



SPECIFICATION

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SPEC. NO.: PS-50554-XXXXX-XXX

REVISION: D

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

PRODUCT NO: 50554-XXXXX-XXX

PREPARED: Xu,JinJun DATE: 2022.03.14	CHECKED: Xu,ZhiYong DATE: 2022.03.14	APPROVED: BRAVE DATE: 2022.03.14
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Aces P/N: **50554 series**

TITLE: **0.5mm ZIF FPC CONN. SMT S/T TYPE**

RELEASE DATE: 2022.03.14

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ECN No: ECN-007056

PAGE: 2 OF 9

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	INSTRUCTION UPON USAGE.....	10



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ECN No: ECN-007056

PAGE: 3 OF 9

1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN-0811117	NEW SPEC	JASON	2008.11.17
A	ECN-1202125	ADD 51557 SERIES	SHM	2012.02.21
B	ECN-1401261	ADD WORKING VOLTAGE	XUFEI	2014.01.15
C	ECN-1512036	Updated FPC Retention Force	XUBIN	2015.12.03
D	ECN-007056	ADD INSTRUCTION UPON USAGE Remove 51557 SERIES	Xu,JinJun	2022.03.14

TITLE: **0.5mm ZIF FPC CONN. SMT S/T TYPE**

RELEASE DATE: 2022.03.14

REVISION: D

ECN No: ECN-007056

PAGE: 4 OF 9

2 SCOPE

This specification covers performance, tests and quality requirements for **0.5mm ZIF FPC CONN. SMT S/T TYPE**

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 (per pin)
- 4.3.3 Current: 0.5 Amperes (per pin)
- 4.3.4 Operating Temperature : -40°C to +85°C
- 4.3.5 Operating Humidity: 95% Max

TITLE: 0.5mm ZIF FPC CONN. SMT S/T TYPE

RELEASE DATE: 2022.03.14

REVISION: D

ECN No: ECN-007056

PAGE: 5 OF 9

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 20 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°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)

TITLE: 0.5mm ZIF FPC CONN. SMT S/T TYPE

RELEASE DATE: 2022.03.14

REVISION: D

ECN No: ECN-007056

PAGE: 6 OF 9

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 ± 3 mm/min. (EIA-364-09)
FPC Retention Force	0.035kgf /PIN MIN.	A connector shall be soldered on a board and insert the actuator, pull the FPC at the speed rate of 25.4 ± 3 mm/min.
Terminal /Housing Retention Force	0.3kgf MIN.	Operation Speed : 25.4 ± 3 mm/minute. Measure the contact retention force with tester.
Fitting Nail /Housing Retention Force	0.3kgf MIN.	Operation Speed : 25.4 ± 3 mm/minute. Measure the contact retention force with tester.
Vibration	1 μ s 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 μ s 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)

TITLE: 0.5mm ZIF FPC CONN. SMT S/T TYPE

RELEASE DATE: 2022.03.14

REVISION: D

ECN No: ECN-007056

PAGE: 7 OF 9

ENVIRONMENTAL

Item	Requirement	Standard
Resistance to Wave Soldering Heat	Appearance: No damage	Solder Temp. : 265±5℃, 10±0.5sec.
Resistance to Reflow Soldering Heat	Appearance: No damage	Pre Heat : 150℃~180℃, 60~120sec. Heat : 230℃ Min., 40sec Min. Peak Temp. : 260℃ Max, 10sec Max.
Thermal Shock	Appearance: No damage Contact Resistance: 20 m Ω Max. Insulation Resistance: 50 M Ω Min Dielectric Withstanding Voltage: No breakdown.	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	Appearance: No damage Contact Resistance: 20 m Ω Max. Insulation Resistance: 50 M Ω Min Dielectric Withstanding Voltage: No breakdown.	Mated Connector 40℃, 90~95% RH, 96 hours. (EIA-364-31, Condition A, Method II)
Temperature Life	Appearance: No damage Contact Resistance: 20 m Ω Max. Insulation Resistance: 50 M Ω Min Dielectric Withstanding Voltage: No breakdown.	Subject mated connectors to temperature life at 85℃ for 96 hours. (EIA-364-17, Test condition A)
Salt Spray (Only For Gold Plating)	Appearance: No damage Contact Resistance: 20 m Ω Max.	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 Appearance: No damage	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 shall be conduct by customer request.

TITLE: **0.5mm ZIF FPC CONN. SMT S/T TYPE**

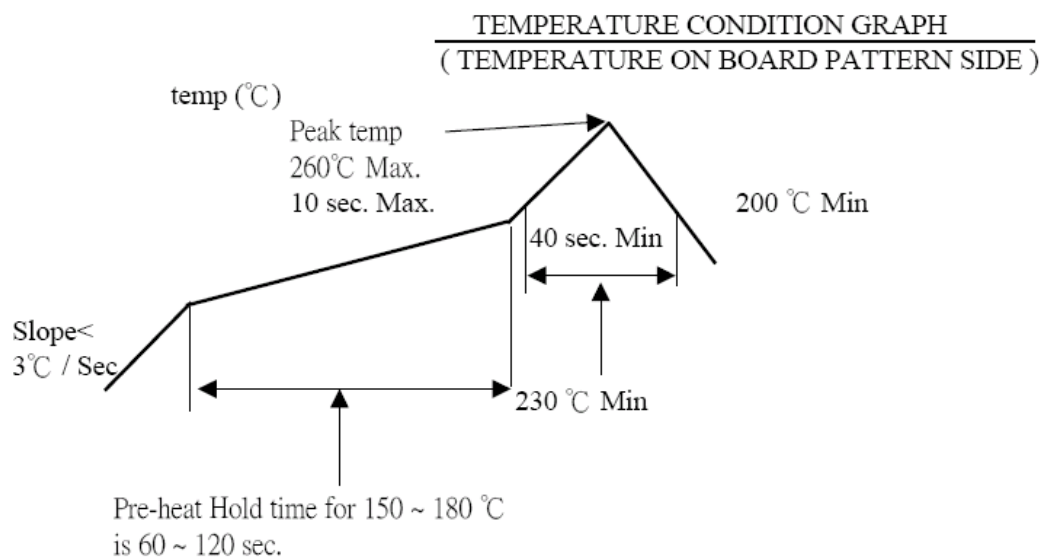
RELEASE DATE: 2022.03.14

REVISION: D

ECN No: ECN-007056

PAGE: 8 OF 9

6 INFRARED REFLOW CONDITION



TITLE: 0.5mm ZIF FPC CONN. SMT S/T TYPE

RELEASE DATE: 2022.03.14

REVISION: D

ECN No: ECN-007056

PAGE: 9 OF 9

7 PRODUCT QUALIFICATION AND TEST SEQUENCE

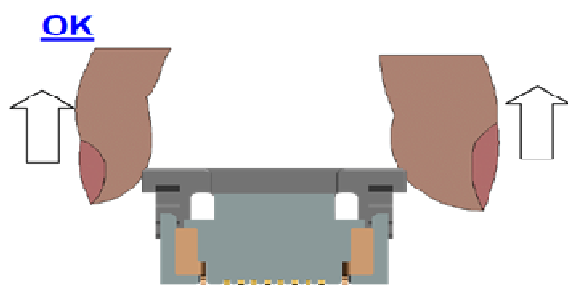
Test or Examination	Test Group										
	1	2	3	4	5	6	7	8	9	10	11
	Test Sequence										
Examination of Product				1、7	1、6	1、4				1	1
Low Level Contact Resistance		1、5	1、4	2、10	2、9	2、5				3	
Insulation Resistance				3、9	3、8						
Dielectric Withstanding Voltage				4、8	4、7						
Temperature Rise	1										
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		
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 INSTRUCTION UPON USAGE

Operation

OPERATING THE ACTUATOR

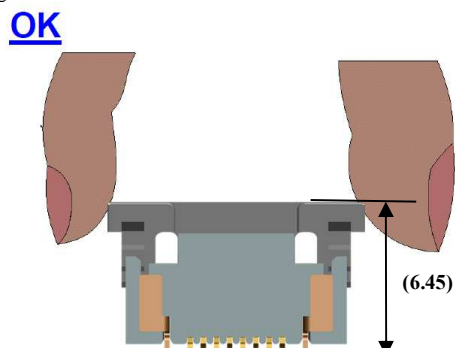
- 1) When opening the actuator, please withdraw the actuator by applying a force to the both sides of actuator.



Withdrawing on both sides of actuator

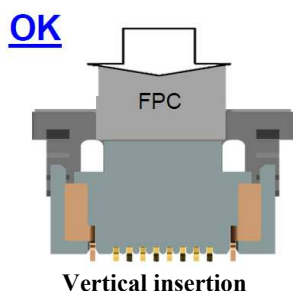
MATING THE FPC

- 2) Please withdraw the actuator to proper position before inserting the FPC.



Position with proper opened actuator

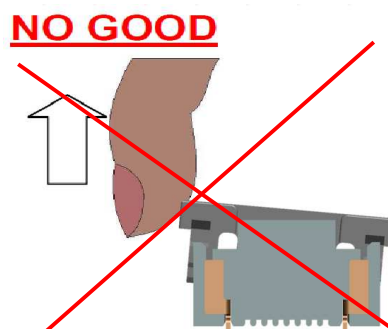
- 3) Please insert the FPC vertically into the connector until the FPC hits the end of housing.



Vertical insertion

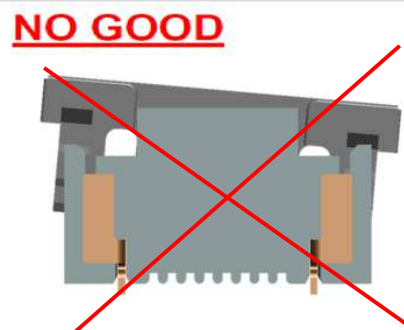
Precautions

- 1) Please do not apply a force to only one side of actuator because it may cause to damage the connector.



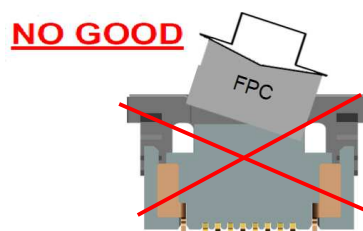
Withdrawing only one side of actuator

- 2) FPC cannot be inserted if actuator is incompletely opened.



Position with incomplete opened actuator

- 3) If you insert the FPC diagonally, there may be a chance of a short circuit because of miss matching between FPC pads and terminal contacts. Also, the corner of the FPC could possibly deform the terminals of connector.



Diagonal insertion

TITLE: 0.5mm ZIF FPC CONN. SMT S/T TYPE

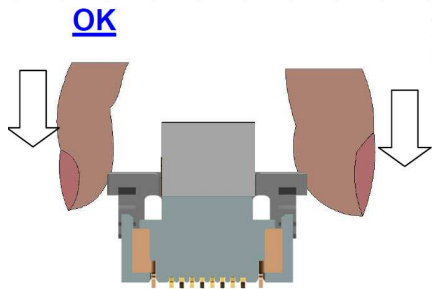
RELEASE DATE: 2022.03.14

REVISION: D

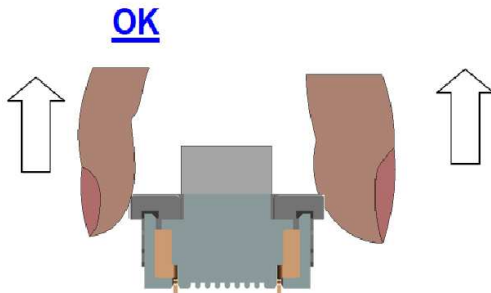
ECN No: ECN-007056

PAGE: 11 OF 9

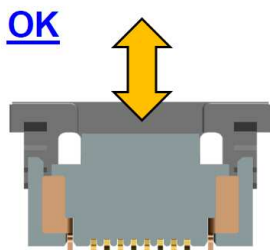
4) When locking the actuator, please push the actuator by applying a force to the both sides of actuator.


Pushing on both sides of actuator
UNLOCK THE ACTUATOR(WHEN THE FPC IS INSTALLED)

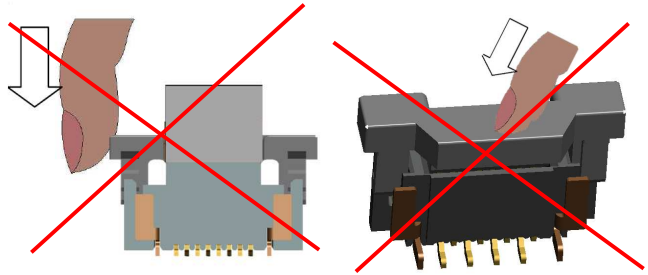
5)When opening the actuator, please withdraw the actuator by applying a force to the both sides of actuator.


Withdrawing on both sides of actuator
Notes:

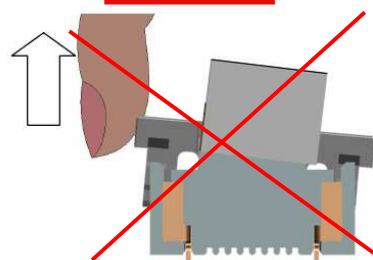
6) The movement of actuator is the structure to go up and down.


The movable direction of actuator

4) Please do not apply a force to only one side of actuator because it may cause to damage the connector.

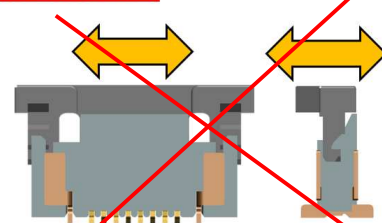
NO GOOD

Pushing only one side of actuator

5)Please do not apply a force to only one side of actuator because it may cause to damage the connector.

NO GOOD

Withdrawing only one side of actuator

6) Please do not apply a force except the upward and downward direction to the actuator because it may cause to damage the connector.

Please do not pull the actuator to excess because it may cause to come undone the actuator

NO GOOD

The immovable direction of actuator