
Connector, Power, MDI, Thru-Hole

1. SCOPE**1.1. Content**

This specification covers performance, tests and quality requirements for AMP* thru-hole Multi-Directional Interface (MDI) connectors. These connectors are printed circuit board mounted header and receptacle connectors.

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. 108-1503: Product Specification
- E. 114-40045: Application Specification
- F. 501-269-1: 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:
 - (1) Header: Brass, AMP-DURAGOLD* plating in contact area, tin-lead plating on solder tails, all over nickel plating
 - (2) Receptacle: Phosphor bronze, AMP-DURAGOLD plating in contact area, tin-lead plating on solder tails, all over nickel plating
- B. Housing:
 - (1) Header: Thermoplastic, black, UL94V-0
 - (2) Receptacle: Thermoplastic, black, UL94V-0

3.3. Ratings

- A. Voltage: 30 vac (rms) or 30 vdc
- B. Current: See Figure 4 for applicable current carrying capability
- C. Temperature: -55 to 105°C

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 114-40045.	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.
Temperature rise vs current.	30°C maximum temperature rise at specified current.	AMP Spec 109-45-1. Measure temperature rise vs current. See Figure 4.
MECHANICAL		
Vibration, random.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-21-7, except 10-500 Hz. Subject mated samples to 5.41 G's rms. 20 minutes in each of 3 mutually perpendicular planes. See Figure 5.
ENVIRONMENTAL		
Temperature life.	See Note.	AMP Spec 109-43. Subject mated samples to temperature life at 105°C for 315 hours.
Mixed flowing gas.	See Note.	AMP Spec 109-85-3. Subject mated samples to environmental class III for 10 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
	Test Sequence (b)
Examination of product	1,9
Termination resistance	2,7
Temperature rise vs current	3,8
Vibration	6(c)
Temperature life	5
Mixed flowing gas	4(d)

NOTE

- (a) See Para 4.1.A.
- (b) Numbers indicate sequence in which tests are performed.
- (c) Discontinuities shall not be measured. Energize at 18°C level for 100% loadings per AMP Specification 109-151.
- (d) 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. Test group 1 shall consist of 5 header and 5 receptacle connectors. A minimum of 30 contacts shall be selected and identified, unless otherwise specified, these contacts shall be used for all measurements.

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.

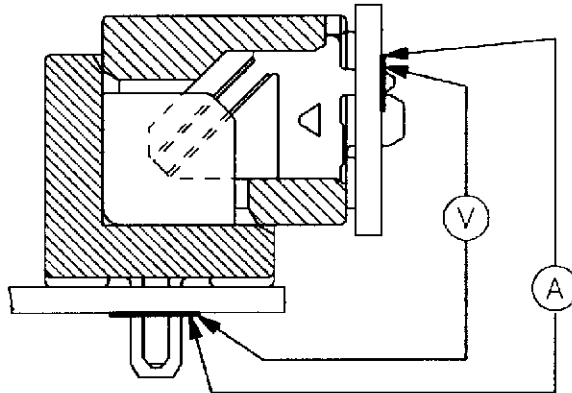


Figure 3
Termination Resistance Measurement Points

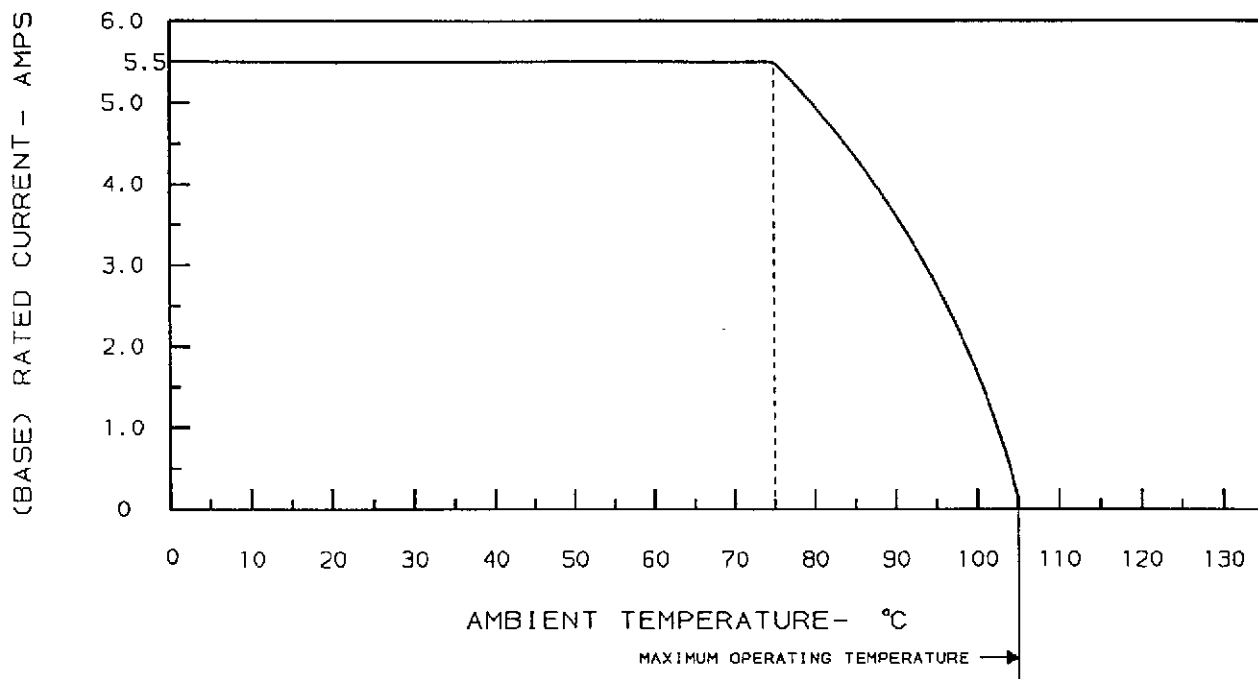


Figure 4A
Current Carrying Capability

Percent Connector Loading	"F" Factor
1 Contact Energized	1.0
50% Energized	0.73
100% Energized	0.49

NOTE

To determine acceptable current carrying capacity for percentage connector loading and wire gage indicated, use Multiplication Factor (F) from above chart and multiply it times Base rated Current for a single circuit at maximum ambient operating temperature as shown in Figure 4A.

Figure 4B
Current Rating

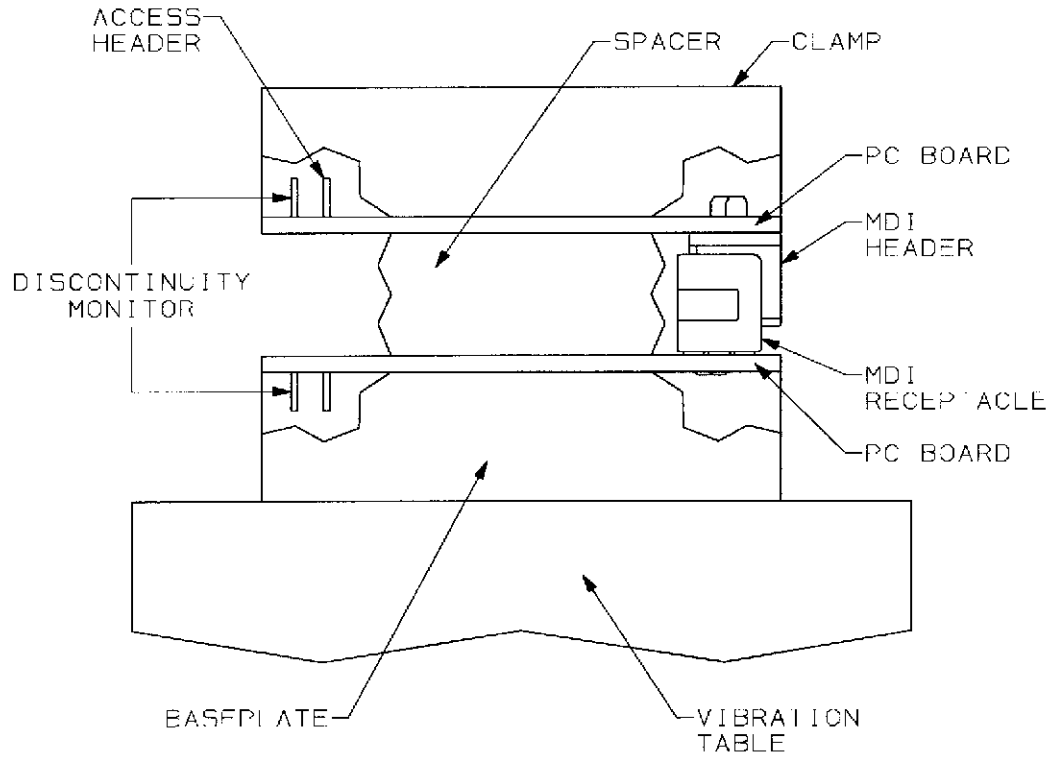


Figure 5
Vibration & Physical Shock Mounting Fixture