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**MICTOR SB (True SMT) Connector**

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

This specification covers performance, tests and quality requirements for the Tyco Electronics True Surface Mount (SMT) Style Single Beam Matched Impedance (MICTOR SB) Connector for mezzanine style board-to-board applications. These two-piece connector designs accommodate a variety of printed circuit board thicknesses. Receptacle assemblies are loaded with .006 thick MICTOR SB contacts which mate with blade contacts in the plug assemblies. MICTOR SB connectors are available in three contact centerline versions and 40, 80, 120, 160 and 200 positions.

**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 15Oct05. The Qualification Test Report number for this testing is 501-616. 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: AMP Test Specifications vs EIA and IEC Test Methods
- 114-13116: Application Specification(MICTOR SB Vertical Connectors for Surface Mount Technology (SMT) Printed Circuit (PC) Board Applications)
- 501-616: Qualification Test Report

**2.2. Industry Standards**

- EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications
- EIA-638: Surface Mount Solderability Test

**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: 125 volts AC
- Current:
  - Signal contacts: 1.25 amperes
  - Ground contacts: 9.5 amperes
- Temperature: -65 to 125°C
- Characteristic Impedance: 50 ohms

### 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 per EIA-364.

### 3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Initial examination of product.	Meets requirements of product drawing.	EIA-364-18. Visual and dimensional (C of C) inspection per product drawing.
Final examination of product.	Meets visual requirements.	EIA-364-18. Visual inspection.
ELECTRICAL		
Low level contact resistance.	$\Delta R$ 15 milliohms maximum for signal contacts. $\Delta R$ 5 milliohms maximum for ground contacts.	EIA-364-23. Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage. See Figure 3.
Insulation resistance.	5000 megohms minimum initial. 1000 megohms minimum after exposures.	EIA-364-21. Test between adjacent signal contacts, and between all signal contacts and ground of mated specimens.
Withstanding voltage.	1 minute hold with no breakdown or flashover. 0.5 milliampere maximum leakage current.	EIA-364-20, Condition I. 675 volts AC at sea level. Test between adjacent signal contacts, and between all signal contacts and ground of mated specimens.

Figure 1 (continued)

Test Description	Requirement	Procedure
MECHANICAL		
Solderability.	Solderable area shall have a minimum of 95% solder coverage.	EIA-638. Subject contacts to solderability.
Vibration, random.	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-28, Test Condition V. Subject specimens to 7.56 G's rms between 50 to 2000 Hz. One hour in each of 3 mutually perpendicular planes.
Mechanical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-27, Method A. Subject specimens to 50 G's half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks.
Durability.	See Note.	EIA-364-9. Manually mate and unmate 10 $\mu$ in gold plated specimens for 100 cycles at a maximum rate of 500 cycles per hour.
Mating force.	22.2 N [80 ozf] maximum per module.	EIA-364-13. Measure force necessary to mate specimens at a maximum rate of 12.7 mm [.5 in] per minute.
Unmating force.	5.6 N [20 ozf] minimum per module.	EIA-364-13. Measure force necessary to unmate specimens at a maximum rate of 12.7 mm [.5 in] per minute.
ENVIRONMENTAL		
Thermal shock.	See Note.	EIA-364-32, Test Condition III. Subject specimens to 5 cycles between -65 and 125°C.
Humidity-temperature cycling.	See Note.	EIA-364-31, Method III. Subject specimens to 10 cycles (10 days) between 25 and 65°C at 80 to 100% RH.
Temperature life.	See Note.	EIA-364-17, Method A, Test Condition 4. Subject specimens to 105°C for 300 hours.

**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. The use of alternate gold plating thickness parts (gold flash or 30  $\mu$ in gold) can be expected to have the same electrical, mechanical and dielectric performance characteristics. Decision to use such parts should depend on customer's need for alternate durability or environmental performance characteristics.

Figure 1 (end)

### 3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)			
	1	2	3	4
	Test Sequence (b)			
Initial examination of product	1	1	1	1
Low level contact resistance	3,7	2,4		
Insulation resistance			2,6	
Withstanding voltage			3,7	
Solderability, dip test				2
Vibration, random	5			
Mechanical shock	6			
Durability	4			
Mating force	2			
Unmating force	8			
Thermal shock			4	
Humidity-temperature cycling			5	
Temperature life		3(c)		
Final examination of product	9	5	8	3

**NOTE**

- (a) See paragraph 4.1.A.  
(b) Numbers indicate sequence in which tests are performed.  
(c) Precondition specimens with 3 durability cycles.

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. Test groups 1 and 2 each shall consist of 3 mated pairs (plug and receptacle) of vertical assemblies. Test group 3 shall consist of 5 unmounted, mated pairs (plug and receptacle) of vertical assemblies with housings fully populated with signal contacts and bus bars. Test group 4 shall consist of 5 unmated and unmounted specimens.

#### 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.

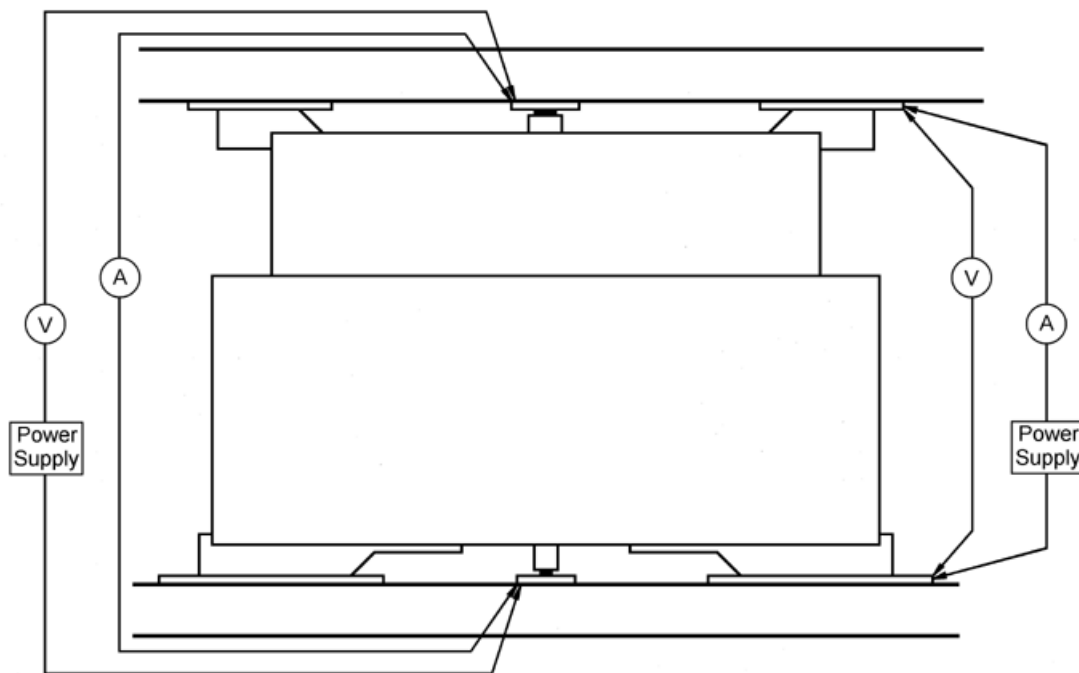


Figure 3  
Low Level Contact Resistance Measurement Points