Grms													
Frequency(Hz)	A. S. D. (G ² /Hz)												
10~200	0.01												
200~500	0.003												
5.3.9	Shock	<p>Mate connectors and shock at 50g's with ½ sine wave(11 milliseconds) shocks in the ±X, ±Y, ±Z axes (18 shock total)</p>	<p>No mechanical damage Contact resistance not exceed 80 milliohms. Signal discontinuity < 1 μs,</p>										
5.3.10	H ₂ S Gas	<p>Terminal loaded under nominal deflection Gas concentration: 24 hours exposure to 3±1 ppm H₂S at 40±2 °C and 75%~80%RH .</p>	<p>No mechanical damage Contact resistance not exceed 80 milliohms.</p>										
5.3.11	Gradual Change of Temperature	<p>The specimens are cooled from 25°C to -40°C in steps of 10°C 1 hours in every step. After low temperature test area specimens are let to stabilize to room temperature. Then the specimens are heated from 25°C to 125°C with steps of 10°C 1 hours in every step</p>	<p>No mechanical damage , Meet 5.2.1 requirement</p>										
5.3.12	Damp Heat Cyclic	<p>Temp 25±3/55±2°C and humidity of 90~100% for 6 cycle of 24 hours. Cycle is: - Temp. change 25±3°C to 55 ±2°C in 3 hours - 9 hours in 55±2°C - Temp. change 55±2°C to 25 ±3°C in 3 hours - 9 hours in 25±3°C Recovery at 25°C and 25~70% humidity for 2 hours. Per IEC68-2-30 Db</p>	<p>No mechanical damage Contact resistance not exceed 80 milliohms. Insulation resistance not less than 50 Megaohms.</p>										

The meaning of text “**No mechanical damage**” in the table above is:

- a. no significant corrosion at contact area
- b. no adhesion problem of plating
- c. no blistering of plating
- d. no flaking of plating
- e. no loosen parts
- f. no cracks on any parts

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6.0 TEST GROUPINGS

Note: All test specimens (except group 5) shall pass the reflow process for 2 times.

Test Item	Description	Group1	Group2	Group3	Group4	Group5	Group6	Group7
5.1.1	Contact Resistance	2,9,11	2,4,9,12	2,4	2,4			
5.1.2	Insulation Resistance	3,12	5					
5.1.3	Dielectric Withstanding Voltage	4	6					
5.1.4	Peak current	5	7					
5.1.5	Temperature Rise							1
5.2.1	Terminal Retention Force					3		
5.2.2	Durability (Life cycle)	6						
5.3.1	Solderability						1	
5.3.2	Heat resistance	1	1	1	1	1		
5.3.3	Dry Cold	7						
5.3.4	Dry Heat	8						
5.3.5	Operating humidity and temperature		3					
5.3.6	Thermal Shock		8					
5.3.7	Salt Spray			3				
5.3.8	Vibration		10					
5.3.9	Shock		11					
5.3.10	H ₂ S Gas				3			
5.3.11	Gradual Change of Temperature					2		
5.3.12	Damp Heat Cyclic	10						
	Sample Quantity	5	5	5	5	5	5	5

7.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage. The parts shall be carried in tape & reels inside boxes. For details refer to packaging spec.

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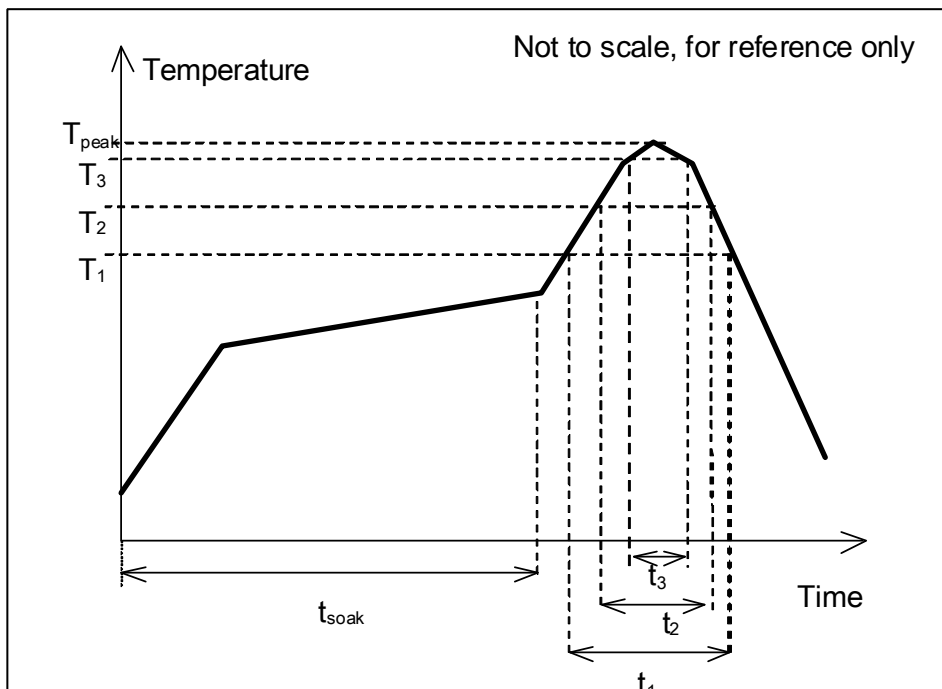


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APPENDIX 1: Reflow soldering profile for solderability testing and soldering heat resistance testing

The reflow profile specified in this section describes expected maximum heat exposure of components during the reflow process of NMP product PWBs. Temperature is measured on top of component. All components have to tolerate at least this profile two times (2x) without affecting electrical performance, mechanical performance or reliability.

Pb-free reflow profile requirements for soldering heat resistance		
Parameter	Reference	Specification
Average temperature gradient in preheating		2.5°C/s
Soak time	t_{soak}	2-3 minutes
Time above 217°C	t_1	Max 60 s
Time above 230°C	t_2	Max 50 s
Time above 250°C	t_3	Max 10 s
Peak temperature in reflow	T_{peak}	255°C (-0/+5°C)
Temperature gradient in cooling		Max -5°C/s



Reflow profile for soldering heat resistance testing.

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