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Performance Specification: TriPaddle Connector

Review/Revision Date	Revision Change	Reviewed/Revised By	Approved By
3-25-08	Original Release	Eric Husted	Engineering Team
10-21-08	Updated	Eric Husted	Engineering Team
1-23-09	Updated Current Specification	Eric Husted	Engineering Team
4-16-09	Updated	Eric Husted	Engineering Team
9-22-09	Updated	Eric Husted	Engineering Team
5-5-10	Added Contact Types	Eric Husted	Engineering Team
5-17-12	Updated Mating Forces	Jeremy Vogan	Engineering Team
7-11-12	Updated	E. Ballester	Marketing Team
8-1-12	Updated Voltage Specification	E. Ballester	Marketing Team
2-13-18	Changed mating force/ contact	A. Leger	Engineering Team
2-24-20	Format/Style Change	Felecia Childress	Kim Kenyon

1. Scope

1.1 Content

This specification covers the performance, tests and quality requirements for the TriPaddle Connector and connector system. This contact is a separable electrical connection device. Variations of the contact can be crimped with 14 to 30 AWG wire sizes. All TriPaddle 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. EIA Standards

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

B. Product Drawings

Housing

510113124
510113125
510114106

Contacts

610110125
610110108
610110146
610110101
610110174
610110128
610110129
610110167
610110169

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

Beryllium Copper
Gold over nickel plating per MIL-DTL-45204D

B. Male Contact

Brass
Gold over nickel plating

C. Housing

Black PPS

3.3 Ratings

A. Voltage

600 volt Max. DC or Peak AC, use of wire Mil-W-16878/4

B. Current

20 AWG:	7 ampere maximum
14 AWG:	10 ampere maximum

C. Temperature

-50°C to +105°C

3.4 Performance & Test Description

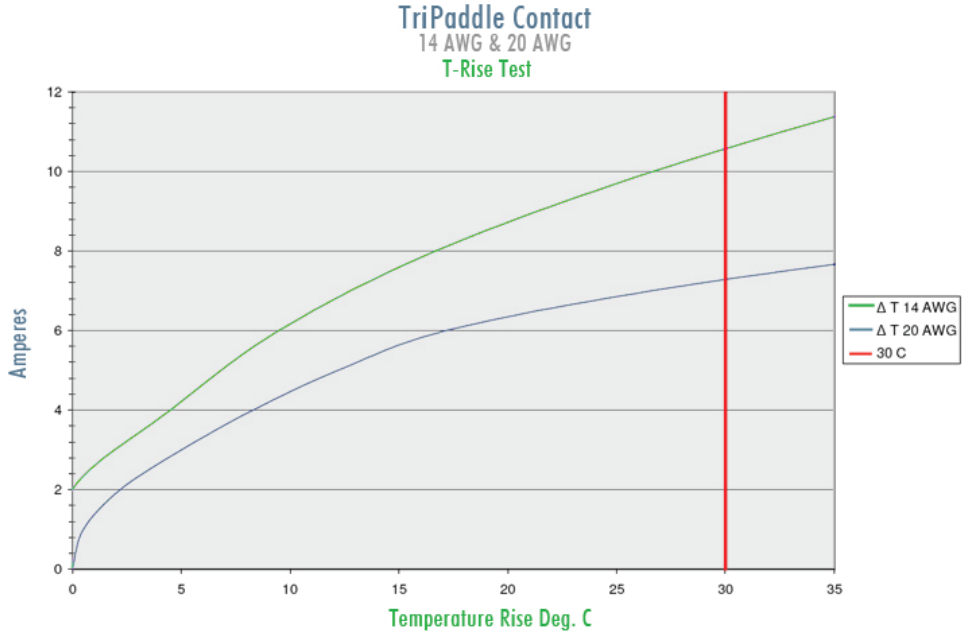
Product is designed to meet electrical, mechanical, and environmental requirements specified in Figure 3.5. Unless otherwise specified, all tests should be performed at free air, room temperature, ambient environmental conditions.

Performance Specification: TriPaddle Connector

3.5 Test Requirements & Procedures Summary

Figure 1	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	< 8mΩ at 3A	Measure with digital Ohmmeter using 4 wire terminal method
	Current Rating	30° C maximum temperature rise	All pin positions populated and subjected to a variable current – see Figure 2
	Dielectric Breakdown	Current leak < 20 mA	1500 VDC between pins in a module for no less then 60 seconds
	Capacitance	< 6 pF	Capacitance measured between adjacent contacts in a module
	Insertion Loss	Loss < 1 dB	Apply an arbitrary signal to mated contacts up to 100 MHz and compare attenuation at input and output
	Crosstalk	< -60 dB	Measured at 1 MHz between adjacent pins
Mechanical	Durability	See test sequence: Figure 3	EIA-364-9: Mate and unmate sample for 20000 cycles
	Mating Force	6.0 oz. force per contact	EIA-364-13: Measure force necessary to mate samples at a normal rate of engagement of the ITA
	Unmating Force	3.9 oz. force per contact	EIA-364-13: Measure force necessary to unmate samples at a normal rate of disengagement of the ITA

3.6 Current Rating Graph- Figure 2: Temperature Rise vs. Current



3.7 Product Qualification and Requalification Test Sequence

FIGURE 3	TEST GROUP		
TEST OR EXAMINATION	I	II	III
Examination of Product	1, 9	1,8	1, 4
Termination Resistance	2, 8	2	
Current Rating		3	
Voltage Breakdown		4	
Capacitance		5	
Frequency Range		6	
Crosstalk Measurement		7	
Durability	5		
Mating Force	3, 7		2
Unmating Force	4, 6		3

Numbers indicate the sequence in which the tests are preformed. 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 3.

4.2 Requalification 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.

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