SPECIFICATION

ACES Electronics Co.,Ltd.

No.13, Dongyuan Rd., Jhongli City,

Taoyuan County 320, Taiwan (R.O.C.)

TEL: +886-3-463-2808
FAX: +886-3-463-1800

SPEC. NO.: PS-51328-XXXXX-XXX **REVISION:** A

PRODUCT NAME: SLIMMATE SERIES 0.4mm WTB CONN. SMT S/T TYPE

PRODUCT NO: 51328-XXXXX-XXX
51329-XXXXX-XXX

PREPARED:	CHECKED:	APPROVED:
TSO I CHIAO	**Chen, Chun Yuan**	**Wang, chun sheng**
DATE: **2018/01/26**	DATE: **2018/01/26**	DATE: **2018/01/26**

1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
1	1605101	FOR APD1030045/46 NEW REV	CARL	2016/05/05
2	1608297	調整 SPEC 內容	CARL	2016/08/25
3	1611075	調整 SPEC 內容(插拔建議)	CARL	2016/10/31
O	1706292	產品 RELEASE 轉 O 版	CARL	2017/06/21
A	1801440	變更 SPEC 封面	TSO I CHIAO	2018/01/26

2 SCOPE

This specification covers performance, tests and quality requirements for 0.4 mm pitch wire to board connectors SMT D/R 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 Fitting Nail: Copper Alloy, Finish: Refer to the drawing.

4.3 Ratings

4.3.1 Working Voltage Less than 36 Volts
4.3.2 Voltage: 30 Volts AC/DC
4.3.3 Current: Teflon Cable AWG#36，0.5 Amperes (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	60 m Ω Max.(initial)per contact 80 m Ω Max.(finish)	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	100 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.	200 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		
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 ± 3mm/min. (EIA-364-09)
Mating/Unmating Forces	Mating 0.98N (Max.) /Per Pin Unmating 0.165N(Min.)/Per Pin	Operation Speed： 25.4 ± 3 mm/minute.. Measure the force required to mate/unmate connector. (EIA-364-13)
Terminal / Housing Retention Force (Rcpt. CONN.)	0.2N MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the terminal assembled in the housing.

MECHANICAL		
Item	**Requirement**	**Standard**
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)

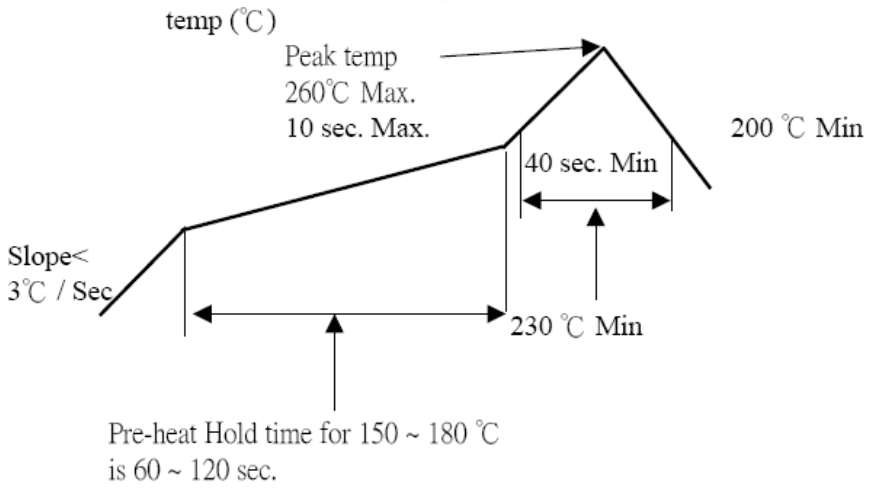
ENVIRONMENTAL		
Item	**Requirement**	**Standard**
Resistance to **Reflow** Soldering Heat	See Product Qualification and Test **(Lead Free)**	Pre Heat：150℃~180℃, 60~120sec. Heat：230℃ Min., 40sec Min. Peak Temp.：260℃Max, 10sec Max.
Thermal Shock	See Product Qualification and Test Sequence Group 4	Mated Connector to follow condition for 5 cycles. 1 cycles: -40 +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, 120 hours. (EIA-364-31,Condition A, Method II)

Temperature life	See Product Qualification and Test Sequence Group 5	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	Mated 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.

6 INFRARED REFLOW CONDITION

6.1. RECOMMENDED REFLOW TEMPERATURE CONDITION

TEMPERATURE CONDITION GRAPH
(TEMPERATURE ON BOARD PATTERN SIDE)



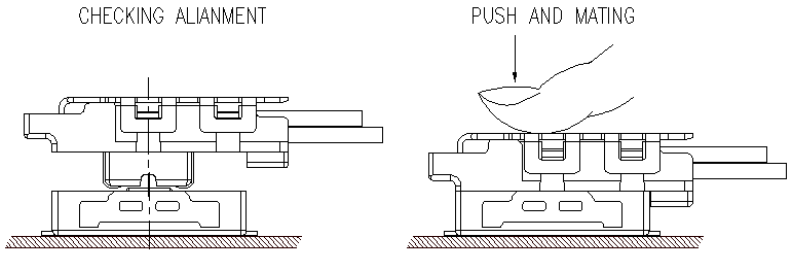
7 PRODUCT QUALIFICATION AND TEST SEQUENCE

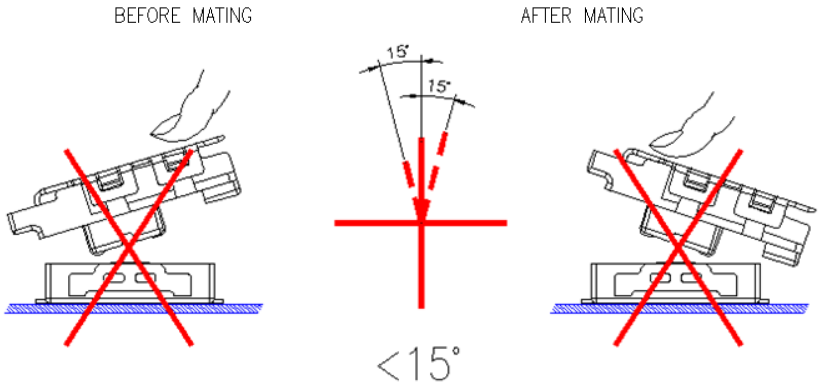
Test or Examination	Test Group										
	1	2	3	4	5	6	7	8	9	10	11
	Test Sequence										
Examination of Product	1,3	1	1	1、7	1、6	1、4	1,3		1,3	1,3	1,4
Low Level Contact Resistance		2、6	2、5	2、8	2、7	2、5				4	2,5
Insulation Resistance				3、9	3、8						
Dielectric Withstanding Voltage				4、10	4、9						
Temperature rise	2										
Mating / Unmating Forces		3、5									
Durability		4									
Vibration			3								
Shock (Mechanical)			4								
Thermal Shock				5							
Humidity				6							
Temperature life					5						
Salt Spray(Only For Gold Plating)						3					
Solder ability							2				
Terminal / Housing Retention Force (Rcpt. CONN.)								1			
Hand Soldering Temperature Resistance									2		
Resistance to Soldering Heat										2	
H2S resistance											3
Sample Size	2	4	4	4	4	4	2	4	4	4	4

8 NOTES ON USING CONNECTOR

8.1 MATING CONNECTOR PROCEDURES

Align the plug connector and receptacle connector positions before connecting.
Strongly pressed and twisted is forbidden, it may cause product damage.

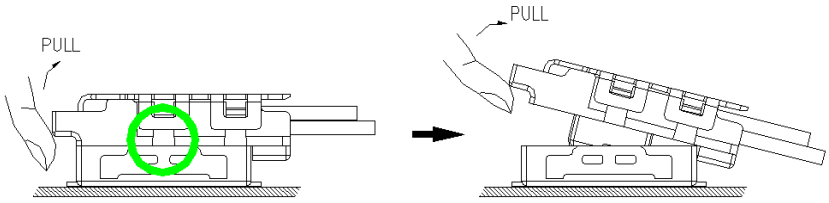




8.2 UNMATING CONNECTOR PROCEDURES

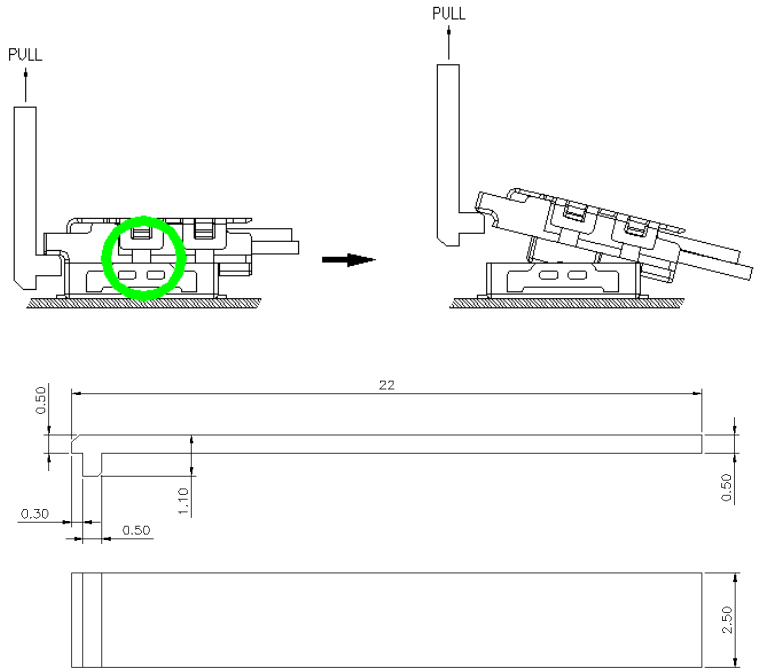
8.2.1 UNMATING BY HAND

Pull up plug connector from the tip side to unmate the connector



8.2.2 USE THE TOOL

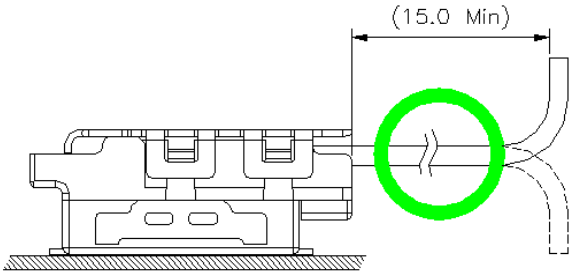
Please use tool to release plug connector as shown below while it is in an extremely limited space application



Recommended release tool dimensions

8.3 PRECAUTION TO HANDLING

8.3.1 Maintained at least 15mm straight length before cable is bended.



8.3.2 Do not pull the cable for unmating connector; it will easily cause the PCB deformation especially when PCB thickness is less than 0.8mm.