
Jack, Right Angle, Ultra Low Profile, BNC, PCB

DESIGN OBJECTIVES

The product described in this document has not been fully tested to ensure conformance to the requirements outlined below. Therefore AMP Incorporated makes no representation or warranty, express or implied, that the product will comply with these requirements. Further, AMP Incorporated may change these requirements based on the results of additional testing and evaluation. Contact AMP Engineering for further details.

MAR 30 1995**1. SCOPE****1.1. Content**

This specification covers performance, tests and quality requirements for AMP* right angle, ultra low profile BNC, PCB jack.

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- : 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: Phosphor bronze, gold plating and tin-lead plating all over nickel plating
- B. Dielectric: Polymethylpentene (TPX)
- C. Housing: Polyester, PBT
- D. Mounting posts: Brass, tin-lead plating
- E. Shell: Zinc die casting, nickel plating over copper plating

3.3. Ratings

- A. Voltage: 500 vac
- B. Current: Signal application only
- C. Temperature: -55 to 85°C
- D. Characteristic Impedance: 50 ohm
- E. Frequency Range: 0 to 4 GHz

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: 12 milliohms maximum initial. 16 milliohms maximum final. Outer contact: 6 milliohms maximum initial. 9 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.
Voltage standing wave ratio.	1.8 maximum at 4 GHz.	AMP Spec 109-9-2. Measure VSWR between 0 and 4 GHz.
Insulation resistance.	5000 megohms minimum.	AMP Spec 109-28-4. Test between adjacent contacts of mated samples.
Dielectric withstanding voltage.	1500 vac at sea level.	AMP Spec 109-29-1. Test between adjacent contacts of mated samples.
RF insertion loss.	____ dB maximum.	AMP Spec 109-174-1. Measure RF insertion loss at 4 GHz.
RF leakage.	____ db maximum.	AMP Spec 109-182. Measure RF leakage between 0 and 4 GHz.
MECHANICAL		
Solderability.	Solderable area shall have minimum of 95% solder coverage.	AMP Spec 109-11-2. Subject contacts to solderability.
Vibration, random.	No discontinuities of 1 microsecond or longer duration. See Note (a).	AMP Spec 109-21-7. Subject mated samples to 3.14 G's rms. 1 hour in each of 3 mutually perpendicular planes. See Figure 4.

Figure 1 (cont)

Test Description	Requirement	Procedure
Physical shock.	No discontinuities of 1 microsecond or longer duration. See Note (a).	AMP Spec 109-26-1. 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. See Figure 4.
Durability.	See Note (a).	AMP Spec 109-27. Mate and unmate samples for 100 cycles at maximum rate of 600 cycles per hour.
Mating force.	32 ounces maximum.	AMP Spec 109-42, Condition A. Measure force necessary to mate samples at maximum rate of .5 inch per minute.
Unmating force.	2 ounces 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 (a).	AMP Spec 109-22. Subject mated samples to 5 cycles between -55 and 85°C.
Humidity-temperature cycling.	See Note (a).	AMP Spec 109-23-3, Condition B. Subject mated samples to 10 cycles between 25 and 65°C at 95% RH.
Temperature life.	See Note (a).	AMP Spec 109-43. Subject mated samples to temperature life at 85°C for 1000 hours.
Mixed flowing gas.	See Note (a).	AMP Spec 109-85-2. Subject mated samples to environmental class II for 14 days.

- (a) 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
	Test Sequence (b)					
Examination of product	1,9	1,5	1,5	1,8	1,5	1,3
Termination resistance	3,7	2,4	2,4			
Voltage standing wave ratio					2	
Insulation resistance				2,6		
Dielectric withstanding voltage				3,7		
RF insertion loss					3	
RF leakage					4	
Solderability						2
Vibration	5					
Physical shock	6					
Durability	4					
Mating force	2					
Unmating force	8					
Thermal shock				4		
Humidity-temperature cycling				5		
Temperature life		3(c)				
Mixed flowing gas			3(c)			

- (a) See Para 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 a minimum of 5 connectors.

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