
**Connector, AMPLIMITE* 2000, PCB Mounted, Nonremovable
Contacts**

1. SCOPE**1.1. Content**

This specification covers performance, tests and quality requirements for AMPLIMITE* 2000 printed circuit board mounted connectors with nonremovable contacts.

1.2. Qualification

When tests are performed on subject product line, procedures specified in Figure 1 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
- C. Corporate Bulletin 401-76: Cross-reference between AMP Test Specifications and Government or Commercial Documents
- D. 114-40028: Application Specification
- E. 501-303: Qualification Test Report

3. REQUIREMENTS**3.1. Design and Construction**

Product shall be of design, construction and physical dimensions specified on the applicable product drawing.

3.2. Materials

- A. Contact: Copper alloy, gold plating on mating end, tin-lead plating on solder end
- B. Housing: Polyester, UL94V-0
- C. Shell: Steel, tin plating

3.3. Ratings

- A. Voltage:
 - (1) UL: 250 vac
 - (2) CSA: 125 vac
- B. Current: Signal application only
- C. Temperature: -55 to 105°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 per AMP Specification 109-1.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing and AMP Spec 114-40028.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Termination resistance.	15 milliohms maximum initial. 20 milliohms maximum final.	AMP 109-6-1. Subject mated contacts assembled in housing to 50 mv maximum open circuit at 100 ma maximum. See Figure 3.
Insulation resistance.	5000 megohms minimum initial. 1000 megohms minimum final.	AMP Spec 109-28-4. Test between adjacent contacts and between contacts and metal shell of unmated samples.
Dielectric withstanding voltage.	1000 vac at sea level.	AMP Spec 109-29-1. Test between adjacent contacts and between contacts and metal shell of unmated samples.
MECHANICAL		
Solderability.	Solderable area shall have minimum of 95% solder coverage.	AMP Spec 109-11-2. Subject contacts to solderability.
Vibration, random.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-21-5. Subject mated samples to 23.91 G's rms. 20 minutes in each of 3 mutually perpendicular planes. See Figure 4.
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. See Figure 4.
Durability.	See Note.	AMP Spec 109-27. Mate and unmate samples for 100 cycles for gold flash product and 250 cycles for .000015 inch thick gold plated product at a maximum rate of 200 cycles per hour.

Figure 1 (cont)

Test Description	Requirement				Procedure
Mating force.			Lbs Maximum Ground Indents		AMP Spec 109-42, Condition A. Measure force necessary to mate samples at maximum rate of .5 inch per minute.
	Size	Position	With	W/O	
	1	9	30	2.8	
	2	15	33	4.7	
	3	25	37	7.8	
Unmating force.			Lbs Maximum Ground Indents		AMP Spec 109-42, Condition A. Measure force necessary to unmate samples at maximum rate of .5 inch per minute.
	Size	Position	With	W/O	
	1	9	30	2.8	
	2	15	33	4.7	
	3	25	37	7.8	
ENVIRONMENTAL					
Thermal shock.	See Note.				AMP Spec 109-22. Subject mated samples to 100 cycles between -55 and 105°C.
Humidity-temperature cycling.	See Note.				AMP Spec 109-23-4, Condition B. Subject mated samples to 10 cycles between 25 and 65°C at 95% RH with -10°C cold shock.
Temperature life.	See Note.				AMP Spec 109-43. Subject mated samples to temperature life at 105°C for 500 hours.
Mixed flowing gas.	See Note.				AMP Spec 109-85-2. Subject mated samples to environmental class II for 14 days.

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	2	3	4	5
	Test Sequence (b)				
Examination of product	1,9	1,5	1,5	1,8	1,3
Termination resistance	3,7	2,4	2,4		
Insulation resistance				2,6	
Dielectric withstanding voltage				3,7	
Solderability					2
Vibration	5				
Physical shock	6				
Durability	4				
Mating force	2				
Unmating force	8				
Thermal shock				4	
Humidity-temperature cycling				5	
Temperature life		3(c)			
Mixed flowing gas			3(c)		

NOTE

- (a) See Para 4.1.A.
 (b) Numbers indicate sequence in which tests are performed.
 (c) Precondition samples with 10 cycles durability.

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. All test groups shall consist of a minimum of 5 connectors. Test groups 1, 2, 3 and 4 shall be mated with AMPLIMITE* HD-20 crimp snap. Test group 5 shall be unmated.

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

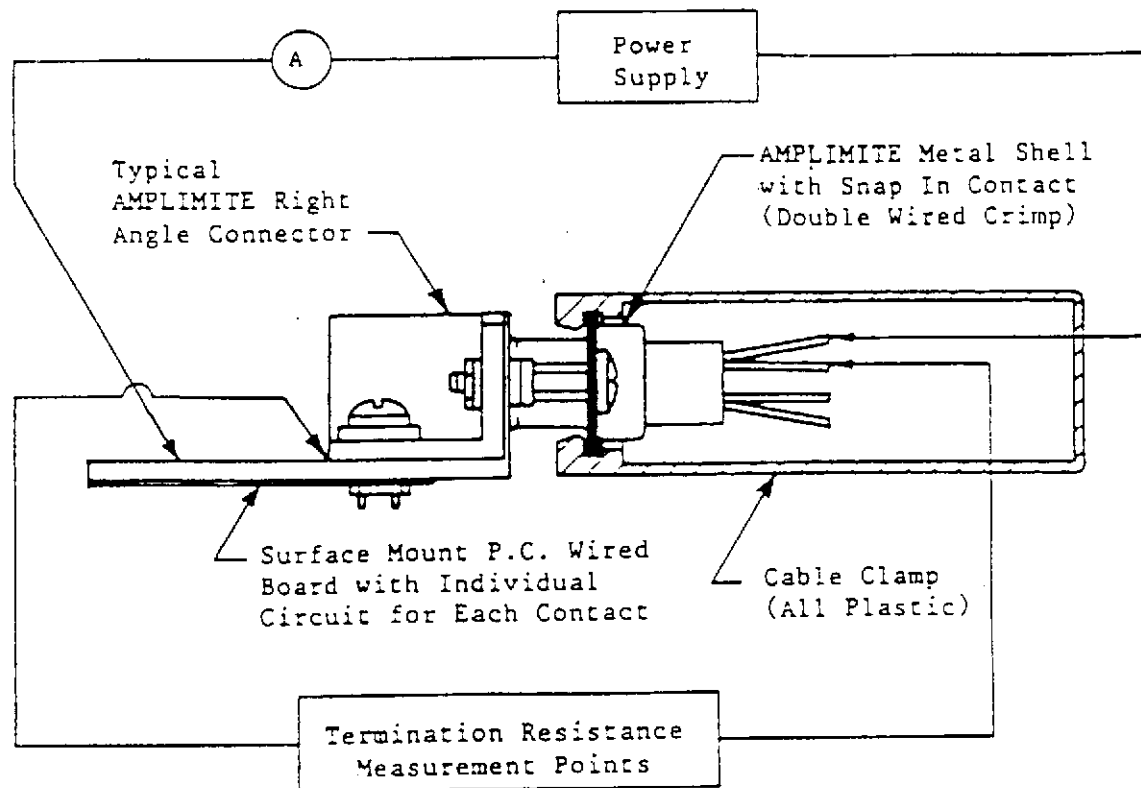


Figure 3
Termination Resistance Measurement Points

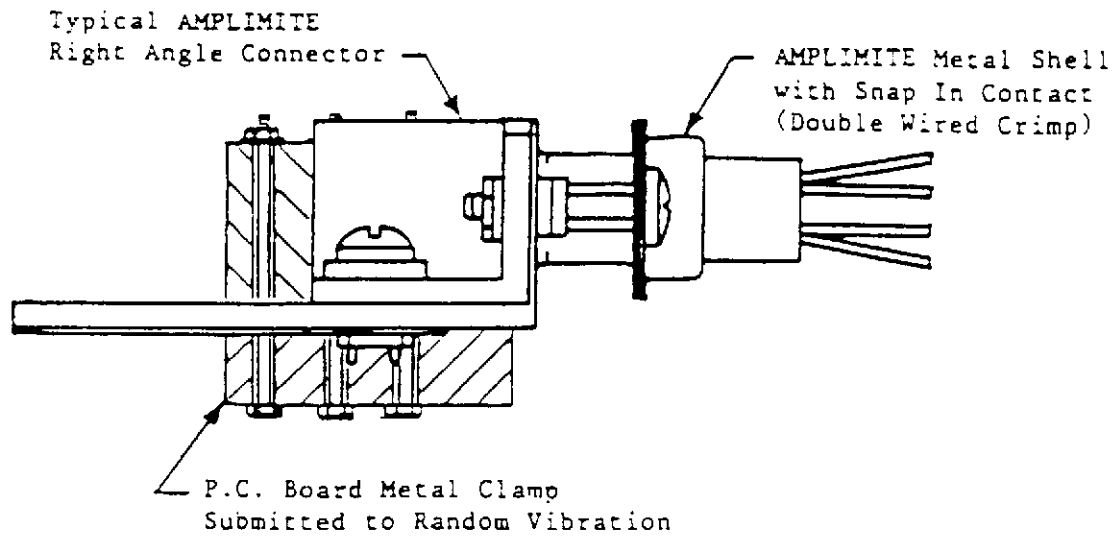


Figure 4
Vibration & Physical Shock Mounting Fixture