
Connector, Snap-Lock, Miniature UHF Plug & Bulkhead Jack

1. SCOPE**1.1. Content**

This specification covers performance, tests and quality requirements for the AMP* miniature UHF plug and bulkhead jack snap-lock connector. The miniature plug and bulkhead jack are designed to be terminated to either RG58/U or RG174/U coaxial cable. The plug features a spring loaded collar instead of threads, and is capable of being mated to the bulkhead jack simply by pushing it onto the jack. Once the plug is secured on the jack, it can only be removed by pulling back the spring loaded collar. The bulkhead jack, having both conventional threads and the snap-lock retention feature, can be mated with both the standard miniature UHF plug and the snap-lock plug.

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. 501-353: 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. Collar, plug: Brass, nickel over copper plating
- B. Contacts:
 - (1) Male pin: Brass, tin-lead plating
 - (2) Female receptacle: Phosphor bronze, tin-lead plating
- C. Dielectric: Polymethylpentene
- D. Ferrules: Copper, tin-lead plating
- E. Shells, plug and bulkhead jack: Zinc die casting, nickel over copper plating

3.3. Ratings

- A. Voltage: 500 vdc
- B. Current: Signal application only
- C. Temperature: -40 to 85°C
- D. Characteristic Impedance: 50 ohms
- E. Frequency Range: 500 to 2500 MHz

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.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Termination resistance.	Center contact: 6 milliohms maximum initial. ΔR 2 milliohms maximum increase and/or decrease. Outer braid: 3 milliohms maximum initial. ΔR 1 milliohm maximum increase and/or decrease.	AMP 109-6-6. Subject mated contacts assembled in housing to 20 mv maximum open circuit at 100 ma maximum. See Figure 3.
Insulation resistance.	20 megohms minimum.	AMP Spec 109-28-4. Test between center contact and outer braid of mated samples.
Dielectric withstanding voltage.	1500 vdc at sea level for 1 minute with no breakdown or flashover.	AMP Spec 109-29-1. Test between center contact and outer braid of mated samples.
RF insertion loss.	0.5 dB maximum.	AMP Spec 109-174-2. Measure RF insertion loss at 3 GHz.
Voltage standing wave ratio.	1.8 maximum.	AMP Spec 109-181. Measure VSWR between .1 and 2 GHz.
RF leakage.	50 dB maximum.	AMP Spec 109-182. Measure RF leakage between 30 kHz and 2 GHz.
MECHANICAL		
Cable retention.	175 Newtons minimum for RG58/U cable. 85 Newtons minimum for RG174/U cable.	AMP Spec 109-16. Determine crimp tensile at a maximum rate of 2.54 centimeters per minute.

Figure 1 (cont)

AMP

Test Description	Requirement	Procedure
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. 1 hour in each of 3 mutually perpendicular planes.
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.
Mating force.	70 Newtons maximum.	AMP Spec 109-42, Condition A. Measure force necessary to mate samples at maximum rate of .5 inch per minute.
Unmating force.	12 Newtons minimum.	AMP Spec 109-42, Condition A. Measure force necessary to unmate samples at maximum rate of .5 inch per minute.
Housing lock strength.	80 Newtons minimum.	AMP Spec 109-50. Determine housing lock strength at a maximum rate of 1 inch per minute.
ENVIRONMENTAL		
Thermal shock.	See Note.	AMP Spec 109-22. Subject mated samples to 5 cycles between -40 and 85°C.
Humidity-temperature cycling.	See Note.	AMP Spec 109-23-3, Condition B. Subject mated samples to 10 cycles between 25 and 65°C at 95% RH.
Salt spray corrosion.	See Note.	AMP Spec 109-24. Subject mated samples to 5% concentration for 48 hours.
Temperature life.	See Note.	AMP Spec 109-43. Subject mated samples to temperature life at 85°C for 1000 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
	Test Sequence (b)				
Examination of product	1,11	1,6	1,7	1,8	1,5
Termination resistance	4,7	2,4	2,4,6		
Insulation resistance				2,6	
Dielectric withstanding voltage				3,7	
RF insertion loss					2
Voltage standing wave ratio					4
RF leakage					3
Cable retention		5			
Vibration	5				
Physical shock	6				
Mating force	2,9				
Unmating force	3,8				
Housing lock strength	10				
Thermal shock				4	
Humidity-temperature cycling			3	5	
Salt spray corrosion			5		
Temperature life		3			

NOTE

- (a) See Para 4.1.A.
- (b) Numbers indicate sequence in which tests are performed.

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 12 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 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.

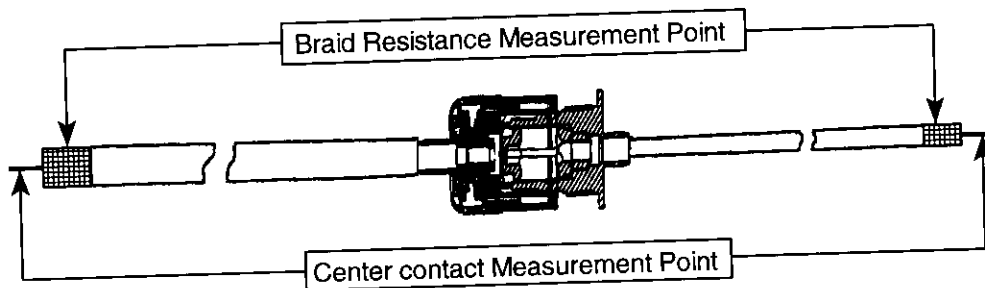


Figure 3
Termination Resistance Measurement Points