

SPEC. NO.: PS-52504-XXXXX

REVISION: 0

PRODUCT NAME: 0.5 mm PITCH EASY ON FPC CONN

PRODUCT NO: 52504 SERIES

PREPARED: DATE: 2017/11/30	CHECKED: DATE: 2017/11/30	APPROVED: DATE: 2017/11/30
---	--	---

TITLE: **0.5 mm PITCH EASY ON FPC CONN**

RELEASE DATE: **2017.11.30**

REVISION: **0**

ECN No: **ECN-1711494**

PAGE: **2** OF **10**

1	REVISION HISTORY	3
2	SCOPE	4
3	APPLICABLE DOCUMENTS.....	4
4	REQUIREMENTS	4
5	PERFORMANCE	5
6	INFRARED REFLOW CONDITION	8
7	FPC RETENTION FORCE	8
8	PRODUCT QUALIFICATION AND TEST SEQUENCE.....	9
9	FPC CONNECTOR USAGE.....	10

Aces P/N: **52504series**

TITLE: **0.5 mm PITCH EASY ON FPC CONN**

RELEASE DATE: **2017.11.30**

REVISION: **0**

ECN No: **ECN-1711494**

PAGE: **3** OF **10**

1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
0	ECN-1711494	NEW PROJECT SPEC FOR APD1060366	ZHUWEI	2017.11.30

TITLE: **0.5 mm PITCH EASY ON FPC CONN**

RELEASE DATE: 2017.11.30

REVISION: 0

ECN No: ECN-1711494

PAGE: 4 OF 10

2 SCOPE

This specification covers performance, tests and quality requirements for **0.5 mm PITCH EASY ON FPC CONN**

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 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°C to +85°C**

TITLE: **0.5 mm PITCH EASY ON FPC CONN**

RELEASE DATE: 2017.11.30

REVISION: 0

ECN No: ECN-1711494

PAGE: 5 OF 10

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	55 m Ω Max. (initial) per contact, 20 m Ω Max. Change allowed	Mate connectors, measure by dry circuit, 20mV Max., 1mA Max. (EIA-364-23)
Insulation Resistance	500 M Ω Min.	Unmated connectors, apply 100 V DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	No discharge, flashover or breakdown. Current leakage: 1 mA max.	150 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: **0.5 mm PITCH EASY ON FPC CONN**

RELEASE DATE: 2017.11.30

REVISION: 0

ECN No: ECN-1711494

PAGE: 6 OF 10

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 ± 3 mm/min. (EIA-364-09)
FPC Retention Force	SEE PAGE 8	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	0.10kgf MIN.	Operation Speed : 25.4 ± 3 mm/minute. Measure the contact retention force with tester.
Fitting Nail /Housing Retention Force	0.10kgf 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: **0.5 mm PITCH EASY ON FPC CONN**

RELEASE DATE: 2017.11.30

REVISION: 0

ECN No: ECN-1711494

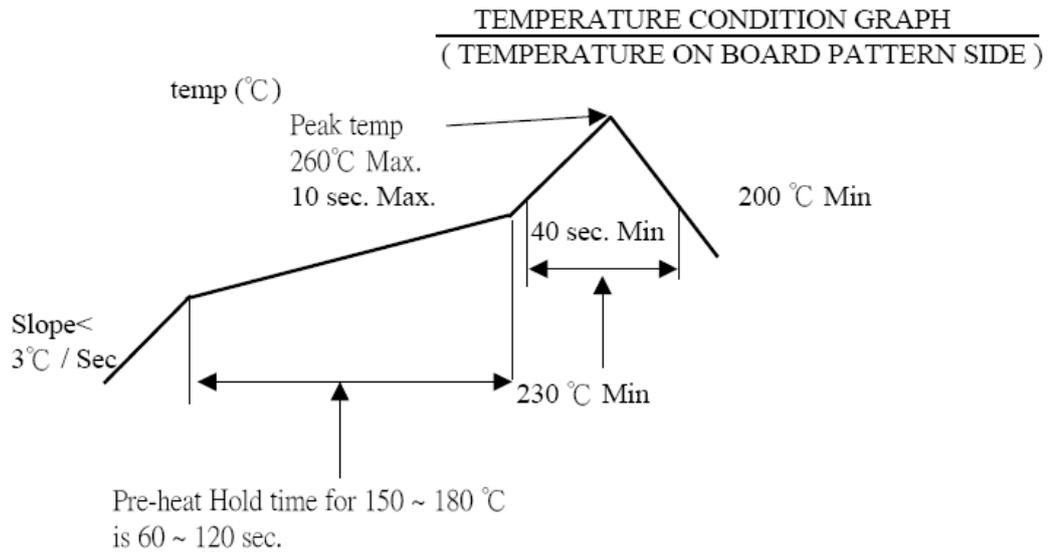
PAGE: 7 OF 10

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, 60~120sec. Heat : 230°C Min., 40sec Min. Peak Temp. : 260°C 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 °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 . (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°C (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°C , for 4-5 sec. (EIA-364-52)
Hand Soldering Temperature Resistance	Appearance: No damage	T ≥ 350°C, 3sec at least.

Note. Flowing Mixed Gas shall be conducted by customer request.

6 INFRARED REFLOW CONDITION



7 FPC RETENTION FORCE

NO. OF Ckt.	1 th (Min)/ Kgf	20 th (Min)/ Kgf
4~5	0.20	0.15
6~10	0.30	0.25
11~15	0.40	0.35
16~20	0.50	0.45
21~25	0.60	0.55
26~30	0.70	0.65
31~35	0.80	0.75
36~40	0.90	0.85

TITLE: **0.5 mm PITCH EASY ON FPC CONN**

RELEASE DATE: 2017.11.30

REVISION: 0

ECN No: ECN-1711494

PAGE: 9 OF 10

8 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	
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

9 FPC CONNECTOR USAGE

This connector is small and thin and requires delicate and careful handling.

Be very careful not to apply any force to the FPC after inserting it. Otherwise, the connector may become unlocked or the FPC may break. Fix the FPC, in particular, when loads are applied to it continuously. Design the FPC layout with care not to bend it sharply near the insertion opening.

