HIGH SPEED 0.8MM FREE HEIGHT+ B-T-B CONNECTOR

1. SCOPE

1.1. Content

This specification covers the requirements for product performance, test and quality requirements for High Speed 0.8mm Free Height+ Board-to-Board Connector (SMT, PNs listed below).

Description	Product Part No.
Receptacle Connector (assembled with 2316375-1)	2316373-1
Plug Connector (assembled with 2316373-1)	2316375-1

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

- 114-115019: Application Specification
- 501-115159: Qualification Test Report

2.2. Forms

- Refer to drawings

2.3. Industry Documents

- EIA 364: Electrical Connector/Socket Test Procedures Including Environmental Classifications
- EIA 638: Surface Mount Solder ability

2.4. 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
30 VDC	Signal application only	-45℃ to 105℃

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 Dimension and functionally inspected per applicable quality inspection plan
Final examination of product	Meets visual requirements.	EIA-364-18 Visual examination
ELECTRICAL		
Low level contact resistance	ΔR: 10 mΩ max. Initial R: 30 mΩ max.	EIA-364-23. Mated specimens Max. Open voltage 20mV. Max current 100 mA DC. Measure a minimum of 20 contacts, half from each connector side. See Figure 2
Current Carrying Capacity	0.5A /Pin	Stabilize at a single current level for 1 hour after 3 consecutive readings at 5-minute intervals are within 1-degree C. Spec. EIA 364-70 Method 1.
Insulation resistance	500 MΩ minimum	EIA-364-21 Mate and unmated Test voltage 500V DC. Test between adjacent circuits of unmated & mated 5 pcs connectors for 6 test point, See Figure 3.
Withstanding voltage	No breakdown	EIA-364-20, Mated specimens 500VAC for 1 minute, Method B.
MECHANICAL		
Durability 1 (Preconditioning)	No evidence of physical damage	EIA-364-09, 20 unmated/mate cycles Manual hand cycling of the connectors is permitted.
Durability 2	No evidence of physical damage	EIA-364-09, 50 unmated/mate cycles Manual hand cycling of the connectors is permitted.
Reseating	No evidence of physical damage	Manually unmated/mate the interconnect system once
Insertion/Withdrawal force	Insertion force: 0.9N Max. Per contact Withdrawal force:0.1N Min. Per contact	EIA-364-13 Mate and unmated Measure the force required to mate connectors.
Overmold Retention Force with Housing	Min. 10N	EIA-364-29, Unmated specimen Measure the force required to remove the overmold from plug &receptacle Housing.
Contact Normal Force	0.4N min per contact	EIA 364-04, Soldered but not mated Measure the force required to receptacle connectors.
Vibration	discontinuities < 1 microsecond	EIA-364-28, subject mated specimen Condition V, Letter C for 120 minutes in each of 3 directions. See Figure 5.

Mechanical shock	discontinuities < 1 microsecond	EIA-364-27, subject mated specimens Condition A for 3 shocks in each direction (18 total)

ENVIRONMENTAL

Solderability	95% minimum wetting MBC shell	IPC/ECA J-STD-002 Conditioning: 8 hours ± 15 minutes steam. Preheat: 150° to180°C / 60-120 seconds Reflow: 230° to 260°C / 30-60 seconds
Thermal shock.	No evidence of physical damage	EIA-364-32, Mated Connector Method A, Condition II (-65C to +105C), 25 cycles.
Resistance to reflow soldering heat	No evidence of physical damage	TEC-109-201 Method-A, Condition-B. Subject SMD connector to 3x reflow curve 260°C peak.
Cyclic Temperature & Humidity	No evidence of physical damage	Mated Specimens EIA-364-31, Method II, Condition B, omitting 7b vibration test. 10 cycles with 240 hours
Temperature life 1.	No evidence of physical damage	EIA-364-17, Mated Specimens Method A, Condition 4 (105 C) for 1000 hours.
Temperature life 2 (preconditioning)	No evidence of physical damage	EIA-364-17, Mated Specimens Method A, Condition 4 (105 C) for 72 hours.
Mixed Flowing Gas 1	None	EIA-364-65, Mated specimens Condition IIA, 2pcs samples mated for 336 hours,
Mixed Flowing Gas 2	None	EIA-364-65, Mated & Unmated specimens Condition IIA, 3 pcs samples unmated for 168 hours, then mated for final 168 hours.
Thermal cycling	No evidence of physical damage	EIA-364-110, Mated Specimens Condition A. (+15C to +85C) for 500 cycles. Dwell times long enough to ensure contacts reach the temperature extremes (Minimum 15 minutes).
Thermal Disturbance	No evidence of physical damage	EIA-364-110, Mated Specimens Condition A (+15C to +85C) for 10 cycles.

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 4.

Figure 1 End

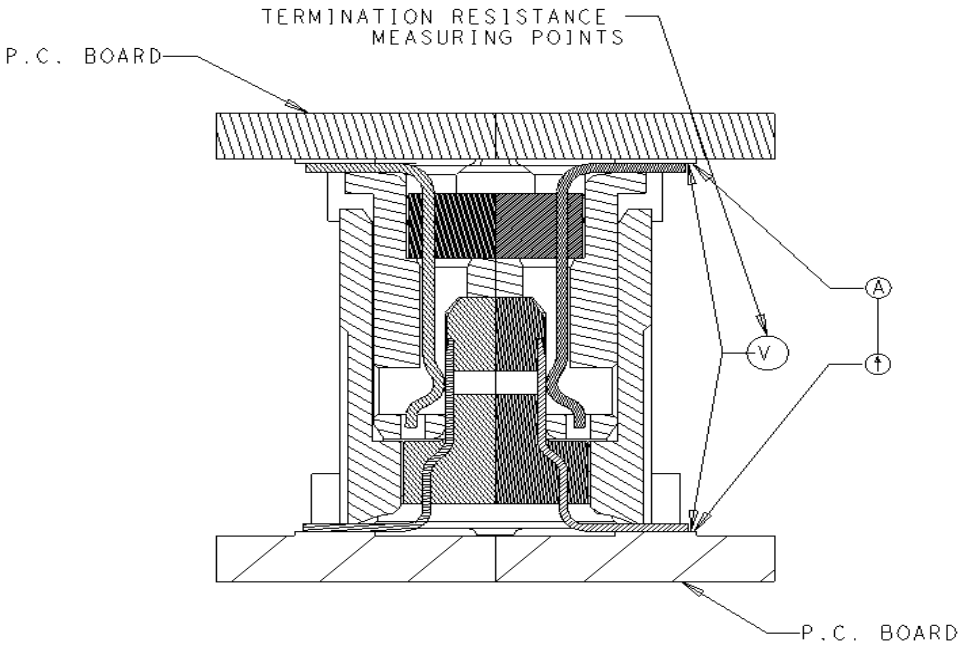

Figure 2

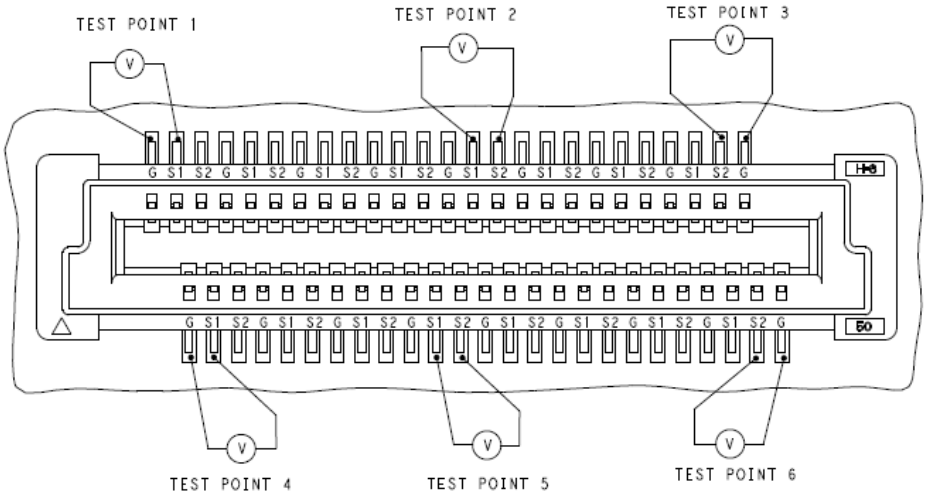

Figure 3

3.4. Product Qualification and Requalification Test Sequence.

Rest or Examination	Test Group (a)											
	1	2	3	4	5	6	7	8	9	10	11	12
	Test Sequence (b)											
Initial examination of product	1	1	1	1	1	1	1	1	1	1	1	1
Final examination of product	8	10	10	11	10	9	7	3	4		4	3
Low level contact resistance	2,5,7	2,5,7,9	2,5,7,9	2,5,7(d),8 (e), 10	2,5(c), 7(c),9 (c)	2,4,6,8	3,5					
Current Carrying Capacity									2			
Insulation resistance											3	
Withstanding voltage							2,6					
Durability 1 (Preconditioning)	3	3	3	3	3	3						
Durability 2							4					
Reseating	6	8		9	8	7						
Insertion/Withdrawal force									3			
Overmold Retention										2		
Contact Normal Force								2				
Vibration			6									
Mechanical shock			8									
Solderability												2
Thermal shock		4										
Resistance to reflow soldering heat											2	
Cyclic Temperature & Humidity		6										
Temperature life 1	4											
Temperature life 2 (Preconditioning)			4	4	4							
Mixed Flowing Gas 1				6								
Mixed Flowing Gas 2				6								
Thermal cycling					6							
Thermal Disturbance						5						

NOTE

(a) Samples shall be prepared in accordance with applicable instructions and shall be selected at random from current production. Unless otherwise stated all test groups shall consist of a minimum of 5 connectors of which all contacts shall be tested.

(b) Numbers indicate sequence in which tests are performed.

(c) 20 milliohms maximum change over baseline

(d) After 7 days duration

(e) After 14 days duration

Figure 4 End

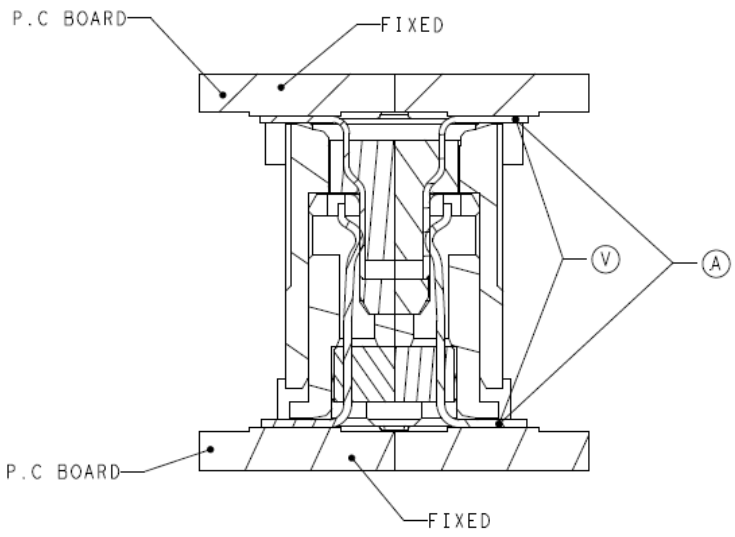

Figure 5