Product Specification

SATA Receptacle Connector

1. SCOPE

1.1. CONTENTS

This specification covers the performance, tests and quality requirements for the SATA connector consisting of 7 signal contacts and 15 power contacts of 1.27 mm pitch.

1.2. QUALIFICATION

When tests are performed on the subject product line, the procedures specified in TE Connectivity 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 Connectivity 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 SPECIFICATIONS

A.109-5000: Test Specification, General Requirement for Test Methods

B.109-197 : TE Connectivity Test Specification cross reference EIA and IEC Test Methods.

C.501-99048 : Test Report

2.2. COMMERCIAL STANDARD

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

Serial ATA Revision 3.1 specification

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

Housing

Material: High Temperature Thermoplastic , Glass Filled UL94 V-0 , Black

Contact

Material: Copper alloy

Finish: Gold flash plating on contact area

Matte tin plating on solder area

All over nickel under plating

* Trademark
| Indicates change

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Leg or nut (Optional)

Material: Copper alloy

Finish: Matte Tin plating all over nickel under plating.

3.3. RATINGS

Signal and Power contacts

A. Voltage: 200 V AC.

B. Current: 1.5A max per contact.

C. Temperature: -40℃ to +85℃ (inclusive of temperature rise)

3.4. PERFOMANCE REQUEIREMENT AND TEST DESCRIPTION

The product is designed to meet the electrical, mechanical and environmental performance requirement specified in Figure 1.

3.5.TEST REQUIREMENTS AND PROCEDURES SUMMARY

PARA	TEST ITEMS	REQUIREMENTS	PROCEDURES
3.5.1	Examination of Product	Meet requirements of product drawing.	Visually, dimensionally and functionally inspected per applicable inspection plan per EIA-364-18.
ELECTRICAL REQUIREMENTS			
3.5.2	Insulation Resistance	1000 MΩ min	Subject a voltage of 500VDC for 1 minute between adjacent contacts per EIA-364-21.
3.5.3	Dielectric withstanding Voltage	No breakdown or flashover	Subject a voltage of 500V AC for 1 minute between adjacent contacts per EIA-364-20 Method B.
3.5.4	Low Level Contact Resistance	40 mΩ max. initial, △R=15mΩ max. final	Subject a voltage of 20mV max open circuit at a current of 100mA max on mated connector assemblies per EIA 364-23.
3.5.5	Temperature Rise (Power segment)	Temperature rise above ambient shall not exceed 30°C at any point in the connector when contact positions are powered. The ambient condition is still air at 25 °C	Mount on a test PCB. Wire 3 adjacent pins in parallel for supply. Wire 3 adjacent pins in parallel for return. Apply 4.5A to the supply pins, returning through the return pins.

PARA	TEST ITEMS	REQUIREMENTS	PROCEDURES
MECHANICAL REQUIREMENTS			
3.5.6	Solderability	Solderable area shall have a solder coverage of 95% min.	Solder Temperature : 245℃±5℃ Immersion Duration : 3±0.5 seconds
3.5.7	Resistance to Soldering Heat	See note(a).	EIA 364-56, Procedure 6. Solder Temp:260±5℃ Immersion duration , seconds:10±2
3.5.8	Mating Force	20N Max.	Mate connector assemblies at a rate of 12.5mm per minute per EIA 364-13.
3.5.9	Durability	See note (a).	Mate and unmate connector assemblies at a rate of 25mm per minute for 500 cycles per EIA364-09
ENVIRONMENTAL REQUIREMENTS			
3.5.11	Vibration (Random)	Discontinuity should not exceed 1 microsecond.	Vibrate mated connector assemblies per EIA 364-28, Condition V.
3.5.12	Physical Shock	Discontinuity should not exceed 1 microsecond.	Subject mated connector assemblies at 30g`s with 1/2 sine wave(11ms)shock in x, y & z axis(total 18 shocks) per EIA364-27,condition H.
3.5.13	Reseating	See note (a).	Manually plug/unplug 3 time
3.5.14	Humidity	See note (a).	Subject mated connectors assemblies to 96 hours at 40℃ with 90~95% relative humidity per EIA 364-31 Method II , condition A.
3.5.15	Temperature Life	See note (a).	Subject mated connector assemblies to 85℃ for 500 hours per EIA 364-17, Method A, condition Ⅲ.
3.5.16	Thermal Shock	See note (a).	Subject mated connector assemblies to 10 cycles between -55℃ and 85℃ per EIA364-32, Condition Ⅰ.
3.5.17	Industrial gas (SO_2)	See note(a).	Subject mated connectors to SO_2 gas 10ppm, 25±2°C, 90~95% R.H for 24 Horus

Figure 1（End）

NOTE：(a) Shall meet visual requirements, show no physical damage, and shall meet requirements of additional tests as specified in the test sequence in Figures 2

Product qualification and requalification test

Test Item	Test Group							
	A	B	C	D	E	F	G	H
	Test Sequence (c)							
Examination of Product	1, 5	1, 9	1, 7	1, 8	1, 6	1, 4	1, 3	1, 3
Low Level Contact Resistance	2, 4	2, 8	2, 4, 6		2, 5	3		
Insulation resistance				2, 6				
Dielectric withstanding Voltage				3, 7				
Temperature Rise								2
Solderability							2	
Soldering Heat Resistivity						2		
Mating Force		3,5						
Durability	3	4(b)						
Vibration (Random)		6						
Physical shock		7						
Reseating (manually plug/unplug 3 time)			5		4			
Humidity				5				
Temperature Life			3					
Thermal Shock				4				
Industrial gas					3			

Figure 2

NOTE: （b）Preconditioning, 50 cycles for the 500-durability cycle requirement. The mating and Unmating Cycle is at the maximum rate of 200 cycles per hour.

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

3.6 CONTACT RESISTANCE MEASURING POINTS

Terminating wire Resistance must be subtracted from measured result reading

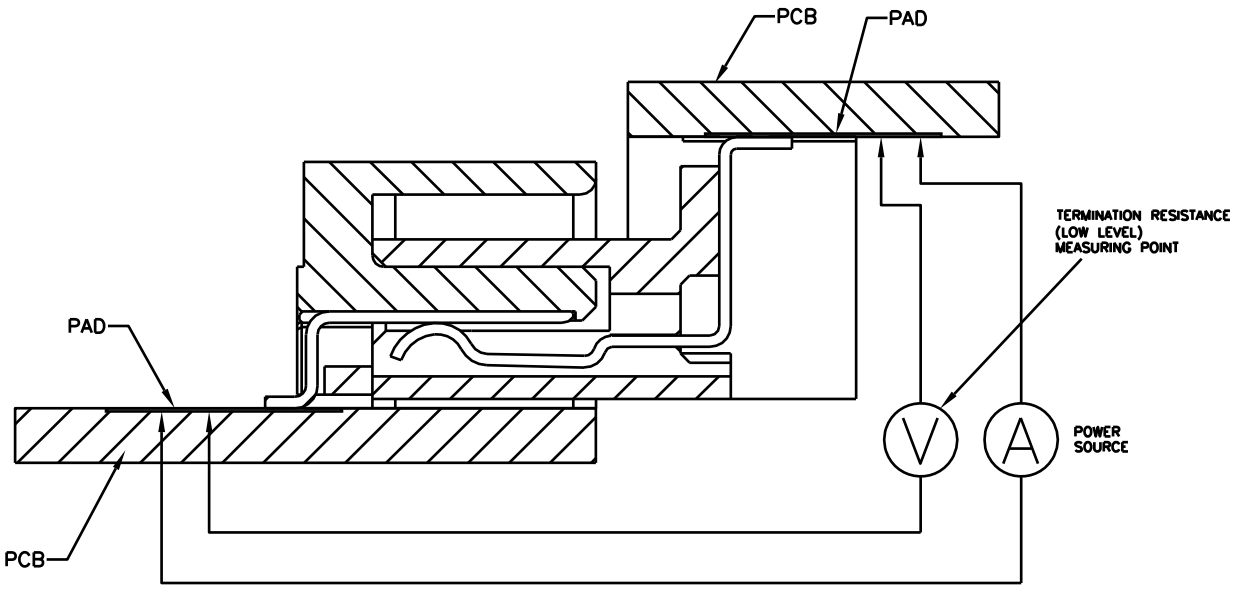

Figure 3