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-51159-XXXXX-XXX **REVISION:** A

PRODUCT NAME: 0.8 mm PITCH BTB CONN

PRODUCT NO: 51159 series.

PREPARED:	CHECKED:	APPROVED:
HUYANG	**BRAVE**	**BRAVE**
DATE: **2020/11/03**	DATE: **2020/11/03**	DATE: **2020/11/03**

1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
A	ECN-001342	New drawing	HUYANG	2020/11/03

2 SCOPE

This specification covers performance, tests and quality requirements for 0.8 mm pitch board to board connector.

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
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

4.3 Ratings

4.3.1 Working Voltage Less than 36 Volts AC(per pin)
4.3.2 Voltage: 100 Volts AC (per pin)
4.3.3 Current: 0.8 Amperes (per pin)
4.3.4 Operating Temperature : -40℃ to +125℃

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	30 m Ω Max.(initial)per contact △R 20 m Ω Max. 50 m Ω Max.(after test)	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	1000 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.	500 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	Number of cycles:100	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 Force: 90 gf Max./CKT Unmating Force: 10gf Min./CTK	Operation Speed： 25.4 ± 3 mm/minute.. Measure the force required to mate/unmate connector. (EIA-364-13)
Contact Retention Force	0.1kgf Min.	Operation Speed： 25.4 ± 3 mm/minute. Measure the contact retention force with tester.

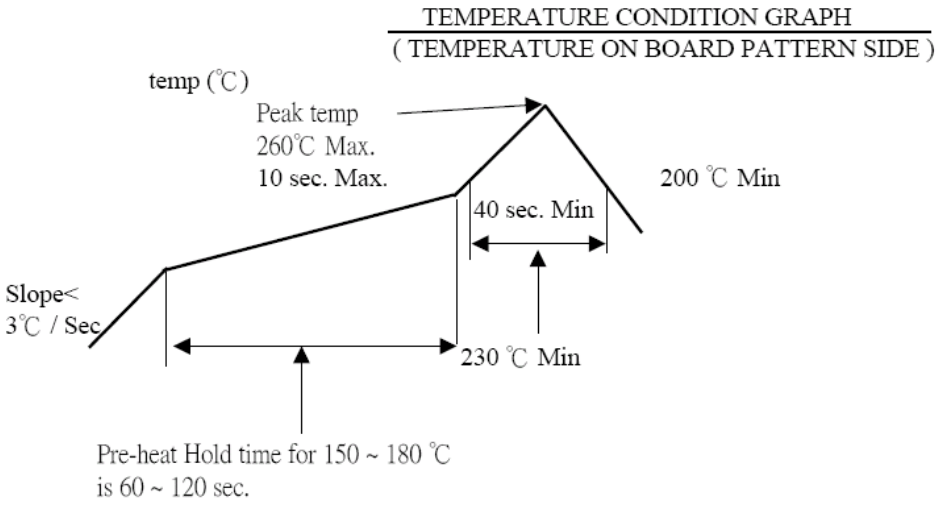
Vibration	1 μs Max.	The electrical load condition shall be 100 mA maximum for all contacts. Subject to a simple harmonic motion having amplitude of 0.76mm (1.52mm maximum total excursion) in frequency between the limits of 10 and 55 Hz. The entire frequency range, from 10 to 55 Hz and return to 10 Hz, 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)

ENVIRONMENTAL		
Item	**Requirement**	**Standard**
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. Reflow number cycle: 2 times
Thermal Shock	Appearance: No damage Contact Resistance: 30 m Ω Max.(initial)per contact 50 m Ω Max.(after test) Insulation Resistance: 1000 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: 30 m Ω Max.(initial)per contact 50 m Ω Max.(after test) Insulation Resistance: 1000 M Ω Min.	Mated Connector 40℃, 90~95% RH, 96 hours. (EIA-364-31,Condition A,Method II)

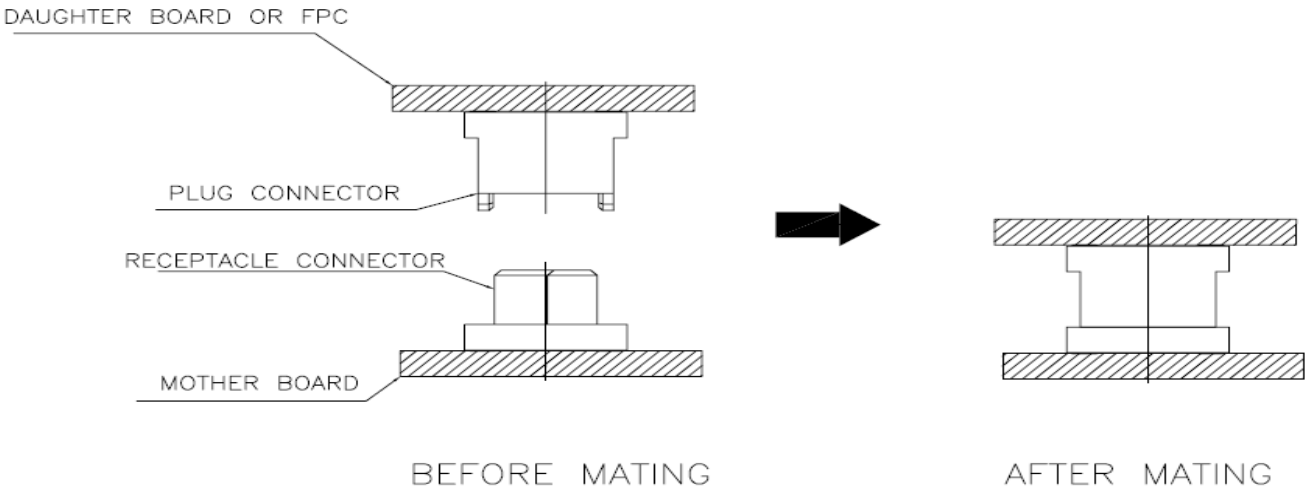
	Dielectric Withstanding Voltage: No breakdown.	
Temperature Life	Appearance: No damage Contact Resistance: 30 m Ω Max.(initial)per contact 50 m Ω Max.(after test) Insulation Resistance: 1000 M Ω Min. Dielectric Withstanding Voltage: No breakdown.	Subject mated connectors to temperature life at 85℃ for 96 hours. (EIA-364-17, Test condition A)
Salt Spray (Only For Gold Plating)	Appearance: No damage Contact Resistance: 30 m Ω Max.(initial)per contact 50 m Ω Max.(after test)	Subject mated/unmated connectors to 5% salt-solution concentration, 35℃ (I) Gold flash for 8 hours (II) Gold 1u"~3u" min for 8 hours. (III) Gold 3u"~5u" min for 48 hours. (IV) Gold 5u" min 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 95% solder coverage Appearance: No damage	And then into solder bath, Temperature at 245 ±5℃, for 4-5 sec. (EIA-364-52)
Mixed Flow Gas	Appearance: No damage 30 m Ω Max.(initial)per contact 50 m Ω Max.(after test)	**EIA-364-65, Class IIA** Temperature: 30°C Relative Humidity: 70% Concentration: H_2S 10 ppb NO_2 200 ppb CL_2 10 ppb SO_2 100 ppb Test duration: 1) 7days unmated (Both halves are exposed to gas) and 7days mated (Gold ≧30u") 2) 14days mated (Gold <30u")
Hand Soldering Temperature Resistance	Appearance: No damage	T≧350℃, 3sec at least.

Note. Flowing Mixed Gas shell be conduct by customer request.

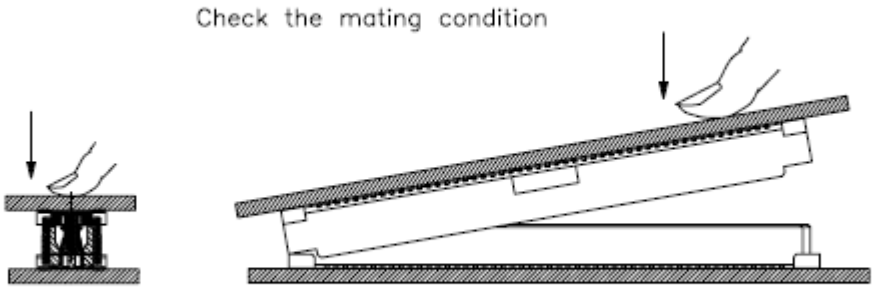
6 INFRARED REFLOW CONDITION



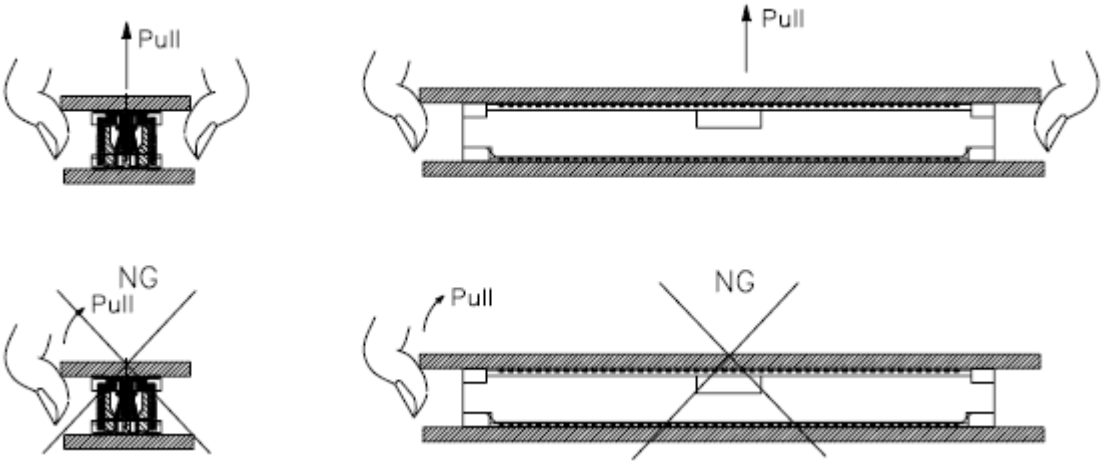
7 CONNECTOR USAGE



MATING PROCEDURE



UNMATING PROCEDURE



8 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	1、4
Low Level Contact Resistance		1、5	1、4	2、10	2、9	2、5			3		2、5
Insulation Resistance				3、9	3、8						
Dielectric Withstanding Voltage				4、8	4、7						
Temperature Rise	1										
Mating / Unmating Forces		2、4									
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				
Contact Retention Force								1			
Resistance to Soldering Heat									2		
Hand Soldering Temperature Resistance										2	
Mixed Flow Gas											3
Sample Size	2	4	4	4	4	4	2	4	4	4	3