



SPECIFICATION

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SPEC. NO.: PS-50181-XXXX REVISION: D

PRODUCT NAME: 0.50MM PITCH BOARD TO BOARD CONN.

PRODUCT NO: 50181 SERIES; 51005 SERIES; 51006 SERIES; 51007 SERIES.
51008 SERIES; 51009 SERIES.51017SERIES

PREPARED: FENGXIAO DATE: 2014/01/18	CHECKED: DAVID DATE: 2014/01/18	APPROVED: FENGXIAO DATE: 2014/01/18
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Aces P/N: **50181 series**

TITLE: **0.50MM PITCH BOARD TO BOARD CONN.**

RELEASE DATE: 2014.01.18

REVISION: D

ECN No: ECN-1401262

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1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN-0911223	RELEASE	JASON	2009.10.25
A	ECN-1102001	ADD 51005/51006 SERIES.	YANGWU	2011.02.01
B	ECN-1104048	ADD 51007 SERIES; 51008 SERIES.; 51009 SERIES.	YANGWU	2011.04.09
C	ECN-1110255	ADD 51017 SERIES	XHX	2011/12/08
D	ECN-1401262	UPDATE WORKING VOLTAGE	FENGXIAO	2014/01/18

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2 SCOPE

This specification covers performance, tests and quality requirements for **0.50MM PITCH BOARD TO BOARD CONNECTOR**. Aces's P/N: 50181 Series; 51005 Series; 51006 Series; 51007 Series; 51008 Series; 51009 Series; 51017 Series.

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: (a) Contact Area: Refer to the drawing.
 - (b) Under plate: Refer to the drawing.
 - (c) Solder 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: 0.3 Amperes (per pin)
- 4.3.4 Operating Temperature : -40°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.
ELECTRICAL		
Item	Requirement	Standard
Low Level Contact Resistance	55 m Ω Max.(initial)per contact ΔR 20 m Ω Max.	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	500 M Ω Min.	Unmated connectors, apply 100 V DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	No discharge, flashover or breakdown. Current leakage: 1 mA max.	150 VAC 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,METHOD1,CONDITION1)

MECHANICAL		
Item	Requirement	Standard
Durability	50 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	Mating Force: 70gf/Pin Max Unmating Force: 10gf/Pin Min.	Operation Speed : 25.4 \pm 3 mm/minute.. Measure the force required to mate/unmate connector. (EIA-364-13)
Contact Retention Force (Plug Side)	0.3kgf Min.	Operation Speed : 25.4 \pm 3 mm/minute. Measure the contact retention force with tester.

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Terminal / Housing Retention Force (Rcpt Side)	0.2kgf Min	Operation Speed : 25.4 ± 3 mm/minute. Measure the contact retention force with Tensile strength tester.
Fitting Nail /Housing Retention Force	0.1kgf MIN.	Operation Speed : 25.4 ± 3 mm/minute. Measure the contact retention force with Tensile strength tester.
Vibration	1 μ 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 μ 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)

ENVIRONMENTAL

Item	Requirement	Standard
Resistance to Reflow Soldering Heat	See Product Qualification and Test Sequence Group 9 (Lead Free)	Pre Heat : 150°C~180°C, 60~120sec. Heat : 230°C Min., 40sec Min. Peak Temp. : 260°C Max, 10sec Max. Reflow number cycle: 2 times
Thermal Shock	See Product Qualification and Test Sequence Group 4	Mate module and subject to follow condition for 5 cycles. 1 cycles: -55 +0/-3 °C, 30 minutes +85 +3/-0 °C, 30 minutes (EIA-364-32, test condition I)

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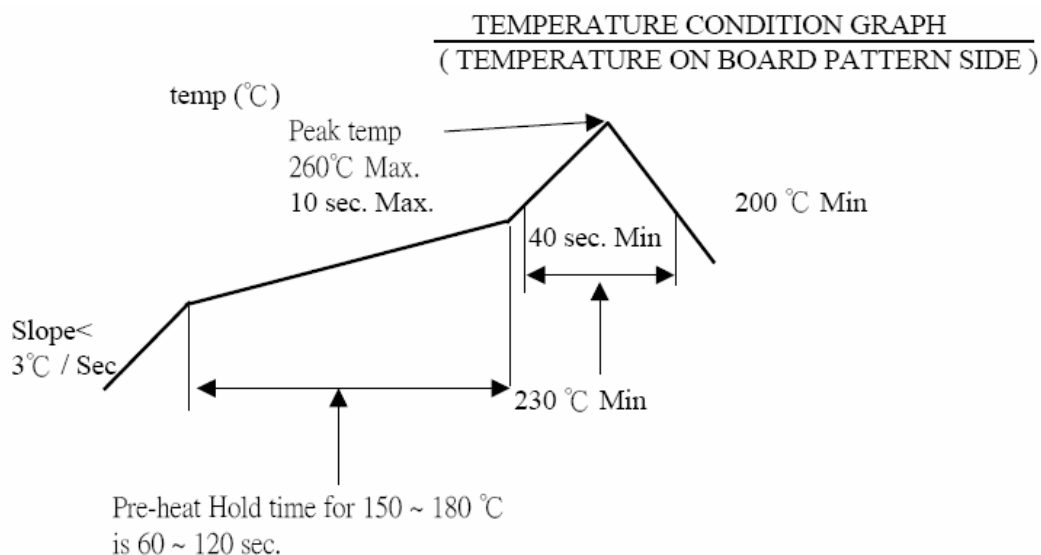
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Humidity	See Product Qualification and Test Sequence Group 4	Mated Connector 40°C, 90~95% RH, 96 hours. (EIA-364-31, Condition A, Method II)
Temperature Life	See Product Qualification and Test Sequence Group 5	Subject mated connectors to temperature life at 85°C for 96 hours . (EIA-364-17, Test condition A)
Salt Spray (Only For Gold Plating)	See Product Qualification and Test Sequence Group 6	Subject mated/unmated connectors to 5% salt-solution concentration, 35°C (I) Gold flash for 8 hours (II) Gold plating 5 u" for 96 hours. (EIA-364-26)
Solder ability	Tin plating: Solder able area shall have minimum of 95% solder coverage. Gold plating: Solder able area shall have minimum of 75% solder coverage	And then into solder bath, Temperature at 245 ±5°C, for 4-5 sec. (EIA-364-52)
Hand Soldering Temperature Resistance	Appearance: No damage	T ≥ 350°C, 3sec at least.

Note. Flowing Mixed Gas shall be conduct by customer request.

6 INFRARED REFLOW CONDITION



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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	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								
Vibration			2							
Shock (Mechanical)			3							
Thermal Shock				5						
Humidity				6						
Temperature Life					5					
Salt Spray(Only For Gold Plating)						3				
Solder ability							1			
Contact Retention Force (Plug Side)								1		
Terminal / Housing Retention Force (Rcpt Side)								3		
Fitting Nail /Housing Retention Force								2		
Resistance to Soldering Heat									2	
Hand Soldering Temperature Resistance										2
Sample Size	2	4	4	4	4	4	2	4	4	4