

**Connector, Surface Mount Matched Impedance For Board-To-Board Applications Greater Than .495 Inch****1. SCOPE****1.1. Content**

This specification covers performance, tests and quality requirements for the AMP\* Surface Mount Matched Impedance Connector (MICTOR) for parallel board-to-board applications with spacing greater than .495 inch. These two piece connector designs accommodate a variety of printed circuit board thicknesses. Plug assemblies are loaded with .008 inch thick MICTOR contacts which mate with hermaphroditic contacts in the receptacle assembly. Both plug and receptacle assemblies are available in signal counts of 38 to 266 position in 38 pin increments for .025 inch centerline and signal counts of 20 to 140 position in 20 pin increments for .050 inch centerline.

**1.2. Qualification**

When tests are performed on the subject product line, procedures specified in AMP 109 series specifications shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

**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. AMP Documents**

- A. 109-1: General Requirements for Test Specifications
- B. 109 Series: Test Specifications as indicated in Figure 1. (Comply with MIL-STD-202, MIL-STD-1344 and EIA RS-364)
- C. Corporate Bulletin 401-76: Cross-reference between AMP Test Specifications and Military or Commercial Documents
- D. 108-1422: Product Specification
- E. 501-252-1: 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. Contact:
  - (1) Plug: Beryllium copper, selective gold and tin-lead plating over nickel plating
  - (2) Receptacle: Beryllium copper, selective gold and tin-lead plating over nickel plating
- B. Ground bus:
  - (1) Plug:
    - (a) Brass, selective gold and tin-lead plating over nickel plating
    - (b) Brass, selective palladium nickel with gold flash at interface and gold flash on soldertails, all over nickel plating
  - (2) Receptacle:
    - (a) Phosphor bronze, selective gold and tin-lead plating over nickel plating
    - (b) Phosphor bronze, selective palladium nickel with gold flash at interface and gold flash on soldertails, all over nickel plating
- C. Housing: Liquid crystal polymer (LCP), UL94V-0

**3.3. Ratings**

- A. Voltage: 30 vac
- B. Current: Signal application only
- C. Temperature: -55 to 125°C
- D. Characteristic impedance: 50 ± 5 ohms at 1 nanosecond

**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 AMP Specification 109-1.

**3.5. Test Requirements and Procedures Summary**

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing.	Visual, dimensional and functional per applicable quality inspection plan.
<b>ELECTRICAL</b>		
Termination resistance.	Maximum/minimum ΔR 10 milliohms.	AMP Spec 109-6-1. Subject mated contacts assembled in housing to 50 mv maximum open circuit at 100 ma maximum. See Figure 3.
<b>MECHANICAL</b>		
Vibration, random.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-21-5. Subject mated samples to 11.95 G's rms. 90 minutes in each of 3 mutually perpendicular planes.

Figure 1 (cont)

Test Description	Requirement	Procedure
Physical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-26-1. Subject mated samples to 50 G's half-sine shock pulses of 11 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks.
Durability.	See Note.	AMP Spec 109-27. Mate and unmate samples for 25 cycles at a maximum rate of 600 cycles per hour.
Mating force.	9.5 pounds maximum per ½ inch of connector. ½ inch of connector (1 module) equals 38 signal contacts and 1 ground bus.	AMP Spec 109-42, Condition A. Measure force necessary to mate samples at a maximum rate of 1 inch per minute.
Unmating force.	19 ounces minimum per ½ inch of connector. ½ inch of connector (1 module) equals 38 signal contacts and 1 ground bus.	AMP Spec 109-42, Condition A. Measure force necessary to unmate samples at a maximum rate of 1 inch per minute.

**NOTE** *Shall meet visual requirements, show no physical damage and shall meet requirements of additional tests as specified in Test Sequence in Figure 2.*

Figure 1 (end)

**3.6. Product Qualification and Requalification Test Sequence**

Test or Examination	Test Group (a)
	1
	Test Sequence (b)
Examination of product	1,9
Termination resistance	3,7
Vibration	5
Physical shock	6
Durability	4
Mating force	2
Unmating force	8

**NOTE** (a) *See Para 4.1.A.*  
 (b) *Numbers indicate sequence in which tests are performed.*

Figure 2

## 4. QUALITY ASSURANCE PROVISIONS

### 4.1. Qualification Testing

#### A. Sample Selection

Samples shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Test group 1 shall consist of 5 mated pairs (plug and receptacle) of vertical assemblies mounted on .062 inch thick printed circuit boards. Housings shall be fully populated with signal contacts and bus bars.

#### B. Test Sequence

Qualification inspection shall be verified by testing samples 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. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

### 4.4. Quality Conformance Inspection

Applicable AMP quality inspection plan will 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.

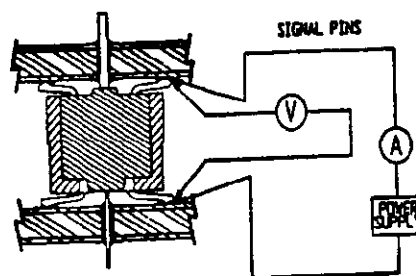


Figure 3  
Termination Resistance Measurement Points