



The product described in this document has not been fully tested to ensure conformance to the requirements outlined below. Therefore, TE Connectivity (TE) makes no representation or warranty, express or implied, that the product will comply with these requirements. Further, TE may change these requirements based on the results of additional testing and evaluation. Contact TE Engineering for further details.

Crown Clip™ Junior High Current Bus Bar Power Connector

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirement for TE Connectivity (TE) Crown Clip™ Junior High Current Bus Bar Power Connector.

TE P/N: 2204900-* TE Crown Clip™ Junior High Current 320A Bus Bar Power Connector

TE P/N: 2204899-* TE Crown Clip™ Junior High Current 250A Bus Bar Power Connector

1.2. Qualification

When tests are performed on the subject product line, procedures specified in item 3.4 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS AND FORMS

The following documents and forms constitute a part of this specification to the extent specified herein. Unless otherwise indicated, the latest edition of the document applies.

2.1. TE Documents

- 114-128048: Application Specification of TE Crown Clip™ Junior High Current Bus Bar Power Connector
- 501-128048: Qualification Test Report of TE Crown Clip™ Junior High Current Bus Bar Power Connector

2.2. Industry Documents

- EIA-364 Electrical Connector/Socket Test Procedures Including Environmental Classifications
- Open Compute Project Standard.
- 109-197 Test Specification (TE Test Specification vs EIA and IEC Test Methods)

3. REQUIREMENTS

3.1. Design and Construction

Product shall be of the design, construction, materials and physical dimensions specified on the applicable product drawing.

3.2. Material

Housing: Thermoplastic.

Contact: High conductivity copper alloy

Plating Version: Gold or equivalent plating over Nickel based-plating on copper contact.

3.3. Ratings

- Voltage: 48V AC/DC (General application); 600V AC/DC Max.
- Current:
 - P/N: 2204900-* 160A Max. every power contact, 320A Max. every connector
 - P/N: 2204899-* 125A Max. every power contact, 250A Max. every connector
- Operating temperature: -45°C to 125°C

- Storage temperature: 20°C to 30°C

3.4. Test Requirements and Procedures Summary

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in Item 3.5. Unless otherwise specified, all tests shall be performed at ambient environmental conditions, in accordance with EIA-364, Open Compute Project Standard.

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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. Document gold plating thickness at contact interfaces.
Final examination of product	Meets visual requirements.	EIA-364-18. Visual inspection.
ELECTRICAL		
Product contact resistance	0.5 milliohms maximum, and $\Delta 0.5$ milliohms maximum.	EIA-364-23. Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage. Mated with bus bar
Product contact resistance at rated current	0.5 milliohms maximum, and $\Delta 0.5$ milliohms maximum.	EIA-364-6. Current TBD at 30°C temperature rise result at rated current.
Insulation resistance.	1000 megohms minimum	EIA-364-21. 500 volts DC, 1 minute duration. Test between adjacent contacts of specimens.
Withstanding voltage.	2500 V AC/DC, no breakdown or flashover.	EIA-364-20, Condition I. 2500 volts AC/DC duration 1 minute test between adjacent contacts of specimens.
Temperature rise vs current.	30°C maximum temperature rise at specified current. 320A max. for P/N: 2204900-* 250A max. for P/N: 2204899-*	EIA-364-70, Method II. Stabilize at a single current level until 3 readings at 5 minute intervals are within 1°C.

Test Description	Requirement	Procedure
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.
Mechanical shock	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-27, Method A. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks.
Durability (preconditioning)	See Note	EIA-364-09. Mate and unmate specimens with a bus bar conductor for 5 cycles at a maximum rate of 500 cycles per hour.
Durability	200 cycles	EIA-364-09. Mate and unmate specimens with a bus bar board for 200 cycles at a maximum rate of 500 cycles per hour.
Mating force	80 N maximum	EIA-364-13. Measure force to mate specimens at a maximum rate of 12.7 mm [.5 in] per minute.
Unmating force	10 N minimum	EIA-364-13. Measure force to unmate specimens at a maximum rate of 12.7 mm [.5 in] per minute.
Over-Setting Force	200N maximum, See Note.	EIA-364-13. 200N over-setting force to mate specimens at a maximum rate of 12.7 mm [.5 in] per minute, see 4.5 Reference.
Retention Force between contact and panel housing	20N maximum, See Note.	EIA-364-13. Measure retention force between contact and panel housing at a maximum rate of 12.7 mm [.5 in] per minute.
Reseating	See Note.	Manually mate/unmating samples for three cycles.

Test Description	Requirement	Procedure
ENVIRONMENTAL		
Thermal shock	See Note.	EIA-364-32, Method A, Condition II. Subject mated specimens to 25 cycles between -65°C and 105°C.
Humidity-temperature cycling.	See Note.	EIA-364-31, Method II, Condition B. Subject mated specimens to 10 cycles (10 days) between 25°C and 65°C, 90%~95% RH.
Temperature life	See Note.	EIA-364-17, Method A, Condition 4. Subject mated specimens to 125°C for 500 hours.
Salt Spray Test	See Note.	EIA-364-26, Condition B. Subject specimens tested for 48 hours, with 5% solution salt spray.
Mixed flowing gas.	See Note.	EIA-364-65, Class IIA. ½ Subject specimens mated for 168 hours(7 days); ½ Subject specimens unmated for 168 hours(7 days).
Dust	See Note.	IEC 60512 Subject specimens shall be unmated for one hour.
Solderability dip test.	Solderable area shall be the 95% minimum solder coverage. See Note.	EIA-364-52. Solder bath temperature 260±5°C, duration 3 seconds.

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 3.5.

3.5. Product Qualification Test Sequence

Test or Examination	Test Group								
	1	2	3	4	5	6	7	8	9
	Test sequence								
Initial examination of product	1	1	1	1	1	1	1		
Product contact resistance test	2,5,7	4,7,9,13	2,5,7,9	2,7,11	2(a),5(a)		2,4		
Contact resistance at rated current				5,9					
Insulation resistance		2,10							
Withstanding voltage		3,11							
Temperature rise vs. Current				4,8					
Vibration			8						
Mechanical shock			6						
Durability	3(b)	5		3(b)	4(b)				
Mating force			3						
Unmating force			4						
Retention force						2			
Over-setting force						4			
Thermal shock		6							
Humidity-temperature cycling		8							
Temperature life	4								
Salt spray test				6					
Mixed flowing gas					3(c)				
Dust							3		
Solderability test.						3			
Reseating	6	12		10					
Final examination of product	8	14	10	12	6	5	5		

NOTE

- (a) LLCR shall be measured according to MFG test sequence.
(b) Durability (preconditioning)
(c) MFG test. ½ samples mated 168hours(7 days); ½ samples unmated 168 hours(7days).

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. Each test group shall consist of one fully populated bus bar assembly with a minimum of 10 power contacts and 10 signal contacts measured.

B. Test Sequence

Qualification inspection shall be verified by test specimen as specified in Item 3.4.

4.2. Requalification Testing

If changes significantly affecting form, fit or function 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 item 3.4. 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.

Product Current & Temperature-rise Curve

Figure 1. Current & Temperature-rise Curve of TE Crown Clip Junior HC320 Power Connector 2204900

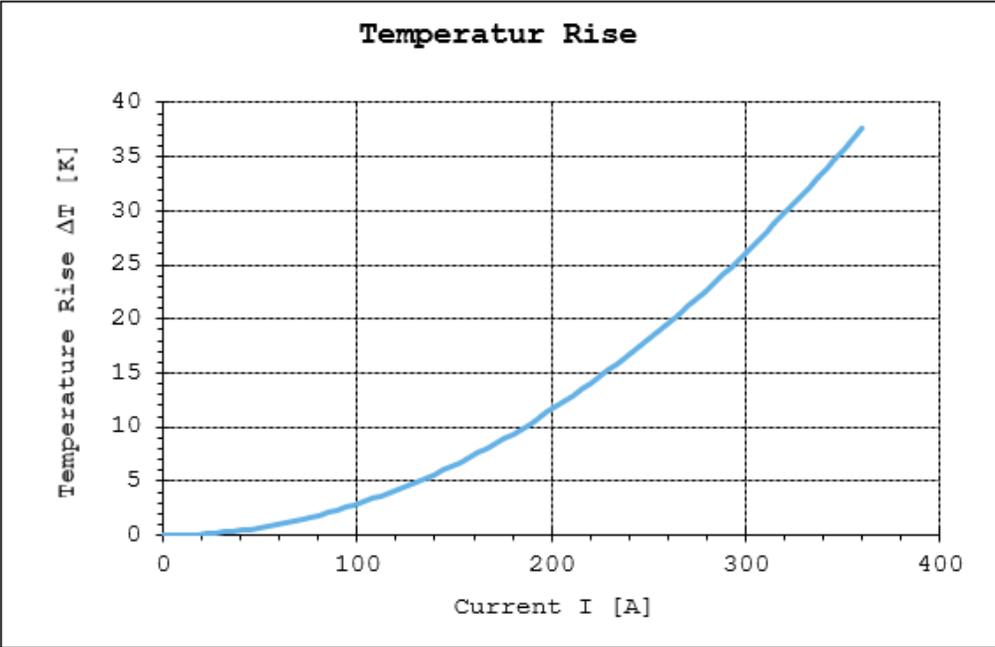
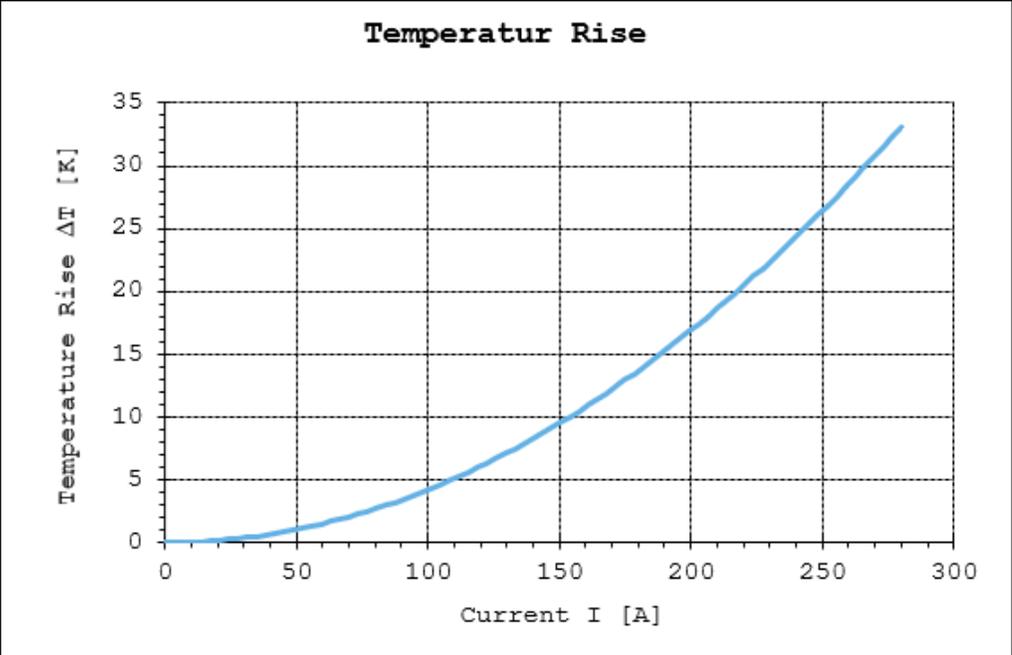


Figure 2. Current & Temperature-rise Curve of TE Crown Clip Junior HC250 Power Connector 2204899



Product Derating Curve

Figure 3. Derating Curve of TE Crown Clip Junior HC320 Power Connector 2204900

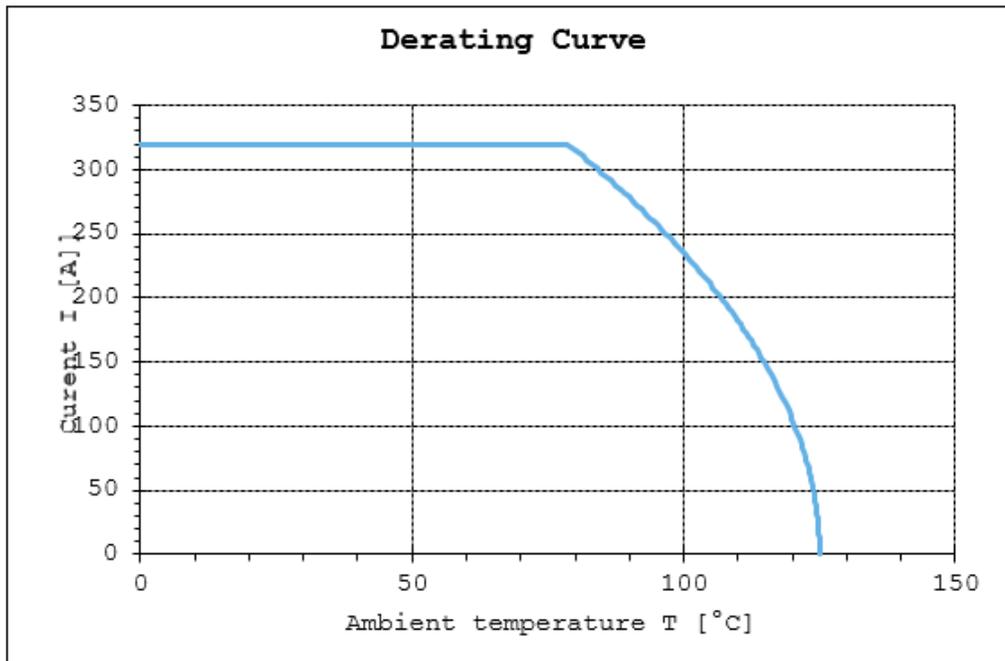


Figure 4. Derating Curve of TE Crown Clip Junior HC250 Power Connector 2204899

