
Connector, AMPLIMITE*, .050 Series, .025 Inch Centerline

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for AMPLIMITE* .050 series connector. This product consists of panel mount connectors and unshielded connectors for termination to .025 inch centerline ribbon cable.

1.2. Qualification

When tests are performed on subject product line, procedures specified in AMP 109 series specifications shall be used. All inspections shall be performed using 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, latest edition of the document applies. In the event of conflict between requirements of this specification and product drawing, product drawing shall take precedence. In the event of conflict between requirements of this specification and 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. 114-40049: Application Specification
- E. 501-286: Test Report

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Materials

- A. Bracket, panel mount receptacle: Zinc, nickel over copper plating
- B. Contact, plug and receptacle: Phosphor bronze, gold plating in contact area, tin-lead plating in IDC area all over nickel plating
- C. Housing, panel mount receptacle, unshielded plug and termination cover: LCP, black, UL94V-0
- D. Shell, panel mount receptacle: Steel, bright tin over copper plating

3.3. Ratings

- A. Voltage: 30 vac
- B. Current: Signal application only, see Figure 2
- C. Temperature: -55 to 105°C unless limited by temperature rating of cable being used

3.4. Performance and Test Description

Product is designed to meet 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

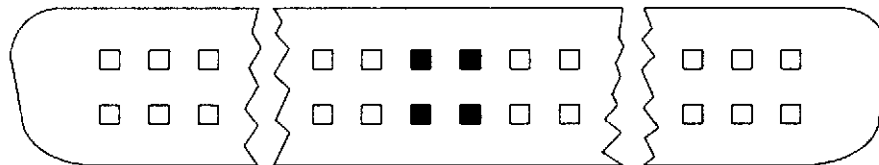
Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing and AMP Spec 114-40049.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Termination resistance.	50 milliohms maximum.	AMP 109-6-1. Subject mated contacts assembled in housing to 50 mv maximum open circuit at 100 ma maximum. See Figure 4.
Insulation resistance.	1000 megohms minimum.	AMP Spec 109-28-3. Test between adjacent contacts of mated samples.
Dielectric withstanding voltage.	500 vac at sea level.	AMP Spec 109-29-1. Test between adjacent contacts of mated samples.
Capacitance.	3 picofarads maximum.	AMP Spec 109-47, Condition E. Test between adjacent circuits of mated, unterminated samples.
MECHANICAL		
Vibration, random.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-21-5. Subject mated samples to 5.35 G's rms for 20 minutes. See Figure 5.
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 5.
Durability.	See Note.	AMP Spec 109-27. Mate and unmate samples for 500 cycles at maximum rate of 800 cycles per hour.
Mating force.	18 pounds maximum for 50 position sample. 24 pounds maximum for 68 position sample.	AMP Spec 109-42, Condition A. Measure force necessary to mate samples at maximum rate of 1 inch per minute.

Figure 1 (cont)

Test Description	Requirement	Procedure
Unmating force.	3 pounds minimum for 50 position sample. 5 pounds minimum for 68 position sample.	AMP Spec 109-42, Condition A. Measure force necessary to unmate samples at maximum rate of 1 inch per minute.
ENVIRONMENTAL		
Thermal shock.	See Note.	AMP Spec 109-22. Subject mated samples to 25 cycles between -55 and 105°C.
Humidity-temperature cycling.	See Note.	AMP Spec 109-23-3, Condition B. Subject unmated samples to 10 cycles between 25 and 65°C at 95% RH.
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 109-85-3. Subject mated samples to environmental class III for 20 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)



Receptacle
 ■ Denotes energized circuit (1 ampere per contact)

Figure 2
 Current Energizing Circuit

3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)					
	1	2	3	4	5	6
	Test Sequence (b)					
Examination of product	1,9	1,5	1,6	1,5	1,8	1,3
Termination resistance	3,7	2,4	2,5	2,4		
Insulation resistance					2,6	
Dielectric withstanding voltage					3,7	
Capacitance						2
Vibration	5					
Physical shock	6					
Durability	4					
Mating force	2					
Unmating force	8					
Thermal shock			3		4	
Humidity-temperature cycling			4		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 3

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 minimum of 5 connectors. 30 random contacts shall be selected and identified, unless otherwise specified, these contacts shall be used for all measurements. Cable shall be as specified on the AMP Customer Drawings, .025 inch centerline ribbon cable, prepared in accordance with AMP Specification 114-40049.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 3.

4.2. Requalification Testing

If changes significantly affecting form, fit or function are made to product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of 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 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 applicable product drawing and this specification.

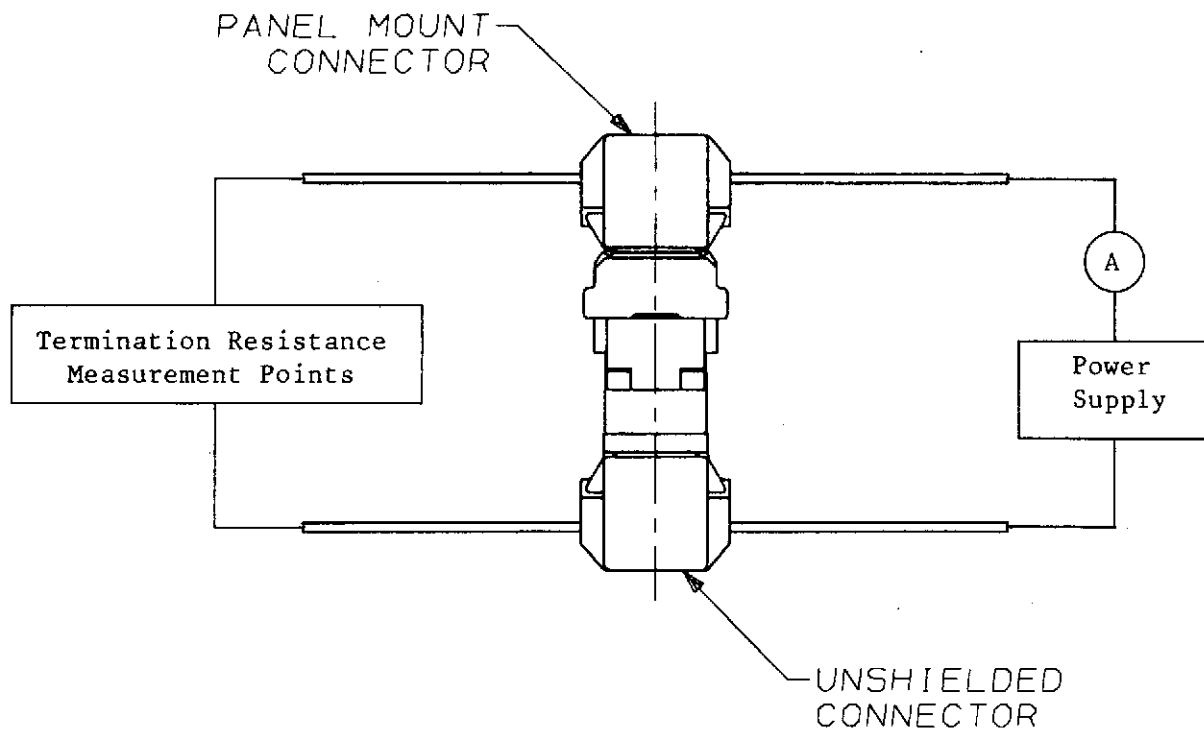


Figure 4
Termination Resistance Measurement Points

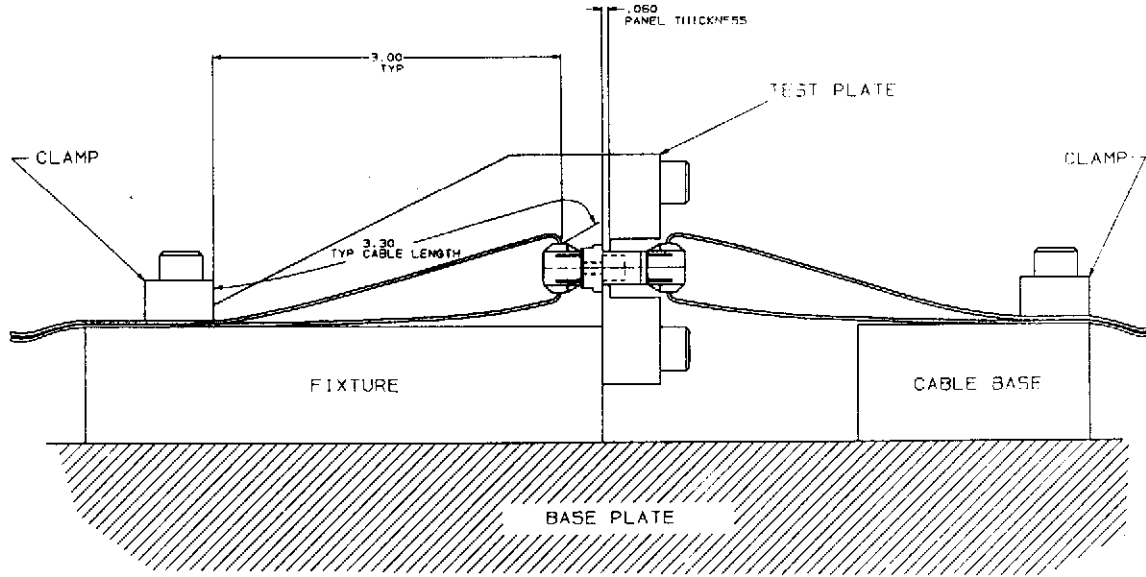


Figure 5
Vibration & Physical Shock Mounting Fixture