

Sliver 2.0 Card Edge Straddle Mount Connectors

1. SCOPE

1.1. Content

This specification defines performance, test and quality requirements for the Sliver 2.0 Card Edge Straddle Mount Connectors.

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 was completed on October 28, 2019. The qualification test report number is 501-78725. This documentation is on file and available from Engineering Practices and Standards.

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

- 114-78033: Application Specification
- 501-78725: Qualification Test Report

2.2. Industry Documents

- EIA-364 Electrical Connector/Socket Test Procedures Including Environmental Classifications
- IPC/ECA J-STD-002 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
29 VDC	1.1A : 6 adjacent pins maximum per side. 12 pins total.	-40 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.
Final examination of product	Meets visual requirements.	EIA-364-18. Visual examination.
ELECTRICAL		
Low Level Contact Resistance (LLCR)	Initial : 30mΩ maximum Delta : 15 mΩ maximum	EIA-364-23. Max. open voltage 20mV. Max current 100 mA DC. See figure 3.
Insulation resistance	1000 MΩ minimum	EIA-364-21. Test voltage 100V DC. Duration: 1 minute. Measure between adjacent contacts of unmated connector
Withstanding voltage	No breakdown or flashover.	EIA-364-20, Condition I. Test voltage: 300 volts AC at sea level. Test between adjacent contacts of unmated connector
MECHANICAL		
Random vibration	No discontinuity ≥ 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. 10 minutes in each of 3 mutually perpendicular planes.
Mechanical shock	Contact discontinuity 1 microsecond maximum See Note.	EIA-364-27, Test Condition A. Subject mated specimens to 50 Gs half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks.
Durability	Meet LLCR requirement	EIA-364-09. Mate and unmate specimens. Operation cycles: 200.
Mating Force	1.1 N/pin pair maximum	EIA-364-13 Axial Tension/ Compression machine such as an Instron Tensile Tester.
Un-Mating Force	0.1 N/pin pair minimum	EIA-364-13 Axial Tension/ Compression machine such as an Instron Tensile Tester.

Figure 1 Cont.

Test Description	Requirement	Procedure
ENVIRONMENTAL		
Solderability	All leads shall be solderable	IPC/ECA J-STD-002, Test S1 Use test board for reflow soldering Preheat: 150° to 180°C / 60-120 seconds Reflow: 230° to 260°C / 30-60 seconds
Resistance to reflow soldering heat	See Note.	260°C, 5 seconds
Thermal shock.	See Note.	EIA-364-32, Method A, Test Condition 1. Subject mated specimens 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 III. Subject mated specimens to 24 cycles (24 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 105°C for 120 hours.
Mixed flowing gas.	See Note.	EIA-364-65, Class IIA (4 gas). Subject board mounted specimens to environmental Class IIA for 14 days. Expose all specimens in the mated condition.
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.
Durability (preconditioning)	See Note.	Manually unmate and mate the specimen 5 times.
Reseating	See Note.	Manually unmate and mate the specimen 3 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	8
	Test Sequence (b)							
Initial examination of product	1	1	1	1	1	1	1	1
Low Level Contact Resistance	2,5,7	2,5,7,9	2,4,6,8	2,5,7,9,11			2,6	
Insulation resistance								2,6
Withstanding voltage								3,7
Random vibration			5					
Mechanical shock			7					
Durability							5	
Connector Mating Force							3	
Connector Un-Mating Force							4	
Connector solderability					2			
Resistance to reflow soldering heat						2		
Thermal shock		4						4
Humidity/temperature cycling		6						5(d)
Temperature life	4			4(c)				
Mixed flowing gas				6				
Thermal cycling				8				
Durability(preconditioning)	3	3	3	3				
Reseating	6	8		10				
Final examination of product	8	10	9	12	3	3	7	8



NOTE

- (a) Samples shall be prepared in accordance with applicable instructions and shall be selected at random from current production.
- (b) Numbers indicate sequence in which tests are performed.
- (c) 72Hrs for preconditioning
- (d) 10cycles

Figure 2

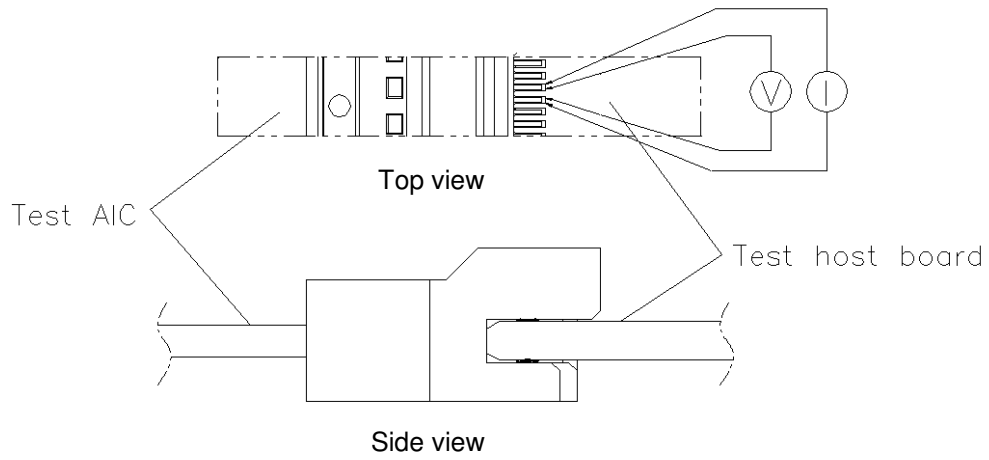


Figure 3 LLCR measurement method

Product Part No.	Description
X-2340321-X	Sliver 2.0 straddle mount connector 168P
X-2340324-X	Sliver 2.0 straddle mount connector 140P
X-2340326-X	Sliver 2.0 straddle mount connector 84P
X-2340331-X	Sliver 2.0 straddle mount connector 56P
X-2378634-X	Sliver 2.0 straddle mount connector 204P

Appendix 1 Applicable products