SPECIFICATION

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SPEC. NO.: PS-50534-XXXXX-XXX **REVISION:** B

PRODUCT NAME: 0.5 mm PITCH ZIF FPC CONN.

SMT R/A TOP CONTACT TYPE

PRODUCT NO: 50534 Series

PREPARED:	CHECKED:	APPROVED:
COCOYU	**DAVID**	**FRANK**
DATE: **2015.04.13**	DATE: **2015.04.13**	DATE: **2015.04.13**

1 Revision History

Rev.	ECN #	Revision Description	Approved	Date
O	ECN-0811117	New SPEC	Huamin	2008.11.17
A	ECN-1401260	ADD WORKING VOLTAGE	XUFEI	2014.01.15
B	ECN-1504286	ADD 4/40PIN RETENTON FORCE AND ACTUATOR INSERTION/SEPARATION FORCE ECCN-1504030	COCOYU	2015. 04. 13

2 SCOPE

This specification covers performance, tests and quality requirements for 0.5 mm PITCH SMT TYPE FPC CONN.

Aces' P/N: 87152-xx 07(SMT,R/A,BOTTOM CONTACT) & Lead Free type;

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)
Plated: (a) Finish: Gold flash overall
(b) Under plate: Nickel-plated all over
4.2.2 Housing: Thermoplastic, High temp. UL94V-0

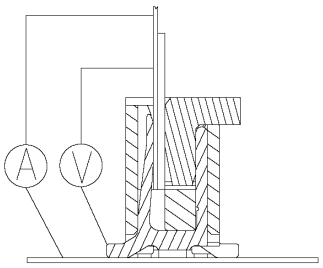
4.3 Ratings

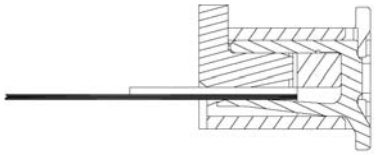
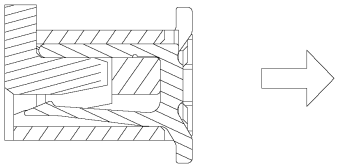
4.3.1 Working voltage less than 36 volts (per pin)
4.3.2 Voltage: 50 Volts AC
4.3.3 Current: DC 0.5 Amperes
4.3.4 Operating Temperature : -20℃ to +85℃*1

*1：Including terminal temperature rise.

5 Performance

5.1. Test Requirements and Procedures Summary

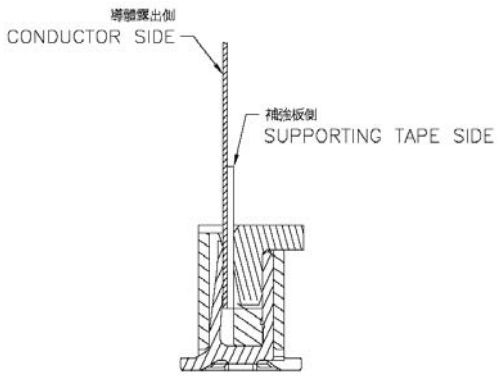
Item	Requirement	Standard
Examination of Product	Product shall meet requirements of applicable product drawing and specification.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Low-signal Level Contact Resistance	55 m Ω Max.(initial)per contact 20 m Ω Max. Change allowed	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max.  (EIA-364-23)
Insulation Resistance	Initial: 1000 M Ω Min.	Unmated connectors, apply 500 V DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	AC 250 VAC Min. at sea level for 1 minute. No discharge, flashover or breakdown. Current leakage: 2 mA max.	Test between adjacent contacts of unmated connectors. (EIA-364-20)
Temperature rise	30℃ Max. Change allowed	Mate connector: measure the temperature rise at rated current after:0.4 A/Power contact. The temperature rise above ambient shall not exceed 30℃ The ambient condition is still air at 25℃ (EIA-364-70 METHOD 2)

ECHANICAL		
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 10 ± 3mm/min. (EIA-364-09)
FPC Retention Force	Refer to 8. FPC retention force	Insert the actuator, pull the FPC at the speed rate of 25± 3 mm/min for 10 cycles. 
Terminal / Housing Retention Force	0.3kgf MIN.	Apply axial pull out force at the speed rate of 25 ± 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 ± 3 mm/minute. On the terminal assembled in the housing.
Actuator Insertion / Separation Force	Refer to 9. Actuator insertion/separation force	A connector shall be soldered on a board and inserted and separation at speed of 25± 3 mm/min for 10 cycles.
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)

MECHANICAL		
Item	**Requirement**	**Standard**
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 DC 100mA maximum for all contacts. (EIA-364-27, test condition A)
ENVIRONMENTAL		
Resistance to **Hand** Soldering Heat	Excessive pressure shall not be applied to the terminals. See Product Qualification and Test Sequence Group 11	Soldering iron：350±10℃ Duration：3~4 sec.
Resistance to **Reflow** Soldering Heat	Second Reflow process must be taken after the product temperature has down to room condition. See Product Qualification and Test Sequence Group 11	Pre Heat：150℃~180℃, 60~90sec. Heat：230℃ Min., 40sec Min. Peak Temp.：260℃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: -40 +0/-3 ℃, 30 minutes +85 +3/-0 ℃, 30 minutes (EIA-364-32, test condition A)
Humidity	See Product Qualification and Test Sequence Group 4	Mated Connector 40℃, 90~95% RH, Reefer to Method II. (EIA-364-31, Test condition A)
Temperature life-Heat	See Product Qualification and Test Sequence Group 5	Subject mated connectors to temperature life at 85℃ for 96 hours. Measure Signal. (EIA-364-17, Test condition A)
Temperature life-Cold	See Product Qualification and Test Sequence Group 6	Subject mated connectors to temperature life at -40℃ for 48 hours. Measure Signal. (EIA-364-17, Test condition A)

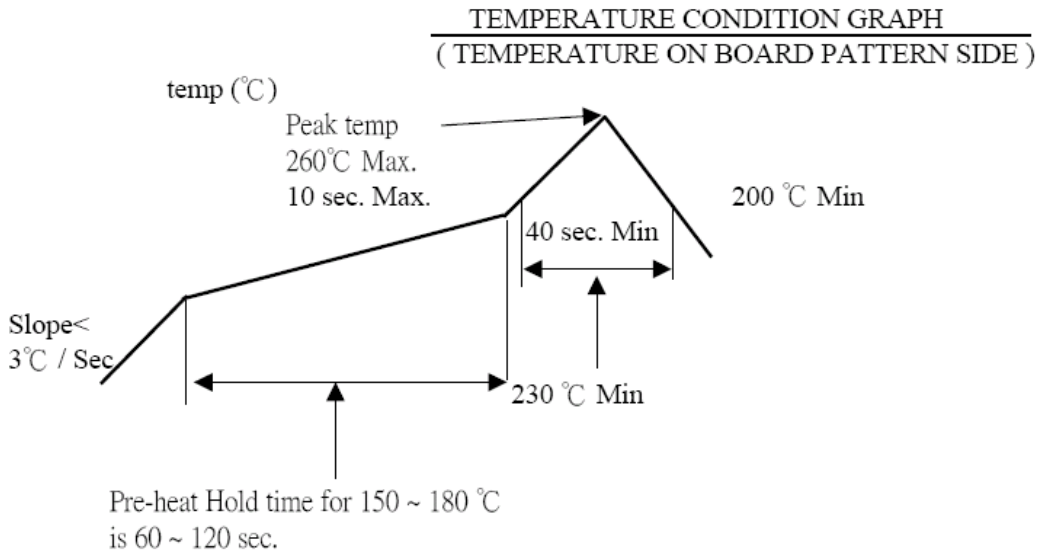
ENVIRONMENTAL		
Item	**Requirement**	**Standard**
Salt Spray	See Product Qualification and Test Sequence Group 7	Subject mated/unmated connectors to 5% salt-solution concentration, 35℃ for 8 hours. (EIA-364-26,Test condition B)
Solder ability	Solder able area shall have minimum of 95% solder coverage.	Subject the test area of contacts into the flux for 5-10 sec. And then into solder bath, Temperature at 245 ±5℃, for 4-5 sec. (EIA-364-52)

Note 1. Flowing Mixed Gas shell be conduct by customer request.
Note 2.



6 INFRARED REFLOW CONDITION

6.1. Lead-free Process



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、4		1、7	1、4	1、4	1、4				
Low-signal Level Contact Resistance		2、5	1、4	2、10	2、5	2、5	2、5				1、3
Insulation Resistance				3、9							
Dielectric Withstanding Voltage				4、8							
Temperature rise	1										
Durability		3									
Vibration			2								
Shock (Mechanical)			3								
Thermal Shock				5							
Humidity				6							
Temperature life-Heat					3						
Temperature life-Cold						3					
Salt Spray							3				
Solder ability								1			
FPC Retention Force									1		
Terminal / Housing Retention Force								2			
Actuator insertion / separation Force										2	
Resistance to Soldering Heat											2
Sample Size	2	4	4	4	4	4	4	2	4	4	4

8 FPC RETENTION FORCE

NO. OF Ckt.	Retention Force (Min)
4	0.1Kgf
6	0.2Kgf
7	
8	
9	0.3Kgf
10	
11	
12	0.4Kgf
13	
14	
15	0.5Kgf
16	
17	
18	0.6Kgf
19	
20	
21	
22	0.7Kgf
23	
24	
25	0.8Kgf
26	
27	
28	0.9Kgf
29	
30	
40	1Kgf

9 ACTUATOR INSERTION/SEPARATION FORCE

NO. OF Ckt.	Insertion Force (Max)	Separation Force (Min)
4	1Kgf	0.1 Kgf
6	1.45Kgf	0.1Kgf
7		
8		
9		
10		
11	2.0Kgf	0.2Kgf
12		
13		
14		
15		
16	2.65Kgf	0.3Kgf
17		
18		
19		
20		
21	3.25Kgf	0.4Kgf
22		
23		
24		
25		
26	3.85Kgf	0.5Kgf
27		
28		
29		
30		
40	5.0Kgf	0.6Kgf