



## SPECIFICATION

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SPEC. NO.: PS-50186-XXXXX-XXX REVISION: A

PRODUCT NAME: 0.5mm PITCH BTB MALE CONN SMT S/R S/T TYPE

PRODUCT NO: 50186 SERIES ; 50197 SERIES

PREPARED:  <b>FENGXIAO</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 MALE CONN SMT S/R S/T TYPE

RELEASE DATE: 2014/01/18

REVISION: A

ECN No: 1401262

PAGE: **2** OF **10**

1	REVISION HISTORY .....	3
2	SCOPE .....	4
3	APPLICABLE DOCUMENTS.....	4
4	REQUIREMENTS .....	4
5	PERFORMANCE .....	5
6	INFRARED REFLOW CONDITION .....	8
7	PRODUCT QUALIFICATION AND TEST SEQUENCE.....	9



Aces P/N: **50186 series**

TITLE: 0.5mm PITCH BTB MALE CONN SMT S/R S/T TYPE

RELEASE DATE: 2014/01/18

REVISION: A

ECN No: 1401262

PAGE: **3** OF **10**

## 1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
1	ECN-1009024	NEW SPEC	LIUWEI	2010/08/18
O	ECN-1106099	RELEASED	LIUWEI	2011/06/08
A	ECN-1401262	UPDATE WORKING VOLTAGE	FENGXIAO	2014/01/18

TITLE: 0.5mm PITCH BTB MALE CONN SMT S/R S/T TYPE

RELEASE DATE: 2014/01/18

REVISION: A

ECN No: 1401262

PAGE: **4** OF **10**

## 2 SCOPE

This specification covers performance, tests and quality requirements for [0.5mm Pitch BTB Conn. SMT S/R S/T Type](#) .

## 3 APPLICABLE DOCUMENTS

EIA-364: ELECTRONICS INDUSTRIES ASSOCIATION

## 4 REQUIREMENTS

### 4.1 Design and Construction

- 4.1.1 Product shall be of design, construction and physical dimensions specified on applicable product drawing.
- 4.1.2 All materials conform to R.o.H.S. and the standard depends on TQ-WI-140101.

### 4.2 Materials and Finish

- 4.2.1 Contact: High performance copper alloy ([Phosphor Bronze](#))  
Finish: Contact Area: [Refer to the drawing](#).
- 4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0

### 4.3 Ratings

- 4.3.1 Working Voltage Less than [36 Volts AC \(per pin\)](#)
- 4.3.2 Voltage: [50 Volts AC \(per pin\)](#)
- 4.3.3 Current: [0.5 Amperes \(per pin\)](#)
- 4.3.4 Operating Temperature : [-40°C to +105°C](#)

TITLE: 0.5mm PITCH BTB MALE CONN SMT S/R S/T TYPE

RELEASE DATE: 2014/01/18

REVISION: A

ECN No: 1401262

PAGE: **5** OF **10**

## 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 Level Contact Resistance	55 m $\Omega$ Max.(initial)per contact $\Delta R$ 10 m $\Omega$ Max.	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	100 M $\Omega$ Min.	Unmated connectors, apply 500 V DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	No discharge, flashover or breakdown. Current leakage: 1 mA max.	100 V AC Min. at sea level for 1 minute. Test between adjacent contacts of unmated connectors. (EIA-364-20)
Temperature rise	30°C Max. Change allowed	Mate connector: measure the temperature rise at rated current until temperature stable. The ambient condition is still air at 25°C (EIA-364-70 METHOD 1,CONDITION 1)
<b>MECHANICAL</b>		
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 $\pm$ 3mm/min. (EIA-364-09)
Mating / Unmating Forces	See Item 8	Operation Speed : 25.4 $\pm$ 3 mm/minute Measure the force required to mate/Unmate connector. (EIA-364-13)
Contact Retention Force	0.3kgf Min.	Operation Speed : 25.4 $\pm$ 3 mm/minute. Measure the contact retention force with Tensile strength tester.

TITLE: 0.5mm PITCH BTB MALE CONN SMT S/R S/T TYPE

RELEASE DATE: 2014/01/18

REVISION: A

ECN No: 1401262

PAGE: **6** OF **10**

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 <b>10 and 55 Hz</b> . The entire frequency range, from <b>10 to 55 Hz</b> and return to <b>10 Hz</b> , 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 <b>50 G's</b> (peak value) <b>half-sine</b> shock pulses of <b>11</b> 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)

### ENVIRONMENTAL

Item	Requirement	Standard
Resistance to <b>Reflow</b> Soldering Heat	See Product Qualification and Test Sequence Group <b>8 (Lead Free)</b>	Pre Heat : 150°C~180°C, 60~120sec. Heat : 230°C Min., 40sec Min. Peak Temp. : 260°C Max, 10sec Max.
Thermal Shock	See Product Qualification and Test Sequence Group <b>4</b>	Mate module and subject to follow condition for 5 cycles. 1 cycles: -55 +0/-3 °C, 30 minutes +105+3/-0 °C, 30 minutes (EIA-364-32, test condition VII)
Humidity	See Product Qualification and Test Sequence Group <b>4</b>	Mated Connector 40°C, 90~95% RH, 96 hours. (EIA-364-31, Condition A, Method II)
Temperature life	See Product Qualification and Test Sequence Group <b>5</b>	Subject mated connectors to temperature life at <b>85°C</b> for <b>96 hours</b> . (EIA-364-17, Test condition A)
Salt Spray (Only For Gold Plating)	See Product Qualification and Test Sequence Group <b>6</b>	Subject mated/unmated connectors to 5% salt-solution concentration, 35°C <b>(I) Gold flash for 8 hours</b> <b>(II) Gold plating 5 u" for 96 hours.</b> (EIA-364-26)



Aces P/N: **50186 series**

TITLE: 0.5mm PITCH BTB MALE CONN SMT S/R S/T TYPE

RELEASE DATE: 2014/01/18

REVISION: A

ECN No: 1401262

PAGE: **7** OF **10**

Solder ability	Solder able area shall have minimum of 95% solder coverage	And then into solder bath, Temperature at $245 \pm 5^{\circ}\text{C}$ , for 4-5 sec. (EIA-364-52)
Hand Soldering Temperature Resistance	Appearance: No damage	$T \geq 350^{\circ}\text{C}$ , 3sec at least.

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

TITLE: 0.5mm PITCH BTB MALE CONN SMT S/R S/T TYPE

RELEASE DATE: 2014/01/18

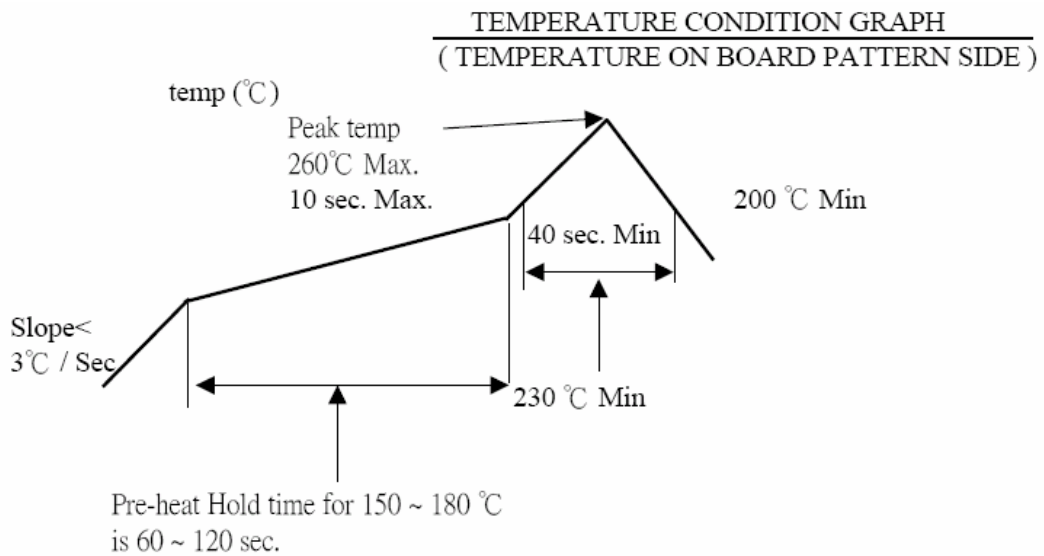
REVISION: A

ECN No: 1401262

PAGE: **8** OF **10**

## 6 INFRARED REFLOW CONDITION

### 6.1. Lead-free Process





TITLE: 0.5mm PITCH BTB MALE CONN SMT S/R S/T TYPE

RELEASE DATE: 2014/01/18

REVISION: A

ECN No: 1401262

PAGE: **9** OF **10**

## 7 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group									
	1	2	3	4	5	6	7	8	9	10
	Test Sequence									
Examination of Product				1、7	1、6	1、4		1		
Low Level Contact Resistance		1、5	1、4	2、10	2、9	2、5		3		
Insulation Resistance				3、9	3、8					
Dielectric Withstanding Voltage				4、8	4、7					
Temperature rise	1									
Mating / Unmating Forces		2、4								
Durability		3								
Contact Retention Force										1
Vibration			2							
Shock (Mechanical)			3							
Thermal Shock				5						
Humidity				6						
Temperature life					5					
Salt Spray(Only For Gold Plating)						3				
Solder ability							1			
Resistance to Soldering Heat								2		
Hand Soldering Temperature Resistance									1	
Sample Size	2	4	4	4	4	4	2	4	4	4

TITLE: 0.5mm PITCH BTB MALE CONN SMT S/R S/T TYPE

RELEASE DATE: 2014/01/18

REVISION: A

ECN No: 1401262

PAGE: **10** OF **10****8 INSERTION/ WITHDRAWAL FORCE**

NO. OF Ckt.	Insertion Force (Max)	Withdrawal Force (Min)
7	1.05 Kgf	0.2 Kgf