SPECIFICATION

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SPEC. NO.: PS-91525-XXXXX-XXX **REVISION:** D

PRODUCT NAME: 0.5mm PITCH NON-ZIF FPC CONN. SMT S/T TYPE

PRODUCT NO: 91525;91526; 51602;52525 SERIES

PREPARED:	CHECKED:	APPROVED:
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DATE: 2021/05/06	DATE: 2021/05/06	DATE: 2021/05/06

1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN-1003175	NEW SPEC RELEASED	ANDREW	2010/3/25
A	ECN-1012058	MODIFIED WITHDRAWAL FORCE	LIZHAO	2010/12/06
B	ECN-1401203	ADD Working voltage	WULING	2014/01/09
C	ECN-1404066	ADD 51602 SERIES	GUKEQING	2014/04/04
D	ECN-X	ADD 52525 SERIES	Leishanjun	2021/05/06

2 SCOPE

This specification covers performance, tests and quality requirements for 0.5mm Pitch NON-ZIF FPC Connector.

Aces's P/N ： 91525-XXXXX –XXXX (SMT S/T Type);
91526-XXXXX –XXXX (SMT S/T Type);
51602-XXXXX –XXXX (SMT S/T Type);
52525-XXXXX –XXXX (SMT S/T 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.
Finish: Refer to the drawing
4.2.2 Housing: Thermoplastic High Temp., UL94V-0

4.3 Ratings

4.3.1 Working voltage less than 36 volts AC (per pin)
4.3.2 Voltage: 50 Volts AC (per pin)
4.3.3 Current: 0.5 Amperes (per pin)
4.3.4 Operating Temperature : -40℃ to +85℃
Note: 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		
Item	**Requirement**	**Standard**
Low-signal Level Contact Resistance	30 m Ω Max.(initial)per contact 10 m Ω Max. Change allowed	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	50 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.	250 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 METHOD 1,CONDITION 1)
MECHANICAL		
Item	**Requirement**	**Standard**
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)
Contact Retention Force	0.3 kgf Min.	Operation Speed： 25.4 ± 3 mm/minute. Measure the contact retention force with Tensile strength tester.
FPC Retention Force	Refer to FPC withdrawal force	Insert the actuator, pull the FPC at the speed rate of 25.4 ± 3 mm/min. See 8. FPC Retention Force.

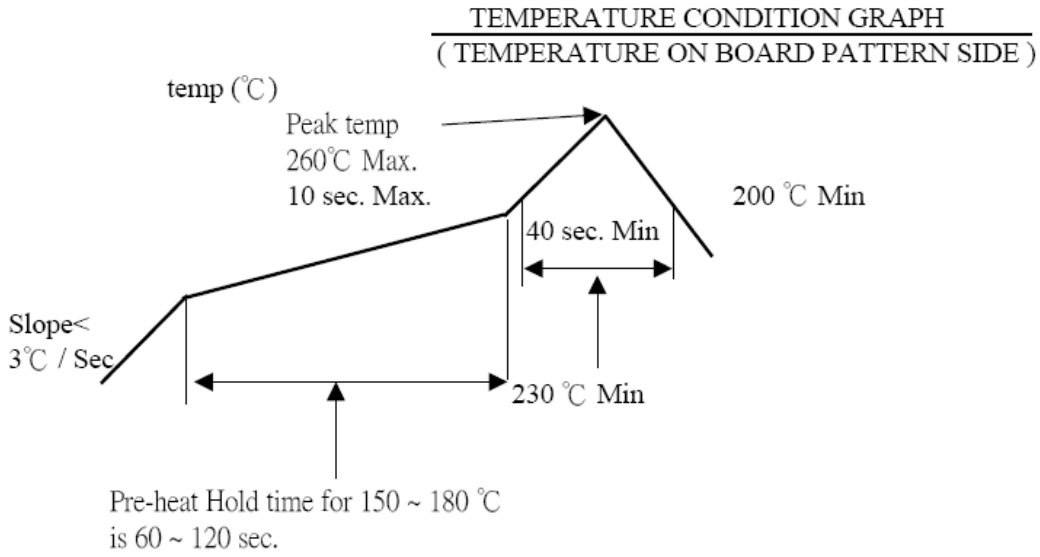
Vibration	1 μs Max.	The electrical load condition shall be 100 mA maximum for all contacts. Subject to a simple harmonic motion having amplitude of 0.76mm (1.52mm maximum total excursion) in frequency between the limits of 10 and 55 Hz. The entire frequency range, from 10 to 55 Hz and return to 10 Hz, 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		
Item	**Requirement**	**Standard**
Resistance to **Reflow** Soldering Heat	See Product Qualification and Test Sequence Group 9 **(Lead Free)**	Pre Heat：150℃~180℃, 60~120sec. Heat：230℃ Min., 40sec Min. Peak Temp.： 260℃Max, 10sec Max. See 6.1 Lead free process
Thermal Shock	See Product Qualification and Test Sequence Group 3	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,Test condition B)
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



(Reflow 2 cycles)

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										
Mating / Unmating Forces		2、4									
Durability		3									
Contact Retention Force									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

8 FPC Retention Force

NO. OF Ckt.	Insertion Force (Kgf, Max)			Withdrawal Force (Kgf, Min)		
	1st	6th	20th	1st	6th	20th
4~9	1.30	1.20	1.10	0.30	0.22	0.12
10~14	1.35	1.17	1.00	0.50	0.30	0.22
15~24	2.50	2.00	1.70	0.80	0.50	0.34
25~36	3.45	3.00	2.55	1.00	0.80	0.57
37~42	4.80	4.17	3.55	1.20	1.00	0.85