



SPECIFICATION

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SPEC. NO.: PS-51263-XXXXX-XXX

REVISION: E

PRODUCT NAME: 1.2 mm PITCH WTB CONNECTOR

PRODUCT NO: 51263 · 51264 SERIES

| | | |
|---|--|---|
| PREPARED: SHI,YANAN DATE: 2018/07/13 | CHECKED: BRAVE DATE: 2018/07/13 | APPROVED: BRAVE DATE: 2018/07/13 |
|---|--|---|



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RELEASE DATE: 2018.07.13

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Aces P/N: **51263 series**

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1 REVISION HISTORY

| Rev. | ECN # | Revision Description | Prepared | Date |
|------|-------------|--------------------------------|-----------|------------|
| O | ECN-1507205 | NEW SPEC | JUGG | 2015/07/15 |
| A | ECN-1512200 | Add 8PIN MATING/UNMATING FORCE | JUGG | 2015/11/16 |
| B | ECN-1605011 | Add 2PIN MATING/UNMATING FORCE | JINTAO | 2016/05/06 |
| C | ECN-1609196 | Update Current | JUGG | 2016/09/10 |
| D | ECN-1805287 | Add 4PIN MATING/UNMATING FORCE | ZHANG HAO | 2018/05/20 |
| E | ECN-1807287 | UPDATE ACES APPLICATION SOP | SHI,YANAN | 2018/07/13 |

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2 SCOPE

This specification covers performance, tests and quality requirements for **1.2 mm 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

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

4.2.3 Fitting Nail: Copper Alloy

Finish: (a) Under plate: [Refer to the drawing](#).

4.3 Ratings

4.3.1 Working Voltage less than **36 Volts AC** (per pin)

4.3.2 Voltage: **50 Volts AC/DC**

4.3.3 Current:

[AWG #28, 3.0 A\(Over 2 circuits shall be conduct by customer request\)](#)

[AWG #30, 2.0 A\(Over 2 circuits shall be conduct by customer request\)](#)

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 ΔR 20 m Ω Max. | Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23) |
| Insulation Resistance | 1000 M Ω Min. | 500V DC Min.at sea level for 1 minute between adjacent terminals. (EIA-364-21) |
| Dielectric Withstanding Voltage | No discharge, flashover or breakdown. Current leakage: 2 mA max. | 500V AC 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,CONDITION2) |
| MECHANICAL | | |
| Item | Requirement | Standard |
| Durability | 15 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 \pm 3mm/minute. |
| Mating / Unmating Forces | Please see Item 8 | Operation Speed : 25.4 \pm 3 mm/minute.. Measure the force required to mate/unmate connector. (EIA-364-13) |
| Contact Retention Force (Board Side) | 0.15 Kgf Min. | Operation Speed : 25.4 \pm 3 mm/minute. Measure the contact retention force with tester. |
| Fitting Nail Retention Force (Board Side) | 0.20 Kgf Min. | Apply axial pull out force at the speed rate of 25.4 \pm 3 mm/minute. On the fitting nail assembled in the housing. |

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| | | |
|--|---|---|
| Crimping Terminal / Housing Retention Force (Cable Side) | 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. |
| Crimping Pull Out Force (Cable Side) | AWG #30: 0.5Kgf Min. AWG #28: 1.0Kgf Min (Please see Item 14) | Operation Speed : 25.4 ± 3 mm/minute. Fix the crimped terminal, apply axial pull out force on the wire. |
| 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°C~180°C, 60~120sec. Heat : 230°C Min., 40sec Min. Peak Temp. : 260°C 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 °C, 30 minutes +85 +5/-0 °C, 30 minutes (EIA-364-32, test condition I) |

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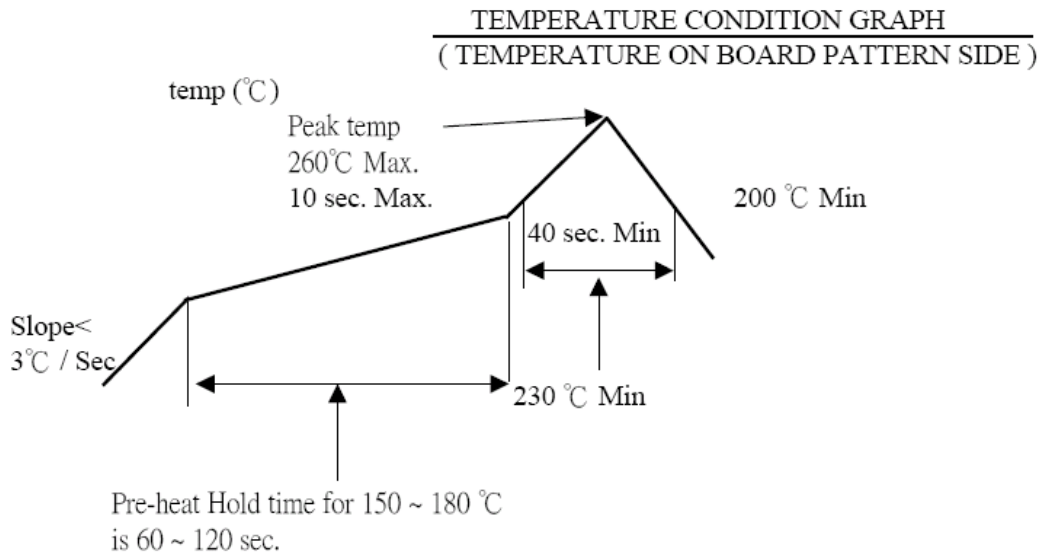
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| | | |
|--|--|--|
| Humidity | See Product Qualification and Test Sequence Group 4 | Mated Connector 40°C , 90~95% RH, 96 hours. (EIA-364-31,Condition A, Method II) |
| Temperature Life | See Product Qualification and Test Sequence Group 5 | Subject mated connectors to temperature life at 85°C for 96 hours . (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°C (I) Gold flash for 8 hours (II) Gold plating 3 u" for 48 hours (III) 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°C , for 4-5 sec . (EIA-364-52) |
| Hand Soldering Temperature Resistance (Board Side) | Appearance: No damage | T ≥ 350°C , 3sec at least. |

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

6 INFRARED REFLOW CONDITION



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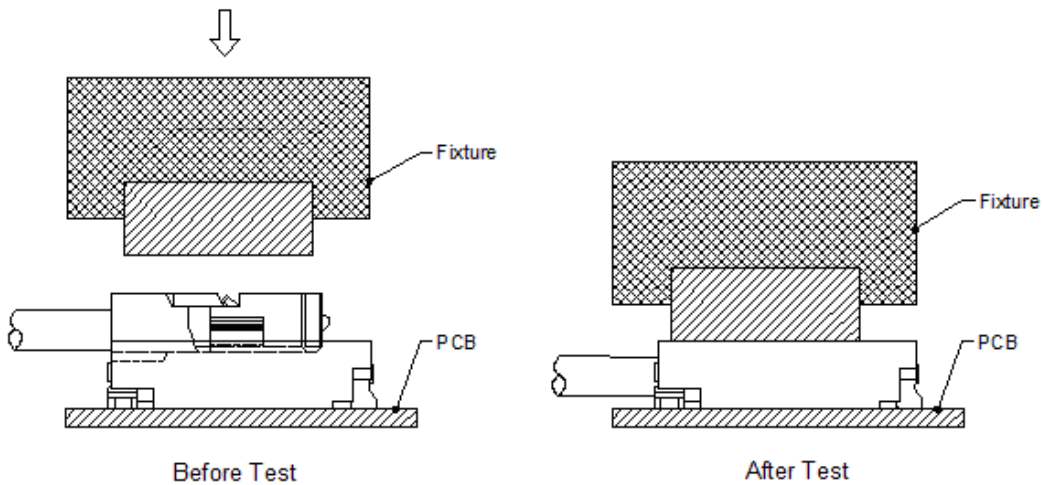
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7 PRODUCT QUALIFICATION AND TEST SEQUENCE

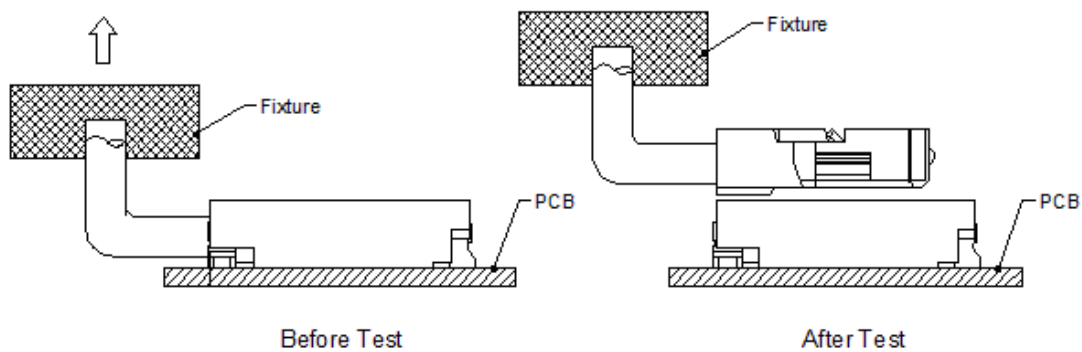
| Test or Examination | Test Group | | | | | | | | | |
|--|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | Test Sequence | | | | | | | | | |
| Examination of Product | | 1、5 | 1、5 | 1、7 | 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 Force | | 3、6 | | | | | | | | |
| Durability | | 4 | | | | | | | | |
| Contact Retention Force (Board Side) | | | | | | | | 4 | | |
| Vibration | | | 3 | | | | | | | |
| Shock (Mechanical) | | | 4 | | | | | | | |
| Thermal Shock | | | | 5 | | | | | | |
| Humidity | | | | 6 | | | | | | |
| Temperature Life | | | | | 5 | | | | | |
| Salt Spray (Only For Gold Plating) | | | | | | 3 | | | | |
| Solder ability (Board Side) | | | | | | | 2 | | | |
| Crimping Pull Out Force(Cable Side) | | | | | | | | 1 | | |
| Crimping Terminal / Housing Retention Force (Cable Side) | | | | | | | | 2 | | |
| Fitting Nail Retention Force (Board Side) | | | | | | | | 3 | | |
| Resistance to Soldering Heat (Board Side) | | | | | | | | | 2 | |
| Hand Soldering Temperature Resistance (Board Side) | | | | | | | | | | 2 |
| Sample Size | 2 | 4 | 4 | 4 | 4 | 4 | 2 | 4 | 4 | 4 |

8 MATING / UNMATING FORCE

| Number of circuits | Mating Force. kgf. (Max.) | | | Unmating Force kgf. (Min.) | | |
|--------------------|---------------------------|------|------|----------------------------|------|------|
| | 1th | 10th | 15th | 1th | 10th | 15th |
| 2 | 2.50 | 2.00 | 2.00 | 0.15 | 0.10 | 0.10 |
| 4 | 3.00 | 2.50 | 2.50 | 0.25 | 0.15 | 0.15 |
| 6 | 3.00 | 2.50 | 2.50 | 0.35 | 0.20 | 0.18 |
| 8 | 3.50 | 3.00 | 3.00 | 0.40 | 0.25 | 0.20 |



Mating Force test



Unmating Force test

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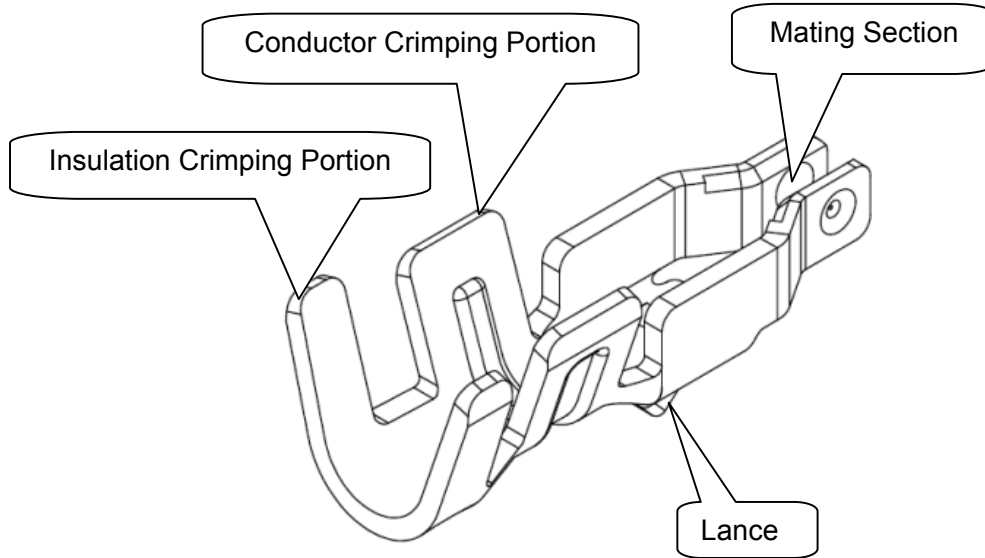
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9 ANATOMY OF CRIMPING TERMINAL



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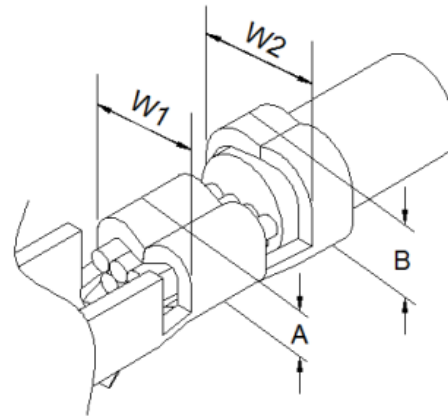
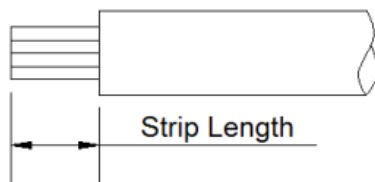
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10 CRIMPING CONDITION

鉚線條件表 CRIMPING CONDITION

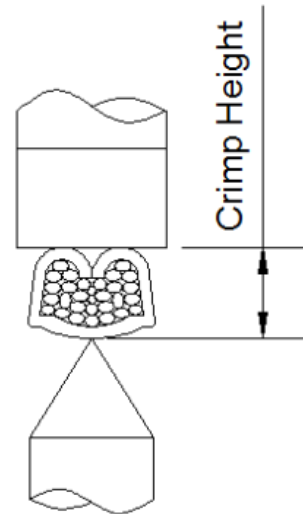
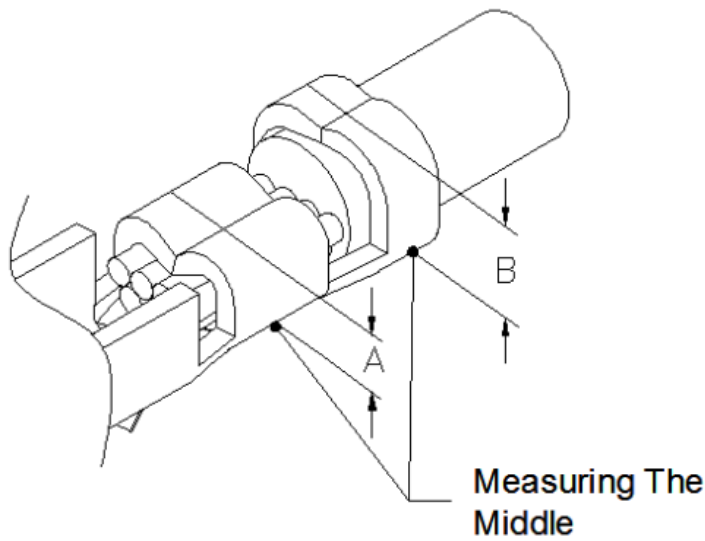
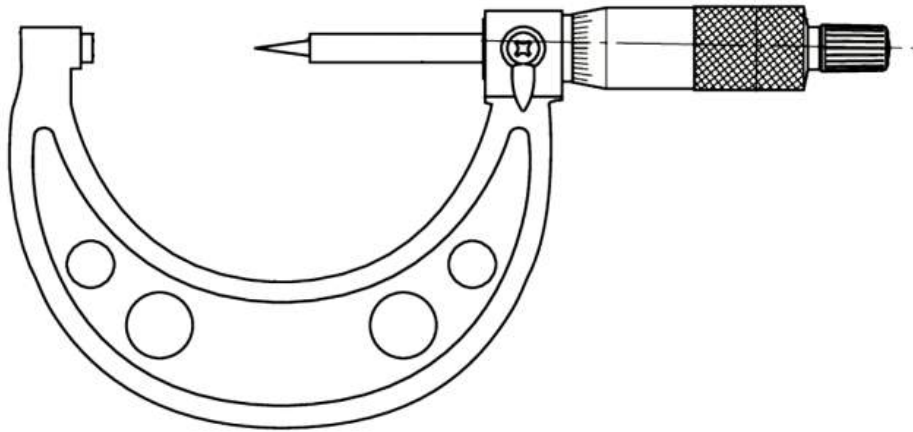
| Part Number | Wire Specification | | | Crimp Height (mm) | | Crimp Width (mm) | |
|----------------|--------------------|----------|-------------------|-------------------|--------------|------------------|---------------|
| | UL Style (REF.) | AWG Size | Insulation OD(mm) | Conductor A | Insulation B | Conductor W1 | Insulation W2 |
| 51264-Txxx-xxx | UL10064 | 30 | 0.60(Max.) | 0.48~0.55 | 0.75~0.80 | 0.84MAX | 0.92MAX |
| | UL10064 | 28 | 0.60(Max.) | 0.50~0.55 | 0.75~0.80 | 0.84MAX | 0.92MAX |
| | UL3767 | 28 | 0.60(Max.) | 0.50~0.55 | 0.75~0.80 | 0.84MAX | 0.92MAX |
| | UL1571 | 28 | 0.60(Max.) | 0.50~0.55 | 0.75~0.80 | 0.84MAX | 0.92MAX |



Note:

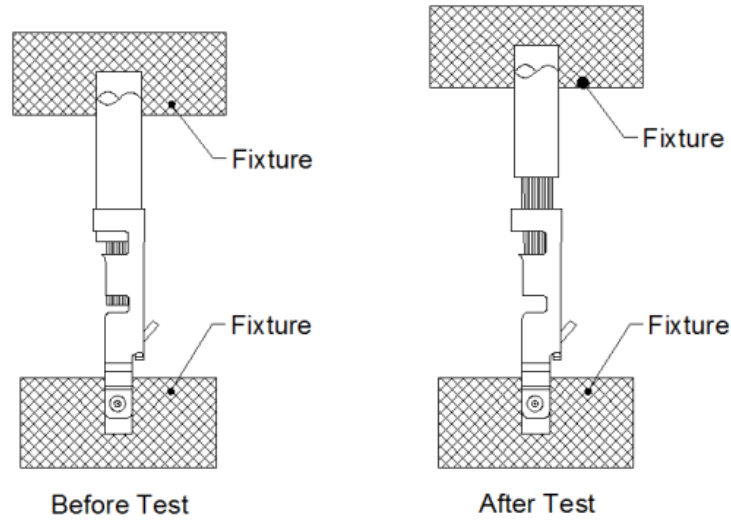
- 1、W1為芯線導體鉚壓後之寬度(Conductor Crimping Width)：W1值如上表(參考值)
- 2、W2為電線外被部分鉚壓後之寬度(Insulation Crimping Width)：W2值如上表(參考值)
- 3、A為芯線導體鉚壓後之高度(Conductor Crimping height)：A值如上表(參考值)
- 4、B為電線外被鉚壓後之高度(Insulation Crimping height)：B值如上表(參考值)
- 5、電線剝皮長度(Strip length)：0.7~1.5mm(參考值)
- 6、以上線材均須符合UL安規認證

11 CRIMPING HEIGHT MEASUREMENT

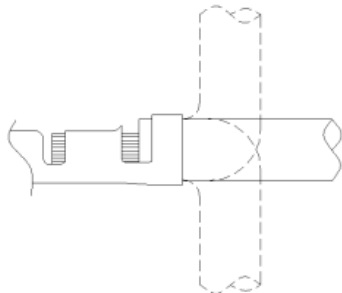
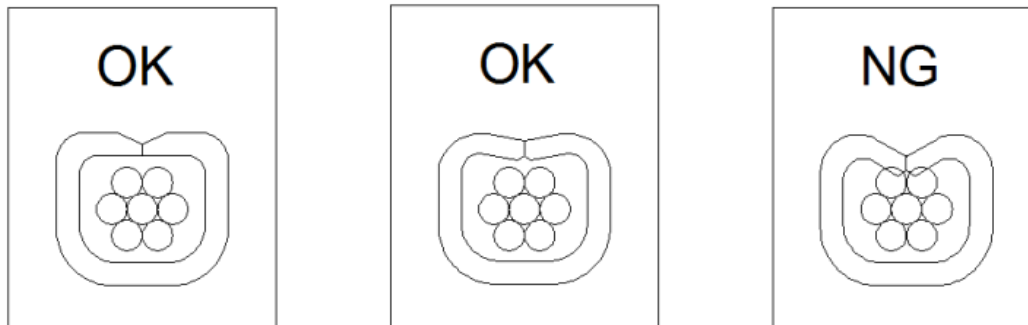


12 PULL FORCE OF CRIMPING SECTION MEASUREMENT

Note : Before test sample , please measure crimp height and do not crimp insulation.

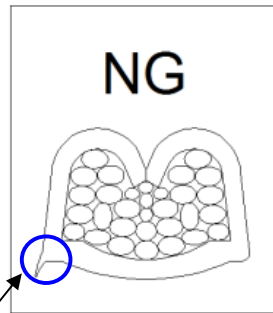
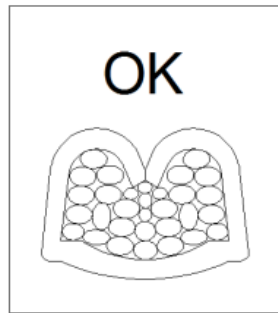
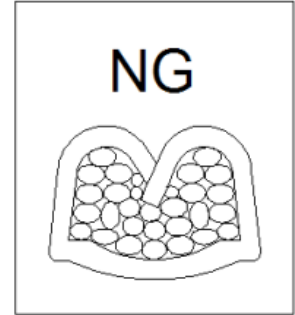
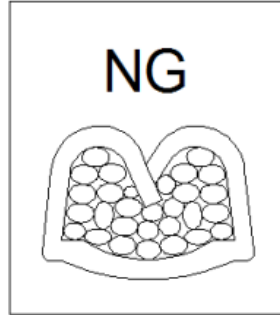
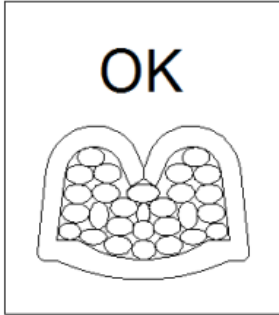


13 STANDARD INSULATION CRIMPING



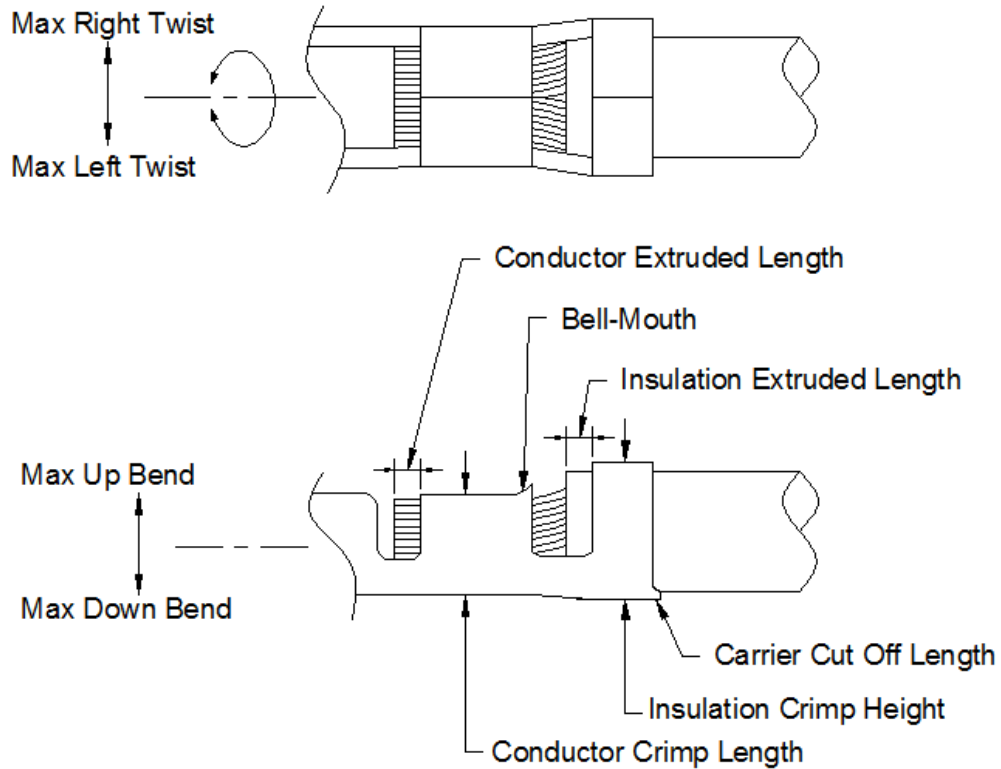
As following figure shown . It is no problem if wire bent up down 90 degrees 1 cycle and insulation position still in ideal position.

14 CONDUCTORS CRIMPING CONDITION



Large Burr

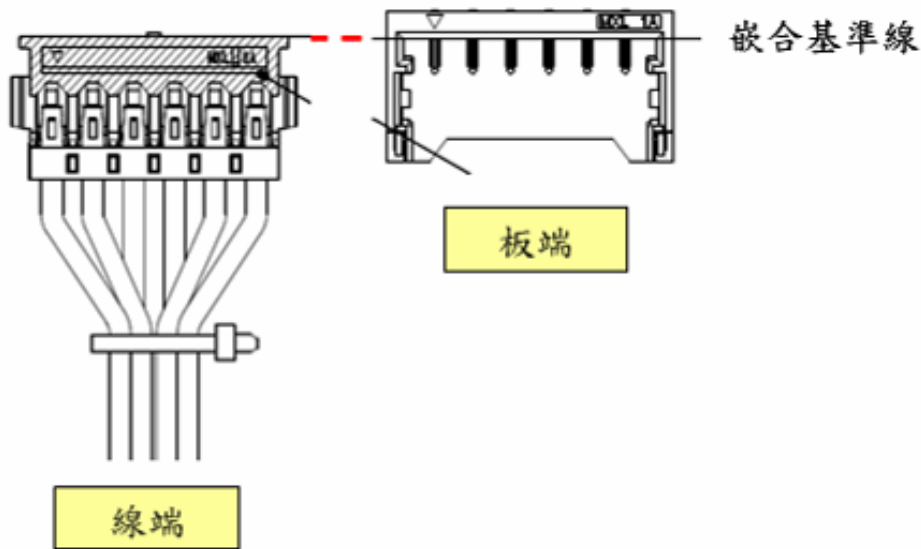
15 CRIMPING REQUIREMENT



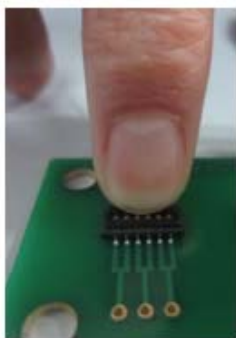
| Item | Range(Ref.) |
|---------------------------|-------------|
| Max. Up Bend | 6° |
| Max. Down Bend | 6° |
| Max. Left Twist | 5° |
| Max. Right Twist | 5° |
| Bell-Mouth Length | 0.1~0.3mm |
| Carrier Cut Off Length | 0~0.2mm |
| Conductor Extruded Length | 0.05~0.2mm |

16 ACES APPLICATION SOP

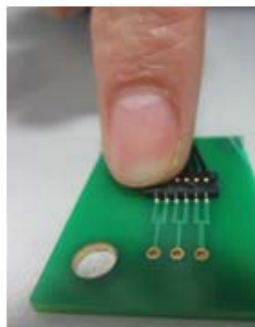
1. 當一個完整的 connector 對配時，首先觀察其線端與板端的嵌合基準位置。



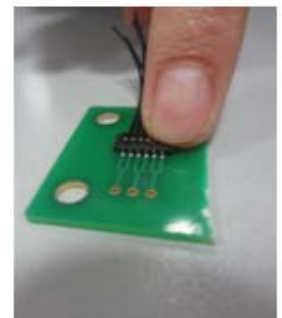
2. 對配時使用拇指將線端對準板端卡槽垂直按壓進板端,為確保板線端完全對配到位，再用拇指分別按壓板線端膠體兩側卡扣確保卡扣完全嵌合。



拇指向下按壓

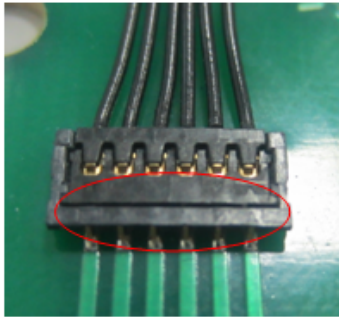


拇指按壓左側卡扣

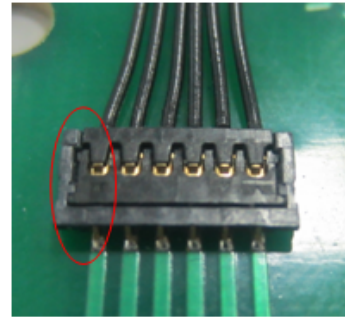


拇指按壓右側卡扣

注意事項

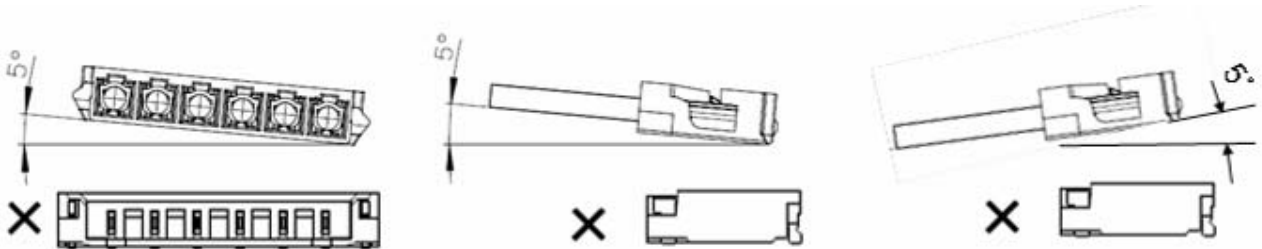


嵌合位置OK



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:



TITLE: **1.2 mm PITCH WTB CONNECTOR**

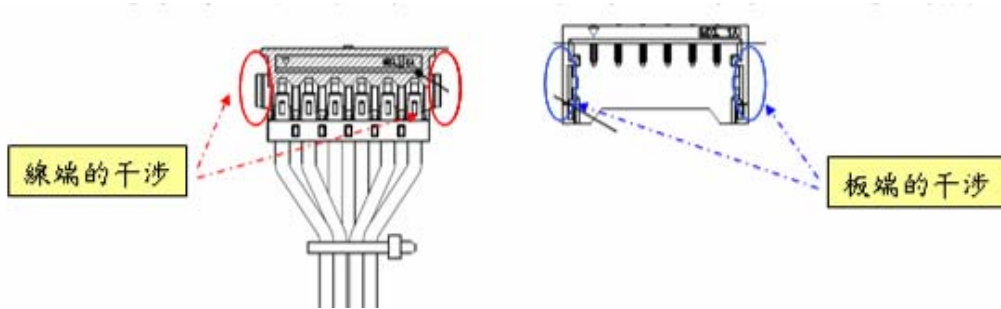
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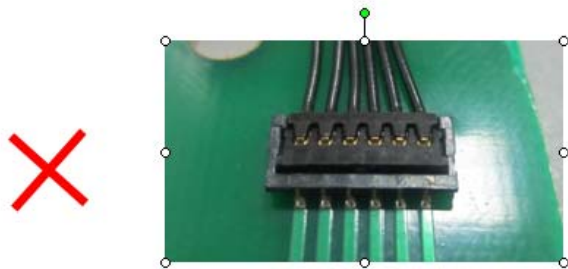
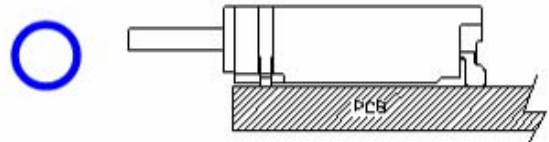
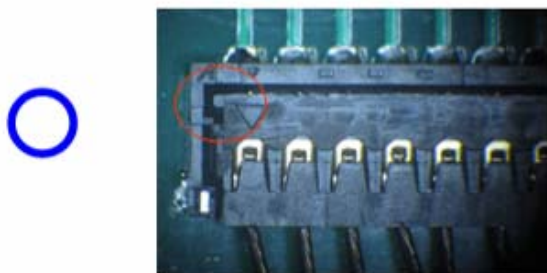
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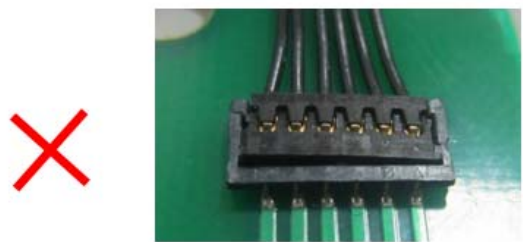
4. 對配壓合完畢時，確認其對配狀況，其線端的干涉必須完整與板端結合。



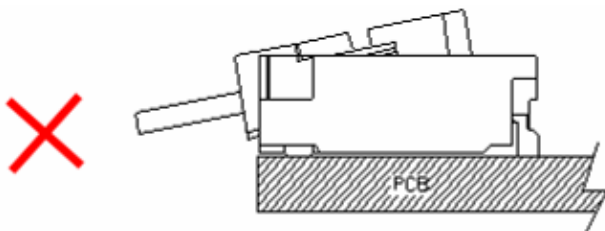
線端與板端對配后狀況如下圖：



中間拱起，線端端子未夾持住板端端子



LOCK處未扣合



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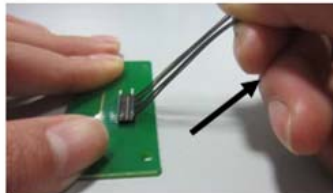
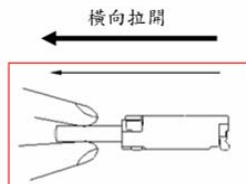
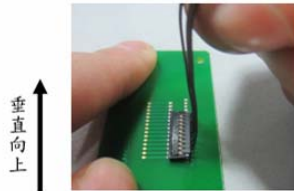
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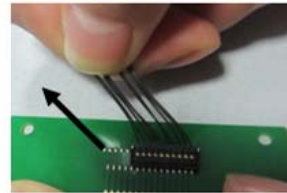
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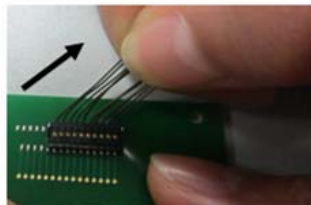
5. 當未對配正確時，應該拉住線端，垂直並保持直線的方式向上拉開，切勿橫向或斜向式拉開線端。



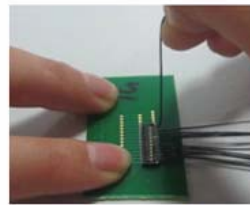
斜向拉開



斜向拉開



斜向拉開



單線拉開

TITLE: **1.2 mm PITCH WTB CONNECTOR**

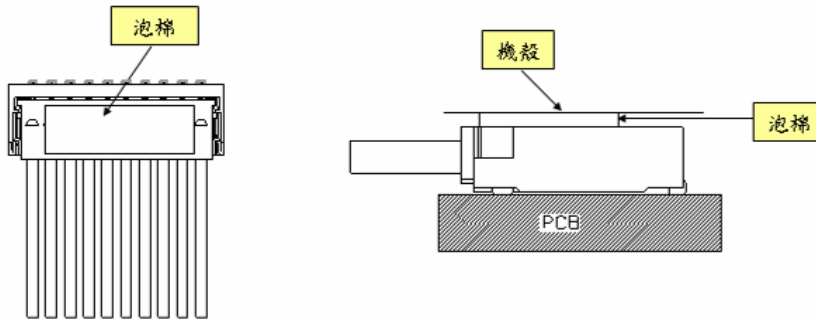
RELEASE DATE: 2018.07.13

REVISION: E

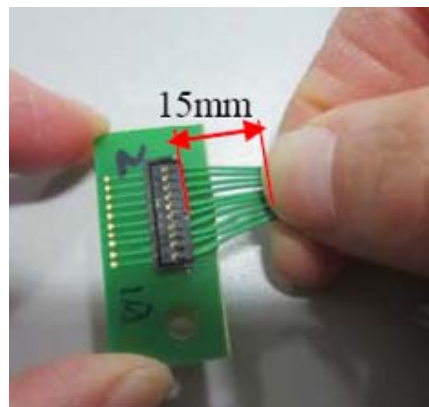
ECN No: ECN-1807287

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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機器，或是以其他機構設計來使得間隙小于 0.15mm.

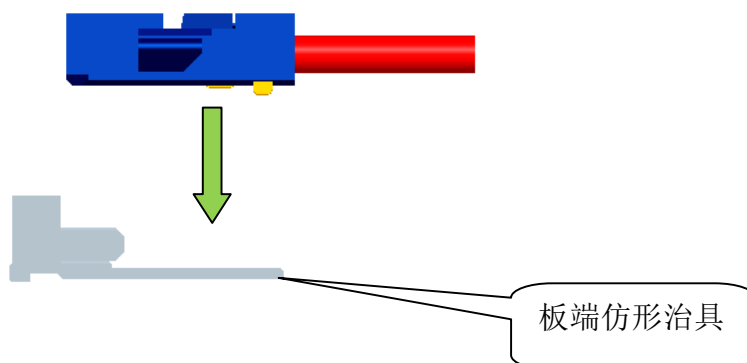


7. 做插拔測試時，握線距離以 15mm 為準，進行拔出力測試.



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: **1.2 mm PITCH WTB CONNECTOR**

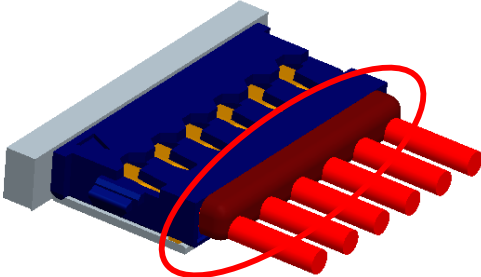
RELEASE DATE: 2018.07.13

REVISION: E

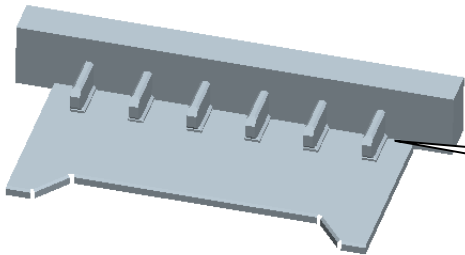
ECN No: ECN-1807287

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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