

Micro Q Stacked Connector and Stacked Cage Assembly

1. SCOPE

1.1. Content

This specification defines performance, test and quality requirements for the TE Connectivity (TE) Micro Q Stacked Connector and Stacked Cage Assembly.

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.

1.3. Qualification Test Results

Successful qualification testing on the subject product line has not been completed. The Qualification Test Report number will be issued upon successful qualification testing.

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

- 114-32161: Application Specification
- 501-134080: Qualification Test Report

2.2. Industry Documents

- EIA-364 Electrical Connector/Socket Test Procedures Including Environmental Classifications
- EIA-638 Surface Mount Solderability

2.3. Reference Document

- [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. Ratings

Voltage	Current	Temperature
3.3 VDC	Signal Application Only	-55 to 85°C

3.3. Test Requirements and Procedures Summary

Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

Test Description	Requirement	Procedure
Initial examination of product	Meets requirements of product drawing.	EIA-364-18. Visual examination and dimensional (C of C) inspection per product drawing.
Final examination of product	Meets visual requirements.	EIA-364-18. Visual examination.
ELECTRICAL		
Low Level Contact Resistance (LLCR)	ΔR 20 milliohm maximum	EIA-364-23. Max. open voltage 20mV. Max current 100 mA DC.
Insulation resistance	1000 Mohm minimum	EIA-364-21. Test voltage 100V DC. Duration: 1 minute. Measure between adjacent signal contacts.
Withstanding voltage	No breakdown or flashover.	EIA-364-20, Condition I. Test voltage: 300 volts AC at sea level. Test between adjacent contacts, signal to signal and signal to ground
MECHANICAL		
Random vibration	No discontinuity \geq 1 microsecond See Note.	EIA-364-28, Test Condition VII, Test Condition Letter D. Subject mated specimens to 3.10 G RMS between 20 to 500 Hz. Fifteen minutes in each of 3 mutually perpendicular planes.
Mechanical shock	Contact discontinuity 1 microsecond maximum See Note.	EIA-364-27, Test Condition H. Subject mated specimens to 30 Gs half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks.
Durability	See Note.	EIA-364-9. Mate and unmate specimens. Disable latch. Operation cycles: 200. 100 cycles per mating pcb. Swap out pcb after 100 cycles. Continue 100 cycles with second pcb re-insert 1st pcb for LLCR
Module Retention force	90N minimum, no damage to module or cage	Cage and connector mounted to pcb with bezel attached apply axial load to module. Max rate 6.35 mm/minute then hold one minute.
Module mating force (including gasket compression)	70N maximum	EIA-364-13. Measure force necessary to mate specimens at a max rate of 12.7 cm per minute.
Module unmating force	30N maximum	EIA-364-13. Measure force necessary to unmate specimens at a max rate of 12.7 cm per minute.
Combined Cage and Connector compliant pin Insertion force	7N maximum average per pin	Measure force necessary to push cage into the host board at a max rate of 12.7 mm per minute.
Module Lateral force	No discontinuity \geq 1 microsecond and it shall remain mated	EIA-364-38 Apply force of 75N to the module parallel to the host board in either direction for 10 minutes. Load applied at bezel opening.
Module longitudinal force	No discontinuity \geq 1 microsecond and it shall remain mated	EIA-364-38 Apply force of 75N to the module perpendicular to the board downward for 10 minutes. Load applied at bezel opening.

Figure 1 cont.

Test Description	Requirement	Procedure
ENVIRONMENTAL		
Thermal shock.	See Note.	EIA-364-32, Method A, Test Condition I. Subject connector/cage assembly to 5 cycles between -55° and 85°C with 30 minute dwells at temperature extremes and 1 minute transition between temperatures.
Humidity/temperature cycling.	See Note.	EIA-364-31, Method IV. Subject connector/cage assembly to 10 cycles (10 days) between 25 and 65°C at 80 to 100% RH.
Temperature life.	See Note.	EIA-364-17, Method A, Test Subject mated specimens to 85°C for 240 hours.
Mixed flowing gas.	See Note.	EIA-364-65, Class IIA (4 gas). Subject board mounted specimens to environmental Class IIA for 14 days. One-half of the specimens (receptacle only) unmated for 7 days followed by 7 days mated. The remaining one-half of the specimens mated for 14 days.
Thermal cycling	See Note.	EIA-364-110, Condition A. Subject mated and board mounted specimens to 10 temperature cycles between 15 ±3°C and 85 ±3°C as measured on the specimen. Ramp times > 2°C per minute with dwell times long enough to ensure contacts reach the temperature extremes (5 minutes minimum). Humidity not controlled.
Minute disturbance	See Note.	Manually unmate and mate the specimen 5 times.



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 Figure 2.

Figure 1 end

3.4. Product Qualification and Requalification 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
Low Level Contact Resistance	3,5,9	3,6	3,6,9				
Insulation resistance				2,6			
Withstanding voltage				3,7			
Random vibration	6						
Mechanical shock	7						
Durability	4(c)						
Module retention force						2	
Module Mating force							3
Module Unmating force							4
Cage compliant pin Insertion force							2
Thermal shock				4			
Humidity/temperature cycling				5			
Temperature life		4					
Mixed flowing gas			4				
Thermal cycling			7				
Minute disturbance	2,8	2,5	2,5,8				
Module Lateral force						3	
Module longitudinal force					2		
Final examination of product	10	7	10	8	3	4	5

i **NOTE**

- (a) *Samples shall be selected at random from current production. Unless otherwise specified, all test groups shall consist of a minimum of 5 ports.*
- (b) *Numbers indicate sequence in which tests are performed.*
- (c) *Measure LLCR after 100 cycles, replace module and add 100 cycles, re-insert original module, measure LLCR*