Product Performance Specification
Mini Power Connector

1. Scope

1.1 Content

This specification covers the performance, tests and quality requirements for the Mini Power Connector and connector system. This contact is a separable electrical connection device. Variations of this contact can be crimped to 8, 12, 14, 16, and 18 AWG wire or soldered to wires up to 8 AWG in size. All Mini Power contact types are to be used in 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.

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-364-13
- MIL-STD-1344
- MIL-STD-202

B. Qualification Test Plans
- MET ESL Test Plan #24785

C. Product Qualification Reports
- MET Test Report #31238T
- VPC Test Report 2003-112
- VPC Test Report 2005-134

D. Product Drawings
Housing
- 510104123
- 510104246
- 510108115
- 510108132

Contacts
- 610116112
- 610116124
- 610116125
- 610116127
- 610115124
- 610115125
- 610115127
- 610115128
- 610115129
- 610115130
- 610115131
- 610115132

3. Requirements

3.1 Design and Construction

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

3.2 Materials

A. Female Contact
   - Brass
   - Gold over nickel plating per MIL-DTL-45204D

B. Male contact
   - Beryllium Copper
   - Gold over nickel plating

C. Housing
   - G10 Epoxy Glass or Black PPS

3.3 Ratings

A. Voltage
   - AC up to 100 MHz
   - DC

B. Current
   - 16 AWG: 25 ampere maximum
   - 14 AWG: 30 ampere maximum
   - 12 AWG: 40 ampere maximum
   - 8 AWG: 65 ampere maximum

C. Temperature
   - -50^{o}C to +105^{o}C

3.4 Performance and 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.

3.5 Test Requirements and Procedures Summary

	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	< 8mΩ	Measure with digital Ohmmeter using 4 terminal method
	Current Rating	30° C maximum temperature rise	100% of pin positions populated and subjected to 65A current with 8 AWG wire
	Dielectric Breakdown	Current leak < 20 mA	1500 VDC between pins in a module for no less then 60 seconds
	Capacitance	< 3 pF	Capacitance measured between adjacent contacts in a module
Mechanical	Durability	See test sequence: Figure 2	EIA-364-9: Mate and unmate sample for 20000 cycles
	Mating Force	Max 5.7 lbs force per contact	EIA-364-13: Measure force necessary to mate samples at a normal rate of engagement of the ITA
	Unmating Force	Max 5.0 lbs force per contact	EIA-364-13: Measure force necessary to unmate samples at a normal rate of disengagement of the ITA

Figure 1. Test Requirements and Procedure Summary

3.6 Product Qualification and Requalification Test Sequence

Test or Examination	Test Group		
	I	**II**	**III**
Examination of Product	1, 9	1, 7	1, 4
Contact Resistance	2, 8	2	
Current Rating		3	
Dielectric Breakdown		4	
Capacitance		5	
Frequency Range		6	
Durability	5		
Mating Force	3, 7		2
Unmating Force	4, 6		3

Figure 2. Test Sequence

Numbers indicate the sequence in which the tests are performed. For test group sample selection see 4.1 A.

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 containing at least 30 contacts total each and equal posts to mate with receptacles. Test group 1 shall have both minimum and maximum position size connectors.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 2.

4.2 Re-Qualification Testing

If changes significantly affecting form, fit or function are made to product or manufacturing process, product assurance shall coordinate re-qualification 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 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 re-submittal.

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.

Rev	Date	Rev Change	Prepared By
1	3/25/08	Original Release	Eric Husted
2	10/21/08	Updated	Eric Husted
3	6/16/09	Updated	Eric Husted
4	8/03/09	Add Crimp Contact P/Ns	Eric Husted
5	9/22/09	Updated	Eric Husted
6	1/6/12	Updated	Eric Husted