

Performance Specification: Mini Coax Contacts & Modules

1. Scope

1.1 Content

This specification covers the performance, tests and quality requirements for VPC mini coax contacts and modules. These are separable electrical connection devices. Variations of the contact can be used with RG316, RG178, and SM405 wire. All mini coax contacts are to be used with VPC mini coax modules.

1.2 Qualification Testing

When tests are performed on a specific product line, the following procedures will be used: All inspections will 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.

2. Applicable Documents

2.1 Content

The following documents form a part of this specification to the extent specified. Unless otherwise specified, the latest edition of each document applies. In the event of a conflict between requirements of this specification and the product drawing, the product drawing will take precedence. In the event of a conflict between requirements of this specification and referenced documents, this specification will 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

Modules

- 510104120
- 510108111

Contacts

- 610103115
- 610103130
- 610103159
- 610104114
- 610104141



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3. Requirements

3.1 Design & Construction

Product is 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 Table 3.5. Unless otherwise specified, all tests should be performed in ambient environmental conditions.



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3.5 Test Requirement & Procedure Summary

TABLE 3.5	TEST DESCRIPTION	REQUIREMENT	PROCEDURE
PRELIMINARY	Examination of Product	Meets requirements of product drawing	Visual, dimensional, and functional examination per applicable quality inspection plan
	ELECTRICAL		
	Initial Contact Resistance	< 5 m Ω	Measurement by digital Ohmmeter using 4 wire terminal method
	Current Rating	Resistance < 10 m Ω at 500mA	Application of current from a DC power source and measurement of final contact resistance
	Dielectric Breakdown	Current leak < 20 mA	1500 VDC between pins in a module for no less than 60 seconds
	Insertion Loss	Loss < 1.2dB	Application of an arbitrary signal to mated contacts using a 1 GHz frequency generator and comparison of attenuation at input and output
	Impedance	Impedance within 50 Ω \pm 5%	Measurement by digital impedance meter
	Crosstalk	< -60dB	Measurement performed at 500 MHz between adjacent pins
	VSWR	< 1.1	Measurement by a network analyzer
	Frequency Range	DC to 1 Ghz	Measurement by a network analyzer
MECHANICAL	Durability	See Test Sequence: Figure 2	EIA-364-9: Mating and unmating of sample for 20,000 cycles
	Mating Force	< 24 oz. force per contact	EIA-364-13: Measurement of force necessary to mate samples at a normal rate of engagement for the ITA
	Unmating Force	< 24 oz. force per contact	EIA-364-13: Measurement of force necessary to unmate samples at a normal rate of disengagement for 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		
	Unmating Force	4,6		

*Test Sequence: Numbers indicate the sequence in which the tests are performed. 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 are to be prepared in accordance with applicable instruction sheets and are to be selected at random from current production. All test groups will consist of a minimum of 2 contacts per module and an equal number of mating contacts and modules.

B. Test Sequence

Qualification inspection will 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 will 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 will not disqualify product. When product failure occurs, corrective action will 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 will be in accordance with applicable product drawing and this specification.

