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DC POWER JACK

1. SCOPE**1.1. CONTENTS**

This specification covers the performance, tests and quality requirements for the DC power jack connector.

1.2. QUALIFICATION

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

2. APPLICABLE DOCUMENT

The following TE 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 SPECIFICATIONS

- A. 109-1: General Requirements for Test Specifications
- B. 109-197 : TE Specification vs EIA and IEC Test Methods
- C. 501-57700 : 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, UL94V-0.
- B. Contact : Copper Alloy, Gold plating on contact area, Tin Plating on solder-tail over Nickel under-plating overall..

3.3. RATINGS

- A. Current Rating : 5 A
- B. Voltage Rating : 13 VDC
- C. Operating temperature : -25°C to 70°C.

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 TE 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	30 m Ohm Max (Initial) 40 m Ohm Max (final)	Subject mated contacts assembled in housing to 20mV Max open circuit at 10mA Max. EIA- 364-23A
3	Dielectric withstanding Voltage	No creeping discharge or flashover shall occur.	500V AC rms., for 1 minutes applied between adjacent contacts. EIA-364-20A.method B.
4	Insulation Resistance	1000 M Ohm Min.	Impressed voltage 500 VDC. Test between adjacent circuits of unmated connector. EIA-364-21C.
MECHANICAL REQUIREMENT			
5	Connector Mating Force	0.3-2.0 Kgf	Operation Speed : 25.4 mm/min. Measure the force required to mate connector. EIA-364-13A
6	Connector Un-mating Force	0.3 kgf Min..	Operation Speed : 25.4 mm/min. Measure the force required to un-mate connector. EIA-364-13A
7	Durability	See Note $\Delta R=10m\Omega$ Max final.	Operation Speed : 250 cycle/hour. EIA-364-09B 3000 cycles.
8	Solder-ability [Apply to wave soldering process. See note 2]	The inspected area of each lead must have 95% solder coverage minimum.	Steam Aging Preconditioning : $93\pm 3/-5^{\circ}C$, 8hrs ± 15 min. <JESD22-B102D, Condition C> Dip Solder temperature: $245\pm 5^{\circ}C$, 5sec
	Solder-ability [Apply to IR soldering process. See note 2]	The inspected area of each lead must have 95% solder coverage minimum.	Steam Aging Preconditioning: $93^{\circ}C +3/-5^{\circ}C$, 8 hours ± 15 min. <JESD22-B102D, Condition C> Reflow 230 - $245^{\circ}C$, 50 - 70 s.

Figure 1 (Cont.)

ENVIRONMENTAL REQUIREMENTS			
9	Resistance to Wave Soldering Heat [Apply with customer drawing notes. See note 2]	No physical damage shall occur.	TE spec. 109-202, Condition B Solder Temp. : $265\pm 5^{\circ}\text{C}$, $10\pm 0.5\text{sec}$.
	Resistance to Reflow Soldering Heat [Apply with customer drawing notes. See note 2]	No physical damage shall occur.	Pre-soak condition, 85°C /85% RH for 168 hours. Pre Heat : $150\sim 180^{\circ}\text{C}$, $90\pm 30\text{sec}$. Heat : 230°C Min., $30\pm 10\text{sec}$. Peak Temp. : $260+0/-5^{\circ}\text{C}$, $20\sim 40\text{sec}$. Duration : 3 cycles TE spec. 109-201, Condition B
10	Thermal Shock	See Note	30 minute EIA-364-32B, condition I 5 cycles between $+85^{\circ}\text{C}$ /30minute and 55°C /
11	Humidity-Temperature Cycle	See Note $\Delta R=10\text{m}\Omega$ Max finial.	EIA-364-31A, method III, condition B. At a temperature of $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and relative Humidity of 90~95% for 96 hours.
12	Temperature Life (Heat Aging)	See Note $\Delta R=10\text{m}\Omega$ Max finial	EIA-364-17A, method A, condition 3 Temperature $105\pm 3^{\circ}\text{C}$ for 250 hours.
13	Salt Spray	See Note No base metal exposed.	EIA-364-26A, condition A Exposing in a heat chamber at a temperature of $35^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 24 hours

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 : Soldering process is indicated on customer drawing notes. Select the appropriate optional which is compliant with customer drawing's.

3.6. Qualification Test Sequence

Test or Examination	Test Group							
	A	B	C	D	E	F	G	H
	Test Sequence (a)							
Examination of Product	1, 7	1, 9	1, 5	1, 5	1, 5	1, 5	1,3	1, 3
Contact Resistance		2, 8	2, 4	2, 4	2, 4	2, 4		
Dielectric withstanding Voltage	3, 6							
Insulation Resistance	2, 5							
Mating Force		3, 6						
Un-mating Force		4, 7						
Durability		5						
Solder-ability								2
Resistance to Wave Soldering Heat							2	
Thermal Shock			3					
Humidity Temperature Cycling	4			3				
Temperature Life					3			
Salt Spray						3		

Figure 2. (end)

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