



## SPECIFICATION

宏致電子股份有限公司

桃園縣中壢市東園路13號

No.13, Dongyuan Rd., Jhongli City,

Taoyuan County 320, Taiwan (R.O.C.)

TEL: +886-3-463-2808

FAX: +886-3-463-1800

SPEC. NO.: PS-50541-XXXXX-XXX REVISION: 0

PRODUCT NAME: 0.5 mm PITCH ZIF FPC CONN.

SMT R/A TYPE

PRODUCT NO: 50541 50542 50543 50544 50546 50547 Series

PREPARED:  <b>huamin</b>  DATE: <b>2008.11.17</b>	CHECKED:  <b>WGCH</b>  DATE: <b>2008.11.17</b>	APPROVED:  <b>JASON CHEN</b>  DATE: <b>2008.11.17</b>
--	---	--



TITLE: **0.5 PITCH FPC CONNECTOR SMT R/A TOP CONTACT**

RELEASE DATE: 2008.11.17

REVISION: 0

ECN No: 0811117

PAGE: **2** OF **9**

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



TITLE: **0.5 PITCH FPC CONNECTOR SMT R/A TOP CONTACT**

RELEASE DATE: 2008.11.17

REVISION: 0

ECN No: 0811117

PAGE: **3** OF **9**

### 1 Revision History

Rev.	ECN #	Revision Description	Approved	Date
0	ECN-0811117	New SPEC		2008.11.17

TITLE: **0.5 PITCH FPC CONNECTOR SMT R/A TOP CONTACT**

RELEASE DATE: 2008.11.17

REVISION: 0

ECN No: 0811117

PAGE: **4** OF **9**

## 2 SCOPE

This specification covers performance, tests and quality requirements for **0.5mm pitch SMT R/A ZIF FPC connector**.

ACES' P/N: **50541-XXXXX-XXX;**  
**50542-XXXXX-XXX;**  
**50543-XXXXX-XXX;**  
**50544-XXXXX-XXX;**  
**50546-XXXXX-XXX;**  
**50547-XXXXX-XXX.**

## 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: (a) Contact Area: Gold plated based on order information  
(b) Under plate: Nickel-plated all over  
(c) Solder area: Tin-Lead plated
- 4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0
- 4.2.3 Actuator: Thermoplastic or Thermoplastic High Temp., UL94V-0
- 4.2.4 Nut or Ear: Copper Alloy.  
Finish: (a) Solder Area: Tin-Lead plated.  
(b) Under plate: Nickel-plated all over

### 4.3 Ratings

- 4.3.1 Voltage: 50 Volts AC (per pin)
- 4.3.2 Current: DC 0.5 Amperes (per pin)
- 4.3.3 Operating Temperature : -40°C to +80°C mm

TITLE: **0.5 PITCH FPC CONNECTOR SMT R/A TOP CONTACT**

RELEASE DATE: 2008.11.17

REVISION: O

ECN No: 0811117

PAGE: **5** OF **9**

## 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	55 m $\Omega$ Max. (initial) per contact 20 m $\Omega$ Max. Change allowed	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	500 M $\Omega$ Min.	Unmated connectors, apply 500 V DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	300 VAC Min. at sea level for 1 minute. No discharge, flashover or breakdown. Current leakage: 1 mA max.	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 after: 0.5 A/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)

**TITLE: 0.5 PITCH FPC CONNECTOR SMT R/A TOP CONTACT**

RELEASE DATE: 2008.11.17

REVISION: O

ECN No: 0811117

PAGE: **6** OF **9**

**MECHANICAL**

<b>Item</b>	<b>Requirement</b>	<b>Standard</b>
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 ± 3mm/min. (EIA-364-09)
FPC Retention Force	0.3kgf MIN.	Insert the actuator, pull the FPC at the speed rate of 25.4 ± 3 mm/min.
Terminal / Housing Retention Force	0.3kgf MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the terminal assembled in the housing.
Fitting Nail /Housing Retention Force	0.3kgf MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the fitting nail assembled in the housing.
Vibration	1 µs 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)
Vibration (Random)	1 µs Max.	15 minutes in each of 3 mutually perpendicular directions, Both mating halves should be rigidly fixed so as not to contribute to the relative motion of one contact against another (EIA-364-28, test conditions VII, test condition letter D)
Shock (Mechanical)	1 µs 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)



TITLE: **0.5 PITCH FPC CONNECTOR SMT R/A TOP CONTACT**

RELEASE DATE: 2008.11.17

REVISION: O

ECN No: 0811117

PAGE: **7** OF **9**

**ENVIRONMENTAL**

Resistance to <b>Reflow</b> Soldering Heat	See Product Qualification and Test Sequence Group 4	Pre Heat : 150°C Max, 90sec Min. Heat : 200°C Min., 30sec Min. Peak Temp. : 230°C Max, 10sec Cycles: 2
Resistance to <b>Reflow</b> Soldering Heat	See Product Qualification and Test Sequence Group 4 ( <b>Lead Free</b> )	Pre Heat : 150°C~180°C, 60~90sec. Heat : 230°C Min., 40sec Min. Peak Temp. : 260°C Max, 10sec Max. Cycles: 2
Resistance to <b>Hand</b> Soldering Heat	Excessive pressure shall not be applied to the terminals. Product Qualification and Test Sequence Group 4	Soldering iron : 350±5°C Duration : 2.5~3.5 sec.
Thermal Shock	See Product Qualification and Test Sequence Group 4	Mate module and subject to follow condition for 5 cycles. 1 cycles: -40 +0/-3 °C, 30 minutes +85 +3/-0 °C, 30 minutes (EIA-364-32, test condition A)
Humidity	See Product Qualification and Test Sequence Group 4	Mated Connector 40°C, 90~95% RH, Reefer to Method II. (EIA-364-31, Test condition A)
Temperature life	See Product Qualification and Test Sequence Group 8	Subject mated connectors to temperature life at 85°C for 96 hours. Measure Signal. (EIA-364-17, Test condition A)
Salt Spray	See Product Qualification and Test Sequence Group 5	Subject mated/unmated connectors to 5% salt-solution concentration, 35°C for 8 hours. (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 245 ±5°C, for 4-5 sec. (EIA-364-52)

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

TITLE: **0.5 PITCH FPC CONNECTOR SMT R/A TOP CONTACT**

RELEASE DATE: 2008.11.17

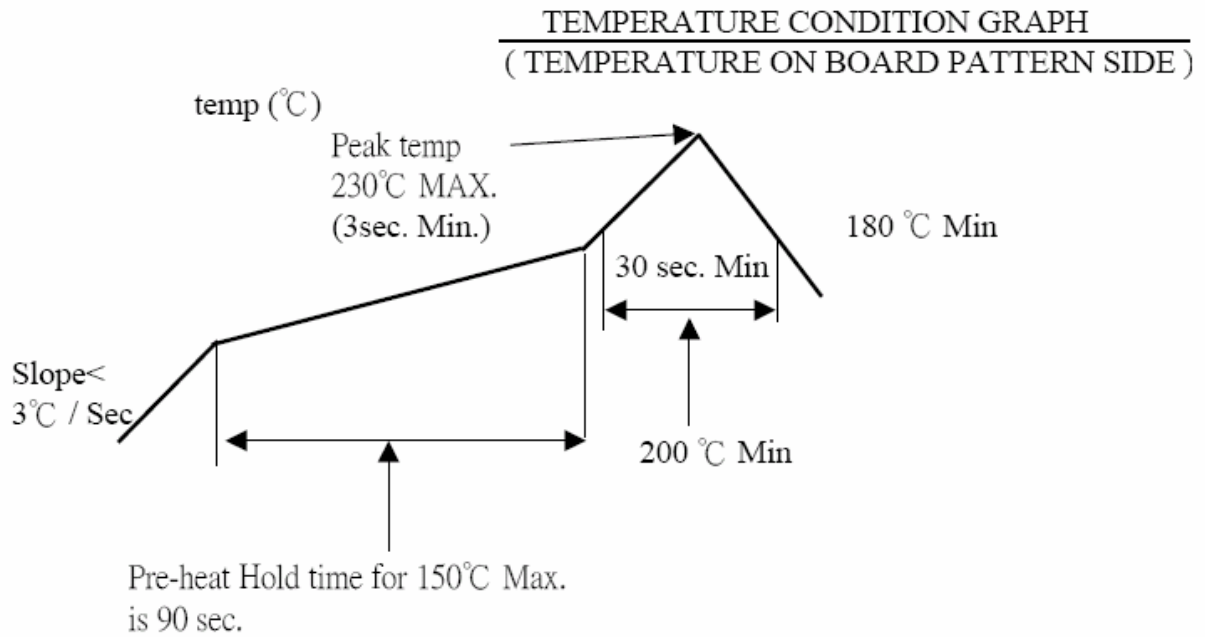
REVISION: 0

ECN No: 0811117

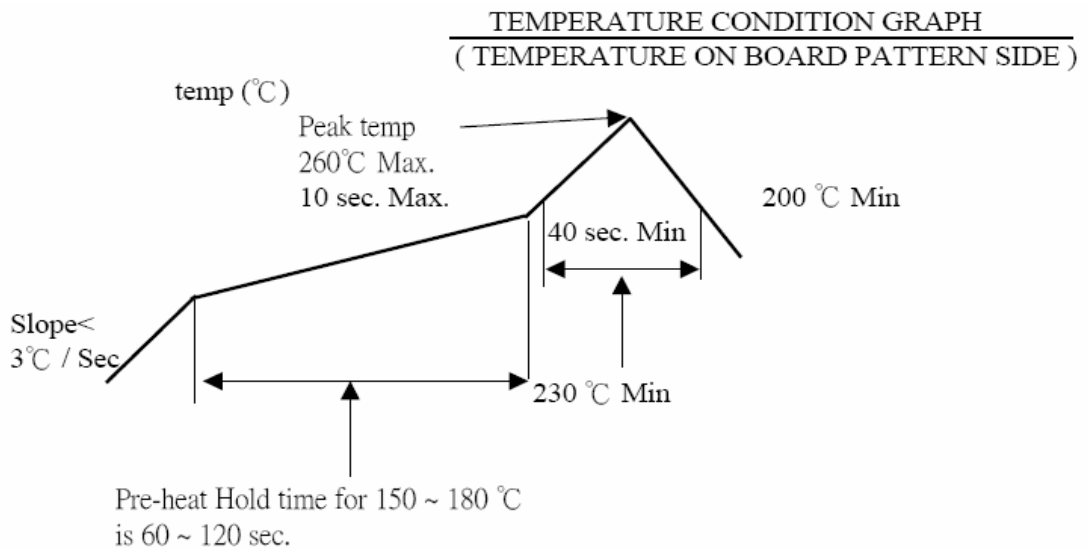
PAGE: **8** OF **9**

## 6 INFRARED REFLOW CONDITION

### 6.1. General Process



### 6.2. Lead-free Process







TITLE: **0.5 PITCH FPC CONNECTOR SMT R/A TOP CONTACT**

RELEASE DATE: 2008.11.17

REVISION: O

ECN No: 0811117

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

**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-signal 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						3				
Solder ability							1			
FPC Retention Force								1		
Terminal / Housing Retention Force									1	
Fitting Nail /Housing Retention Force									2	
Resistance to Soldering Heat										2
Sample Size	2	4	4	4	4	4	2	4	4	4