



SPECIFICATION

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SPEC. NO.: PS-50269-XXXXX-XXX

REVISION: P

PRODUCT NAME: 1.2mm PITCH WTB CONNECTOR

PRODUCT NO: 50269 ,50270 ,51220,51273,52212 SERIES

PREPARED: Shi,SongTao DATE: 2021.02.01	CHECKED: Xu,ZhiYong DATE: 2021.02.01	APPROVED: Xu,ZhiYong DATE: 2021.02.01
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Aces P/N: 50269 ,50270 ,51220,51273,52212 **series**

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1 Revision History

Rev	ECN #	Revision Description	Prepared	Date
O	ECN-0812248	NEW SPEC	LIUWEI	2008/12/4
A	ECN-1006147	REVISED(ECCN-1006009)	BRUCE	2010/07/07
B	ECN-1008149	ADD 14PIN MATING/UNMATING FORCE	LIUWEI	2010/08/24
C	ECN-1103188	ADD 7~13PIN MATING/UNMATING FORCE ADD CRIMPING CONDITION SPEC	BRUCE	2011/04/22
D	ECN-1107421	MODIFY CRIMPING / 50270 HOUSING RETENTION FORCE	BRUCE	2011/7/22
E	ECN-1110141	ADW1110040AWG#28:3.0A (per pin)	CHUNBO	2011/10/13
E1	ECN-1203500	ADD 51269&50269 SERIES	GAVIN	2012/04/06
F	ECN-1401172	ADD WORKING VOLTAGE	XUFEI	2014/01/09
G	ECN-1406389	ADD 51220 SERIES	ZHOUQUQAN	2014/06/23
H	ECN-1408132	ADD 51273 SERIES	TAOJIE	2014/08/19
J	ECN-1503364	ADD CURRENT TEMPERATURE RISE CURVE	JUGG	2015/03/27
K	ECN-1511163	Update Current	JUGG	2015/11/11
L	ECN-1802091	FOR DWR-1802065-ADD AWG#32	ChaiYunhe	2018/02/08
M	ECN-1807287	ADD ACES APPLICATION SOP	SHI,YANAN	2018/07/13
N	ECN-2006003	ADD 52212 SERIES	SHISONGTA O	2020/05/27
P	ECN-002268	Modify the Operating Temperature and Thermal Shock	Shi,SongT ao	2021/02/01

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2 SCOPE

This specification covers performance, tests and quality requirements for [1.2mm Pitch WTB 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

50269 Series

- 4.2.1 Contact: High performance copper alloy ([Brass](#))
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 Nut or Ear: High performance copper alloy ([Brass](#))
Finish: (a) Under plate: [Refer to the drawing](#).
(b) Solder area: [Refer to the drawing](#).

50270 Series

- 4.2.4 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0
- 4.2.5 Contact: High performance copper alloy ([Phosphor Bronze](#))
Finish: (a) Contact Area: [Refer to the drawing](#).
(b) Under plate: [Refer to the drawing](#).

4.3 Ratings

- 4.3.1 Working voltage less than 36 volts (per pin)
- 4.3.2 Voltage: [50 Volts AC \(per pin\)](#)
- 4.3.3 Current:
AWG #28 3A/1pin(Over 2 circuits shall be conduct by customer request)
AWG #30 2A/1pin(Over 2 circuits shall be conduct by customer request)
AWG #32 1A/1pin(Over 2 circuits shall be conduct by customer request)
- 4.3.4 Operating Temperature : [-40°C to +85°C](#)

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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	20 m Ω Max.(initial)per contact 40 m Ω Max. (After test)	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	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°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&2)

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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 ± 3 mm/min. (EIA-364-09)
Mating / Unmating Forces	See Item 8	Operation Speed: 25.4 ± 3 mm/minute.. Measure the force required to mate/Unmated connector. (EIA-364-13)
Terminal Housing Retention Force (Board Side)	0.20 kgf 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 (Board Side)	0.25kgf Min.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the fitting nail assembled in the housing.
Crimping Housing Retention Force (Cable Side)	0.50kgf Min.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the crimping assembled in the housing.
Vibration	1 us 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 us 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)

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ENVIRONMENTAL		
Item	Requirement	Standard
Resistance to Wave Soldering Heat(Board Side)	See Product Qualification and Test Sequence Group 9 (Lead Free)	Solder Temp.: 265±5℃, 10±0.5sec.
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. Reflow number:2 cycle
Thermal Shock	See Product Qualification and Test Sequence Group 4	Mate module and subject to follow condition for 5 cycles. 1 cycles: -40 +0/-3 ℃, 30 minutes +85 +3/-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 (Only For Gold Plating)	See Product Qualification and Test Sequence Group 6	Subject mated/unmated 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(Board Side)	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(Board Side)	Appearance: No damage	T ≥ 350℃, 3sec at least.

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

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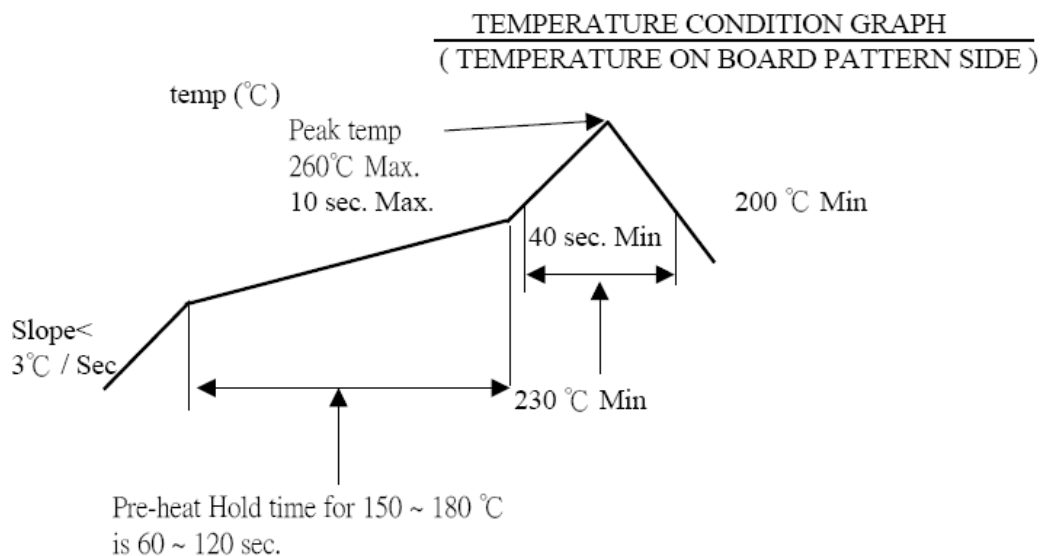
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6 INFRARED REFLOW CONDITION

6.1. Lead-free Process



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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、6	1、5	1、7	1、6	1、6	1、3		1、4	1、3
Low Level Contact Resistance	1、3	2、7	2、6	2、8	2、7	2、7			2、5	
Insulation Resistance				3、9	3、8	3、8				
Dielectric Withstanding Voltage				4、10	4、9	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						5				
Solder ability(Board Side)							2			
Terminal / Housing Retention Force								1		
Fitting Nail /Housing Retention Force								2		
Hand Soldering Temperature Resistance(Board Side)										2
Resistance to Soldering Heat(Board Side)									3	
Sample Size	4	4	4	4	4	2	4	4	4	4

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8 MATING / UNMATING FORCE

Unit : Kg

NO. OF Ckt	Mating(Max)		Unmating(Min)	
	1th	30th	1th	30th
2	2.0	2.0	0.40	0.15
3	2.0	2.0	0.40	0.15
4	2.5	2.5	0.40	0.15
5	2.5	2.5	0.35	0.15
6	3.0	3.0	0.35	0.15
7~9	4.0	4.0	0.20	0.10
10~14	5.0	5.0	0.15	0.10

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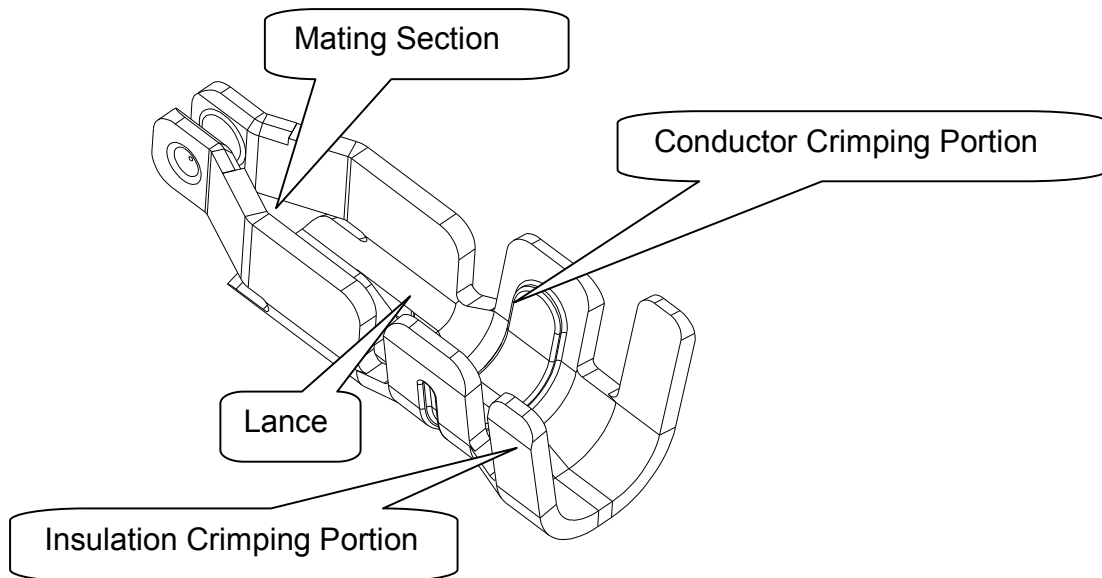
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9 ANATOMY OF CRIMPING TERMINAL



The crimping contact drawing is for reference only. May Not be the same with this P/N

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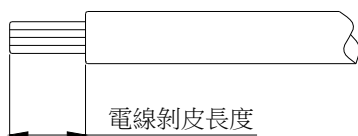
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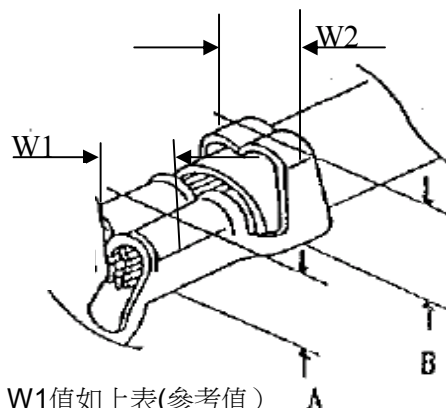
10 CRIMPING CONDITION

鉚線條件表 CRIMPING CONDITION

Part Number	Wire Specification			Crimp Height (mm)		Crimp Width (mm)	
	UL Style (REF.)	AWG Size	Insulation OD(mm)	Conductor A	Insulation B	Conductor W1	Insulation W2
91224-Txxx	UL3302 (Furukawa)	28	0.60	0.50~0.55	0.70~0.75	0.80~0.87	0.85~0.93
91224-Txxx	UL3302 (Sumitomo)	30	0.70	0.43~0.48	0.72~0.77	0.80~0.87	0.85~0.93
91224-Txxx	UL3302	32	0.55	0.33~0.38	0.65~0.70	0.70MAX	0.80MAX



Strip length



Note:

- 1、W1為芯線導體鉚壓後之寬度(Conductor Crimping Width)：W1值如上表(參考值)
- 2、W2為電線外被部分鉚壓後之寬度(Insulation Crimping Width)：W2值如上表(參考值)
- 3、A為芯線導體鉚壓後之高度(Conductor Crimping height)：A值如上表(參考值)
- 4、B為電線外被鉚壓後之高度(Insulation Crimping height)：B值如上表(參考值)
- 5、電線剝皮長度(Strip length)：0.7~1.0mm(參考值)

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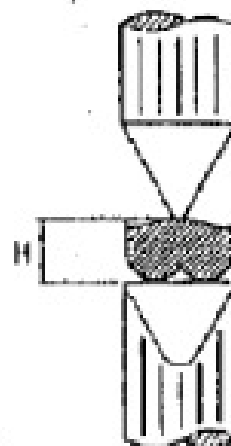
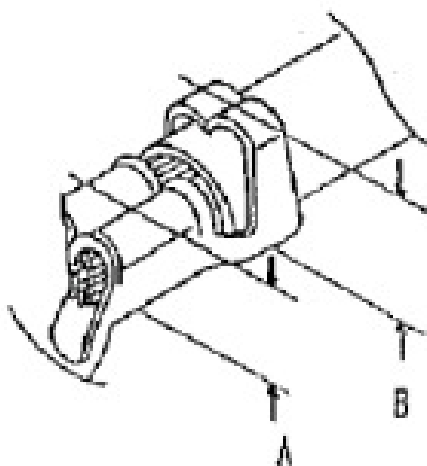
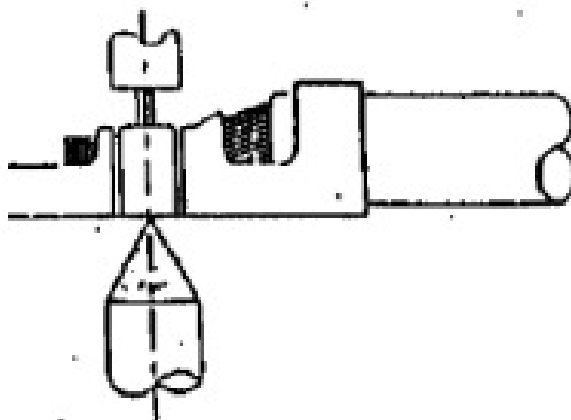
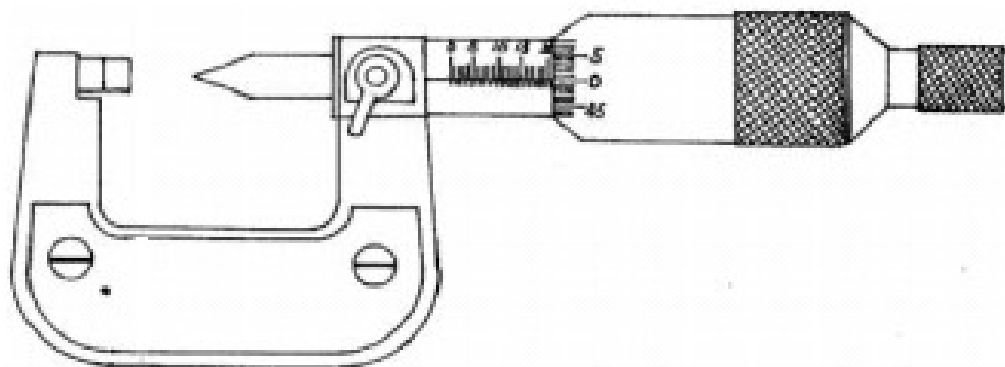
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11 CRIMPING HEIGHT MEASUREMENT



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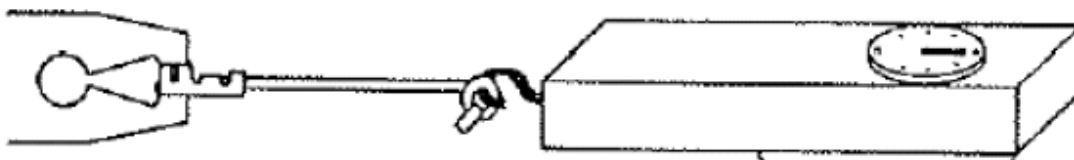
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12 PULL FORCE OF CRIMPING SECTION MEASUREMENT

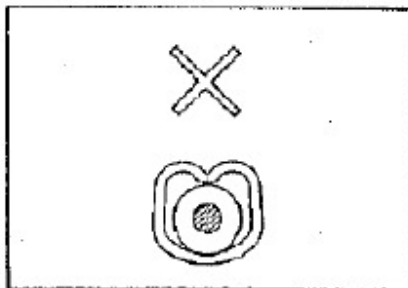


Before test samples, please measure crimp height and do not crimp insulation.

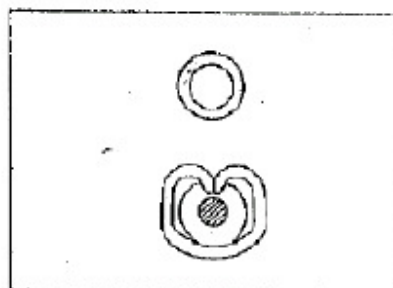


Pull Force of Crimp Section Measurement

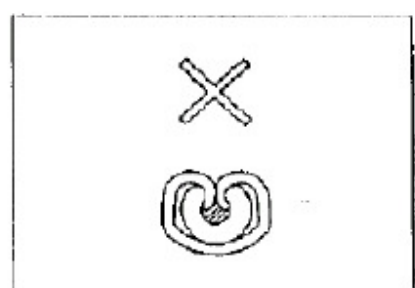
13 STANDARD INSULATION CRIMPING



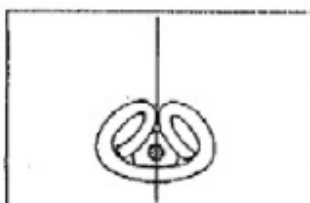
Not enough crimp



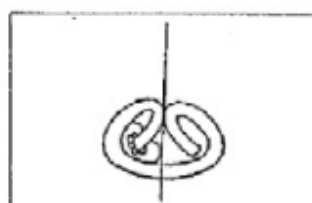
Good



Crimp too much

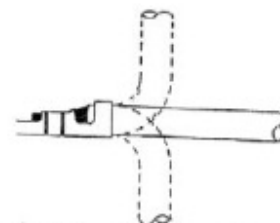


Good



NG

Insulation Crimp Condition



As following figure shown.
It is no problem if wire bent
up down 90 degrees 1 cycle
and insulation position still
in ideal position.

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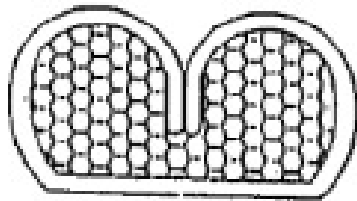
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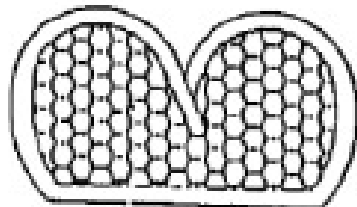
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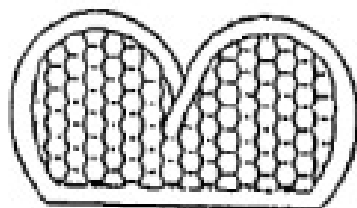
14 CONDUCTORS CRIMPING CONDITION



Good

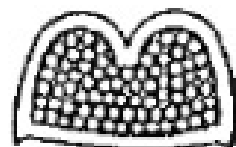


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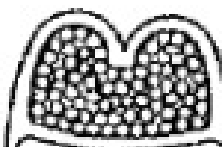


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Lower conduct
retension force



Good



Large burr

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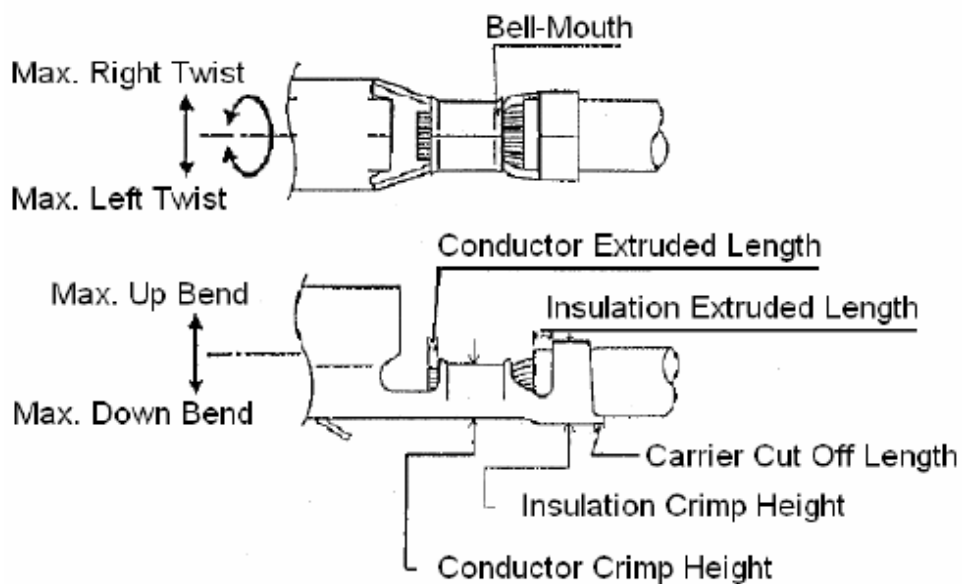
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15 CRIMPING REQUIREMENT



Item	Range(Ref.)
Max. Up Bend	6°
Max. Down Bend	6°
Max. Left Twist	5°
Max. Right Twist	5°
Bell-Mouth Length	0.1~0.3mm
Carrier Cut Off Length	0~0.2mm
Conductor Extruded Length	0.05~0.2mm

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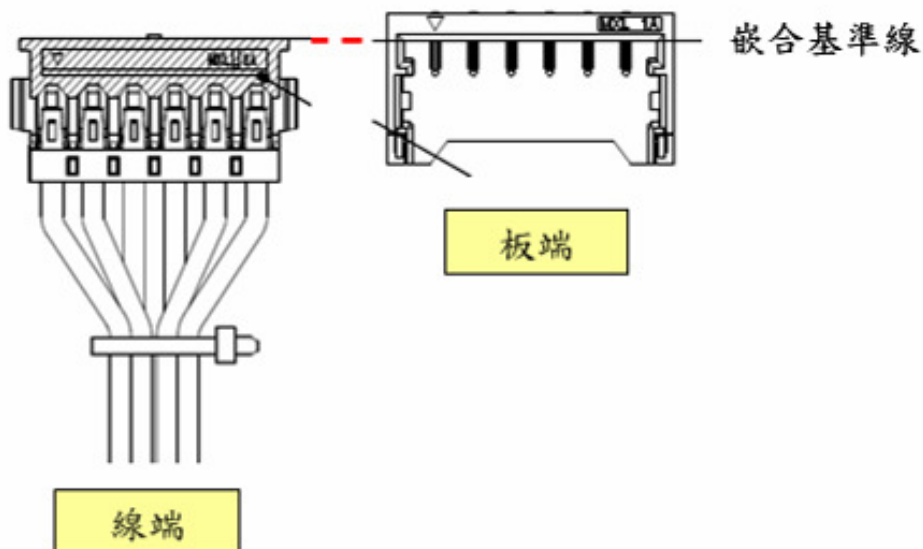
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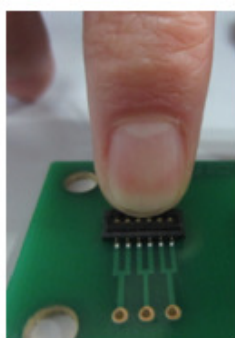
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16 ACES APPLICATION SOP

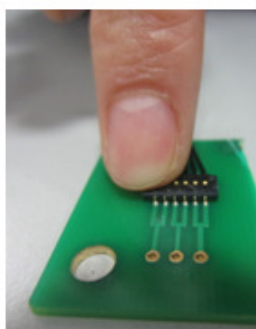
1. 當一個完整的 connector 對配時，首先觀察其線端與板端的嵌合基準位置。



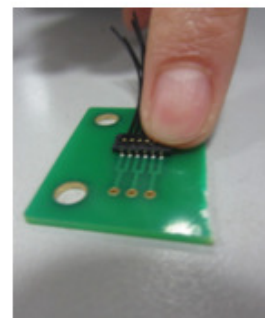
2. 對配時使用拇指將線端對準板端卡槽垂直按壓進板端,為確保板線端完全對配到位，再用拇指分別按壓板線端膠體兩側卡扣確保卡扣完全嵌合。



拇指向下按壓



拇指按壓左側卡扣



拇指按壓右側卡扣

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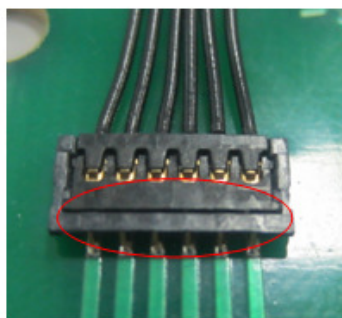
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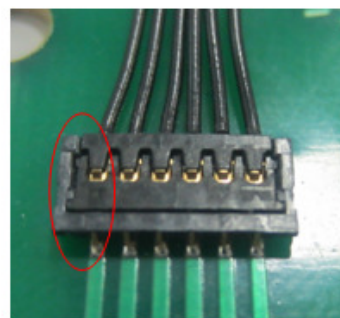
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注意事項

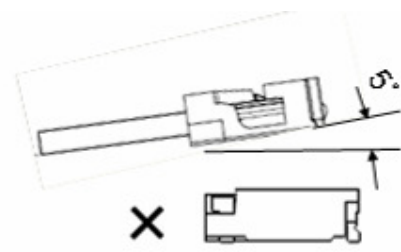
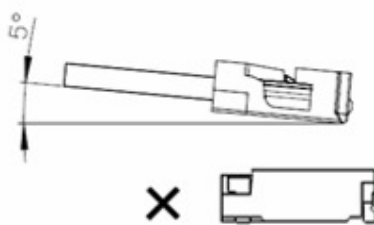
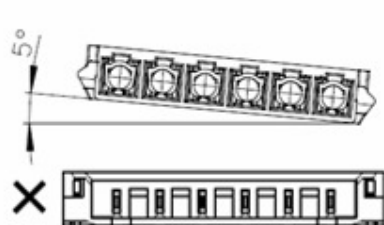


嵌合位置OK



LOCK位置完全扣合

3. 當線端與板端壓合時，請避免超過 5° ，如下圖所示:



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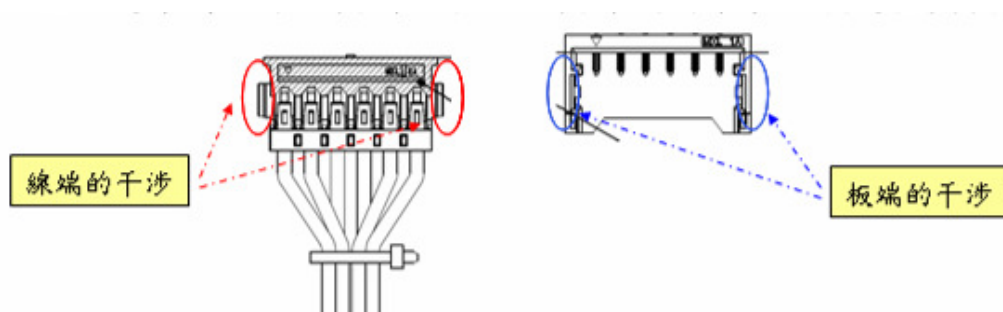
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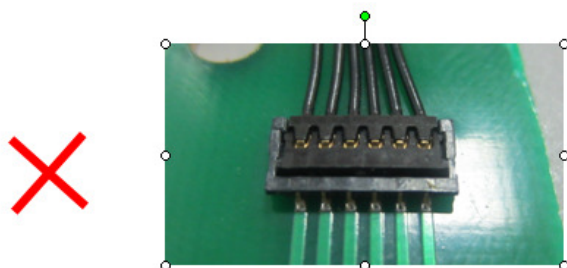
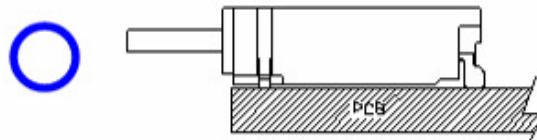
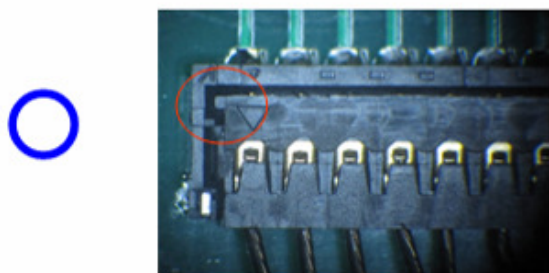
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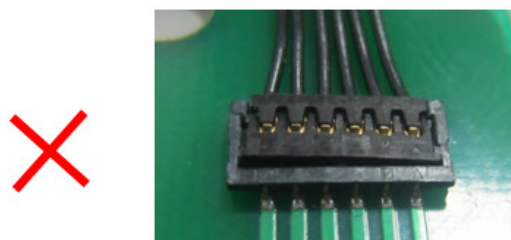
- 對配壓合完畢時，確認其對配狀況，其線端的干涉必須完整與板端結合。



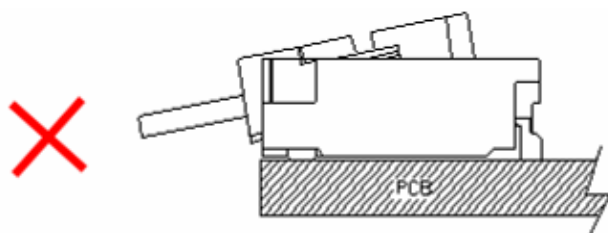
線端與板端對配后狀況如下圖：



中間拱起，線端端子未夾持住板端端子



LOCK處未扣合



TITLE: 1.2mm PITCH WTB CONNECTOR

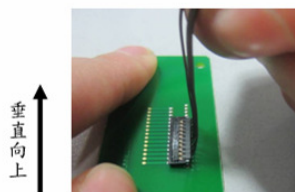
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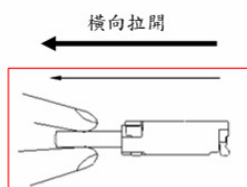
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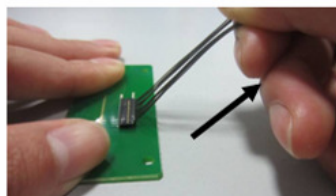
5. 當未對配正確時，應該拉住線端，垂直並保持直線的方式向上拉開，切勿橫向或斜向式拉開線端。



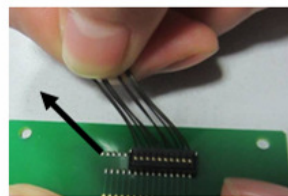
垂直
向上



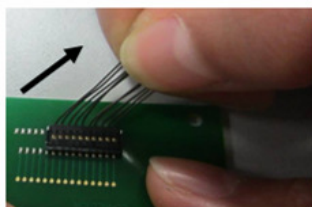
橫向拉開



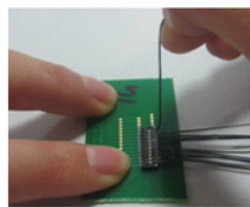
斜向拉開



斜向拉開



斜向拉開



單線拉開

TITLE: 1.2mm PITCH WTB CONNECTOR

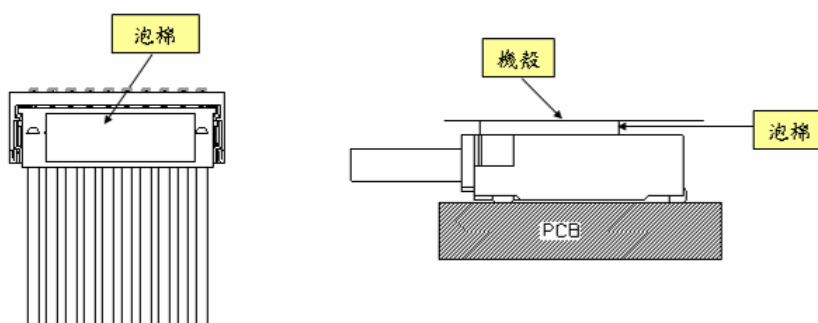
RELEASE DATE: 2021.02.01

REVISION: P

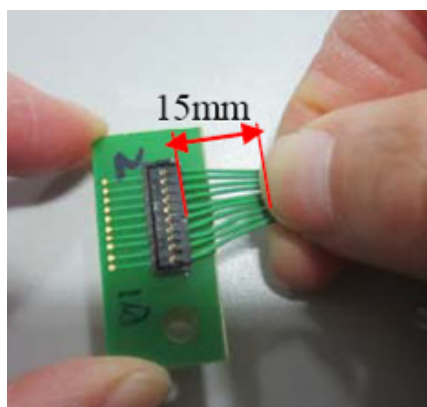
ECN No: ECN-002268

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- 6.當產品與機殼之間間隙大于 0.15mm 時，需增加泡棉填充(材質為 SRS-24P，壓縮量為 44~47%),或者以其他機構設計來壓住連接器,或是以其他機構設計來使得間隙小于 0.15mm.

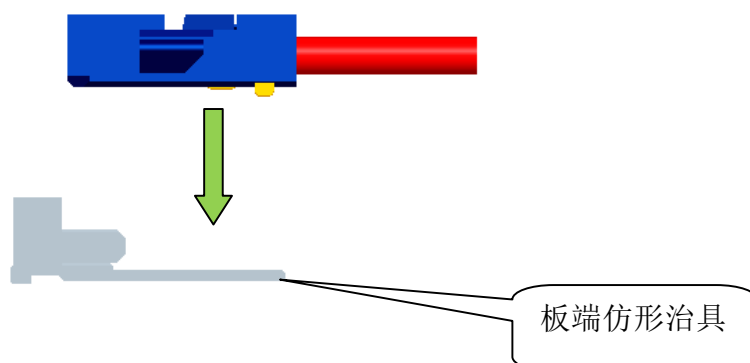


7. 做插拔測試時，握線距離以 15mm 為準，進行拔出測試.



8. Cable 線束若需要點膠固定,必須將穿線后的線端膠體插入板端仿形治具后,在進行點膠處理(避免線端端子在膠體內歪斜時被 UV 膠固定,導致 OP 組裝作業時,難以將線端插入板端)

(1)Cable 膠體垂直準備插入板端仿形治具



TITLE: 1.2mm PITCH WTB CONNECTOR

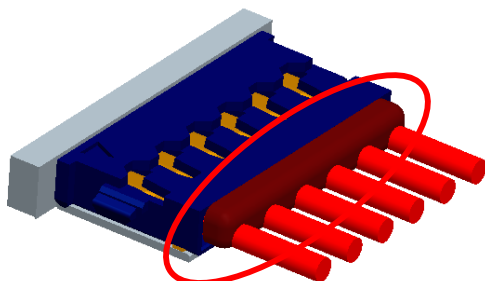
RELEASE DATE: 2021.02.01

REVISION: P

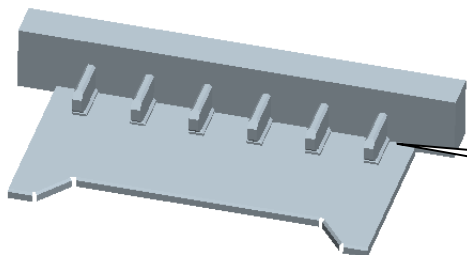
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(2)點膠處理



PS:板端仿形治具端子排布同板端完全相同,去除兩側 LOCK.也可用板端連接器焊板后去除兩側 LOCK 使用.



板端仿形治具