

Performance Specification: Mini Coaxial Connector

REVIEW/REVISION DATE	REVISION CHANGE	REVIEWED/REVISED BY	APPROVED BY
4-9-08	Original Release	Eric Husted	Engineering Team
10-21-08	Updated	Eric Husted	Engineering Team
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2-12-20	Reformat/Style Change	Felecia Childress	Kim Kenyon

1. Scope

1.1 Content

This specification covers the performance, tests and quality requirements for the Mini Coaxial connector and connector system. This contact is a separable electrical connection device. Variations of this contact can be used with RG316, RG178, and SM405 wire. All Mini Coaxial contacts are to be used with connector modules.

1.2 Qualification Testing

When tests are performed on subject product line, the following procedures shall be used: All inspections shall be performed using applicable inspection plans and product drawings. Upon completion of qualification testing, this specification will be assigned a number and be classified, as a Product Qualification Report which will be identified in section 2.

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2. Applicable Documents

2.1 Content

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 a conflict between requirements of this specification and product drawing, product drawing will take precedence. In the event of a conflict between requirements of this specification and referenced documents, this specification shall take precedence.

2.2 Documents

A. Standards

EIA-364
MIL-STD-1344
MIL-STD-202

B. Qualification Test Plan

MET ESL Test Plan #24785

C. Product Qualification Reports

MET Test Report 34057T-A

D. Product Drawings

Housing

510104120
510108111

Contacts

610103115
610103130
610103159
610104114
610104141

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3. Requirements

3.1 Design & Construction

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

3.2 Materials

A. Female Contact

Shield:	Brass with gold over nickel plating per MIL-DTL-45204D
Center Conductor:	Beryllium copper with gold over nickel plating per MIL-DTL-4504D
Dielectric:	Polytetrafluoroethylene

B. Male Contact

Shield:	Brass with gold over nickel plating per MIL-DTL-4504D
Center Conductor:	Brass with gold over nickel plating per MIL-DTL-4504D
Dielectric:	Polytetrafluoroethylene

C. Housing

Black PPS

3.3 Ratings

A. Impedance

50 Ohms

B. Frequency Range

0 – 1 GHz for crimp contacts
0 – 2 GHz for solder sleeve contacts

C. Temperature

-50°C to +105°C

3.4 Performance & Test Description

Product is designed to meet electrical, mechanical, and environmental requirements specified in Figure 1. Unless otherwise specified, all tests should be performed at ambient environmental conditions.

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3.5 Test Requirements & Procedures Summary

TABLE 3.5	TEST DESCRIPTION	REQUIREMENT	PROCEDURE
PREMINARY	Examination of Product	Meets requirements of product drawing	Visual, dimensional, and functional examination per applicable quality inspection plan
	ELECTRICAL		
	Initial Contact Resistance	< 5 mΩ	Measure with digital Ohmmeter using 4 wire terminal method
	Current Rating	Resistance < 10 mΩ at 500mA	Apply a current from a DC power source and measure final contact resistance
	Dielectric Breakdown	Current leak < 20 mA	1500 VDC between pins in a module for no less then 60 seconds
	Insertion Loss	Loss < 1.2dB	Apply an arbitrary signal to mated contacts using a 1 GHz frequency generator and compare attenuation at input and output
	Impedance	Impedance within 50 Ω ± 5%	Measure with digital impedance meter
	Crosstalk	< -60dB	Measured at 500 MHz between adjacent pins
	VSWR	< 1.1	Measured with a network analyzer
	Frequency Range	DC to 1 Ghz	Measured with a network analyzer
MECHANICAL	Durability	See Test Sequence: Figure 2	EIA-364-9: Mate and unmate sample for 20000 cycles
	Mating Force	< 24 oz. force per contact	EIA-364-13: Measure force necessary to mate samples at a normal rate of engagement of the ITA
	Unmating Force	< 24 oz. force per contact	EIA-364-13: Measure force necessary to unmate samples at a normal rate of disengagement of the ITA

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3.6 Product Qualification & Requalification Test Sequence

	TEST OR EXAMINATION	TEST GROUP		
		I	II	III
TABLE 3.6	Examination of Product	1	1	1,8
	Termination Resistance	2,8		2
	Current Rating			3
	Voltage Breakdown			4
	Frequency Range			5
	Impedance			6
	Crosstalk Measurement			7
	VSWR		2	
	Durability	5		
	Mating Force	3,7		
	Un-mating Force	4,6		

*Test Sequence: Numbers indicate the sequence in which the tests are preformed. For test group sample selection see 4.1 A.

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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 2 connectors per module and an equal number of mating connectors and modules.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 3.6.

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 3.5. Failures attributed to equipment, test set-up 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

A Certificate of Conformance (C of C) dimensional inspection must be completed for all samples prior to Qualification testing. The applicable 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.