

**SMART CARD CONNECTOR, STANDARD.****1. SCOPE****1.1. CONTENTS**

This specification covers the performance, tests and quality requirements for the Smart Card Connector.

**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 SPECIFICATIONS**

- A. 109-1: General Requirements for Test Specifications
- B. 109-197 : Tyco Specification vs. EIA and IEC Test Methods
- C. 501- 57696 : 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 with glass fiber, UL 94V-0.
- B. Contact : Copper Alloy, Gold plated on contact area over Nickel under plated, Pure Tin plated on soldering end over Nickel under plated.

**3.3. RATINGS**

- A. Current Rating: Signal Application Only
- B. Voltage Rating: 30 VDC
- C. Temperature: -40°C ~ 70°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.

**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.
<b>ELECTRICAL REQUIREMENT</b>			
2	Contact Resistance	100 m Ohm Max. △Rc 10m Ohm Max.	Subject mated contacts assembled in housing to 20mV Max open circuit at 50mA Max. EIA-364-6B.
3	Dielectric withstanding Voltage	750 V RMS for data contacts 250 V RMS switch contacts (card inserted)	Test between adjacent circuits of unmated connector. EIA-364-20B.
4	Insulation Resistance	500 M Ohm Min.	Impressed voltage 100 VDC. Test between adjacent circuits of unmated connector. EIA-364-21C.
<b>MECHANICAL REQUIREMENT</b>			
5	Card Mating and Unmating Force	Mating force: 1.02 kgf Max. Unmating force: 0.102 kgf Min.	Measure force necessary to mate and unmate card into samples at Max. speed of 100mm/min EIA-364-13B.
6	Durability	No defects.	Connector shall be subject to 20000 cycles of insertion and withdrawal. EIA-364-9C.
7	Vibration	No electrical discontinuity greater than 1μ sec shall occur. See Note.	Subject mated connectors to 10-55-10 Hz traversed in 1minutes at 1.52mm amplitude 2 Hours each of 3 mutually perpendicular planes. EIA-364-28D
8	Mechanical Shock	No electrical discontinuity greater than 1μ sec shall occur. See Note.	Accelerate Velocity : 490m/s <sup>2</sup> ( 50G ) 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, passing DC 1mA current during the test. EIA-364-27B

9	Solderability (apply for wave soldering process. Note 2)	The inspected area of each lead must have 95% solder coverage minimum.	Steam Aging Preconditioning : 93+3/-5°C 、 8hrs±15min. <JESD22-B102D, Condition C> Dip Solder temperature: 245±5°C, 5sec
	Solderability (apply for reflow soldering process. Note 2)	The inspected area of each lead must have 95% solder coverage minimum.	Steam Aging Preconditioning: 93°C +3/-5°C, 8 hours ±15 min. <JESD22-B102D, Condition C> Reflow 230 - 245°C, 50 - 70 s.
<b>ENVIRONMENTAL REQUIREMENTS</b>			
<b>TEST ITEM</b>		<b>REQUIREMENT</b>	<b>PROCEDURE</b>
10	Resistance to Wave Soldering Heat [For customer drawing is applied with. See note 2]	No physical damage shall occur.	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. See note 2]	No physical damage shall occur.	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
11	Thermal Shock	See Note.	Mated Connector -55+/-3°C (30 minutes), +85+/-2°C (30 minutes) Perform this a cycle, repeat 5 cycles EIA-364-32C
12	Humidity-Temperature Cycle	See Note.	Mated Connector 25~65°C , 90~95% RH, 10 Cycles EIA-364-31B.
13	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**

- 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 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
	Test Sequence (a)							
Examination of Product	1, 8	1, 7	1, 6	1, 5	1, 5	1, 5	1, 5	1,3
Contact Resistance		2, 6	2, 5	2, 4	2, 4	2, 4	2, 4	
Dielectric withstanding Voltage	2, 7							
Insulation Resistance	3, 6							
Card Mating and Unmating Force		3, 5						
Durability		4						
Vibration			3					
Mechanical Shock			4					
Solder ability								2
Resistance to Soldering Heat							3	
Thermal Shock	4			3				
Humidity-Temperature Cycle	5				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.