
Pitch 0.4mm Height 0.8mm Type BTB Connector

1. Scope:

1.1 Contents

This specification covers the requirements for product performance test methods and quality assurance provisions of Board to Board Connectors. Product shall be of the design, construction and physical dimensions specified in the applicable product drawing.

2. 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 TE Specifications:

108-115166: Test Specification, General Requirements for Test Methods

501-115182: Test Report

2.2 Commercial Standards and Specifications:

A. EIA-364 ELECTRONIC INDUSTRIES ALLIANCE

3. Requirements

3.1 Design and Construction

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

3.2 Ratings:

A. Temperature Range: $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$

B. Voltage Rating: 60V AC/DC

C. Current Rating: 0.5 A (Max.)

3.3 Test Conditions:

A. Temperature range: $+15\text{ }^{\circ}\text{C}$ to $+35\text{ }^{\circ}\text{C}$

B. Humidity range: 25% to 80%

C. Atmospheric Pressure: 86kPa to 106 kPa (860 to 1060 m bar)



4. Performance Requirements and Test Descriptions:

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

Test Requirements and Procedures Summary

Fig. 1			
Para.	Test Items	Test Methods	Requirement
4.1.1	Examination of product (Outward Appearance)	EIA 364-18 Shall be confirmed with eyes in accordance with each drawing. Shall be confirmed by using proper measuring instruments.	1). Shall meet visual requirement, show no physical damage. 2). Structure shall be meet the design and dimensional requirements of drawing.
Electrical Requirements			
4.2.1	Low level Contact Resistance	EIA 364-23 Subject mated contacts assembled in housing to 20mV maximum open circuit at 100 mA maximum	Initial: 50mΩ Max After test: 90mΩ Max
4.2.2	Insulation Resistance	EIA 364-21 Mated connector, Apply 250 V DC Between adjacent terminal and ground.	Initial:1000 MΩ Min. After test:100 MΩ Min.
4.2.3	Dielectric Withstanding Voltage	EIA 364-20 Test between adjacent contacts of mated and unmated connector assemblies.	250V AC for one minute at sea level 1). No flashover or insulation breakdown 2). Leakage current: 0.5mA Max.
4.2.4	Temperature rise	EIA364-20, All the terminal shall be connected in a directed series then applied the rated current. Until the temperature be not change, (about 3 hours). Using thermocouple to measure the Temperature of the terminal surface.	ΔT 30°C Max. per pin.
Mechanical Requirements			
4.3.1	Vibration	EIA 364-28 Frequency: 10 ~ 55 ~ 10Hz in minute. Sweep time: 2 hours along each X, Y, Z Direction, a total 6 hours Amplitude: 1.5mm P-P	1). Shall meet visual requirement, show no physical damage. 2). Contact Resistance value Signal pin: 90mΩ Max 3). No discontinuities of 1μsec or longer duration.
4.3.2	Physical Shock	EIA 364-27 Test Condition A Subject mated connectors to 50G's (490m/s ²) half-sine shock pulses of 11ms duration. Three shocks in each direction applied along three mutually perpendicular planes, 9total shock.	1). Shall meet visual requirement, show no physical damage. 2). Contact Resistance value Signal pin: 90mΩ Max 3). No discontinuities of 1μsec or longer duration.
4.3.3	Durability	EIA 364-09 Mating and unmating Connector assemblies for 50 cycles at maximum rated of 10 cycles per minute.	1). Shall meet visual requirement, show no physical damage. 2). Contact Resistance value After test: Signal pin: 90mΩ Max



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108-115166

4.3.4	Connector Mating & Unmating Force	EIA 364-13 Measure force necessary to mate assemblies at maximum rate of 25±3 mm per minute.	Initial: Mating force : 40N Max. Unmating force: 9N Min. Final: Mating force: 40N Max. Unmating force: 5N Min.
4.3.5	Contact Retention Force	EIA 364-35 The pull speed shall 25±3 mm per minute on the terminal assembled in the housing.	80grams(0.785N) Min.
Environmental Requirements			
4.4.1	Thermal Shock	EIA 364-32, Test Condition I Subject mated connectors to 5 cycles Between -55°C to +85°C	1). Appearance shall not be distinct damage. 2). Contact Resistance value: Signal pin: 90mΩ Max
4.4.2	Humidity	EIA 364-31, Test Condition A Method III Subject mated connectors to 120 Hours. Temperature: 40±2°C Relative Humidity: 90~95%	1). Appearance shall not be distinct damage. 2). Contact Resistance value Signal pin: 90mΩ Max
4.4.3	Solder ability	EIA 364-52 Immerse the solder pin of the connector in the solder bath at 230°C±5°C for 5±0.5 seconds.	The surface of the portion to be soldered shall at least 95% covered area must show no voids, pin holes
4.4.4	Heat resistance	Condition A The connector housing shall be stored at temperature of 85±2°C for 96 hours, then it shall be subjected to standard atmospheric condition for 1~2h, after which measurements shall be made.	1). Appearance shall not be distinct damage. 2). Resistance value after test After test: 90mΩ Max.
4.4.5	Cold resistance	The connector housing shall be stored at temperature of -25±3°C for 96 hours, then it shall be subjected to standard atmospheric condition for 1~2h, after which measurements shall be made.	1). Appearance shall not be distinct damage. 2). Resistance value after test After test: 90mΩ Max.
4.4.6	Salt water spray	EIA 364-16A Temperature: 35°C±2°C Density of salt water: 5±1% Duration: 48 hours.	1). Appearance shall not be distinct damage. 2). Resistance value after test After test: 90mΩ Max.



5. Product Qualification Test

Test Item	Test Examination	Test Group (a)													
		A	B	C	D	E	F	G	H	I	J				
		Test Sequence (b)													
4.1.1	Examination of product	1,7	1,9	1,6	1,3	1,4	1,4	1,4	1,4						
4.2.1	Low Level Contact Resistance	2,6	2,10	2,5		3	3	3	3						
4.2.2	Insulation Resistance		3,7												
4.2.3	Dielectric Withstanding Voltage		4,8												
4.2.4	Temperature rise									1					
4.3.1	Vibration)			3											
4.3.2	Physical shock			4											
4.3.3	Durability	4													
4.3.4	Mating & Unmating Force	3,5													
4.3.5	Contact Retention Force										1				
4.4.1	Thermal Shock		5												
4.4.2	Humidity		6												
4.4.3	Solderability				2										
4.4.4	Heat resistance					2									
4.4.5	Cold resistance						2								
4.4.6	Salt water spray							2							

- (a) Samples shall be prepared in accordance with applicable instructions and shall be selected at random from current production. Unless otherwise stated all groups shall consist of a minimum of 5 connectors of which all contacts shall be tested.
- (b) Numbers indicate sequence in which the tests are performed.
- (c) Discontinuities shall not take place in this test group, during tests.

The applicable product descriptions and part numbers are as shown below table.

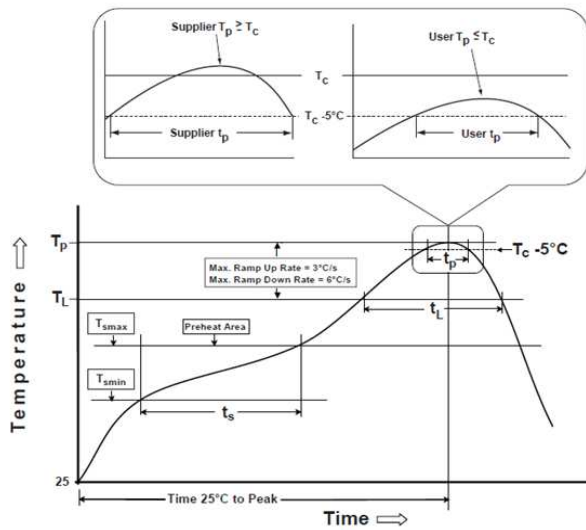
Product No.	Description
-2363961-	Board to Board receptacle Connector
-2363962-	Board to Board plug Connector

6. Reflow Conditions

6.1 Hot gas soldering

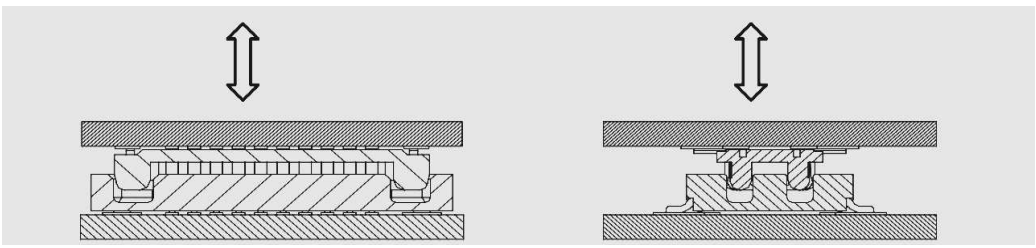
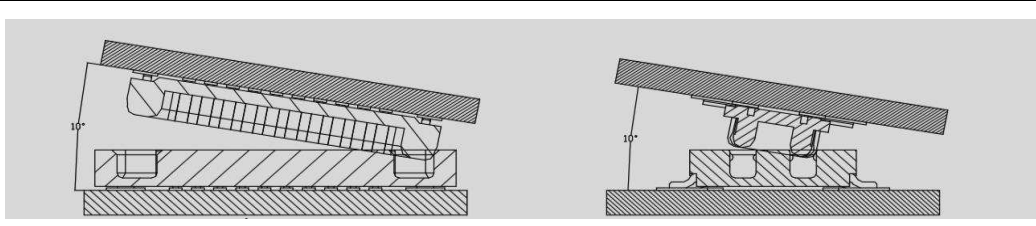
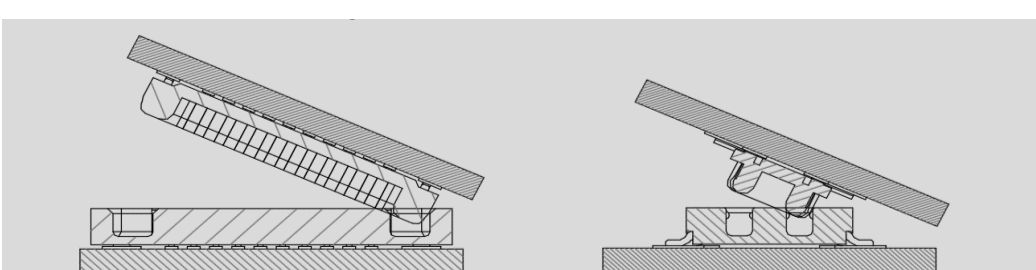
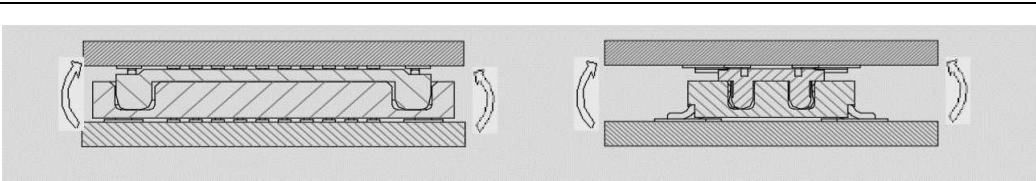
Max air temperature	+270 °C
Max air velocity	10m/s
Max exposure time	30s

6.2 Requirements for Pb-Free soldering)



Curve Parameters		Parameters requirement
Preheating	Ts min	150°C
	Ts max	200°C
	Time Ts	60~120S
Heating-up Speed (TL—Tp)		≤3°C/S
Time in melting point	Melting point (TL)	217°C
	Time (tL)	100~150S
Peak temperature (Tp)		Tp max 250°C (solder point)
Hold time in peak temperature (tp :0~-5°C)		30S
Temperature decrease speed (Tp—TL)		≤6°C/S
Time from 25°C to peak TP		≤8 min

7. Instruction of applications.

Mating Process	OK	
	POOR	
	NG	
Umating Process	OK	
	NG	