
Displayport Connector, DIP Type

1. SCOPE

1.1. Contents

This specification covers the performance, tests and quality requirements for the TE Connectivity Displayport Connector, 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 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 (AMP test Specifications vs EIA and IEC Test Methods)
- TEC-109-201: Component Heat Resistance to Lead-Free Reflow Soldering.
- 501-118011 : 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 product shall be as specified on the applicable product drawing.

3.3. Ratings

- Voltage : 40 VAC rms
- Current : 0.5A Max.
- Temperature : - 40°C to 85°C

3.4. Performance 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.

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	Contact: Change from initial value = 30 mΩ Max. Shell: Change from initial value= 50 mΩ Max.	Mated connectors Contact: measured by dry circuit, 20m Volts Max, and 10mA. Shell: measured by open circuit, 5 Volts Max, 100mA. EIA-364-23, Figure-3
3	Dielectric Strength	No Breakdown	Unmated connectors, apply 500 Volts AC (RMS.) between adjacent terminal and ground. Mated connector, apply 300 Volts AC (RMS.) between adjacent terminal and ground EIA-364-20, Method 301
4	Insulation Resistance	Unmated: 100 MΩ Min. Mated: 10 MΩ Min.	Unmated connectors, apply 500 Volts DC between adjacent terminal and ground. Mated connectors, apply 150 Volts DC between adjacent terminal and ground. EIA-364-21, Method 302
5	Contact current rating	30°C Max. Under loaded rating current.	55 °C, maximum ambient 85 °C, maximum temperature change EIA-364-70, TP-70, Figure-4
6	Electrostatic Discharge	No evidence of discharge to contacts at 8k Volts	Test unmated connectors from 1 kVolt to 8 kVolts in 1 kVolt steps using 8mm ball probe. IEC61000-4-2

MECHANICAL REQUIREMENT			
TEST ITEM		REQUIREMENT	PROCEDURE
7	Insertion Force (No latches)	4.5 Kgf (44.1 N) Max	Operation Speed : 25mm/min. Measure the force required to mate connector. EIA-364-13
8	Withdraw Force (No latches)	1.0 Kgf (9.8 N) Min. 4.0 Kgf (39.2 N) Max.	Operation Speed : 25mm/min. Measure the force required to unmate connector. EIA-364-13
9	Durability	[See Note 1]	10,000 cycles at 100 ± 50 cycles per hour EIA-364-09
10	Vibration	No electrical discontinuity greater than 1µsec shall occur. [See Note 1]	Amplitude: 1.52 mm P-P or 147m/s ² {15G} Sweep time: 50-2000-50Hz in 20 minutes. Duration: 12 times in each of X, Y, Z axes (Total of 36 times) Electrical load: DC 100mA current must be conducted during the test. EIA-364-28, Condition III, Method 5A
ENVIRONMENTAL REQUIREMENT			
11	Resistance to soldering Heat	Tested housing shall show no evidence of deformation or fusion of housing and no physical damage.	Manual soldering Temperature: 380+/-5°C for 3+/-1 second. To be no deformation by the top of iron at soldering times.

TEST ITEM		REQUIREMENT	PROCEDURE
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+0/-3°C (30 min.), +85+3/-0°C (30 min.) Perform this cycle, repeat 10 cycles EIA-364-32, Test condition I
14	Humidity	[See Note 1]	Mated and un-mated Connector 25°C to 85°C, 80% to 95% RH. Duration: 4 cycles, 96 hours EIA-364-31
15	Thermal Aging	[See Note 1]	Mate connectors and expose to (+105±2) °C for 250 hours. Upon completion of the exposure period, the test specimens must be conditioned at ambient room conditions for one to two hours after which the specified measurements must be performed. EIA-367-17, Condition 4, Method A
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-364-26B

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

Note 2 : Resistance to soldering process is indicated on notes of customer drawing. Select the appropriate test type which drawing notes are 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)									
Low Level Contact Resistance	1,4,6	1,4,7		1,4,6	1,5					
Dielectric Strength			1,4							
Insulation Resistance			2,5							
Vibration				5(b)						
Durability (pre-condition)	2	2		2						
Durability					4					
Re-seating (3cycles)	5	6								
Thermal Shock		3								
Humidity		5(c)	3(d)							
Thermal Aging (250h)	3									
Thermal Aging (24h)				3						
Contact current rating						1				
Resistance to Soldering Heat							1			
Resistance to Reflow Soldering Heat								1		
Insertion force					2,7					
Withdrawal force					3,6					
Salt Spray									1	
Electrostatic Discharge										1

- NOTE : (a) Numbers indicate sequence in which tests are performed.
 (b) Measure discontinuity during the test.
 (c) Mated each connectors and test.
 (d) Un-mated connectors and test.

Figure 2

Figure 3. Low Level Contact Resistance

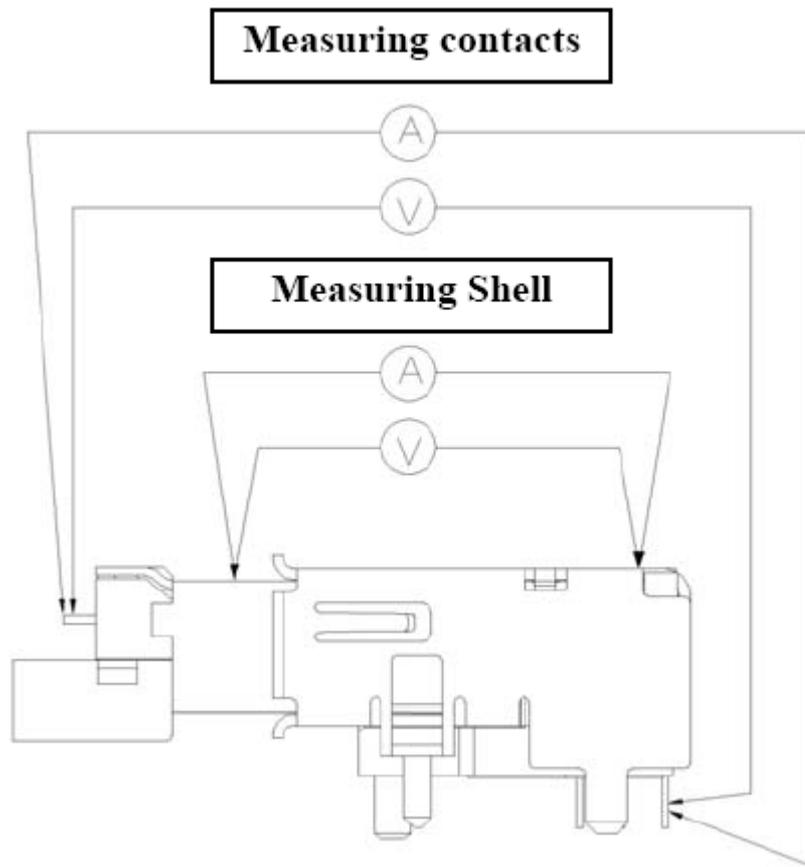


Figure 4. Current rating

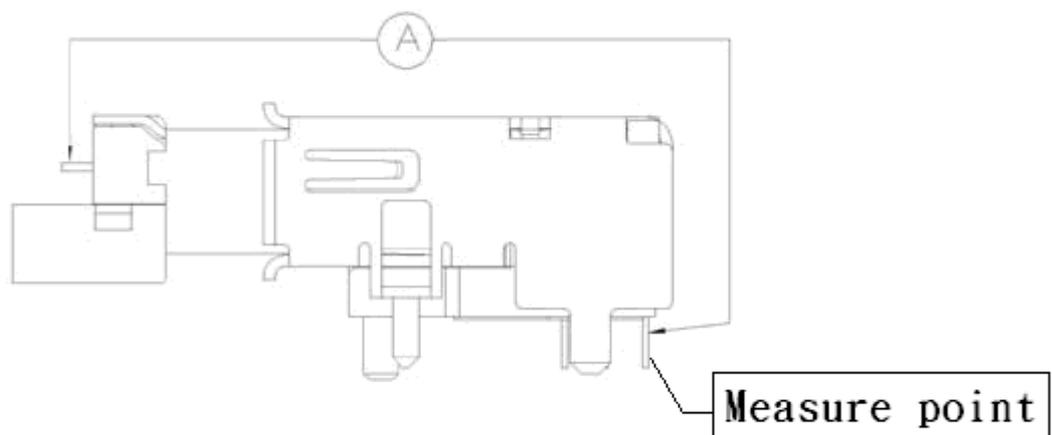


Figure 5. Temperature Profile of Reflow Soldering

