



SPECIFICATION

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SPEC. NO.: PS- 50603-XXXXX-XXX REVISION: B

PRODUCT NAME: 1.0 mm PITCH ZIF FPC CONN SMT R/A TYPE

PRODUCT NO: 50603.50604.50605.50607.50608.50609.51527 SERIES

PREPARED XUFEI DATE: 2014/01/15	CHECKED: JERRY DATE: 2014/01/15	APPROVED: JASON DATE: 2014/01/15
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Aces P/N: **50603 series**

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1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN-0812016	RELEASE	JASON	2008/12/05
A	ECN-1103115	ADD 51527 SERIES AND REVISED SPEC	HUANTY	2011/3/17
B	ECN-1401269	ADD WORKING VOLTAGE	XUFEI	2014/01/15

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2 SCOPE

This specification covers performance, tests and quality requirements for [FPC 1.0 pitch SMT R/A connector](#).

Aces's P/N : [50603series](#) , [50604series](#) , [50605series](#) , [50607series](#) , [50608series](#) , [50609](#) , [51527 series](#).

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 Terminal: High performance copper alloy
Finish: (a) Gold flash plated overall, or refer to order information.
(b) Under plate: Nickel plated overall
- 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: (a) Solder Area: Refer to order information.
(b) Under plate: Nickel plated overall

4.3 Ratings

- 4.3.1 Working voltage less than 36 volts (per pin)
- 4.3.2 Voltage: 125 Volts AC (per pin)
- 4.3.3 Current: DC 1.0 Amperes (per pin)
- 4.3.4 Operating Temperature : -20°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	20 m Ω Max.(initial)per contact Δ 20 m Ω Max.(after test)	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	100 M Ω 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.	120 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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MECHANICAL

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 ± 3mm/min. (EIA-364-09)
Actuator Insertion / Extraction Force	Refer to Actuator Insertion / Extraction Force	Mate applicable FPC insert and extract actuator at the speed of 25.4 ± 3 mm/min.
FPC Retention Force	Refer to FPC Retention force	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.
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)
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)

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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, 60~90sec. Heat : 230°C Min., 40sec Min. Peak Temp. : 260°C Max, 10sec Max. Cycles : 2 times
Thermal Shock	See Product Qualification and Test Sequence Group 4	Mate module and subject to follow condition for 5 cycles. 1 cycles: -20 +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 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. Measure Signal. (EIA-364-17, Test condition A)
Salt Spray	See Product Qualification and Test Sequence Group 6	Subject mated/unmated connectors to 5% salt-solution concentration, 35°C for 48 hours. (EIA-364-26)
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)
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.

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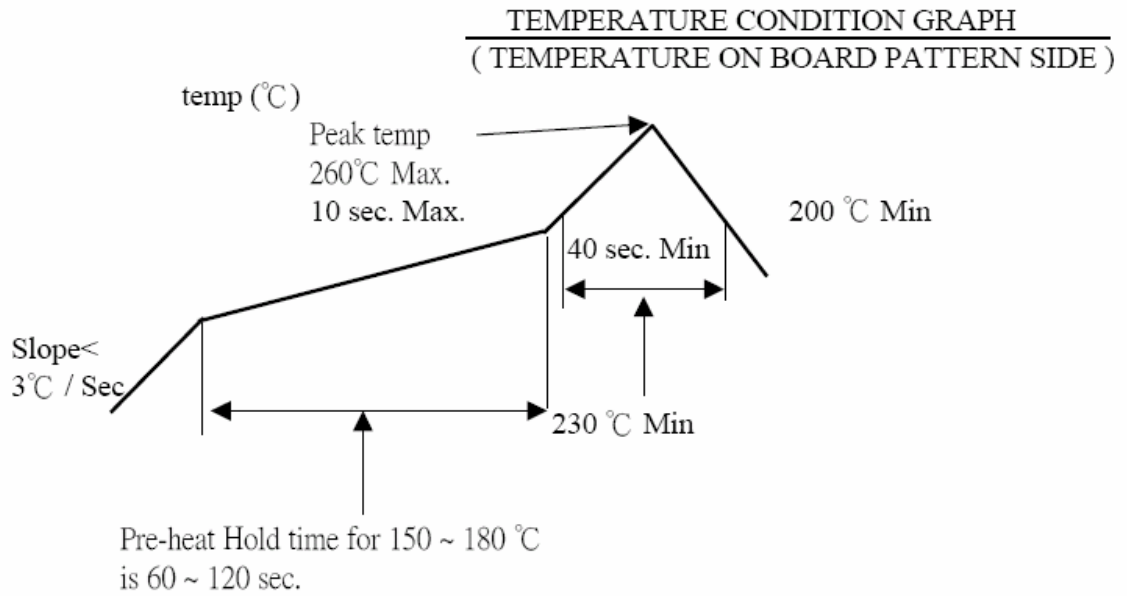
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6 INFRARED REFLOW CONDITION



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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	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						3				
Solder ability							1			
Actuator Insertion / Extraction Force								1		
FPC Retention Force								1		
Terminal / Housing Retention Force								1		
Resistance to Soldering Heat									2	
Hand Soldering Temperature Resistance										2
Sample Size	2	4	4	4	4	4	2	4	4	4

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8 FPC/FFC Retention Force

NO OF CKT	Retention Force (Kgf, Min)	
	1st	10th
4	0.60	0.50
5	0.65	0.55
6	0.70	0.60
7	0.75	0.65
8	0.80	0.70
9	0.85	0.75
10	0.90	0.80
11	0.95	0.85
12	1.00	0.90
13	1.05	0.95
14	1.10	1.00
15	1.15	1.05
16	1.20	1.10
17	1.25	1.15
18	1.30	1.20
19	1.35	1.25
20	1.40	1.30
21	1.45	1.35
22	1.50	1.40
23	1.55	1.45
24	1.60	1.50
25	1.65	1.55
26	1.70	1.60
27	1.75	1.65
28	1.80	1.70
29	1.85	1.75
30	1.90	1.80

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9 Actuator Insertion / Extraction Force

No of CKT	Insertion Force (Kgf, Max)			Extraction Force (Kgf, Min)		
	1st	6th	30th	1st	6th	30th
3	2.80	2.60	2.60	0.55	0.50	0.45
4	2.90	2.70	2.70	0.60	0.55	0.50
5	3.00	2.80	2.80	0.65	0.60	0.55
6	3.10	2.90	2.90	0.70	0.65	0.60
7	3.20	3.00	3.00	0.75	0.70	0.65
8	3.30	3.10	3.10	0.80	0.75	0.70
9	3.40	3.20	3.20	0.85	0.80	0.75
10	3.50	3.30	3.30	0.90	0.85	0.80
11	3.60	3.40	3.40	0.95	0.90	0.85
12	3.70	3.50	3.50	1.00	0.95	0.90
13	3.80	3.60	3.60	1.05	1.00	0.95
14	3.90	3.70	3.70	1.10	1.05	1.00
15	4.00	3.80	3.80	1.15	1.10	1.05
16	4.10	3.90	3.90	1.20	1.15	1.10
17	4.20	4.00	4.00	1.25	1.20	1.15
18	4.30	4.10	4.10	1.30	1.25	1.20
19	4.40	4.20	4.20	1.35	1.30	1.25
20	4.50	4.30	4.30	1.40	1.35	1.30
21	4.60	4.40	4.40	1.45	1.40	1.35
22	4.70	4.50	4.50	1.50	1.45	1.40
23	4.80	4.60	4.60	1.55	1.50	1.45
24	4.90	4.70	4.70	1.60	1.55	1.50
25	5.00	4.80	4.80	1.65	1.60	1.55
26	5.10	4.90	4.90	1.70	1.65	1.60
27	5.20	5.00	5.00	1.75	1.70	1.65
28	5.30	5.10	5.10	1.80	1.75	1.70
29	5.40	5.20	5.20	1.85	1.80	1.75
30	5.50	5.30	5.30	1.90	1.85	1.80
31	5.60	5.40	5.40	1.95	1.90	1.85
32	5.70	5.50	5.50	2.00	1.95	1.90
33	5.80	5.60	5.60	2.05	2.00	1.95