

1.0 Scope:

This specification covers performance, test and quality requirements for Miniature Hermaphroditic B-B connector, 1position, 2position, 4position, 6position.

2.0 Applicable Documents:

The following documents form a part of this specification to the extent specified herein. 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 Tyco Electronics Documents:

- A. 109 Series: Test Specification as indicated in **Test Requirements and Procedures Summary (item 3.5)**.
- B. 109-197: Test Specification (AMP Test Specifications vs. EIA and IEC Test Methods)

2.2 Commercial Standards and Specifications:

- A. EIA-364
- B. JEDC JESD22-B102: Solderability

3.0 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:

- A. Voltage Rating : 300 V AC/DC
- B. Current Rating: 3 A maximum
- C. Temperature Rating: -40°C to 105°C

3.4 Performance Requirements and Test Descriptions:

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. All tests shall be performed in the room temperature unless otherwise specified.

3.5 Test Requirements and Procedures Summary:

3.5.1 Examination:

Test Description	Requirement	Procedures
Initial examination of product	Meets requirements of product drawing and AMP Specification.	Visual and dimensional inspection per product drawing. Per EIA364-18
Final examination of product	Meet visual requirements. And no corrosion influence performance	Visual inspection. Per EIA364-18

3.5.2 Electrical

Test Description	Requirement	Procedures
Low level contact resistance (LLCR)	20 mΩ Max. (Initial & Final)	Subject specimens to 20mV Max. open circuit at 10mA. Need to exclude wire resistance from measurement. Per EIA364-23 or TE Spec. 109-5311-1
Insulation resistance	100 MΩ Min.	Subject specimens to 500VDC, 2 minute hold. Test between adjacent contacts. Per EIA364-21
Withstanding Voltage	1 minute hold with no breakdown or flashover	1600 V AC at sea level. Test between adjacent contacts. Per EIA364-20, Condition 1
Temperature rise (Initial)	30° C maximum temperature rise with 3A current pass.	Stabilize at a single current level until 3 readings at 5 minute intervals are within 1 ° C. Energize 100% of the circuit. Per EIA364-70, Method 1
Temperature rise (Final)	30° C maximum temperature rise with 3A current pass.	Stabilize at a single current level until 3 readings at 5 minute intervals are within 1 ° C. Energize 100% of the circuit. Per EIA364-70, Method 1

3.5.3 Mechanical

Test Description	Requirement	Procedures
Resistance to reflow soldering heat	Housing shall be free for deformation and fusion.	AMP Spec 109-201, Condition B.
Random Vibration	No discontinuities of 1 microsecond or longer duration.	Subject mated specimens to 3.10G's rms between 20~500HZ. Fifteen minutes in each of 3 mutually perpendicular planes. Per EIA-364-28, Test Condition VII, Condition D.
Mechanical shock	No discontinuities of 1 microsecond or longer duration.	Subject mated specimens to 30 G's half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. Per EIA-364-27, Condition H.
Durability	No physical damage, and meet requirements of additional tests specified in Product Qualification Test Sequence (Item 3.6)	Mate and unmated specimens for 30 cycles at a maximum rate of 500 cycles per hour. Per EIA-364-09.
Mating force	1P: 6 N max 4P: 24N max 2P: 12N max 6P: 36N max	Measure force necessary to mate specimens at a maximum rate of 12.7mm per minute. Per EIA-364-13
Unmating force	1P: 0.7 N min 4P: 2.8N min 2P: 1.4N min 6P: 4.2N min	Measure force necessary to unmate specimens at a maximum rate of 12.7mm per minute. Per EIA-364-13

3.5.4 Environmental

Test Description	Requirement	Procedures
NH3 gas	No corrosion influence performance	Mated connector and put in to atmosphere that rated 25 ml/l 3% NH3 for 7 Hrs
Thermal shock	No physical damage, and meet requirements of additional tests specified in Product Qualification Test Sequence (Item 3.6)	Subject specimens to 25 cycles between -40 and 105 °C with 30 minute dwells at temperature extremes and 1 minute transition between temperatures. Per EIA-364-32, Test Condition VII.
Humidity (Temperature cycling)	No physical damage, and meet requirements of additional tests specified in Product Qualification Test Sequence (Item 3.6)	Subject specimens to 10 cycles (10 days) between 25 and 65 °C at 80 to 100% RH. Per EIA-364-31, Method III.
Temperature life	No physical damage, and meet requirements of additional tests specified in Product Qualification Test Sequence (Item 3.6)	Subject mated specimens to 125 °C for 500 hours. Per EIA-364-17, Method A, Test Condition 5.

3.6 Product Qualification Test Sequence

Test group	a	b	c	d	e
Initial examination of product	1	1	1	1	1
LLCR	3,7	3,8	2,9		2,4
Insulation resistance			3,7		
Withstanding Voltage			4,8		
Temperature rise (Initial)		4			
Temperature rise (Final)		9			
Resistance to reflow soldering heat				2	
Random vibration	5	7			
Mechanical shock	6				
Durability	4				
Mating force	2	2			
Unmating force	8	10			
Thermal shock			5		
humidity -temperature cycling		5	6		
Temperature life		6			
NH3 gas					3
Final examination of product	9	11	10	3	5

Notes:

- 1) Specimens shall be prepared in accordance with applicable instruction sheets and shall be selected at random from current production. Each test group shall consist of 5 pcs specimens minimum.
- 2) Numbers indicate sequence in which tests are performed.
- 3) If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or partial of the original test sequence as determined by development/product, quality and reliability engineering.
- 4) Acceptance is based on verification that the product meets the requirement of **Test Requirements and Procedures Summary**. Failures attributes to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and specimens resubmitted for qualification. Testing to confirm corrective action is required before re-submittal.
- 5) 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.