SPECIFICATION

宏致電子股份有限公司

桃園縣中壢市東園路13號

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-51291-XXXXX-XXX **REVISION:** B

PRODUCT NAME: 1.0 mm PITCH WTB CONNECTOR

PRODUCT NO: 51291.51292 Series

PREPARED:	CHECKED:	APPROVED:
ZHANGHAO	XUZHIYONG	XUZHIYONG
DATE: 2020/04/02	DATE: 2020/04/02	DATE: 2020/04/02

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. INSERTION/WITHDRAWAL FORCE(UNIT:N).....10

1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN-1510051	NEW SPEC	JUGG	2015/09/15
A	ECN-1912009	ADD 6、12PIN	SHISONGTAO	2019/12/02
B	ECN-2005122	ADD Mating / Unmating Forces	ZHANG HAO	2020/04/02

2 SCOPE

This specification covers performance, tests and quality requirements for 1.0mm pitch SMT WTB connector. ACES P/N:51291 series;51292 Series.

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 (Phosphor Bronze)
Finish: (a) Contact Area: Gold plated based on order information
(b) Under plate: Nickel-plated all over
4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0

4.3 Ratings and Applicable Wire

4.3.1 Working voltage less than 36 volts (Per pin)
4.3.2 Voltage: 50 Volts AC (per pin)
4.3.3 Current(Max) and Applicable wires: 28AWG: 1 Amperes (per pin)
30AWG: 1 Amperes (per pin)
32AWG: 1 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-signal Level Contact Resistance	20 m Ω Max. Change allowed	Mate connectors, measure by dry circuit, 20mV Max., 10mA Max. (EIA-364-23)
Insulation Resistance	100 M Ω Min.	Unmated connectors, apply 500 V DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	250 VAC Min. at sea level for 1 minute. No discharge, flashover or breakdown. Current leakage: 1 mA max.	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 after:1 A/Power contact. The temperature rise above ambient shall not exceed 30℃ The ambient condition is still air at 25 ℃ (EIA-364-70 METHOD 2)
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	SEE ITEM 8.	mating/Unmating sequence: Operation Speed： 25.4 ± 3 mm/minute.. Measure the force required to mate/Unmate connector. (EIA-364-13)
Terminal / Housing Retention Force(Cable Side)	5N MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the Crimping terminal assembled in the housing.

Terminal / Housing Retention Force(Wafer)	3.5N MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the terminal assembled in the housing.
Fitting Nail /Housing Retention Force	5N MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the fitting nail assembled in the housing.
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

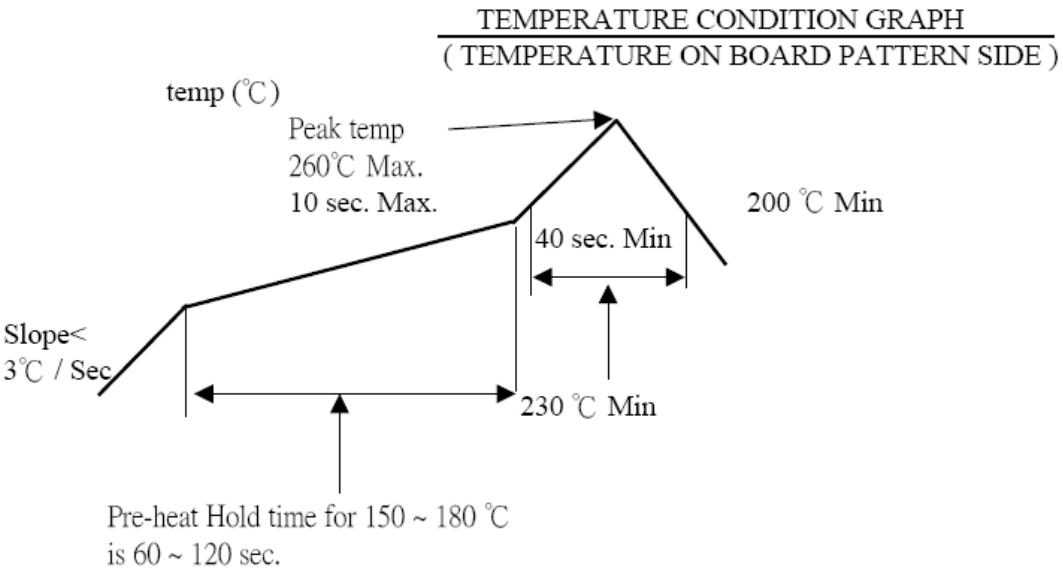
Item	Requirement	Standard
Resistance to **Reflow** Soldering Heat (Board Side)	See Product Qualification and Test Sequence Group 9 **(Lead Free)**	Pre Heat：150℃~180℃, 60~120sec. Heat：230℃ Min., 40sec Min. Peak Temp.：260℃Max, 10sec Max.
Thermal Shock	See Product Qualification and Test Sequence Group 4	Mate module and subject to follow condition for 5 cycles. 1 cycles: -40 +0/-5 ℃, 30 minutes +85 +5/-0 ℃, 30 minutes (EIA-364-32, test condition A)

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. Measure Signal. (EIA-364-17, Test condition A)
Salt Spray	See Product Qualification and Test Sequence Group 6	Subject mated/unmated connectors to 5% salt-solution concentration, 35℃ for 48 hours. (EIA-364-26,Test condition B)
Solder ability	Solder able area shall have minimum of 95% solder coverage.	Subject the test area of contacts into the flux for 5-10 sec. And then into solder bath, Temperature at 245 ±5℃, for 4-5 sec. (EIA-364-52)
Hand Soldering Temperature Resistance (Board Side)	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



7 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、5	1、5	1、7	1、6	1、4	1、3		1、3	1、3
Low Level Contact Resistance		2、7	2、6	2、10	2、9	2、5			4	
Insulation Resistance				3、9	3、8					
Dielectric Withstanding Voltage				4、8	4、7					
Temperature rise	1									
Mating / Unmating Forces		3、6								
Durability		4								
Contact Retention Force								3		
Vibration			3							
Shock (Mechanical)			4							
Thermal Shock				5						
Humidity				6						
Temperature life					5					
Salt Spray						3				
Solder ability							2			
Terminal / Housing Retention Force								1		
Fitting Nail /Housing Retention Force								2		
Resistance to Soldering Heat									2	
Hand Soldering Temperature Resistance (Board Side)										2
Sample Size	2	4	4	4	4	4	2	4	4	4

8.INSERTION/WITHDRAWAL FORCE(Unit:N)

Number of circuit	At initial		At 30th
	I.F.(MAX)	W.F.(MIN)	W.F.(MIN)
6	20	4	3
12	25	5	4
24	30	8	6
40	35	13	10