

## **AMPMODU SMT TYPE 2.0Pitch Connector**

### **1. SCOPE**

#### **1.1. CONTENTS**

This specification covers the performance, tests and quality requirements for the AMPMODU SMT TYPE 2.0Pitch Connector

#### **1.2. QUALIFICATION**

When tests are performed on the subject product line, the procedures specified in Tyco Electronics 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. 501-57917 : 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 : NY46,UL94V-0,COLOR:BLACK.  
Cap : NY46,UL94V-0,COLOR:BLACK.
- B. Contact : PHOSPHOR BRONZE,C5191.Au PLATED AT THE CONTACT AREA.MATTE TIN  
PLATED AT THE SOLDER TAIL AREA.NICKEL UNDER PLATED ALL OVER.

#### **3.3. RATINGS**

- A. Voltage:**250** VAC rms.
- B. Current: **1** A Max
- C. Temperature: - **55** °C to **105** °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. All tests shall be performed at ambient environmental conditions per AMP 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.
<b>ELECTRICAL REQUIREMENT</b>			
2	Contact Resistance	20 m Ohm Max(Initial) 30 m Ohm Max(Final)	Subject mated contacts assembled in housing to 20mV Max open circuit at 10mA Max. EIA-364-6B.
3	Dielectric withstanding Voltage	No creeping discharge or flashover shall occur. Current leakage: 0.5 mA MAX	800 VAC for 1minute Test between adjacent circuits of unmated connector. EIA-364-20B
4	Insulation Resistance	500 M Ohm Min.(Initial) 1000 M Ohm Min.(Final)	Impressed voltage 500 VDC. Test between adjacent circuits of unmated connector. EIA-364-21C.
5	Temperature Rising	30°C Max. Under loaded rating current	Contact series-wired, apply test current of loaded rating current to the circuit, and measure the temperature rising by probing on soldered areas of contacts, after the temperature becomes stabilized deduct ambient temperature from the measured value.
<b>MECHANICAL REQUIREMENT</b>			
6	Connector Mating Force	0.34 kgf/pin Max.	Operation Speed : 100 mm/min. Measure the force required to mate connector. EIA-364-13B
7	Connector Unmating Force	0.042 kgf/pin Min.	Operation Speed : 100 mm/min. Measure the force required to unmate connector. EIA-364-13B
8	Durability	See Note	Operation Speed : 250 cycle/min. Durability Cycles : 10,000 Cycles EIA-364-9C
9	Vibration	No electrical discontinuity greater than 1 μ 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. 100mA Max. Applied. EIA-364-28D, Condition I
10	Mechanical Shock	No electrical discontinuity greater than 1 μ 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 100mA max. current during the test. EIA-364-27B, Method A

Figure 1 ( Cont. )

<b>MECHANICAL REQUIREMENT</b>		
<b>TEST ITEM</b>	<b>REQUIREMENT</b>	<b>PROCEDURE</b>
11 Solder ability	The inspected area of each lead must have 95% solder coverage minimum.	Steam Aging Preconditioning : 1. Intended for nontin and nontin-alloy leadfinishes for 93+3/-5°C · 1hrs. 2. Intended for tin and tin-alloy leadfinishes for 93+3/-5°C · 8hrs. <JESD22-B102D, Condition C> Solder pot temperature: 245±5°C, 5sec
<b>ENVIRONMENTAL REQUIREMENTS</b>		
12 Resistance to Reflow Soldering Heat	No physical damage shall occur. ( Lead-Free )	Solder Temp. : 260±5°C, 10±0.5sec. Tyco spec. 109-201, Condition B See Fig.3
13 Thermal Shock	See Note	Mated Connector -55+/-3°C (30 min.), +85+/-2°C (30 min.) Perform this a cycle, repeat 5 cycles EIA-364-32C, Condition I
14 Humidity-Temperature Cycle	See Note	Mated Connector 25~65°C, 90~95% RH, 10 Cycles EIA-364-31B.
15 Temperature Life (Heat Aging)	See Note	Mated Connector 85°C, 250 hours, EIA-364-17B.
16 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, Condition B

Figure 1 ( End )

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

**3.6. PRODUCT QUALIFICATION AND REQUALIFICATION TEST**

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

Figure 3. Resistance to flow solder heat



Fig.3 Temperature Profile of Reflow Soldering