
75 Ohm Miniature BNC RF Connector Series

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the TE Connectivity (TE) 75 Ohm Miniature BNC RF Connector Series which includes cable applied plugs and jacks as well as printed circuit board applied jacks.

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 30Jul04. The Qualification Test Report number for this testing is 501-585. 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. Tyco Electronics Documents

- 109-197: Test Specification (TE Test Specifications vs EIA and IEC Test Methods)
- 408-8871: Instruction Sheet (Mini BNC Straight Cable Plug Connectors and Mini BNC Straight Cable Jack Connectors)
- 408-8872: Instruction Sheet (Mini BNC Right-Angle Cable Plug Connectors)
- 501-585: Qualification Test Report (75 Ohm Miniature BNC RF Connector Series)

2.2. Industry Standard

EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications

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

- Voltage: 300 volts AC rms maximum at seal level
- Temperature: -40 to 85°C
- Characteristic Impedance: 75 ohms
- Frequency Range: DC to 2000 MHz

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 EIA-364.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Initial examination of product.	Meets requirements of product drawing.	EIA-364-18. Visual and dimensional (C of C) inspection per product drawing.
Final examination of product.	Meets visual requirements.	EIA-364-18. Visual inspection.
ELECTRICAL		
Low level contact resistance.	6 milliohms maximum for center contact. 2.5 milliohms maximum for ground path.	EIA-364-23. Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage. See Figure 3.
Voltage standing wave ratio, single position connectors.	1.11 maximum up to 500 MHz (any combination). 1.17 maximum up to 1 GHz (any combination). 1.40 maximum up to 2 GHz (any jack with straight plug). 1.80 maximum up to 2 GHz (any jack with right angle plug).	EIA-364-108. Measure VSWR between 100 MHz and 2 GHz.
Voltage standing wave ratio, 2 position jack connectors.	1.13 maximum up to 500 MHz (any combination). 1.30 maximum up to 1 GHz (any combination). 1.52 maximum up to 2 GHz (with straight plug). 1.80 maximum up to 2 GHz (with right angle plug).	EIA-364-108. Measure VSWR between 100 MHz and 2 GHz.
Insulation resistance.	1000 megohms minimum.	EIA-364-21. 500 volts DC, 2 minute hold. Test between adjacent contacts of unmated specimens.

Figure 1 (continued)

Test Description	Requirement	Procedure
Withstanding voltage.	1 minute hold with no breakdown or flashover.	EIA-364-20, Condition I. 1000 volts AC at sea level. Test between adjacent contacts of unmated specimens.
MECHANICAL		
Vibration, random.	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-28, Test Condition VII, Condition D. Subject mated specimens to 3.10 G's rms between 20-500 Hz. 15 minutes in each of 3 mutually perpendicular planes.
Mechanical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-27, Method H. Subject mated specimens 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.	EIA-364-9. Mate and unmate specimens for 500 cycles at a maximum rate of 600 cycles per hour.
Mating force.	31 N [7 lbf] maximum.	EIA-364-13. Measure force necessary to engage coupling mechanism at a maximum rate of 12.7 mm [.5 in] per minute.
Unmating force.	4 N [1 lbf] minimum.	EIA-364-13. Measure force necessary to disengage coupling mechanism at a maximum rate of 12.7 mm [.5 in] per minute.
Termination tensile strength.	89 N [20 lbf].	EIA-364-8. Apply specified load at a rate of 25 ± 6 mm [.984 ± .24 in] per minute.
ENVIRONMENTAL		
Thermal shock.	See Note.	EIA-364-32. Subject unmated specimens to 5 cycles between -40 and 85°C.
Humidity, steady state.	See Note.	EIA-364-31, Method II, Condition C. Subject unmated specimens to 40°C and 90 to 95% RH for 504 hours.
Temperature life.	See Note.	EIA-364-17, Method A, Test Condition 3, Test Time Condition D. Subject mated specimens to 85°C for 1000 hours.

Figure 1 (continued)

Test Description	Requirement	Procedure
Mixed flowing gas.	See Note.	EIA-364-65, Class IIA (4 gas). Subject mated specimens to environmental Class IIA for 20 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	6	7
	Test Sequence (b)						
Initial examination of product	1	1,5	1,9	1	1	1	1
Low level contact resistance	3,5	2,4,7	4,6,13	2,4	2,4		
Voltage standing wave ratio						2	
Insulation resistance			2,7,11				
Withstanding voltage			3,8,12				
Vibration, random		3					
Mechanical shock		6					
Durability	4						
Mating force	2						
Unmating force	6						
Termination tensile strength							2
Thermal shock			5				
Humidity, steady state			10				
Temperature life				3			
Mixed flowing gas					3(c)		
Final examination of product	7	8	14	5	5	3	3

NOTE (a) *See paragraph 4.1.A.*
 (b) *Numbers indicate sequence in which tests are performed.*
 (c) *Precondition specimens with 10 durability cycles.*

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Specimen Selection

Specimens shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Each test group shall consist of a minimum of 5 specimens.

B. Test Sequence

Qualification inspection shall be verified by testing specimens 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 specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.4. Quality Conformance Inspection

The applicable 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.

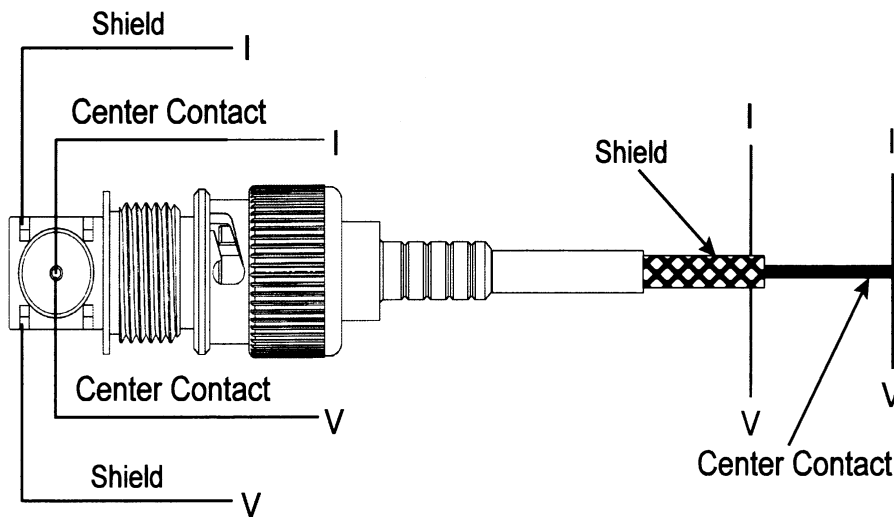


Figure 3
Low Level Contact Resistance Measurement Points