

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.

Mini Crown Edge Connector

1. SCOPE

1.1. Content

This specification defines performance, tests, and quality requirements for mini crown edge connector.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 1 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 Documents

- [109-30](#) Test Specification: Contact Retention
- [109-41](#) Test Specification: Contact Insertion and Extraction Force
- [109-197](#) Test Specification: TE Connectivity Test Specifications vs EIA and IEC Test Methods
- [501-TBD](#) Qualification Test Report: Mini Crown Edge Connector
- [502-1223](#) Engineering Report: Evaluation of Mini Crown Edge VRM Connectors

2.2. Industry Documents

- 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: 250 V

Current: 25 A per power contact

Temperature: -55° to 105°C

3.4. Performance and Test Description

Product is designed to meet the electrical, mechanical, and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Initial Examination of Product	Meets requirements of product drawing.	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.
CTF Dimensional Verification	See Figure 3.	Measure specimens.
Electrical		
Low Level Contact Resistance (LLCR)	Signal contacts: 25 milliohms maximum initial. $\Delta R \pm 20$ milliohms maximum Power contacts: 3 milliohms maximum	EIA-364-23 Subject specimens mated with bussed module boards to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage.
Insulation Resistance	1 megohm minimum	EIA-364-21 500 volts DC, 2-minute hold. Test between adjacent contacts of unmated specimens.
Withstanding Voltage	1-minute hold with no breakdown or flashover.	EIA-364-20, Condition I 1500 volts AC at sea level. Test between adjacent contacts of unmated specimens.
Temperature Rise vs Current	30°C maximum temperature rise at specified current.	EIA-364-70, Method 1 Stabilize at a single current level until 3 readings at 5-minute intervals are within 1°C.
Mechanical		
Re-Seating	See Note.	Manually unplug and plug module card 3 times.
Random Vibration	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-28 Module weight shall be 35±5 g [1.23±.18 oz] with the center of gravity located 20 to 25 mm [.787 to .984 in.] from the module mating edge. Subject 5 continuity and termination resistance specimens to 3.13 g rms between 5 to 500 Hz, 15 minutes per axis (PSD 0.01 g ² /Hz at 5 Hz, and 0.02 g ² /Hz at 20 and 500 Hz).
Mechanical Shock	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-27 Module weight shall be 35±5 g [1.23±.18 oz] with the center of gravity located 20 to 25 mm [.787 to .984 in.] from the module mating edge. Subject 5 continuity and termination

		resistance specimens to 50 g trapezoidal shock pulses of 11 milliseconds duration. Three shocks in each of 3 mutually perpendicular planes, 18 total shocks with 90 gram [3.2 oz] weights attached. 4.83 m [190 in.] per second velocity change nominal, 4.32 m [170 in.] per second minimum. 1 ms rise and fall times, 9 ms peak duration.
Durability	Connector to board rating of 25 cycles determined by EIA-TS-364-1000.1. See Note.	EIA-364-9 Mate and unmate specimens for 20 cycles at a maximum rate of 500 cycles per hour. Use the same module card for the first and 20th cycles and subsequent tests. Use a separate module card for the second through 19th cycles.
	Connector to blade rating of 250 cycles determined by EIA-TS-364-1000.1. See Note.	EIA-364-9 Mate and unmate specimens for 50 cycles at a maximum rate of 500 cycles per hour. Replace card every 50 cycles. Note any wear on the contacts before inserting the new card.
Mating Force	115 N [25.0 lbf] with latches at maximum module thickness (1.37+0/-0.05 mm [.054+0/-0.002 in.]). See Note.	EIA-364-13 Measure force necessary to mate specimens with a 1.37-mm [.054-in.] steel gage at a maximum rate of 5 mm [.2 in.] per minute without pre-conditioning.
Unmating Force	17.8 N [4.0 lbf] maximum per ejector. See Note.	EIA-364-13 Measure force necessary to unmate specimens from a 1.37-mm [.054-in.] steel gage at a maximum rate of 5 mm [.2 in.] per minute.
Maximum Force on Connector	Less than 0.076-mm [.003-in.] movement.	Apply 68.1 kg [150 lb] to the top of a 1.37-mm [.054-in.] steel gage after the gage has been fully seated and is bottomed out. Maintain force for 30 seconds.
Press-Fit Compliant Pin/Terminal Insertion	31 N [7.0 lbf] maximum per pin average.	109-41 Measure force necessary to correctly apply a connector assembly to a printed circuit (pc) board at a maximum rate of 12.7 mm [.5 in.] per minute.
Press-Fit Compliant Pin/Terminal Retention	13.7 N [3.0 lbf] minimum for signal contacts. 40.0 N [9.0 lbf] minimum for power contacts. See Note.	109-30 Apply specified load to a single pin for 6 seconds in a correctly applied connector assembly from its printed circuit board hole at a maximum rate of 12.7 mm [.5 in.] per minute.
Environmental		
Thermal Shock	See Note.	EIA-364-32, Test Condition I

		Subject specimens to 10 cycles between -55 and 85°C with 30-minute dwells at temperature extremes.
Humidity/Temperature Cycling	See Note.	EIA-364-31, Method III Subject specimens to 24 cycles (3 days) between 25°C at 80% RH and 65°C at 50% RH. Ramp times shall be .5 hour and dwell times shall be 1 hour.
Temperature Life	See Note.	EIA-364-17, Method A, Test Condition 4, Test Time Condition C Subject mated specimens to 105°C for 92 hours.
Thermal Disturbance	See Note.	Subject mated specimens to 10 cycles between 15±3°C and 85±3°C. Ramps shall be a minimum of 2°C per minute. Dwell times shall ensure that the contacts reach the temperature extreme (5 minutes minimum). Humidity is not controlled.
Mixed Flowing Gas	See Note.	EIA-364-65, Class IIA (4 gas) Three specimens unmated for 7 days. Store module cards at ambient during unmated exposure.
	See Note.	EIA-364-65, Class IIA (4 gas) Three specimens unmated for 3 days.
Porosity	Maximum of 1 pore 0.051-mm [.002-in.] maximum diameter per 10 random contacts per specimen.	EIA-364-53 Nitric acid



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 given in Figure 2.

Figure 1

3.6. Product Qualification and Re-Qualification Test Sequence

TEST OR EXAMINATION	TEST GROUP (a)						
	1	2	3	4	5	6	7
	TEST SEQUENCE (b)						
Initial Examination of Product	1	1	1	1	1	1	1
CTF Dimensional Verification	2	2	2				
LLCR	3,8,10,14	3,8,10,14	3,5,7,9				2,5,7,9,11,13
Insulation Resistance	4,11	4,11					
Withstanding Voltage	5,12	5,12					
Temperature Rise vs Current							
Re-Seating	13	13					12
Random Vibration			6				
Mechanical Shock			8				
Durability, 20 Cycles	6		4				3
Durability, 50 Cycles		6					
Mating Force				2			
Unmating Force				3			
Maximum Force on Connector				4			
Press-Fit Compliant Pin/Terminal Insertion						2	
Press-Fit Compliant Pin/Terminal Retention						3	
Thermal Shock	7	7					
Humidity/Temperature Cycling	9	9					
Temperature Life							4
Thermal Disturbance							10
Mixed Flowing Gas, Unmated							6
Mixed Flowing Gas, Mated							8
Porosity						2	
Final Examination of Product	15	15	10	5	3	4	14

(a) See paragraph 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. Test groups 1, 2, 3, 4, 5, and 6 shall each consist of 5 specimens. Test group 7 shall consist of 6 specimens.

B. Test Sequence

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

4.2. Re-Qualification Testing

If changes that significantly affecting form, fit, or function are made to the product or manufacturing process, product assurance shall coordinate re-qualification 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 Figure 1. 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 re-submitted for qualification. Testing to confirm corrective action is required before re-submittal.

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.

CTF Dimensional Verification

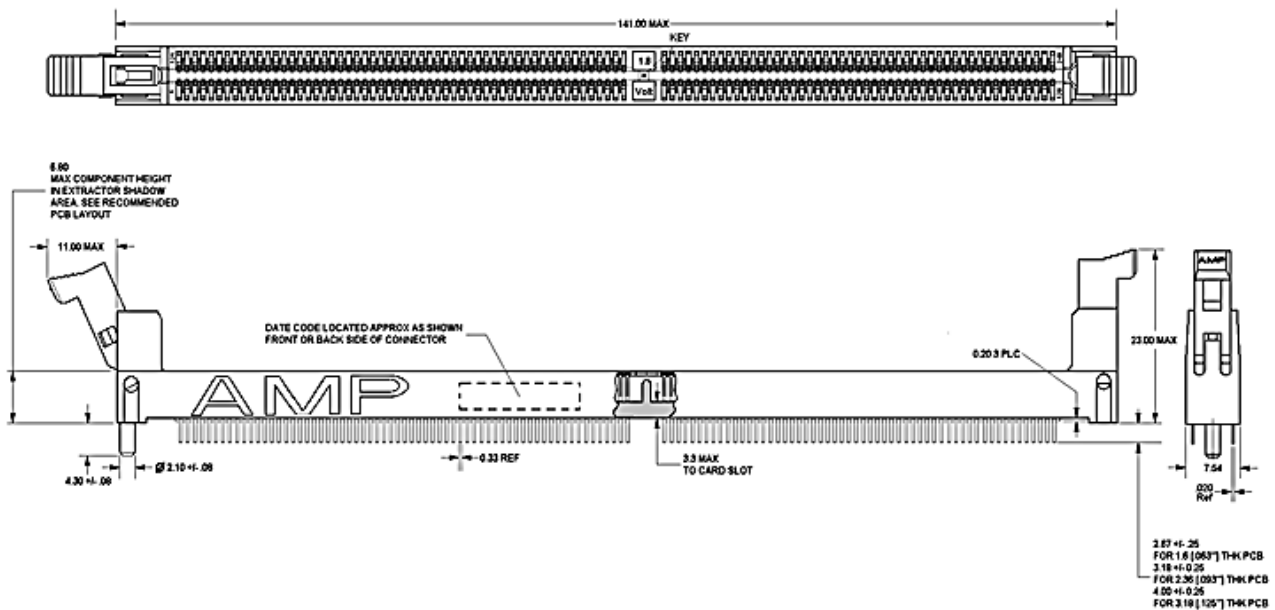


Figure 3