
D-SUB, 15P, R/A, SLIM, RVS, DIP TYPE

1. SCOPE**1.1. CONTENTS**

This specification covers the performance, tests and quality requirements for the TE Connectivity D-Sub, 15P, R/A, SLIM, RVS, DIP TYPE Connector.

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 DOCUMENT

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1. TE CONNECTIVITY DOCUMENTS

- 109-1: General Requirements for Test Specifications
- 109-197 : Test Specification (TE test Specifications vs EIA and IEC Test Methods)
- TEC-109-201: Component Heat Resistance to Lead-Free Reflow Soldering.
- 501-57963 : Test Report

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, construction and physical dimensions specified on the applicable product drawing.

3.2. MATERIALS

Materials used in the construction of this product shall be as specified on the applicable product drawing.

3.3. RATINGS

- A. Voltage: 250 VAC rms.
- B. Current: 1 A Max
- C. Temperature: - 55 °C to 105 °C

3.4. PERFORMANCE REQUIREMENT AND TEST DESCRIPTION

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions per EIA-364.

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3.5. TEST REQUIREMENTS AND PROCEDURES SUMMARY

Test Item		Requirement	Procedure
1	Examination of Product	Meets requirements of product drawing. No physical damage.	Visual inspection.
ELECTRICAL REQUIREMENT			
2	Low level Contact Resistance	20 mΩ Max(Initial) 40 mΩ Max(Final)	Subject mated contacts assembled in housing. Open circuit at 20mV Max, 100mA Max. EIA-364-23B, Figure.3
3	Dielectric Withstanding Voltage	1 minute hold with no breakdown or flashover.	500VAC for 1minute Test between adjacent circuits of unmated connector. EIA-364-20
4	Insulation Resistance	1000 MΩ Min.	Impressed voltage 500 VDC. Test between adjacent circuits of unmated connector. EIA-364-21C
5	Temperature Rising	30°C Max. Under loaded rating current	Contact series-wired, apply test current of loaded rating current to the circuit, and measure the temperature rising by probing on soldered areas of contacts, after the temperature becomes stabilized deduct ambient temperature from the measured value.
MECHANICAL REQUIREMENT			
6	Connector Mating Force	4.50 Kg/ Max.	Operation Speed : 25 mm/min. Measure the force required to mate connector. EIA-364-13
7	Connector Unmating Force	0.45 Kg/ Min.	Operation Speed : 25 mm/min. Measure the force required to unmate connector. EIA-364-13
8	Durability	See Note 1	Operation Speed : 20 cycle/min. Durability Cycles : 500 Cycles EIA-364-9
9	Vibration	No electrical discontinuity greater than 1μsec shall occur. See Note 1.	Subject mated connectors to 10-55-10 Hz traversed in 1minutes at 1.52mm amplitude 2 Hours each of 3 mutually perpendicular planes. 100mA Max. Applied. EIA-364-28, Condition I

Figure 1 (Cont.)

MECHANICAL REQUIREMENT			
TEST ITEM	REQUIREMENT	PROCEDURE	
10	Mechanical Shock	No electrical discontinuity greater than 1μsec shall occur. See Note 1.	Accelerate Velocity : 490 m/s ² (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
11	Solder ability	The inspected area of each lead must have 95% solder coverage minimum.	Steam Aging Preconditioning : Intended for non-tin and non-tin-alloy leadfinishes for 93+3/-5°C、1hour±5min. JESD22-B102D, Condition A Intended for tin and tin-alloy leadfinishes for 93+3/-5°C、8hours±15min. JESD22-B102D, Condition C Solder pot temperature : 245±5°C, 5sec.
ENVIRONMENTAL REQUIREMENTS			
12	Resistance to Reflow Soldering Heat (See Note 2)	No physical damage shall occur.	Moisture Soak precondition : 85°C, 85%RH for 168 hours. Pre Heat : 150~200°C, 60~180sec. Peak Temp. : 260+0/-5°C, 20~40sec. Ramp to peak : 3°C max. per second Ramp to cool down : 6°C max. per second Time over liquids (217°C) : 60~150 sec Duration : 3 cycles TE spec. 109-201, Test condition B, Refer to Figure 5.
13	Thermal Shock	See Note 1	Mated Connector -55±3°C (30 minutes), +85±2°C (30 minutes) Perform this a cycle, repeat 5 cycles EIA-364-32
14	Humidity-Temperature Cycle	See Note 1	Mated Connector 25~65°C, 90~95%RH, 10 Cycles EIA-364-31
15	Temperature Life (Heat Aging)	See Note 1	Mated Connector 85°C, 250 hours, EIA-364-17
16	Salt Spray	No detrimental corrosion allowed in contact area and base metal exposed.	Subject mated connectors to 35±2°C and 5±1% salt condition for 48hours. After test, rinse the sample with water and recondition the room temperature for 1 hour. EIA-364-26

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 Figures 2

Note 2 : Resistance to soldering process is indicated on notes of customer drawing. Select the appropriate one which drawing notes content is matched with.

3.6. PRODUCT QUALIFICATION AND REQUALIFICATION TEST

Test or Examination	Test Group									
	A	B	C	D	E	F	G	H	I	J
	Test Sequence (a)									
Examination of Product	1, 7	1, 9	1, 6	1, 5	1, 5	1, 5	1, 5	1, 3	1, 3	1, 3
Low Level Contact Resistance		2, 8	2, 5	2, 4	2, 4	2, 4	2, 4			
Dielectric withstanding Voltage	3, 6									
Insulation Resistance	2, 5									
Temperature Rising								2		
Mating Force		3, 7								
Unmating Force		4, 6								
Durability		5								
Vibration			3 (b)							
Mechanical Shock			4 (b)							
Solderability										2
Resistance to Soldering Heat									2	
Thermal Shock				3						
Humidity Temperature Cycling	4				3					
Temperature Life						3				
Salt Spray							3			

Figure 2

NOTE : (a) Numbers indicate sequence in which tests are performed.

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

Figure 3. Low Level Contact Resistance

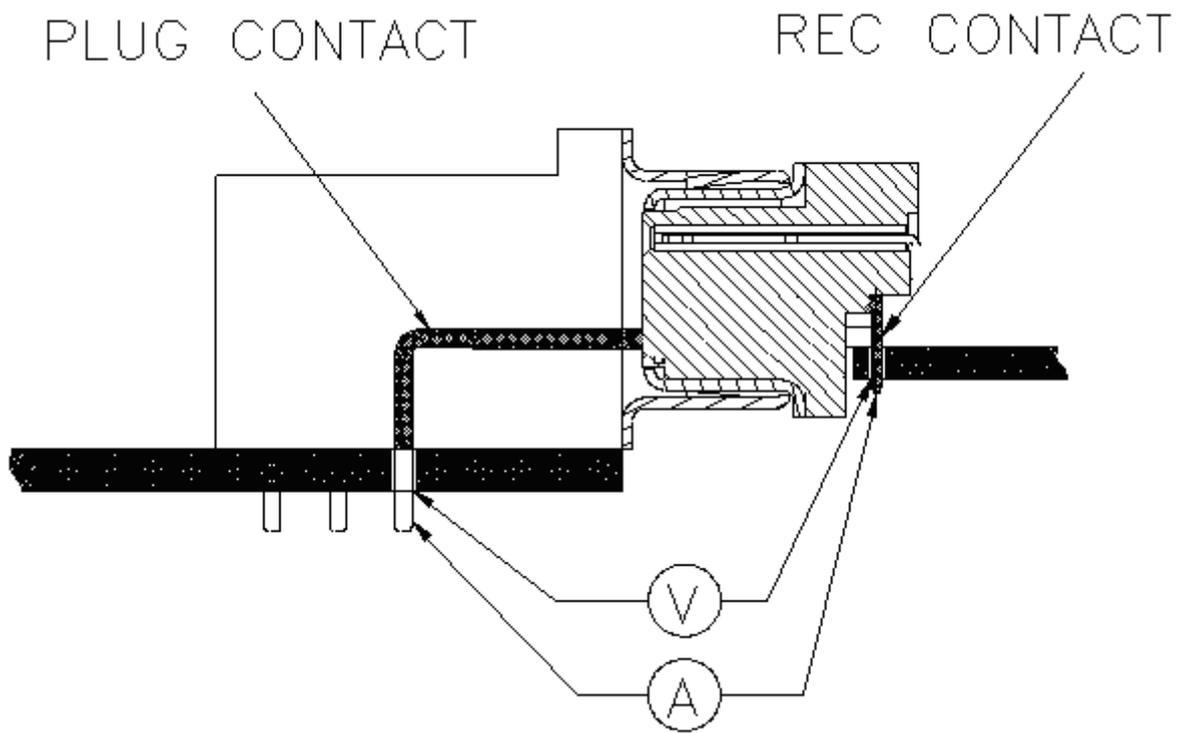


Figure 4. Temperature Rising (Contact Series-Wire)

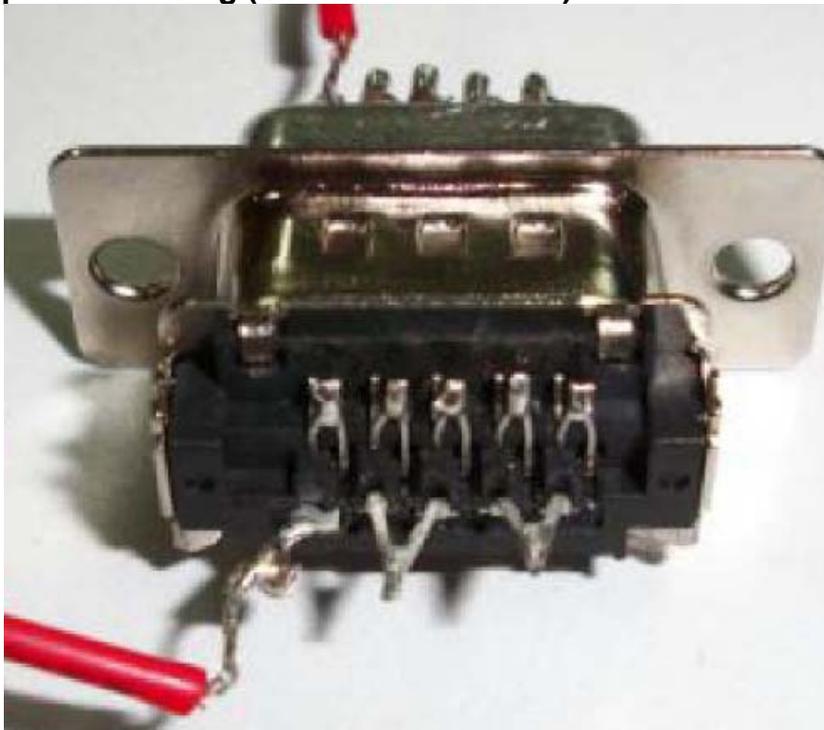


Figure 5. Temperature Profile of Reflow Soldering

