
D-Sub Connector

1. SCOPE

1.1. CONTENTS

This specification covers the performance, tests and quality requirements for the A/P D-Sub Connector.

1.2. QUALIFICATION

When tests are performed on the subject product line, the procedures specified in Tyco 109 series specifications shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENT

The following Tyco 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. TYCO SPECIFICATIONS

- A. 109-1: General Requirements for Test Specifications
- B. 109-197 : Tyco Specification vs EIA and IEC Test Methods
- C. 501-57680: Test Report

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

- A. Housing : Thermoplastic High Temp., UL94V-0
- B. Contact : Copper Alloy, Gold plating on contact area, Tin plating on soldertail, Nickel underplating overall.
- C. Bracket : Copper alloy, tin plated
- D. Shell : Stel, tin plated

3.3. RATINGS

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

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3.4. PERFORMANCE REQUIREMENT AND TEST DESCRIPTION

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. All tests shall be performed at ambient environmental conditions per AMP Specification 109-1 TEST REQUIREMENTS AND PROCEDURES SUMMARY.

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	Contact Resistance	20 m Ohm Max(Initial) 40 m Ohm Max(Final)	Subject mated contacts assembled in housing to 20mV Max open circuit at 10mA Max. EIA-364-6B.
3	Dielectric withstanding Voltage	No creeping discharge or flashover shall occur. Current leakage: 0.5 mA MAX	500VAC for 1minute Test between adjacent circuits of unmated connector. EIA-364-20B
4	Insulation Resistance	1000 M Ohm 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	340 gf/Per Pin Max.	Operation Speed : 25 mm/min. Measure the force required to mate connector. EIA-364-13B
7	Connector Unmating Force	42 gf/Per Pin Min. .	Operation Speed : 25 mm/min. Measure the force required to unmate connector. EIA-364-13B
8	Durability	See Notes	Operation Speed : 500 cycle/min. Durability Cycles : 100 Cycles EIA-364-9C

Figure 1 (Cont.)

MECHANICAL REQUIREMENT			
TEST ITEM	REQUIREMENT	PROCEDURE	
9	Contact Retention Force	200 gf/Per Pin Min. .. Measure the contact retention force with Tensile strength tester.	
10	Solder ability	The inspected area of each lead must have 95% solder coverage minimum. Steam Aging Preconditioning : 93+3/-5°C 、100%HR 、8hrs. <J-STD-002 category 3 aging> Solder pot temperature: 245±5°C, 5sec	
ENVIRONMENTAL REQUIREMENTS			
11	Resistance to Wave Soldering Heat [For customer drawing is applied with wave process. See note 2]	No physical damage shall occur. (Apply to products whose contacts with non-Lead plating and to Tyco Spec. 109-201, Condition B)	Solder Temp. : 265±5°C, 10±0.5sec. Tyco spec. 109-202, Condition B
	Resistance to Reflow Soldering Heat [For customer drawing is applied with Reflow process. See note 2]	No physical damage shall occur. (Apply to products whose contacts with non-Lead plating , soldering on small PCB)	Pre-soak condition, 85°C /85% RH for 168 hours. Pre Heat : 150~180°C, 90±30sec. Heat : 230°C Min., 30±10sec. Peak Temp. : 260+0/-5°C, 20~40sec. Duration : 3 cycles Tyco spec. 109-201, Condition B
12	Thermal Shock	See Notes	Mated Connector -55+/-3°C (30 minutes), +85+/-2°C (30 minutes) Perform this a cycle, repeat 5 cycles EIA-364-32C
13	Humidity-Temperature Cycle	See Notes	Mated Connector 25~65°C , 90~95% RH, 10 Cycles EIA-364-31B.
14	Temperature Life (Heat Aging)	See Notes	Mated Connector 85°C , 250 hours, EIA-364-17B.
15	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 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, 4	1, 5	1, 5	1, 5	1, 5	1, 3	1, 3	1, 3
Contact Resistance		2, 8	2, 3	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								
Contact Retention Force									4	
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.