DMD 350 SOCKET CONNECTOR

1. SCOPE

1.1 CONTENTS

This specification covers the performance, tests and quality requirements for the DMD 350 SOCKET CONNECTOR.

1.2 QUALIFICATION

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 ELECTRONICS DOCUMENTS

- TEC-109-201: Component Heat Resistance to Lead-Free Reflow Soldering.
- 501-118044：Test Report

2.2 INDUSTRY STANDARD

- EIA-364：Electrical Connector/Socket Test Procedures Including Environmental Classifications

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:

Base housing: Thermoplastic, UL94v-0.

Cover housing: Thermoplastic, UL94v-0.

B. Contact: Copper alloy, Au plating on contact area, Nickel under plating allover.

C. Others:

Cover Support Plate: Stainless Steel.

Base Support Plate: Stainless Steel.

3.3 RATINGS

A. Voltage: 50VAC.

B. Current: 0.5A Max.

C. Operating Temperature: -55℃ to +105 ℃.

D. Storage Temperature: -55℃ to 125℃.

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 REQUIREMENT 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 (Low Level)	55mΩ Max.(1 Contact pair) (Initial) and 30mΩMax. (40 Contacts average)(Initial). 55mΩMax.(1 Contact pair) (Final) and 30mΩMax. (40 Contacts average)(Final).	Subject mated contacts assembled in housing to 20mV Max. open circuit at 10mA Max. EIA-364-06B. Refer to Fig.3.
3	Dielectric Withstanding Voltage	No creeping discharge or flashover shall occur. Current leakage: 5mA Max.	200VAC for 1 minute Test between adjacent circuits of mated connector. EIA-364-20B.
4	Insulation Resistance	500MΩMin.(Initial) 100MΩMin.(Final)	Impressed voltage 500VDC. Test between adjacent circuits of mated connectors. EIA-364-21C.
MECHANICAL REQUIREMENT			
5	Cam actuation torque	3.0Kg-cm Max	Operation Speed: 100mm/minute. Measure the force required to mate connectors. EIA-364-13B.
6	Cam de-actuation torque	3.0Kg-cm Max	Operation Speed: 100mm/minute. Measure the force required to mate connectors. EIA-364-13B.
7	Contact normal force	Force /Deflection curve must be generated for five cycles on each contact sample. Record initial and final contact gap.	Tests must be performed on 5 individual contacts over the deflection range expected for engaging the package pin to the contact, Additionally, the contact gap must be measured before and after 5 actuation/de-actuation tests.
8	Solder ball shear force	Minimum required shear force is 0.75 kgf per solder ball.	The force required to shear off the solder ball on the contact assembled in the socket housing must be measured for 20 contact locations for each unmated. Un-mounted socket sample.
9	Durability (Repeated Mating/Unmating)	55mΩMax. (1 Contact pair) (Final) and 30mΩMax. (40 Contacts average)(Final). See Note	Operation speed: 100mm/minute. No.of Cycles: 20 cycles; EIA-364-09C.

Figure 1 (Cont.)

Test Item		Requirement	Procedure
10	Vibration (Low Frequency)	No electrical discontinuity greater than 0.1u sec. shall occur. 55mΩMax. (1 Contact pair) (Final) and 30mΩMax. (40 Contacts average)(Final)	Subject mated connectors to 10-55-10 Hz traversed in 1 minute at 1.52mm amplitude. 2 hours each of 3 mutuality perpendicular planes. 100mA Max. applied. EIA-364-28D.
11	Mechanical Shock	No electrical discontinuity greater than 0.1 u sec. shall occur. 55mΩMax. (1 Contact pair) (Final) and 30mΩMax. (40 Contacts average)(Final) See Note	Accelerate Velocity: 490 m/s^2(50 G) Waveform: Half-sine shock pulse. Duration: 11msec. No. of Drops: 3 drops each to normal and reversed directions of x, y and z axes, totally 18 drops, passing DC 1mA current during the test. EIA-364-27B.
ENVIRONMENTAL REQUIREMENT			
12	Resistance to Reflow soldering heat	No physical damage shall occur.	(Tin-Lead) Pre –Heat: 100~150℃, 60 sec. Min. Heat: 210℃ Min., 30 sec Max. Peak Temp. :240℃ Max., 10±0.5 sec. (Lead Free) Pre-Heat: 150~180℃, 60 sec Min. Heat: 225℃ Min. :60 sec Max. Peak Temp. :260+0/-5℃, 20~40sec. Duration: 3 Cycles.
13	Thermal Shock	55mΩ Max.(1 Contact pair) (Final) and 30mΩ Max. (40 Contacts average)(Final). See Note	Mated Connector -40℃(30 minutes),+80 (30Minutes) Perform this a cycle, repeat 5 cycles. EIA-364-32C.
14	Humidity-Temperature Cycle	Insulation Resistance:100mΩ Min. (Final) 55mΩ Max.(1 Contact pair) (Final) and 30mΩ Max. (40 Contacts average)(Final) See Note	Mated Connector 40℃, 90~95% R.H.,96 hour. EIA-364-31B.
15	Temperature Life (Heat Aging)	55mΩ Max.(1 Contact pair) (Final) and 30mΩ Max. (40 Contacts average)(Final). See Note	Mated Connector 85℃, Duration: 96 hours. EIA-364-17B.
16	Salt Spray	55mΩ Max.(1 Contact pair) (Final) and 30mΩ Max. (40 Contacts average)(Final). No detrimental corrosion allowed in contact area and base metal exposed.	Subject mated connectors to 5% salt condition for 24 hours. EIA-364-26B.
17	Industrial Gas(SO_2)	55mΩ Max.(1 Contact pair) (Final) and 30mΩ Max. (40 Contacts average)(Final).	Subject mated Connector SO_2 Gas: 10ppm, 95% R.H., 25℃,24hours

Figure 1(End)

Note:

1. Shall meet Visual Examination requirements, show no physical damage, and shall meet requirements of additional tests as specified in the test sequence in Figures 2.

3.6 PRODUCT QUALIFICATION AND REQUALIFICATION TEST SEQUENCE

Test or Examination	Test Group									
	A	B	C	D	E	F	G	H	I	J
	Test Sequence(a)									
Examination of Product	1,7	1,5	1,5	1,5	1,5	1,5	1,6	1,7	1,3	1,4
Contact Resistance(Low Level)	2,6	2,4	2,4	2,4	2,4	2,4	2,5			
Dielectric Withstanding Voltage								2,5		
Insulation Resistance								3,6		
Cam actuation torque	3									
Cam de-actuation torque	4									
Durability	5									
Vibration							3			
Mechanical Shock							4			
Resistance to Reflow Soldering Heat									2	
Thermal Shock			3							
Humidity Temperature Cycling		3						4		
Temperature Life				3						
Salt Spray						3				
Industrial SO_2 Gas					3					
Contact normal force										3
Solder ball shear force										2

Figure 2

NOTE：

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

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

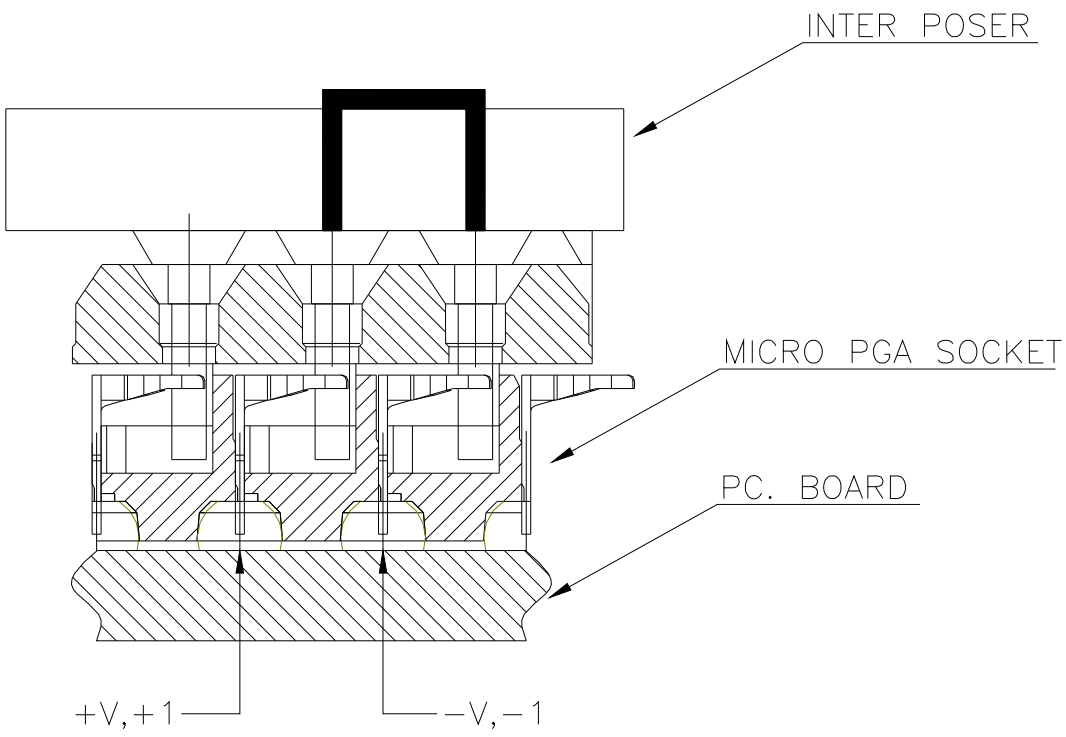

Figure 3 Low Level Contact Resistance Measurement