SIGNAL SATA3, 7P, DIP TYPE CONNECTOR

1. SCOPE

1.1. Contents

This specification covers the performance, tests and quality requirements for the Tyco Electronics SIGNAL SATA3, 7P, DIP TYPE CONNECTOR.

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. Tyco Electronics Documents

- 109-1: General Requirements for Test Specifications
- 109-197：Test Specification（AMP Test Specifications vs EIA and IEC Test Methods）
- 501-57886：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

Materials used in the construction of product shall be as specified on the applicable product drawing.

3.3. Ratings

A. Voltage：12 VDC.

B. Current：1.5 A Max.

C. Temperature：- 40℃ to 85℃

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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	Contact Resistance	30 m Ohm Max(Initial) 45 m Ohm Max(Final)	Subject mated contacts assembled in housing to 20mV Max open circuit at 100mA Max. EIA-364-23B. Refer to Fig.3
3	Dielectric withstanding Voltage	No creeping discharge or flashover shall occur. Current leakage: 0.5 mA Max.	500 VAC for 1minute Test between adjacent circuits of unmated connector. EIA-364-20B
4	Insulation Resistance	1000 M Ohm Min.(Initial)	Impressed voltage 500 VDC. Test between adjacent circuits of unmated connector. EIA-364-21C.
MECHANICAL REQUIREMENT			
5	Mating Force	4.59 kgf Max (45N).	Operation Speed：12.5 mm/min. Measure the force required to mate connector. EIA-364-13B
6	Unmating Force	1.02 kgf Min (10N).	Operation Speed：12.5 mm/min. Measure the force required to unmate connector. EIA-364-13B
7	Durability	[See Note1]	Operation Speed：200 cycle/Hour. Durability Cycles：50 Cycles EIA-364-9C
8	Vibration	No electrical discontinuity greater than 1μsec shall occur. See Note 1.	Subject mated connectors to 10-55-10Hz traversed in 1minutes at 1.52mm amplitude 2 Hours each of 3 mutually perpendicular planes. EIA-364-28D
9	Mechanical Shock	No electrical discontinuity greater than 1μsec shall occur. See Note 1.	Accelerate Velocity：490m/s^2 （30G） Waveform：Half-sine shock plus Duration：11msec. No. of Drops：3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops. EIA-364-27B
10	Solder ability	The inspected area of each lead must have 95% solder coverage minimum.	Steam Aging Preconditioning： 1. Intended for tin and tin-alloy leadfinishes for 93+3/-5℃、8hrs. <JESD22-B102D, Condition C> Solder pot temperature: 245±5℃, 5sec.

Figure 1（Cont.）

ENVIRONMENTAL REQUIREMENTS			
TEST ITEM		REQUIREMENT	PROCEDURE
11	Resistance to Wave Soldering Heat [See Note 2]	No physical damage shall occur.	Solder Temp.：265±5℃, 10±0.5sec. Test spec. 109-202, Condition B
12	Thermal Shock	[See Note 1]	Mated Connector -55+/-3℃ (30 min.), +85+/-2℃ (30 min.) Perform this cycle, repeat 10 cycles EIA-364-32C
13	Humidity-Temperature Cycle	[See Note 1]	Method II Test Condition A. Subject mated connectors to 96 hours at 40°C with 90% to 95% RH. EIA-364-31B.
14	Temperature Life (Heat Aging)	[See Note 1]	Mated Connector +85℃, 500 hours, EIA-364-17B.
15	Salt Spray	No detrimental corrosion allowed in contact area and base metal exposed.	Subject mated connectors to 35+/-2 ℃ 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 test type which drawing notes are matched with.

3.6. Product Qualification and Requalification test

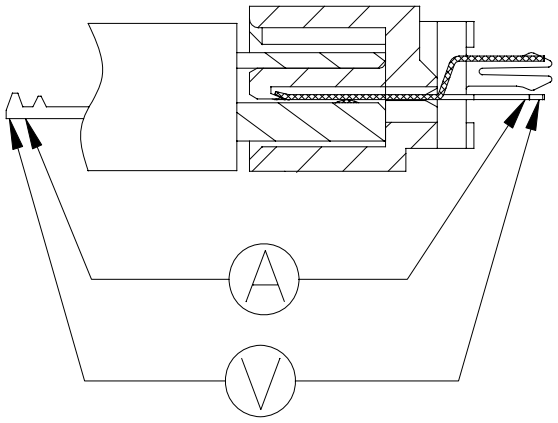
Test or Examination	Test Group								
	A	B	C	D	E	F	G	H	I
	Test Sequence（a）								
Examination of Product	1, 7	1, 9	1, 6	1, 5	1, 5	1, 5	1, 5	1, 3	1, 4
Contact Resistance		2, 8	2, 5	2, 4	2, 4	2, 4	2, 4		
Dielectric withstanding Voltage	3, 5								
Insulation Resistance	2, 6								
Mating Force		3,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

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

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

Figure 2

Figure 3. Contact Resistance & Resistance to flow solder heat



Wave soldering condition:

Preheating	temp: T 1	1 0 0℃ ~ 120℃
	temp: T 2	1 2 0℃
	time: t 1	4 0 secs.
soldering	temp: T 3	2 6 5℃±5℃
	time: t 2	5 secs.

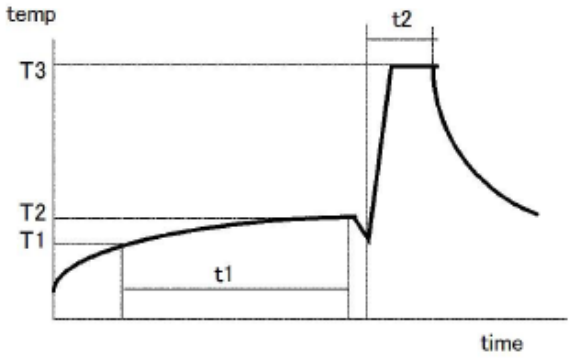


Fig.3-1 Temperature Profile of Wave Flow Soldering