
SMA Series Printed Circuit Board Mounted Connectors

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for AMP* SMA Series printed circuit board mounted connectors.

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 13Jul99. The Qualification Test Report number for this testing is 501-481. This documentation is on file at and available from Engineering Practices and Standards (EPS).

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. 501-481: 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

Materials used in the construction of this product shall be as specified on the applicable product drawing.

3.3. Ratings

- A. Voltage: 335 volts rms at sea level
- B. Current: Signal application only
- C. Temperature:
 - 1. -65 to 165°C when used with cable having Teflon dielectric
 - 2. -55 to 85°C when used with cable having polyethylene dielectric
- D. Nominal Impedance: 50 ohms
- E. Frequency Range: 0 to 4.0 GHz

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		
Dry circuit resistance.	ΔR 2 milliohms maximum.	AMP Spec 109-6-6. Subject mated samples to 100 milliamperes maximum and 20 millivolt maximum open circuit voltage. See Figure 3.
Voltage standing wave ratio.	1.3 to 1.	AMP Spec 109-9-2. Measure VSWR between 0.5 and 4.0 GHz.
Insulation resistance.	5,000 megohms minimum.	AMP Spec 109-28-4. Test between center contact and braid of unmated samples.
Dielectric withstanding voltage.	1,000 volts AC at sea level. 1 minute hold with no breakdown or flashover.	AMP Spec 109-29-1. Test between center contact and braid of unmated samples.
RF insertion loss.	0.3 dB maximum for vertical samples. 0.35 dB maximum for right angle samples.	AMP Spec 109-174-2. Measure RF insertion loss at 4 GHz.
MECHANICAL		
Vibration, sinusoidal.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-21-4. Subject mated samples to 20 G's between 10-2000-10 Hz traversed in 20 minutes. 4 hours in each of 3 mutually perpendicular planes.

Figure 1 (cont)

Test Description	Requirement	Procedure
Mechanical shock, specified pulse.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-26-9. Subject mated samples to 100 G's sawtooth shock pulses of 6 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 500 cycles at a maximum rate of 600 cycles per hour.
Mating torque.	8 inch pounds maximum.	AMP Spec 109-42, Condition B. Measure torque necessary to mate samples.
Unmating torque.	6 inch ounces minimum.	AMP Spec 109-42, Condition B. Measure torque necessary to unmate samples.
ENVIRONMENTAL		
Thermal shock.	See Note.	AMP Spec 109-22. Subject unmated samples to 5 cycles between -55 and 85°C.
Humidity-temperature cycling.	See Note.	AMP Spec 109-23-3, Condition B. Subject unmated samples to 10, 24 hour 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 1,000 hours.
Mixed flowing gas.	See Note.	AMP Spec 109-85-2A. Subject mated samples to environmental class IIA 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	1,4
Dry circuit resistance	3,7	2,4	2,4		
Voltage standing wave ratio					3
Insulation resistance				2,6	
Dielectric withstanding voltage				3,7	
RF insertion loss					2
Vibration	5				
Mechanical shock	6				
Durability	4				
Mating torque	2				
Unmating torque	8				
Thermal shock				4	
Humidity-temperature cycling				5	
Temperature life		3(c)			
Mixed flowing gas			3(c)		

NOTE

- (a) See paragraph 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. All test groups shall each consist of 5 samples of each type.

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. If 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.

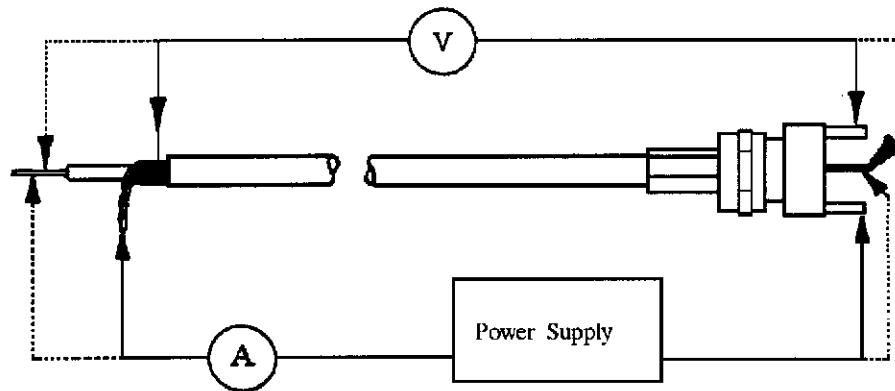


Figure 3
Dry Circuit Resistance Measurement Points