Interconnection System, AMP* Memory Card Receptacle/Header Assemblies

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for AMP* Memory Card connectors. These connectors consist of SMT and through hole PC Card and PC CardBus headers and receptacles.

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. 114-1097: Application Specification
E. 501-306: 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: Copper alloy, plated gold over nickel on mating end, tin-lead over nickel on soldier tails
B. Housing: High temperature thermoplastic, black

3.3. Ratings

A. Voltage: 100 vac
B. Current: Signal application only
C. Temperature: -20 to 70°C

* Trademark
I Indicates change

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 114-1097.	Visual, dimensional and functional per applicable quality inspection plan.
	ELECTRICAL	
Termination resistance.	40 milliohms maximum initial. ΔR 20 milliohms maximum.	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.	1000 megohms minimum.	AMP Spec 109-28-4. 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.
	MECHANICAL	
Solderability.	Solderable area shall have minimum of 95% solder coverage.	AMP Spec 109-11-5. Subject contacts to solderability.
Vibration, sinusoidal.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-21-3. Subject mated samples to 15 G's between 10-2000-10 Hz traversed in 10 minutes. 4 hours 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 at maximum rate of 500 cycles per hour. See Figure 5.

Figure 1 (cont)

Test Description	Requirement	Procedure
Contact retention.	Contacts shall not dislodge or move from circuit cavity.	AMP Spec 109-30. Apply axial load of 2.2 pounds to pin header contact, 1.1 pounds to receptacle contact, in mating direction.
Mating force.	8.8 pounds maximum.	AMP Spec 109-42, Condition A. Measure force necessary to mate samples at maximum rate of .5 inch per minute.
Unmating force.	1.5 pounds minimum.	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.	AMP Spec 109-22. Subject mated samples to 5 cycles between -55 and 85°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 cold shock.
Humidity-temperature cycling.	See Note.	AMP Spec 109-23-3, Condition A. Subject mated samples to 4 cycles between 25 and 65°C at 95% RH.
Temperature life.	See Note.	AMP Spec 109-43. Subject mated samples to temperature life at 85°C for 250 hours.
Mixed flowing gas.	See Note.	AMP Spec 109-85-2. Subject mated samples to environmental class II for 8 days.
Mixed flowing gas.	See Note.	AMP Spec 109-85-2. Subject unmated samples to environmental class II for 2 days.
Hydrogen sulfide gas.	See Note.	Subject mated samples to 3 ppm hydrogen sulfide gas at 40°C and 80% RH for 96 hours.

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	6	7
	Test Sequence (b)						
Examination of product	1,9	1,13	1,8	1,5	1,6	1,4	1,7
Termination resistance	4,6	2,5,8,12		2,4	2,5		2,6
Insulation resistance			3,7				
Dielectric withstanding voltage			2,6				
Solderability						2	
Vibration					3		
Physical shock					4		
Durability (c)	5	3,6,9					3
Contact retention						3	
Mating force	2,7						
Unmating force	3,8						
Thermal shock			4				
Humidity-temperature cycling, 10 day			5				
Humidity-temperature cycling, 4 day		4,7,10					
Temperature life				3			
Mixed flowing gas, mated							5
Mixed flowing gas, unmated							4
Hydrogen sulfide gas		11					

NOTE

(a) *See Para 4.1.A.*
(b) *Numbers indicate sequence in which tests are performed.*
(c) *See Figure 5.*

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 groups 1, 2, 3, 4, 5 and 7 shall each consist of 5 mated pairs of 68 position receptacles and headers, of which a minimum of 30 random readings shall be taken for each test group. Test group 6 shall consist of 30 receptacles and 30 headers.

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.

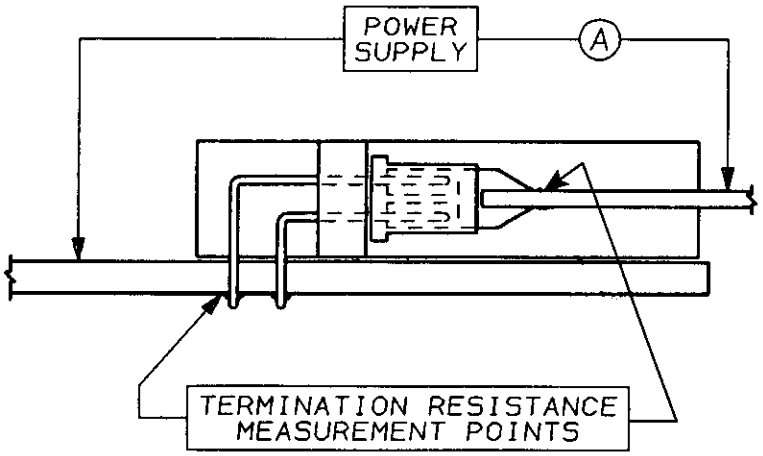

Figure 3
Termination Resistance Measurement Points

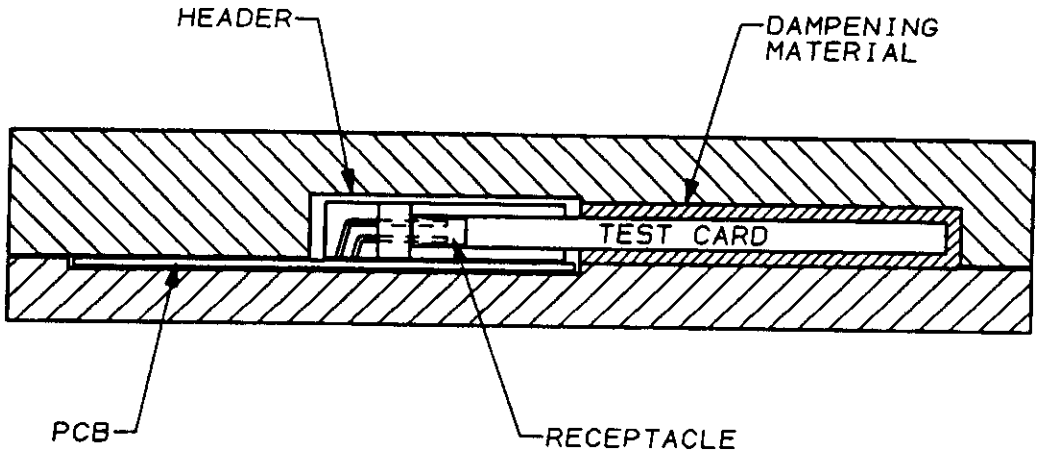

Figure 4
Vibration & Physical Shock Mounting Fixture

Test Group	Test Sequence	Total Durability Cycles
1	5	10000
2	3	1000
2	6	1000
2	9	3000
7	3	1000

Figure 5
Durability Requirements