



## SPECIFICATION

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SPEC. NO.: PS-50531-XXXXX-XXX REVISION: C

PRODUCT NAME: 0.5 mm PITCH ZIF FPC CONN.

SMT R/A TOP CONTACT TYPE

PRODUCT NO: 50531 50535 50536 SERIES

PREPARED:  <b>Huang,Shun Sen</b>  DATE: <b>2017/11/14</b>	CHECKED:  <b>Lu,Jing Quan</b>  DATE: <b>2017/11/14</b>	APPROVED:  <b>hsieh,fu yu</b>  DATE: <b>2017/11/14</b>
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TITLE: **0.5 MM PITCH ZIF/FPC CONN.SMT R/A TOP CONTACT TYPE**

RELEASE DATE: 2017.11.14

REVISION: C

ECN No: ECN-1711260

PAGE: **2** OF **11**

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
8	FPC RETENTION FORCE .....	10
9	ACTUATOR INSERTION/WITHDRAWING FORCE .....	11



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PAGE: **3** OF **11**

### 1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN-0811117	NEW SPEC	JASON	2008/11/17
A	ECN-1307428	ADD 50 PIN FPC RETENTION FORCE	XIAOXIONG	2013/07/26
B	ECN-1401253	ADD WORKING VOLTAGE	XUFEI	2014/01/15
C	ECN-1711260	ADD 40 PIN FPC RETENTION FORCE	Huang,Shun Sen	2017/03/23

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RELEASE DATE: 2017.11.14

REVISION: C

ECN No: ECN-1711260

PAGE: 4 OF 11

## 2 SCOPE

This specification covers performance, tests and quality requirements for **0.5 mm pitch, 2.0 mm above the board, FPC ZIF connector**.

## 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**
- 4.2.3 Actuator: Thermoplastic or Thermoplastic High Temp., **UL94V-0**
- 4.2.4 Fitting Nail: **Copper Alloy, Finish: Refer to the drawing.**

### 4.3 Ratings

- 4.3.1 **Working voltage less than 36 volts (per pin)**
- 4.3.2 Voltage: **50 Volts AC**
- 4.3.3 Current: **0.5 Amperes DC**
- 4.3.4 Operating Temperature : **-20°C to +85°C\*1**  
**\*1:Including terminal temperature rise.**

## 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 55 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	No discharge, flashover or breakdown. Current leakage: 1 mA max.	300 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)

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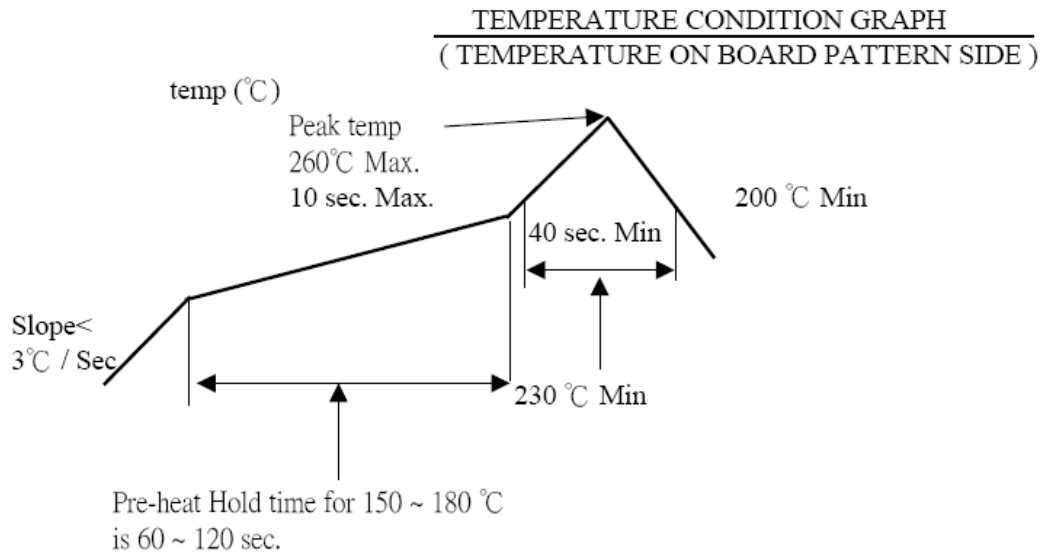
PAGE: **6** OF **11**

<b>MECHANICAL</b>		
<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 <b>25.4 ± 3mm/min.</b> (EIA-364-09)
FPC Retention Force	Refer to page.10 FPC retention force	A connector shall be soldered on a board and insert the actuator, pull the FPC at the speed rate of <b>25.4 ± 3 mm/min.</b>
Actuator Insertion / Withdrawing Force	Refer to page.11 Actuator insertion/withdrawing force	A connector shall be soldered on a board and inserted and withdrawing at the speed rate of <b>25.4 ± 3 mm/min.</b>
Terminal /Housing Retention Force	0.3kgf MIN.	Operation Speed : <b>25.4 ± 3 mm/minute.</b> Measure the contact retention force with tester.
Fitting Nail /Housing Retention Force	0.3kgf MIN.	Operation Speed : <b>25.4 ± 3 mm/minute.</b> Measure the contact retention force with tester.
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 <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 μs Max.	Subject mated connectors to <b>50 G's</b> (peak value) <b>half-sine</b> shock pulses of <b>11 milliseconds</b> 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)

<b>ENVIRONMENTAL</b>		
<b>Item</b>	<b>Requirement</b>	<b>Standard</b>
Resistance to <b>Reflow</b> Soldering Heat	See Product Qualification and Test Sequence Group <b>10 (Lead Free)</b>	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 <b>4</b>	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)
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)
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 <b>245 ±5°C</b> , for <b>4-5 sec.</b> (EIA-364-52)
Hand Soldering Temperature Resistance	Appearance: No damage	T ≥ 350°C, 3sec at least.

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

## 6 INFRARED REFLOW CONDITION





TITLE: **0.5 MM PITCH ZIF/FPC CONN.SMT R/A TOP CONTACT TYPE**

RELEASE DATE: 2017.11.14

REVISION: C

ECN No: ECN-1711260

PAGE: 9 OF 11

## 7 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group										
	1	2	3	4	5	6	7	8	9	10	11
	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										
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				
FPC Retention Force		2、4									
Terminal / Housing Retention Force									1		
Actuator Insertion / Withdrawing Force								1			
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	4

## 8 FPC RETENTION FORCE

UNIT: Kgf

NO. OF Ckt.	Retention Force (Min)
6	0.2
7	
8	
9	0.3
10	
11	
12	0.4
13	
14	
15	0.5
16	
17	
18	0.6
19	
20	
21	0.7
22	
23	
24	0.8
25	
26	
27	0.9
28	
29	
30	1.0
40	
50	1.5

**9 ACTUATOR INSERTION / WITHDRAWING FORCE**

UNIT: Kgf

NO. OF Ckt.	Insertion Force (Max)	Separation Force (Min)
6	1.45	0.1
7		
8		
9		
10		
11	2.00	0.2
12		
13		
14		
15		
16	2.65	0.3
17		
18		
19		
20		
21	3.25	0.4
22		
23		
24		
25		
26	3.85	0.5
27		
28		
29		
30		
40		
50		