	Conne	ectors					
	SPECIFICA	ΓΙΟΝ					
宏到	<b>太電子股份</b>	有限公司					
	桃園縣中壢市東園	路13號					
	No.13, Dongyuan Rd., Jł	ongli City,					
	Taoyuan County 320, Taiv	van (R.O.C.)					
	TEL: +886-3-463- FAX: +886-3-463-	2808 1800					
SPEC. NO.: PS-505	500-XXXX	<b>REVISION:</b>	E				
PRODUCT NAME:	0.5 mm/1.0 mm PITCH	EASY ON FPC CON	1				
PRODUCT NO: 51	50500-XXXXX , 50677-2 531-XXXXX-XXX , 51536	<pre></pre>					
PREPARED:	CHECKED:	APPROVED	:				
Anderson DATE: 2022/12/08	Lu, Jing Qu DATE: 2022/12/03	Jan Lei,s DATE: 3 202	Lei,shanjun DATE: 2022/12/08				

	ES		Aces P/N: 5	0500/50677/ 5153 <sup>-</sup>	1/51536/51590series
TITLE:	0.5 mm/1.0 mm I	PITCH EASY	ON FPC C	ONN	
RELEASE D	ATE: 2022.12.08	REVISION: E		ECN No: ECN-010707	PAGE: 2 OF 10
1 2 3 4 5 6 7 8	REVISION HISTO SCOPE APPLICABLE DO REQUIREMENTS PERFORMANCE. INFRARED REFL PRODUCT QUAL FPC CONNECTO	ORY CUMENTS OW CONDIT IFICATION A R USAGE	TON AND TEST S	EQUENCE	

## Aces P/N: 50500/50677/ 51531/51536/51590series

#### TITLE: 0.5 mm/1.0 mm PITCH EASY ON FPC CONN

REVISION: E

RELEASE DATE: 2022.12.08

ECN No: ECN-010707

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## **1** Revision History

Rev.	ECN #	Revision Description	Prepared	Date
0	ECN-0901092	NEW PROJECT SPEC FOR APD97029	JASON	2009.02.05
Α	ECN-0905056	ADD NEW PROJECTS - 50677 SERIES	JASON	2009.05.19
В	ECN-1104164	ADD NEW PROJECTS - 51531 SERIES	H.M.SHU	2011.04.21
С	ECN-1105142	ADD NEW PROJECTS - 51536 SERIES	HUANTY	2011.05.10
D	ECN-1106415	UPDATE FPC RETENTION FORCE	SHM	2011.06.27
E	ECN-010707	ADD 51590 SEIRES	Lei,shanjun	2022.12.08

	Aces P/N: 50500/50677/ 51531/51536/51590series
Т	ITLE: 0.5 mm/1.0 mm PITCH EASY ON FPC CONN
REL	EASE DATE:         2022.12.08         REVISION: E         ECN No:         ECN-010707         PAGE:         4 OF         10
2	SCOPE
	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
	<ul> <li>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.</li> </ul>
	<ul> <li>4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0</li> <li>4.2.3 Actuator: Thermoplastic or Thermoplastic High Temp., UL94V-0</li> <li>4.2.4 Fitting Nail: Copper Alloy, Finish: Refer to the drawing.</li> </ul>

4.3 Ratings

- 4.3.1 Voltage: 50 Volts AC (per pin)4.3.2 Current: DC 0.5 Amperes (per pin)
- 4.3.3 Operating Temperature : -40°C to +85°C

**ICES** Aces P/N: 50500/50677/ 51531/51536/51590series TITLE: 0.5 mm/1.0 mm PITCH EASY ON FPC CONN RELEASE DATE: 2022.12.08 REVISION: E ECN No: ECN-010707 PAGE: 5 OF 10 5 Performance

## 5.1. Test Requirements and Procedures Summary

ltem	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	100 m Ω Max. per contact	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)						

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	MECHANICA	L.
ltem	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 $25.4 \pm 3$ mm/min. (EIA-364-09)
FPC Retention Force	04~30PIN 30gf/PIN 31~50PIN 20gf/PIN	A connector shall be soldered on a board and insert the actuator, pull the FPC at the speed rate of $25.4 \pm 3$ mm/min.
Terminal /Housing Retention Force	0.10kgf MIN.	Operation Speed : $25.4 \pm 3$ 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 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)

## Aces P/N: 50500/50677/ 51531/51536/51590series

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	ENVIRONMENTA	L				
ltem	Requirement	Standard				
Resistance to Wave	See Product Qualification and Test	Solder Temp. :				
Soldering Heat	Sequence Group 10 (Lead Free)	265±5℃. 10±0.5sec.				
		Pre Heat ∺ 150°C~180°C,				
Resistance to <b>Reflow</b> Soldering Heat	See Product Qualification and Test Sequence Group 10 (Lead Free)	60∼120sec. Heat:230℃ Min., 40sec Min.				
		Peak Temp. ÷ 260°CMax, 10sec Max.				
	See Product Qualification and Test	Mate module and subject to follow condition for 5 cycles.				
Thermal Shock	Sequence Group 4	$-55 \pm 0/-3$ °C 30 minutes				
		+85 +3/-0 °C, 30 minutes (EIA-364-32, test condition I)				
		Mated Connector				
Humidity	See Product Qualification and Test Sequence Group <mark>4</mark>	40°C, 90~95% RH, 96 hours. (EIA-364-31,Condition A. Method II)				
		Subject mated connectors to				
	See Product Qualification and Test	temperature life at 85°C for 96				
Temperature Life	Sequence Group 5	hours (EIA-364-17, Test condition A)				
		Subject mated/unmated connectors to 5% salt-solution				
Salt Spray (Only For Gold Plating)	See Product Qualification and Test Sequence Group 6	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°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 shell be conduct by customer request.



<b>ICES</b>	Ac	es P/N	1: <b>50</b> !	500/{	5067	'7/ 5'	1531	/515	536/5	51590	)seri
ITLE: 0.5 mm/1.0 mm PITCH EAS	iY O	N FP(	o co	NN							
EASE DATE: 2022.12.08 REVISION: E				ECN No	o: ECN-	010707			PA	.ge: <b>9</b> o	<b>⊮ 10</b>
PRODUCT QUALIFICATION /	٩ND	TES	T SE		INCE	Ξ					
	Test Group								I		
Test or Examination	1	2	3	4	5	6	7	8	9	10	I
		<u> </u>		Т	est Se	quenc	ce	<u> </u>	<u> </u>	<u> </u>	I
Examination of Product				1、7	1、6	1、4			1	1	I
Low Level Contact Resistance		1、5	1、4	2、10	2 • 9	2 \ 5			3		I
Insulation Resistance				3 \ 9	3、8						I
Dielectric Withstanding Voltage				4 • 8	4 • 7						I
Temperature Rise	1										I
Durability		3									I
Vibration	l		2								I
Shock (Mechanical)			3								I
Thermal Shock				5							I
Humidity				6							I
Temperature Life					5						I
Salt Spray(Only For Gold Plating)						3					I
Solder ability							1				I
FPC Retention Force		2、4									I
Terminal / Housing Retention Force								1			I
Fitting Nail /Housing Retention Force								2			I
Resistance to Soldering Heat	- 		 		[ 	[			2		I
Hand Soldering Temperature Resistance										2	I
Sample Size	2	4	4	4	4	4	2	4	4	4	



# 8 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.

