
Connector, AMPMODU*, 50/50 Grid Cable

1. SCOPE**1.1. Content**

This specification covers performance, tests and quality requirements for AMPMODU* 50/50 grid cable connector. This product consists of a cable applied receptacle connector that mates with board mounted vertical and right angle AMPMODU 50/50 grid headers.

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. 114-40029: Application Specification
- E. 501-288: 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. Contact: Phosphor bronze, gold plating in contact area, tin-lead plating in IDC area, all over nickel plating
- B. Housing: LCP, UL94V-0
- C. Latch: Stainless steel
- D. Terminating cover: PBT, black, UL94V-0

3.3. Ratings

- A. Voltage: 30 vac
- B. Current: Signal application only, .5 ampere maximum at 50% energized, See Figure 6
- C. Temperature: -65 to 105°C

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AMP FAX/PRODUCT INFO 1-800-522-8752

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1 of 6

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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 114-40029.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Termination resistance.	25 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.	5000 megohms minimum.	AMP Spec 109-28-3. Test between adjacent contacts of mated samples.
Dielectric withstanding voltage.	300 vac at sea level.	AMP Spec 109-29-1. Test between adjacent contacts of mated samples.
MECHANICAL		
Vibration, random.	No discontinuities of 1 microsecond or longer duration. See Note (a).	AMP Spec 109-21-7. Subject mated samples to 3.13 G's rms. 1 hour in each of 3 mutually perpendicular planes. See Figure 5.
Physical shock.	No discontinuities of 1 microsecond or longer duration. See Note (a).	AMP Spec 109-26-1. Subject mated samples to 30 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 (a).	AMP Spec 109-27. Mate and unmate samples for 200 cycles at maximum rate of 150 cycles per hour.
Mating force.	.4 pound maximum per contact.	AMP Spec 109-42, Condition A. Measure force necessary to mate samples at maximum rate of .5 inch per minute.

Figure 1 (cont)

Test Description	Requirement	Procedure
Unmating force.	.03 pound minimum per contact.	AMP Spec 109-42, Condition A. Measure force necessary to unmate samples at maximum rate of .5 inch per minute.
ENVIRONMENTAL		
Thermal shock.	See Note (a).	AMP Spec 109-22. Subject mated samples to 10 cycles between -65 and 105°C.
Humidity-temperature cycling.	See Note (a).	AMP Spec 109-23-3, Condition B. Subject mated samples to 10 cycles between 25 and 65°C at 95% RH.
Temperature life.	See Note (a).	AMP Spec 109-43. Subject mated samples to temperature life at 105°C for 500 hours.
Mixed flowing gas.	See Note (a).	AMP Spec 109-85-3. Subject mated samples to environmental class III for 20 days.

- (a) 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
	Test Sequence (b)			
Examination of product	1,9	1,5	1,5	1,8
Termination resistance	3,7	2,4	2,4	
Insulation resistance				2,6
Dielectric withstanding voltage				3,7
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)	

- (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. Each test group shall consist of 100 position unattached receptacles with 28 AWG (7/32) tin plated copper wire in accordance with AMP Specification 114-40029 and Figure 3. Test group 1 shall include 10 position latched receptacles. 30 random contacts shall be selected and identified, contact selection shall include ends of the connector. Unless otherwise specified, these contacts shall be used for all measurements.

Test group	Male	Hardware	Quantity	Cable Type
1,4	Right angle	None	5	Ribbon
	.320 vertical	None	5	
	Right angle	Latched	5	
2,3	.320 vertical	None	5	

Figure 3

B. Test Sequence

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

4.2. Requalification Testing

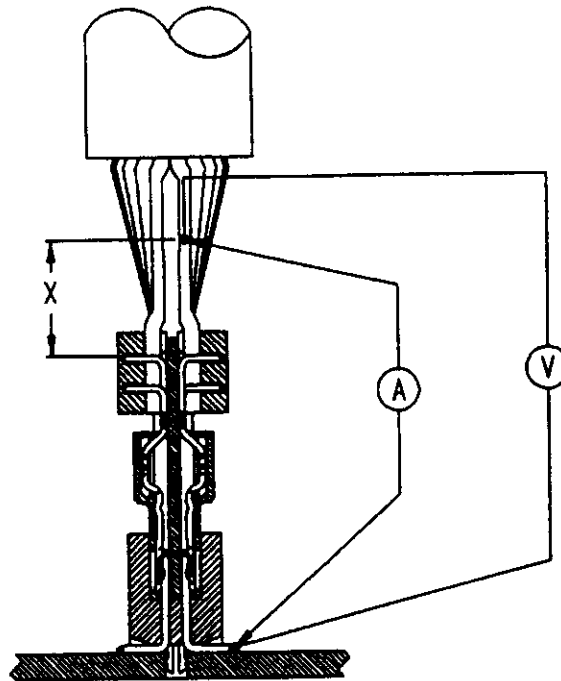
If changes significantly affecting form, fit or function are made to product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of original testing sequence as determined by development/product, quality and reliability engineering.

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.



Note: Voltage drop due to length "X" of wire is to be removed from all readings.

Figure 4
Termination Resistance Measurement Points

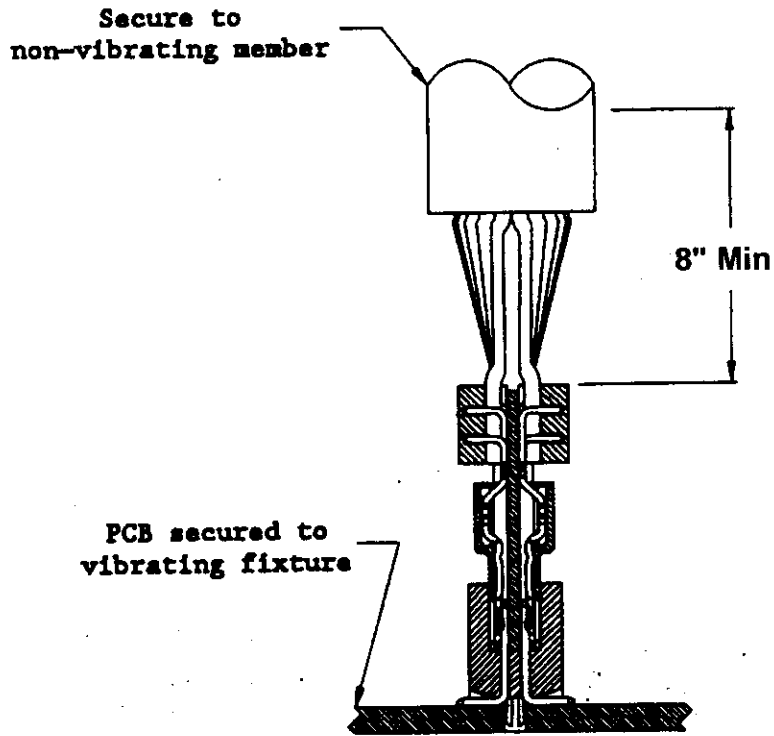
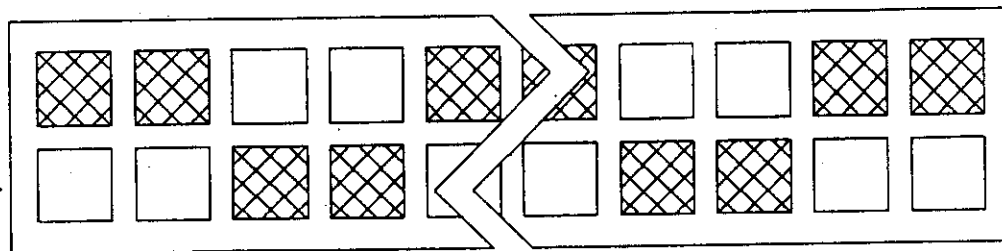


Figure 4
Vibration & Physical Shock Mounting Fixture



RECEPTACLE



DENOTES ENERGIZED CIRCUIT

Figure 6
Current Energizing Circuit