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-52943-XXXXX-XXX **REVISION:** C

PRODUCT NAME: POWER CONN.

PRODUCT NO: 52943-XXXXX-XXX

PREPARED:	CHECKED:	APPROVED:
CHEN CHUN YUAN	**TSO I HUNG**	**HUANG KUO HUA**
DATE: **2021/12/15**	DATE: **2021/12/15**	DATE: **2021/12/15**

1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
A	002369	NEW PROJECT	CHEN CHUN YUAN	2021/02/19
B	004800	Current:12A ->14A / per beam	CHEN CHUN YUAN	2021/06/28
C	0006924	Voltage: 12 -> 16 Volts AC/DC Current:14A ->14.5A / per beam	CHEN CHUN YUAN	2021/12/15

2 SCOPE

This specification covers performance, tests and quality requirements for 2.54 mm POWER 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.

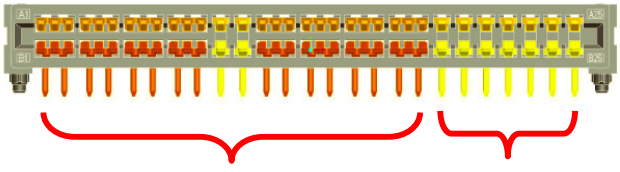
4.2 Materials and Finish

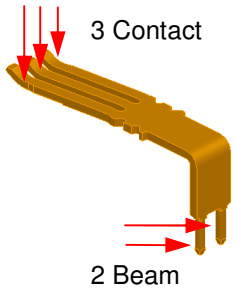
4.2.1 Contact: High performance copper alloy (Phosphor Bronze)
Finish: (a) Contact Area: Refer to the drawing.
(b) Under plate: Refer to the drawing.
(c) Solder area: Refer to the drawing.
4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0

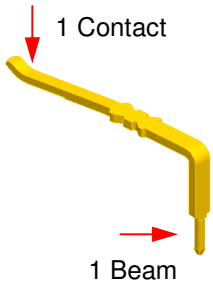
4.3 Ratings

4.3.1 Working Voltage Less than 36 Volts AC(Per Pin)
4.3.2 Voltage: 16 Volts AC/DC
4.3.3 Operating Temperature : -40℃ to +105℃
4.3.4 Power Contacts
Current:14.5A / per beam (29 A / per terminal)

4.3.5 Signal Contacts
Current: 10 A/per contact (beam)







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	Power Contacts 1.0 mΩ Max.per contact Signal Contacts 4.0 m Ω Max.per contact	Mate connectors, measure by dry circuit, 20mV Max., 10mA Max. (EIA-364-23)
Insulation Resistance	5,000 M Ω Min. for Power Contact 5,00 M Ω Min. for Signal Contact	Unmated connectors, apply 500 V DC for 1 minute. Test between adjacent contacts of unmated connectors. (EIA-364-21)
Dielectric Withstanding Voltage	No discharge, flashover or breakdown. Current leakage: 1 mA max.	1800 VDC 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	200 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)
Durability (Preconditioning)	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 ± 3mm/min. (EIA-364-09)

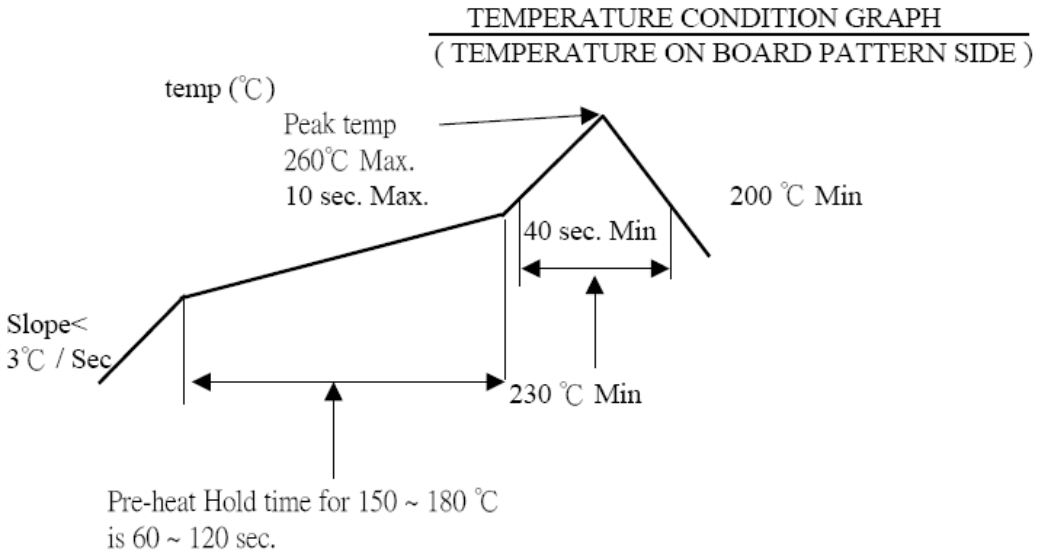
Mating/Unmating Forces	See heading 8	Operation Speed： 10 ± 3 mm/minute.. Measure the force required to mate/unmate connector. (EIA-364-13)
Terminal / Housing Retention Force (Rcpt. CONN.)	0.5 kgf MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the terminal assembled in the housing.
Reseating	No damage	Manual plug/unplug the connector with module board. Perform 3 such cycles.
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**
Thermal Shock	See Product Qualification and Test Sequence Group 2	Mate module and subject to follow condition for 25 cycles. 1 cycles: -40 +0/-5 ℃, 30 minutes +25 +10/-5 ℃ 5 Max. +105 +3/-0 ℃, 30 minutes +25 +10/-5 ℃ 5 Max. (EIA-364-32, test method A, condition VIII)
Humidity	See Product Qualification and Test Sequence Group 2	Mated Connector Between 25+/-3℃ at 80+/-3% RH and 65+/-3℃ at 50+/-3% RH Dwell time of 1.0 hour Ramp time of 0.5 hours, 24Cycle (EIA-364-31,Method III)
Temperature life	See Product Qualification and Test Sequence Group 1	Subject mated connectors to temperature life at 125+/-2℃ for 850 hours. (EIA-364-17, Method A Test condition 4)
Temperature life (Preconditioning)	See Product Qualification and Test Sequence Group 6	Subject mated connectors to temperature life at 125+/-2℃ for 425 hours. (EIA-364-17, Method A Test condition 4)
Salt Spray (Only For Gold Plating)	See Product Qualification and Test Sequence Group 8	Subject mated/unmated connectors to 5% salt-solution concentration, 35℃ (I) Gold flash for 8 hours (II) Gold plating 3 u" for 48 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.
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.

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

8 MATTING/UNMATTING FORCE

Mating Force Unit : N/Kg

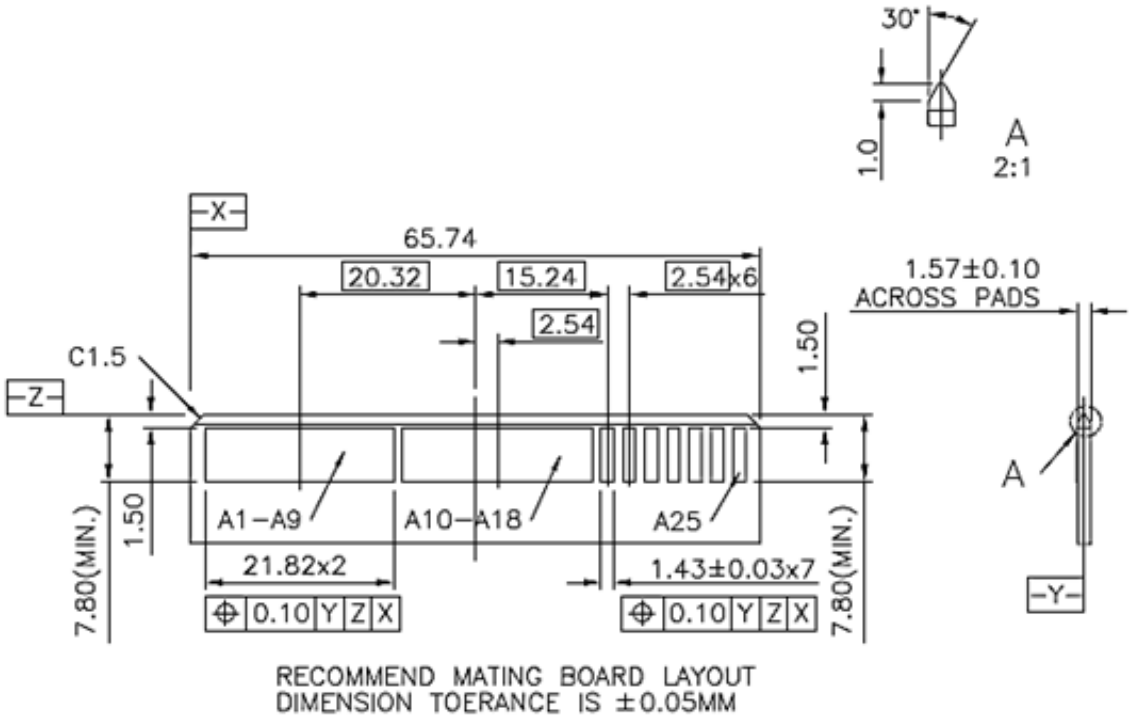
Power Contact.		Signal Contacts		Note
Per Pin(gf) Max.		Per Pin(gf) Max.		
N	Kg	N	Kg	
4.15	0.423	2.20	0.224	

UNMating Force Unit : N/Kg

Power Contact.		Signal Contacts		Note
Per Pin(gf) Min.		Per Pin(gf) Min.		
N	Kg	N	Kg	
0.55	0.056	0.30	0.030	

9. EDGE CARD LAYOUT

Test PCB Thickness is 1.57+/-0.10mm (Inclusive of two pads)



RECOMMEND MATING BOARD LAYOUT
DIMENSION TOERANCE IS ±0.05MM