Connector, 1mm Card Edge, Performance Series

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the AMP* 1mm high performance card edge connector. This connector is a multi-contact edge board type connector having contacts on a 1mm pitch for solder applications.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

1.3. Qualification Test Results

Successful qualification testing on the subject product line was completed on 15Dec97. The test file number for this testing is CTL 4737-000-001. This documentation is on file at and available from the Americas Regional Laboratory.

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. 501-411: Qualification Test Report

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Materials

A. Contact: Phosphor bronze with gold plating on the contact interface and tin-lead plating on the solder leads, all over nickel plating
B. Housing: High temperature thermoplastic (PCT), UL94V-0

3.3. Ratings

A. Voltage: 250 vac
B. Current: Signal application only
C. Temperature: 0 to 85°C
D. Characteristic Impedance: 35<20<80 ohms

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.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Termination resistance.	20 milliohms maximum initial. Maximum/minimum ΔR 10 milliohms.	AMP Spec 109-6-6. Subject samples to 20 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 unmated samples.
Dielectric withstanding voltage.	400 vac at sea level. 1 minute hold with no breakdown or flashover.	AMP Spec 109-29-1. Test between adjacent contacts of unmated samples.
MECHANICAL		
Vibration, random.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-21-7. Subject mated samples to 3.13 G's rms between 5-500 Hz. 15 minutes in each of 3 mutually perpendicular planes.
Mechanical shock, specified pulse.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-26-1, except 30 G's. 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.
Durability.	See Note.	AMP Spec 109-27. Mate and unmate samples for 50 cycles at a maximum rate of 500 cycles per hour.

Figure 1 (cont)

Test Description	Requirement	Procedure
Engaging force.	3.3 ounces maximum average per contact pair.	AMP Spec 109-35. Measure force necessary to engage samples with an .062 inch steel gage at a maximum rate of .5 inch per minute.
Separating force.	Between 1.98 and .35 ounces average per contact pair.	AMP Spec 109-35. Measure force necessary to separate samples from a .062 inch steel gage at a maximum rate of .5 inch per minute.
ENVIRONMENTAL		
Thermal shock.	See Note.	AMP Spec 109-22. Subject unmated samples to 5 cycles between -40 and 85°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 109-85-2. Subject mated and unmated samples to environmental class II for 14 days.

NOTE *Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown 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	1,6
Termination resistance	3,7	2,4	2,4		2,5
Insulation resistance				2,6	
Dielectric withstanding voltage				3,7	
Vibration	5				
Mechanical shock	6				
Durability	4				
Engaging force	2				
Separating force	8				
Thermal shock				4	3
Humidity-temperature cycling				5	4
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 3 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 each consist of a minimum of 3 samples.

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 the product meets the 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

The applicable AMP quality inspection plan shall specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

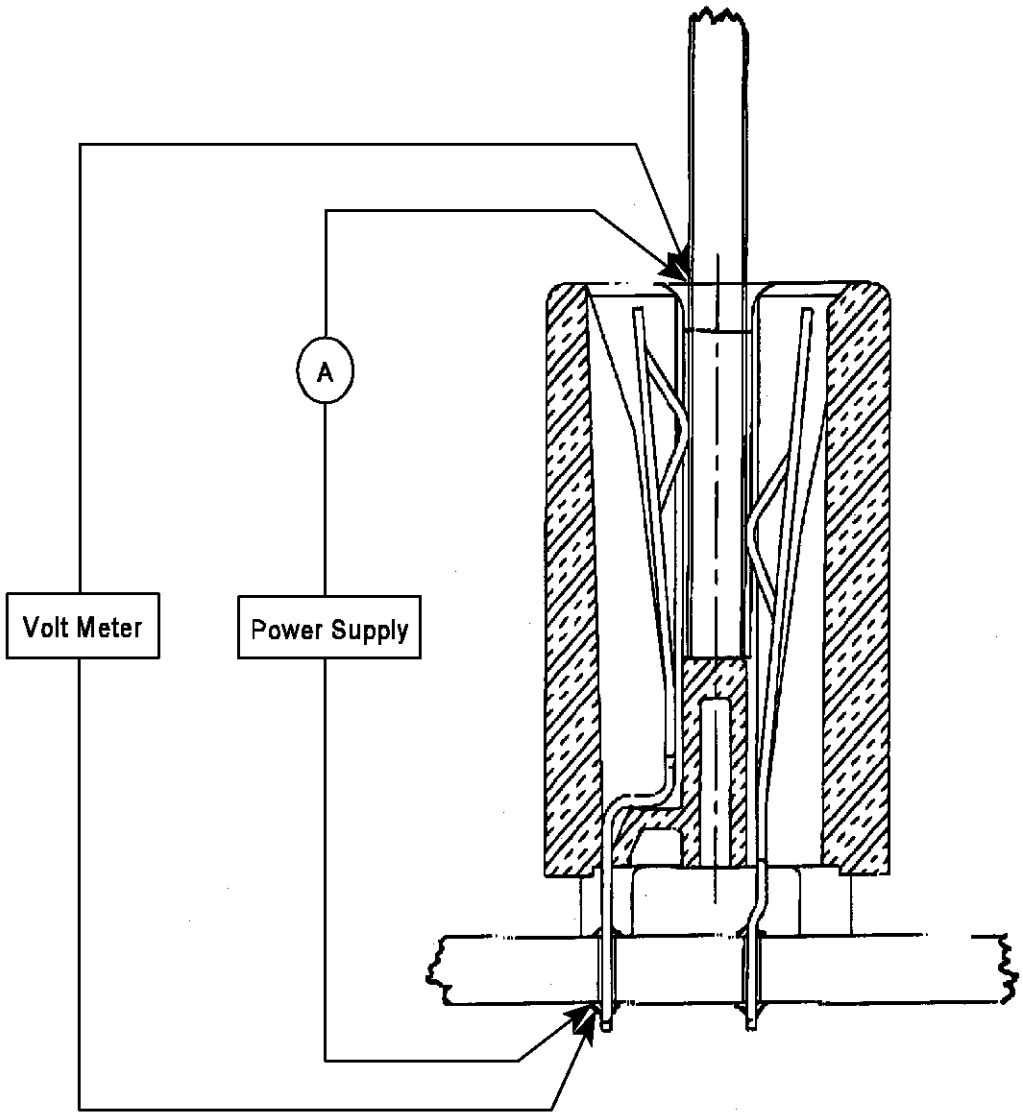

Figure 3
Termination Resistance Measurement Points