



## SPECIFICATION

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SPEC. NO.: PS-50051-xxxxx-xxx REVISION: A

PRODUCT NAME: 0.5 MM PITCH BTB D/R CONN SMT S/T TYPE

PRODUCT NO: 50051 series

PREPARED:  <b>TANGENHUI</b>  DATE: <b>2014/01/18</b>	CHECKED:  <b>DAVID</b>  DATE: <b>2014/01/18</b>	APPROVED:  <b>SIMON</b>  DATE: <b>2014/01/18</b>
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**TITLE: 0.5MM PITCH BTB D/R CONN SMT S/T TYPE**

RELEASE DATE: 2014/01/18

REVISION: A

ECN No: ECN-1401270

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## 1 Revision History

Rev.	ECN #	Revision Description	Approved	Date
O	ECN-0812038	新規範	JASON	2008/11/25
A	ECN-1401270	ADD WORKING VOLTAGE	TANGENHUI	2014/01/18

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## 2 SCOPE

This specification covers performance, tests and quality requirements for **0.50 mm pitch BTB connector**.

## 3 APPLICABLE DOCUMENTS

**EIA-364** ELECTRONICS INDUSTRIES ASSOCIATION

## 4 REQUIREMENTS

### 4.1 Design and Construction

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

### 4.2 Materials and Finish

- 4.2.1 Contact: High performance copper alloy (**Phosphor Bronze**)  
Finish: Plating Pls. See the product drawing.
- 4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0
- 4.2.3 Fitting nail: Plating Pls. See the product drawing.

### 4.3 Ratings

- 4.3.1 **Working Voltage Less than 36 Volts AC (per pin)**
- 4.3.2 Voltage: **100 Volts AC**
- 4.3.3 Current: **0.5 Amperes**
- 4.3.4 Operating Temperature : **-55°C to +85°C**

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## 5 Performance

### 5.1. Test Requirements and Procedures Summary

Item	Requirement	Standard
Examination of Product	Product shall meet requirements of applicable product drawing and specification.	Visual, dimensional and functional per applicable quality inspection plan.
<b>ELECTRICAL</b>		
Item	Requirement	Standard
Low-signal Level Contact Resistance	<b>40 m Ω</b> Max.(initial)per contact <b>20 m Ω</b> Max. Change allowed	Mate connectors, measure by dry circuit, <b>20mV</b> Max., <b>100mA</b> Max. (EIA-364-23)
Insulation Resistance	<b>1000 M Ω</b> Min.	Unmated connectors, apply <b>500 V</b> DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	<b>250 VAC</b> Min. at sea level for <b>1</b> minute. No discharge, flashover or breakdown. Current leakage: <b>1 mA</b> max.	Test between adjacent contacts of unmated connectors. (EIA-364-20)
Temperature rise	<b>30°C</b> Max. Change allowed	Mate connector: measure the temperature rise at rated current after: <b>0.5 A</b> /Power contact. The temperature rise above ambient shall not exceed 30°C The ambient condition is still air at 25°C (EIA-364-70 METHOD 2)

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### MECHANICAL

Item	Requirement	Standard
Durability	30 cycles.	The sample should be mounted in the tester and fully mated and unmated the number of cycles specified at the rate of $25.4 \pm 3$ mm/min. (EIA-364-09)
Mating / Unmating Forces	Mating Force: 100g/CKT Max. Unmating Force: 12g/CKT Min.	Operation Speed : $25.4 \pm 3$ mm/minute.. Measure the force required to mate/Unmate connector. (EIA-364-13)
Terminal / Housing Retention Force	0.2kgf MIN.	Apply axial pull out force at the speed rate of $25.4 \pm 3$ mm/minute. On the terminal assembled in the housing.
Fitting Nail /Housing Retention Force	0.2kgf MIN.	Apply axial pull out force at the speed rate of $25.4 \pm 3$ mm/minute. On the fitting nail assembled in the housing.
Vibration	1 $\mu$ s Max.	The electrical load condition shall be 100 mA maximum for all contacts. Subject to a simple harmonic motion having amplitude of 0.76mm (1.52mm maximum total excursion) in frequency between the limits of 10 and 55 Hz. The entire frequency range, from 10 to 55 Hz and return to 10 Hz, shall be traversed in approximately 1 minute. This motion shall be applied for 2 hours in each of three mutually perpendicular directions. (EIA-364-28 Condition I)
Shock (Mechanical)	1 $\mu$ s Max.	Subject mated connectors to 50 G's (peak value) half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks). The electrical load condition shall be 100mA maximum for all contacts. (EIA-364-27, test condition A)

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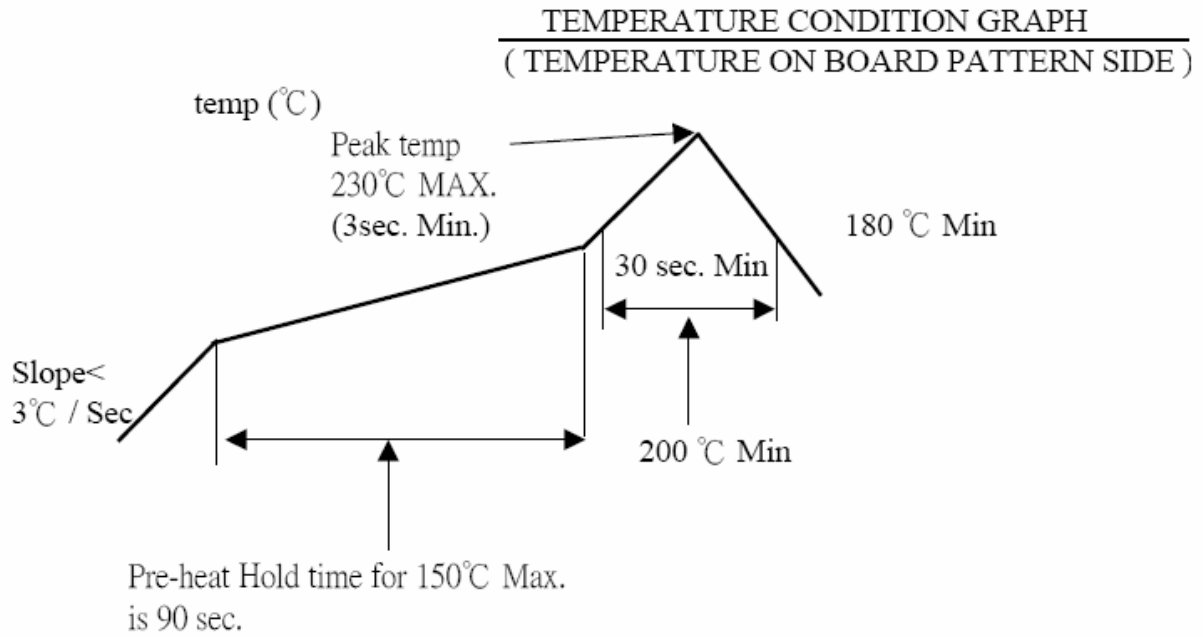
### ENVIRONMENTAL

Resistance to <b>Reflow</b> Soldering Heat	See Product Qualification and Test Sequence Group 9	Pre Heat : 150°C Max, 90sec Min. Heat : 200°C Min., 30sec Min. Peak Temp. : 230°C Max, 10sec
Resistance to <b>Reflow</b> Soldering Heat	See Product Qualification and Test Sequence Group 9 ( <b>Lead Free</b> )	<b>Pre Heat : 150°C~180°C, 60~90sec.</b> <b>Heat : 230°C Min., 40sec Min.</b> <b>Peak Temp. : 260°C Max,</b> <b>10sec Max.</b>
<b>Humidity</b>	See Product Qualification and Test Sequence Group 4	Mated Connector <b>40°C</b> , 90~95% RH, Reffer to <b>Method II.</b> (EIA-364-31, Test condition A)
Temperature life	See Product Qualification and Test Sequence Group 5	Subject mated connectors to temperature life at <b>85°C</b> for <b>96 hours</b> . Measure Signal. (EIA-364-17, Test condition A)
Salt Spray	See Product Qualification and Test Sequence Group 6	Subject mated/unmated connectors to 5% salt-solution concentration, 35°C for <b>8 hours</b> . (EIA-364-26, Test condition B)
Solder ability	Solder able area shall have minimum of 95% solder coverage.	Subject the test area of contacts into the flux for 5-10 sec. And then into solder bath, Temperature at <b>245 ±5°C</b> , for <b>4-5 sec.</b> (EIA-364-52)

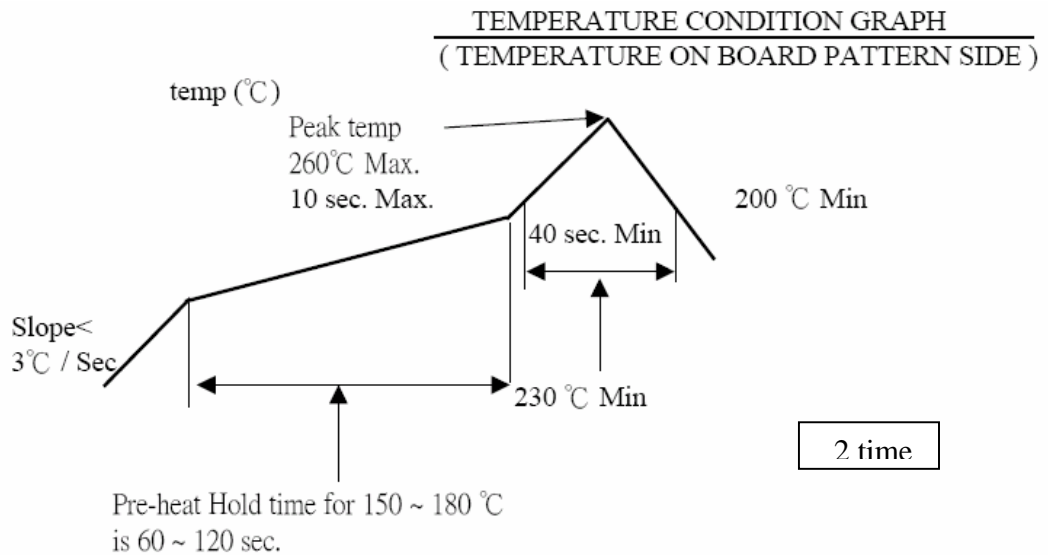
**Note.** Flowing Mixed Gas shall be conducted by customer request.

## 6 INFRARED REFLOW CONDITION

### 6.1. General Process



### 6.2. Lead-free Process





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## 7 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group								
	1	2	3	4	5	6	7	8	9
	Test Sequence								
Examination of Product				1、6	1、6	1、4			1
Low-signal Level Contact Resistance		1、5	1、4	2、9	2、9	2、5			3
Insulation Resistance				3、8	3、8				
Dielectric Withstanding Voltage				4、7	4、7				
Temperature rise	1								
Mating / Unmating Forces		2、4							
Durability		3							
Terminal/ Housing Retention Force								1	
Fitting Nail/ Housing Retention Force								2	
Vibration			2						
Shock (Mechanical)			3						
Humidity				5					
Temperature life					5				
Salt Spray						3			
Solder ability							1		
Resistance to Soldering Heat									2
Sample Size	2	4	4	4	4	4	2	4	4