Super Card Edge Connector

1 SCOPE.

1.1 Content.

This specification defines the performance, tests and quality requirements for the TE Connectivity (TE) Super Card Edge Connector

1.2 Qualification.

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

2 APPLICABLE DOCUMENTS.

The following documents form a part of this specification to the extend specified herein. Unless otherwise specified, latest edition of the document applies. In the event of conflict between the requirements in this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between requirements of this specification and referenced documents, this specification shall take precedence.

2.1 TE Documents.

102-950	Quality Specification (Qualification of Separable Interface Connectors)
501-128055	Test report
109-1	General Requirements for Test Specifications
114-128056	Application Specification

2.2 Industry Documents

EIA-364	Electrical Connector/Socket Test Procedures Including Environmental Classifications
IEC-60512	Electronic Equipment-Test and Measurements

2.3 Reference Documents.

109-197   Test Specification (TE Test Specifications vs EIA and IEC Test Methods)

3 REQUIREMENTS.

3.1 Design and Construction:

Products shall be of design, construction and physical dimensions as 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:

A.   Operating Voltage: See Table 1

B.   Current: Power Contact - 24A per contact (14 contacts total))
                     Signal Contact - 1A per contact (20 contacts total)

C   Temperature: -55℃ to 125℃.

Table 1

Module Type	Contact	
	Centerline Spacing(mm)	Max Operating Voltage Between Contacts(V)
Power	5.08	100
Signal	1.27	60

Per UL 60950, UL 840
Safety Extra Low Voltage (SELV) Circuits

3.4 Performance and Test description:

The product is designed to meet electrical, mechanical and environmental performance requirements specified in this paragraph.
Unless otherwise specified, all tests are performed at ambient environmental conditions.

Test Description	Requirement	Procedure
Initial examination of product	Meets requirements of product-drawing and applicable instructions on customer drawing, and application specification.	EIA-364-18 Visual examination and dimensional inspection per product drawings.
Final examination of product	Meets visual requirements	EIA-364-18 Visual examination

ELECTRICAL		
Low Level Contact Resistance	Signal contact: 30 milliohms max. Power contact: 1.5 milliohms max.	EIA-364-23 Subject specimens to 100 mA maximum and 20 mV maximum open circuit voltage
Contact resistance (power contact)	At 24A for power, 1milliohms maximum	EIA-364-06
Insulation resistance	500 MΩ min for signal contact 5000 MΩ min for power contact	EIA-364-21 500+/-10% VDC, 2 minutes hold. Test between adjacent contacts
Dielectric Withstanding Voltage	One minute hold with no breakdown or flashover	EIA-364-20, Condition I. 1500 V for power contact and 500V for signal contact at sea level. Test between adjacent contacts.
Hot Swap	Contact resistance change<5 MΩ	48V DC, 30A, 30 cycles. Test setup defined by customer.

Temperature rise vs current	Temperature rise: 30℃ maximum over ambient temperature	EIA-364-70, Method 1. Stabilize at a single current level until 3 readings at 5 minute intervals are within 1℃ See Table 2 and Figure 1

M E C H A N I C A L		
Vibration, sinusoidal	No discontinuities of 1 microsecond or longer duration. See Note	EIA-364-28, Test condition I, Subject mated specimens to 10-55-10 Hz Traversed in 1 minutes at 1.52mm amplitude 2 hours each of 3 mutually perpendicular planes; See figure 3
Mechanical shock	No discontinuities of 1 microsecond or longer duration. See Note	EIA-364-27, Test Condition A. Subject mated specimens to 50 G's half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks See Figure 3
Mating force	14N max—Power contact pair 1.2N max—Signal contact pair Total mating force for 2204798-1: 110N max.	EIA-364-13,Method A. Measure force necessary to mate specimens at a maximum rate of 12.7 mm per minute
Un-mating force	0.75N min—Power contact pair 0.15N min—Signal contact pair Total un-mating for 2204798-1: 10N min.	EIA-364-13, Method A. Measure force necessary to mate specimens at a maximum rate of 12.7 mm per minute
Durability	See Note	EIA-364-9 Mate and un-mate specimens for 200 cycles at a maximum rate of 500 cycles per hour
Contact retention force	5N minimum per power pin. 3N minimum per signal pin.	EIA-364-29 Measure force necessary to remove individual contact froem the housing at a maximum rate of 12.7mm per minute

E N V I R O N M E N T A L		
Thermal shock	See Note	EIA-364-32, Method A, Test condition I, Subject specimens to 5cycles between -55 and 85℃ with 30 minute dwells at temperature extremes and 1 minute maximum transition between temperatures
Temperature life	See Note	EIA-364-17,Method A, Test condition 4, Test condition C. Subject mated specimens to 105℃ for 250 hours
Humidity/temperature cycling.	See Note	EIA-364-31, Method III. Subject mated specimens to 10 cycles (10 days) between 25

		and 65℃ at 90 to 95% RH.
Mixed flowing gas	See Note	EIA-364-65, Class IIA (4 gas). Subject mated specimens to environmental Class IIA for 20 days—(10 days unmated, LLCR, followed by 10 days mated)

Note: Shall meet visual requirements, shall no physical damage and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Table 2.

3.5 Product Qualification and Requalification Test Sequence.

Test Description	Test group (a)						
	1	2	3	4	5	6	7
	Test sequence (b)						
Initial examination of product	1	1	1	1	1	1	1
Lowe level contact resistance	3,7	2,6			2,5	2,5	
contact resistance (for power contact)		3,7			3,6		2,4
Insulation resistance			2,6				
Dielectric Withstanding Voltage			3,7				
Temperature rise vs current		4					
*Hot Swap							3(d)
Vibration, sinusoidal	5						
Mechanical shock	6						
Durability	4						
Mating force	2						
Un-mating force	8						
contact retention force				2			
Thermal shock			4			3	
Humidity/temperature cycling.			5			4	
Temperature life					4(c)		
Mixed flowing gas		5(c)					
Final examination	9	8	8	3	7	6	5

Note
(a)   See para. 4.1.A.
(b)   Numbers indicate sequence in which tests are performed.
(c)   Precondition specimens with 10 durability cycles
(d)   Executed by the customer

4   QUALITY ASSURANCE PROVISIONS.

4.1   Qualification testing.

A.   Sample selection

Samples shall be prepared in accordance with applicable instructions and shall be selected at random from current production.

B.   Test sequence

Qualification inspection shall be verified by testing samples as specified in para. 3.5.

4.2   Requalification testing.

If changes significantly affecting form, fit or function are made to product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of original testing sequence as determined by product, quality and reliability engineering.

4.3   Acceptance.

Acceptance is based upon verification that product meets requirements of para. 3.4. Failures attributed to equipment, test set-up, applied customer components or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for requalification. Testing to confirm corrective action is required before resubmittal.

4.4   Quality conformance inspection.

Applicable Tyco 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.
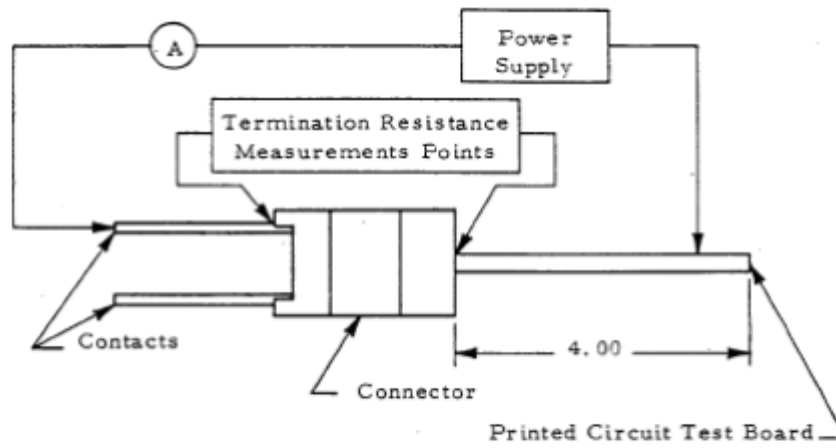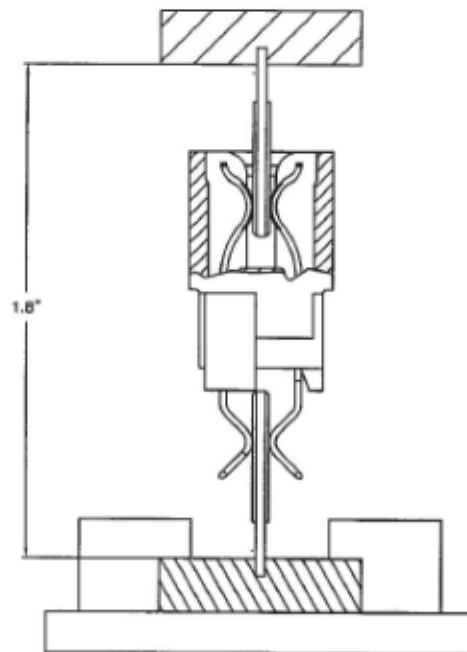
Figure 2
LLCR Measurement Points

Figure 3
Vibration & Mechanical Shock Mounting Fixture