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PLUGGABLE POWER CONNECTOR FOR 3.0mm BUS BAR

1. SCOPE

1.1. Content

This product specification covers performance, tests and quality requirements for the following TE Connectivity Pluggable Power Connectors:

- 2204080-*
- 2204084-* & 2204761-*(Proposal Only – Not Tooled)
- 2204273-*

1.2. Qualification

When tests are performed on the subject product line, procedures specified in this specification shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

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. TE Connectivity Documents

- 109-197: Test Specification (TE Test Specifications vs EIA and IEC Test Methods)
- 114-2111: Application Specification for part 2204273-*
- 114-2130: Application Specification for part 2204080-* & 2204761-*
- 501-128040: Qualification Test Report for part 2204273-*
- 501-128041: Qualification Test Report for part 2204080-*

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: 54 Volts REF.
(Entire connector will take one line of current, voltage depend on the application)
- Current: 150 A for 2204080-*
300A for 2204084-* & 2204761-*
500A for 2204273-*
- Operating temperature: -55 °C to 105°C

3.4. Performance and Test Description

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in paragraph 3.5. 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, applicable instructions on customer drawing, and application specification.	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	0.1 milliohms maximum (initial and final).	EIA-364-23. Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage.
Contact resistance at rated current	0.1 milliohms maximum (initial and final).	EIA-364-6. 30°C temperature rise result at rated current.
Temperature rise vs current.	30°C maximum temperature rise at specified current.	EIA-364-70, Method II. Stabilize at a single current level until 3 readings at 5 minute intervals are within 1°C.
MECHANICAL		
Vibration	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-28, Test Condition V, letter C. Duration 120 minutes in each of three mutually perpendicular planes.
Durability	See Note	EIA-364-09. Mate and un-mate specimens with a bus bar conductor for 50 cycles at a maximum rate of 500 cycles per hour.
Mating force	30 N Maximum for 2204080-* 45 N Maximum for 2204084-* & 2204761-* 60 N Maximum for 2204273-*	EIA-364-13. Measure force necessary to mate specimens at a maximum rate of 12.7 mm [.5 in] per minute.

Test Description	Requirement	Procedure
Unmating force	3 N Minimum for 2204080-* 4 N Minimum for 2204084-* & 2204761-* 5 N Minimum for 2204273-*	EIA-364-13. Measure force necessary to unmate specimens at a maximum rate of 12.7 mm [.5 in] per minute.

ENVIRONMENTAL

Temperature life	See Note.	EIA-364-17, Method A, Condition 4. Subject mated specimens to 105°C for 500 hours.
Mixed flowing gas.	See Note.	EIA-364-65, Class IIA. Subject specimens mated for 480 hours(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 paragraph 3.6.

Figure 1

3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)
	1
	Test sequence (b)
Initial examination of product	1
Low level contact resistance, power contacts	3,7,9,11
Contact resistance at rated current	13
Temperature rise vs. Current	4,12
Vibration	10
Durability	5
Mating force	2
Un-mating force	14
Temperature life	8
Mixed flowing gas	6
Final examination of product	15

NOTE

- (a) See para 4.1.A.
- (b) Numbers indicate sequence in which tests are performed.

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.

B. Test Sequence

Qualification inspection shall be verified by testing specimens as specified in paragraph 3.6.

4.2. Requalification Testing

If changes significantly affecting form, fit or functions 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 paragraph 3.6. 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.