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**OSMT Surface Mount Plug Connector**

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**1. SCOPE****1.1. Content**

This specification covers performance, tests and quality requirements for the Tyco Electronics Omni Spectra Surface Mount (OSMT) Plug Connector.

**1.2. Qualification**

When tests are performed on the subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

**1.3. Qualification Test Results**

Successful qualification testing on the subject product line was completed on Dec1992. The Qualification Test Report number for this testing is 501-661. This documentation is on file at and available from Engineering Practices and Standards (EPS).

**2. APPLICABLE DOCUMENTS**

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**

- 109-197: Test Specification (AMP Test Specifications vs EIA and IEC Test Methods)
- 501-661: Qualification Test Report (OSMT Surface Mount Plug Connector)

**2.2. Industry Document**

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

**2.3. Government Documents**

- MIL-STD-202: Test Method Standard Electronic and Electrical Component Parts
- MIL-STD-1344: Test Methods for Electrical Connectors

**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 this product shall be as specified on the applicable product drawing.

### 3.3. Ratings

- Voltage: 250 volts rms maximum at sea level
- Temperature: -40 to 90°C

### 3.4. Performance and Test Description

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.

### 3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
ELECTRICAL		
Low Level Circuit Resistance (LLCR).	Test Group 1: 5 milliohms maximum for center contact. 1 milliohm maximum for shield. Test Groups 2, 3, 4 and 5: 15 milliohms maximum.	MIL-STD-1344, Method 3002. Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage.
Insulation resistance.	1000 megohms minimum.	MIL-STD-1344, Method 3003. 250 volts DC, 2 minute hold. Test between inner and outer contacts.
Dielectric withstanding voltage.	One minute hold with no breakdown or flashover.	MIL-STD-1344, Method 3001. 750 volts AC at sea level. Test between inner and outer contacts.
MECHANICAL		
Sinusoidal vibration.	No discontinuities of 1 microsecond or longer duration. See Note.	MIL-STD-202, Method 204, Test Condition B. Subject mated specimens to 10 to 2000 to 10 Hz traversed in 20 minutes with 0.06 inch maximum total excursion. Four hours in each of 3 mutually perpendicular planes.
Mechanical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	MIL-STD-202, Method 213, Test Condition A. Subject mated specimens to 75 G's half-sine shock pulses of 6 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks.

Figure 1 (continued)

Test Description	Requirement	Procedure
Durability.	See Note.	MIL-STD-1344, Method 2016. Mate and unmate specimens for 100 cycles at a maximum rate of 10 cycles per minute.
Mating force.	4.5 pounds maximum.	MIL-STD-1344, Method 2013. Measure force necessary to mate specimens at a maximum rate of 1 inch per minute.
Unmating force.	2.5 pounds maximum.	MIL-STD-1344, Method 2013. Measure force necessary to unmate specimens at a maximum rate of 1 inch per minute.
Pull test.	17.5 pounds minimum.	Measure force necessary to remove the specimen from its pad at a maximum rate of 1.0 inch per minute.
ENVIRONMENTAL		
Thermal shock.	See Note.	MIL-STD-202, Method 107, Test Condition A. Subject mated and mounted specimens in test group 4 to 5 cycles between -40 +0/-3°C and 90 +3/-0°C with 30 minute dwells at temperature extremes.
		MIL-STD-202, Method 107, Test Condition A. Subject unmated and unmounted specimens in test group 6 to 5 cycles between -55 +0/-3°C and 85 +3/-0°C with 30 minute dwells at temperature extremes.
Humidity/temperature cycling.	See Note.	MIL-STD-202, Method 106. Subject mated and mounted specimens in test group 4 to 10 cycles (10 days) between 25 and 65°C at 90 to 95% RH.
		MIL-STD-202, Method 106. Subject unmated and unmounted specimens in test group 6 to 10 cycles (10 days) between 25 and 65°C at 90 to 95% RH.
Temperature life.	See Note.	MIL-STD-1344, Method 1005. Subject mated and mounted specimens to 90 ± 2°C for 250 hours.

Figure 1 (continued)

Test Description	Requirement	Procedure
Gas tight.	See Note.	EIA-364-36, Method I. Subject mated and unmated specimens to nitric acid atmosphere for 60 ± 5 minutes.

**NOTE**

*Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Figure 2.*

Figure 1 (end)

## 3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)					
	1	2	3	4	5	6
	Test Sequence (b)					
LLCR	4	2,4	2	2,4	2,4	
Insulation resistance	1					4,6
Dielectric withstanding voltage						1,3
Sinusoidal vibration		1				
Mechanical shock		3				
Durability					1	
Mating force	2		3			
Unmating force	3		4			
Pull test					5	
Thermal shock				1		2
Humidity/temperature cycling				3		5
Temperature life			1			
Gas tight					3	

**NOTE**

(a) See paragraph 4.1.A.

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

Figure 2

#### **4. QUALITY ASSURANCE PROVISIONS**

##### **4.1. Qualification Testing**

###### **A. Specimen Selection**

Specimens shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Each test group shall consist of a minimum of 5 specimens. Test group 4 shall be mated and mounted. Test group 6 shall be unmated and unmounted.

###### **B. Test Sequence**

Qualification inspection shall be verified by testing specimens as specified in Figure 2.

##### **4.2. Requalification Testing**

If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

##### **4.3. Acceptance**

Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

##### **4.4. Quality Conformance Inspection**

The applicable quality inspection plan shall specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.