Modular Jack Connector, RJ45, Shielded, Side Entry, DIP Type

1. SCOPE

1.1. Contents

This specification covers the performance, tests and quality requirements for the TE Connectivity Modular Jack Connector, RJ45, Shielded, Side Entry, DIP Type.

1.2. Qualification

When tests are performed on the subject product line, the procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS AND FORMS

The following documents and forms constitute a part of this specification to the extent specified herein. Unless otherwise indicated, the latest edition of the document applies.

2.1. TE Electronics Documents

- 109-1: General Requirements for Test Specifications
- 109-197: Test Specification (AMP test Specifications vs EIA and IEC Test Methods)
- TEC-109-201: Component Heat Resistance to Lead-Free Reflow Soldering.
- 501-57895: Test Report (Modular Jack Connector, RJ45, Shielded, Side Entry, DIP Type)

2.2. Industry Standard

- EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications.
- JESD22-B102D: Solderability Test Method.

3. REQUIREMENTS

3.1. Design and Construction

Product shall be of the design, materials, construction and physical dimensions specified on the applicable product drawing.

3.2. Ratings

- Voltage：150 VAC rms
- Current：1.0A Max.
- Temperature：- 40℃ to 85℃

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3.3. Test Requirements and Procedures Summary

Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

Test Item	Requirement	Procedure
Examination of Product	Meets requirements of product drawing. No physical damage.	Visual inspection.
Electrical Requirement		
Low Level Contact Resistance	30 mΩ Max.	Subject mated contacts assembled in housing. Open circuit at 20mV Max, 100mA Max. EIA-364-23B, Figure-3
Dielectric Withstanding Voltage	No creeping discharge or flashover shall occur. Current leakage: 0.5 mA Max.	1,000 VAC for 1 minute Test between adjacent circuits of unmated connector. EIA-364-20B, Method B, Condition II
Insulation Resistance	500 MΩ Min. (Initial) 200 MΩ Min. (Final)	Impressed voltage 500 VDC. Test between adjacent contacts of unmated connector for 1 minutes. EIA-364-21C.
MECHANICAL Requirement		
Mating Force	2.3 Kgf (22.54 N) Max	Operation Speed：25 mm/min. Measure the force required to mate connector. EIA-364-13B
Un-mating Force (With Locked)	10.0 Kgf (98 N) Min.	Operation Speed：25 mm/min. Measure the force required to unmate connector. EIA-364-13B
Durability	[See Note 1]	Operation Speed：25mm/min. Number of cycles：750 cycles EIA-364-09C
Vibration	No electrical discontinuity greater than 1μ sec shall occur. [See Note 1]	Subject mated connectors to 10-55-10 Hz traversed in 1minutes at 1.52 mm amplitude 2 hours each of 3 mutually perpendicular EIA-364-28D, Test Condition VII, Test Condition Letter D.
Mechanical Shock	No electrical discontinuity greater than 1μ sec shall occur. [See Note 1]	Accelerate Velocity：490 m/s2 （50G） Waveform：Half-sine shock plus Duration：11 msec. No. of Drops：3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops. 100mA applied. EIA-364-27B, Test Condition A.

Figure 1 (Continue)

Test Item	Requirement	Procedure
Solderability	The inspected area of each lead must have 95% solder coverage minimum and shall be covered with a smooth, bright, uniform coating of adherent solder.	Steam Aging Preconditioning： Intended for non-tin and non-tin-alloy lead finishes for 93+3/-5℃、1hour±5min. JESD22-B102D, Condition A Intended for tin and tin-alloy lead finishes for 93+3/-5℃、8hours±15min. JESD22-B102D, Condition C Solder pot temperature: 245±5℃, 5sec.
Environmental Requirement		
Resistance to Reflow Soldering Heat [See Note 2]	No physical damage shall occur.	Moisture Soak precondition ：85℃, 85%RH for 168 hours. Pre Heat：150~200℃, 60~180sec. Peak Temp.：260+0/-5℃, 20~40sec. Ramp to peak：3℃ max. per second Ramp to cool down ：6℃ max. per second Time over liquids (217℃) ：60~150 sec Duration：3 cycles TEC 109-201, Test condition B, Refer to Figure 5.
Thermal Shock	[See Note 1]	Mated Connector -55+0/-3℃ (30 min.), +85+3/-0℃ (30 min.) Perform this cycle, repeat 5 cycles EIA-364-32C, Method A, Test condition I
Humidity	[See Note 1]	Mated Connector 40±2℃, 90% to 95% RH., 96 hours Perform this cycle, repeat 10 cycles EIA-364-31B, Method II, Condition A
Temperature Life (Heat Aging)	[See Note 1]	Mated Connector 85℃, 250 hours. EIA-364-17B, Test condition 3 (w/o electrical load),Test time condition B
Salt Spray	No detrimental corrosion allowed in contact area and base metal exposed.	Subject mated connectors to 35±2 ℃ and 5+/-1% salt condition for 48hours. After test, rinse the sample with water and recondition the room temperature for 1 hour. EIA-364-26B

Figure 1 (End)

NOTE

1) *Shall meet visual requirements, show no physical damage, and meet requirement of additional tests as specified in the test sequence in Figure 2*

2) *Resistance to soldering process is indicated on notes of customer drawing. Select the appropriate test type which drawing notes are matched with*

3.4. Product Qualification and Requalification test

Test or Examination	Test Group								
	A	B	C	D	E	F	G	H	I
	Test Sequence（a）								
Examination of Product	1, 7	1, 7	1, 6	1, 5	1, 5	1, 5	1, 5	1, 3	1, 4
Contact Resistance		2, 6	2, 5	2, 4	2, 4	2, 4	2, 4		
Dielectric withstanding Voltage	3, 6								
Insulation Resistance	2, 5								
Mating Force		3, 5							
Unmating Force									3
Durability		4							
Vibration			3(b)						
Mechanical Shock			4(b)						
Solderability									2
Resistance to Soldering Heat								2	
Thermal Shock				3					
Humidity	4				3				
Temperature Life						3			
Salt Spray							3		

NOTE

a) *Numbers indicate sequence in which test are performed.*

b) *Discontinuities shall not take place in this test group, during tests.*

Figure 2

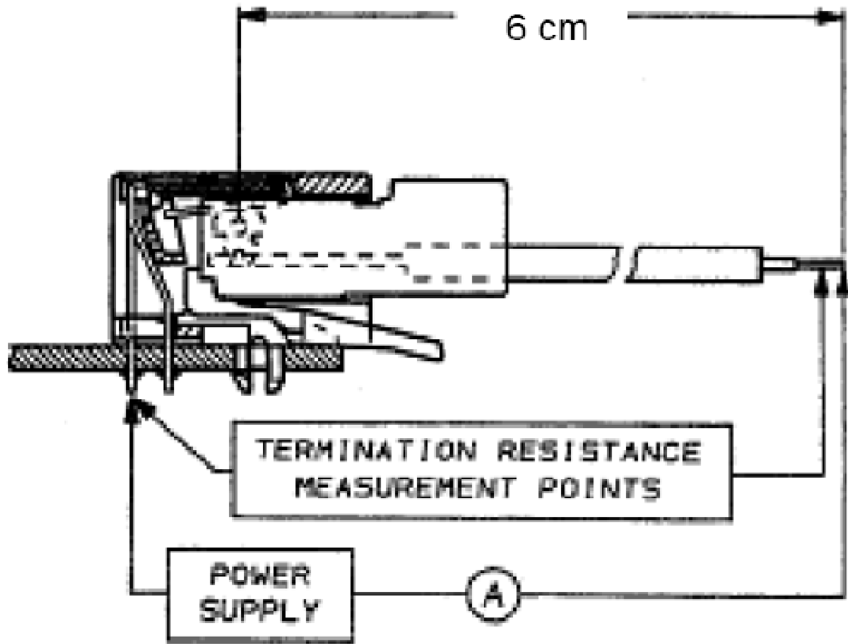

Figure 3. Low Level Contact Resistance

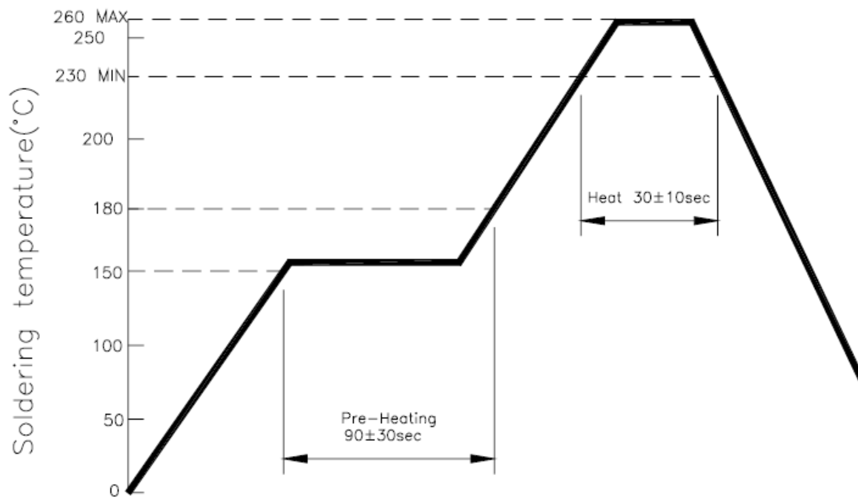

Figure 5. Temperature Profile of Reflow Soldering