SPECIFICATION

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SPEC. NO.: PS-51512-XXXXX-XXX **REVISION:** A

PRODUCT NAME: 1.0 mm PITCH NON ZIF FPC CONN.

PRODUCT NO: 51512 series

PREPARED:	CHECKED:	APPROVED:
YANGYANG	JERRY	JASON
DATE: 2014/01/10	DATE: 2014/01/10	DATE: 2014/01/10

1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN-1007111	FOR 51512 RELEASE	Brave	2010/07/28
A	ECN-1401127	ADD Working voltage	YANGYANG	2014/01/10

2 SCOPE

This specification covers performance, tests and quality requirements for 1.0 mm PITCH NON ZIF FPC CONN.
Aces's P/N ： 51512 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 Contact: High performance copper alloy (Phosphor Bronze)
Finish: Pls see customer drawing.
4.2.2 Housing: Thermoplastic, high temp. UL94V-0
4.2.3 Ear: Copper Alloy,

4.3 Ratings

4.3.1 Working voltage less than 36 volts AC（per pin）
4.3.2 Voltage: 50 Volts AC DC (Per Pin)
4.3.3 Current: 0.5 Amperes AC DC(Per Pin)
4.3.4 Operating Temperature : -40℃ to +85℃

5 Performance

5.1. Test Requirements and Procedures Summary

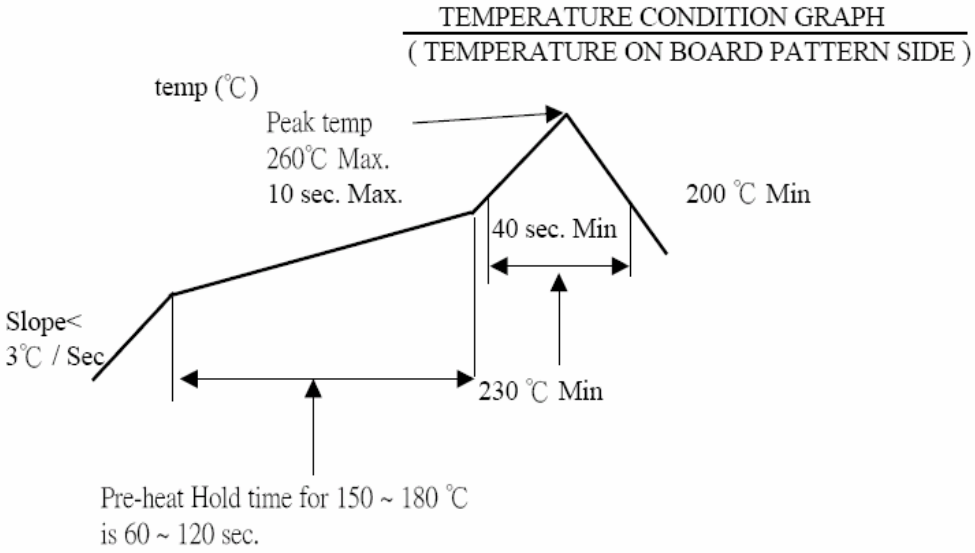
Item	Requirement	Standard
Examination of Product	Product shall meet requirements of applicable product drawing and specification.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Item	**Requirement**	**Standard**
Low Level Contact Resistance	20 m Ω Max.(initial)per contact 40 m Ω Max. after test.	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	500 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.	500 VAC Min. at sea level for 1 minute 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 until temperature stable. The ambient condition is still air at 25℃ (EIA-364-70,METHOD1,CONDITION1)
MECHANICAL		
Durability	20 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	Refer to FPC withdrawal force Refer to ITEM 7	Insert the actuator, pull the FPC at the speed rate of 25.4 ± 3 mm/min.
Terminal / Housing Retention Force	0.45kgf MIN.	Operation Speed： 25.4 ± 3 mm/minute. Measure the contact retention force with Tensile strength tester.
Fitting Nail /Housing Retention Force	0.35kgf MIN.	Operation Speed： 25.4 ± 3 mm/minute. Measure the nail retention force with Tensile strength 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 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)
ENVIRONMENTAL		
Resistance to **Wave** Soldering Heat	See Product Qualification and Test Sequence Group 10 **(Lead Free)**	Solder Temp.： 265±5℃, 10±0.5sec.
Resistance to **Reflow** Soldering Heat	See Product Qualification and Test Sequence Group 10 **(Lead Free)**	Pre Heat：150℃~180℃, 60~120sec. Heat：230℃ Min., 40sec Min. Peak Temp.：260℃Max, 10sec Max.
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 ℃, 30 minutes +85 +3/-0 ℃, 30 minutes (EIA-364-32, test condition I)
Humidity	See Product Qualification and Test Sequence Group 4	Mated Connector 40℃, 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℃ 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℃ (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℃, for 4-5 sec. (EIA-364-52)
Hand Soldering Temperature Resistance	Appearance: No damage	T≧350℃, 3sec at least.

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

6 INFRARED REFLOW CONDITION

6.1. Lead-free Process :



7 FPC WITHDRAWAL FORCE

NO. OF Ckt.	Withdrawal Force (Min)	NO. OF Ckt.	Withdrawal Force (Min)
4	0.2Kgf	29	0.75Kgf
5		30	
6		31	1.5Kgf
7	0.3Kgf	32	
8		33	
9		34	
10	0.5Kgf	35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20	0.75Kgf	45	
21		46	
22		47	
23		48	
24		49	
25		50	
26		51	
27		52	
28		53	

8 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								1			
Terminal / Housing Retention 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