



## SPECIFICATION

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SPEC. NO.: PS-50236-xxxxx

REVISION: D

PRODUCT NAME: 1.00 mm Pitch SMT Wire to Board Singal Row Housing

PRODUCT NO: 50236 、 87214-Wx 、 71215 series

PREPARED:  GAOLI  DATE: 2022.11.29	CHECKED:  XIUJIN  DATE: 2022.11.29	APPROVED:  XUZHUYONG  DATE: 2022.11.29
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Aces P/N: **50236 ,87214-Wx,71215 series**

**TITLE: 1.00 MM PITCH SMT WIRE TO BOARD DUAL ROW CONNECTOR**

RELEASE DATE: 2022.11.29

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ECN No: **ECN-009798**

PAGE: **2** OF **15**

1	REVISION HISTORY .....	3
2	SCOPE .....	4
3	APPLICABLE DOCUMENTS.....	4
4	REQUIREMENTS .....	4
5	PERFORMANCE .....	5
6	INFRARED REFLOW CONDITION .....	7
7	PRODUCT QUALIFICATION AND TEST SEQUENCE.....	8



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REVISION: **D**

ECN No: **ECN-009798**

PAGE: **3** OF **15**

## 1 Revision History

Rev.	ECN #	Revision Description	Approved	Date
<b>O</b>	<b>ECN- 0812210</b>	<b>New release</b>	<b>Jason</b>	<b>2008.11.25</b>
<b>A</b>	<b>ECN-1401184</b>	<b>ADD WORKING VOLTAGE</b>	<b>Xufei</b>	<b>2014.01.10</b>
<b>B</b>	<b>ECN-1709396</b>	<b>ADD 3PIN Mating / Unmating Forces</b>	<b>CHENYA</b>	<b>2017.09.11</b>
<b>C</b>	<b>ECN-1805282</b>	<b>ADD 7PIN Mating / Unmating Forces</b>	<b>ZHANG HAO</b>	<b>2017.09.11</b>
<b>D</b>	<b>ECN-009798</b>	<b>ADD 9PIN Mating / Unmating Forces</b>	<b>Gaoli</b>	<b>2022.11.29</b>
		<b>ADD 71215 SERIES</b>		

**TITLE: 1.00 MM PITCH SMT WIRE TO BOARD DUAL ROW CONNECTOR**

RELEASE DATE: 2022.11.29

REVISION: **D**

ECN No: **ECN-009798**

PAGE: **4** OF **15**

## 2 SCOPE

This specification covers performance, tests and quality requirements for **1.00 mm Pitch SMT Wire to Board Housing**.

P/N : 50236-XXXXXXX-XXX ( Housing ) ; **71215-XXXXXXX-XXX ( Housing )**  
: 87214-Wx(Terminal )  
; : 50224-XXXXXX-XXX

## 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: Pls see order information
- 4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0

### 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 1A AC**  
**AWG# 30 1A AC**  
**AWG# 32 1A AC**
- 4.3.4 Operating Temperature : **-25°C to +85°C**

**TITLE: 1.00 MM PITCH SMT WIRE TO BOARD DUAL ROW CONNECTOR**

RELEASE DATE: 2022.11.29

REVISION: **D**

ECN No: **ECN-009798**

PAGE: **5** OF **15**

## 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.
<b>ELECTRICAL</b>		
Item	Requirement	Standard
Low-signal Level Contact Resistance	<b>55 m <math>\Omega</math></b> Max. (initial)per contact <b>20 m <math>\Omega</math></b> Max. Change allowed	Mate connectors, measure by dry circuit, <b>20mV</b> Max., <b>10mA</b> Max. (EIA-364-23)
Insulation Resistance	<b>100 M <math>\Omega</math></b> Min.	Unmated connectors, apply <b>500 V</b> DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	<b>250 VAC</b> Min. at sea level for <b>1</b> minute. No discharge, flashover or breakdown. Current leakage: <b>1 mA</b> max.	Test between adjacent contacts of unmated connectors. (EIA-364-20)
Temperature rise	<b>30°C</b> Max. Change allowed	Mate connector: measure the temperature rise at rated current after: <b>1 A</b> /Power contact. The temperature rise above ambient shall not exceed 30°C The ambient condition is still air at 25°C (EIA-364-70 METHOD 2)
<b>MECHANICAL</b>		
Durability	<b>30</b> cycles.	The sample should be mounted in the tester and fully mated and unmated the number of cycles specified at the rate of <b>25.4 <math>\pm</math> 3mm/min.</b> (EIA-364-09)
Mating / Unmating Forces	Mating Force: <a href="#">See the table</a> Unmating Force: <a href="#">See the table</a>	Operation Speed : <b>25.4 <math>\pm</math> 3</b> mm/minute.. Measure the force required to mate/Unmate connector. (EIA-364-13)
Crimping pull out Force	AWG# 28: 10N MIN AWG# 30: 5N MIN AWG# 32: 3N MIN	Fix the crimped terminal, apply axial pull out force on the wire at speed rate <b>25.4 <math>\pm</math> 3</b> mm/minute.

**TITLE: 1.00 MM PITCH SMT WIRE TO BOARD DUAL ROW CONNECTOR**

RELEASE DATE: 2022.11.29

REVISION: **D**

ECN No: **ECN-009798**

PAGE: **6** OF **15**

Pin Retention force	3N MIN	apply axial pull out force on the wire at speed rate <b>25.4 ± 3</b> mm/minute.
Terminal / Housing Retention Force	0.7kgf MIN.	Apply axial pull out force at the speed rate of <b>25.4 ± 3</b> mm/minute. On the terminal assembled in the housing.
Vibration	1 $\mu$ s 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 <b>10 and 55 Hz</b> . The entire frequency range, from <b>10 to 55 Hz</b> and return to <b>10 Hz</b> , 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 $\mu$ s Max.	Subject mated connectors to <b>50 G's</b> (peak value) <b>half-sine</b> shock pulses of <b>11</b> 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)
<b>ENVIRONMENTAL</b>		
Resistance to <b>Reflow</b> Soldering Heat	See Product Qualification and Test Sequence Group 4 ( <b>Lead Free</b> )	Pre Heat : 150°C~180°C, 60~90sec. 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: -25 +0/-3 °C, 30 minutes +85 +3/-0 °C, 30 minutes (EIA-364-32, test condition A)
Humidity	See Product Qualification and Test Sequence Group 4	Mated Connector 40°C, 90~95% RH, Reefer to Method II. (EIA-364-31, Test condition A)
Temperature life	See Product Qualification and Test Sequence Group 8	Subject mated connectors to temperature life at <b>85°C</b> for <b>96 hours</b> . Measure Signal. (EIA-364-17, Test condition A)
Salt Spray	See Product Qualification and Test	Subject mated/unmated

**TITLE: 1.00 MM PITCH SMT WIRE TO BOARD DUAL ROW CONNECTOR**

RELEASE DATE: 2022.11.29

REVISION: **D**

ECN No: **ECN-009798**

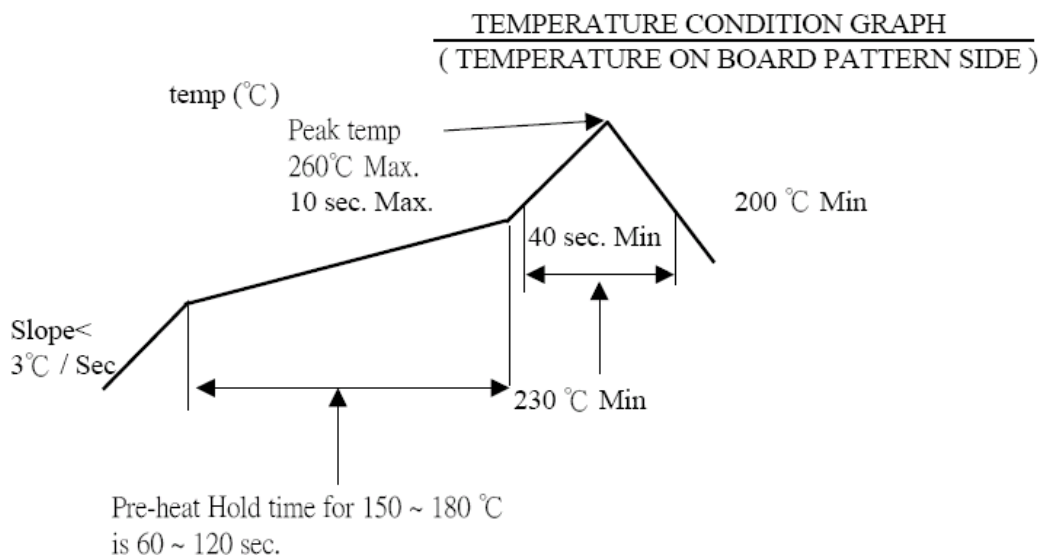
PAGE: **7** OF **15**

	Sequence Group 5	connectors to 5% salt-solution concentration, 35°C for 8 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 $245 \pm 5^\circ\text{C}$ , for 4-5 sec. (EIA-364-52)
<b>GWIT (FOR 71215)</b>	<b>Temperature set to <math>750^\circ\text{C} (\pm 10^\circ\text{C})</math></b>	<b>No ignition of the test specimen or Visible flames extinguish within 5s (IEC 60695-2-13)</b>
<b>GWFI (FOR 71215)</b>	<b>Temperature set to <math>850^\circ\text{C} (\pm 10^\circ\text{C})</math></b>	<b>No ignition of the test specimen or Flames or glowing extinguish within 30s No ignition of the after removal of the glow-wire No ignition of the tissue paper (IEC 60695-2-12)</b>

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

## 6 INFRARED REFLOW CONDITION

### 6.1. Lead-free Process



**TITLE: 1.00 MM PITCH SMT WIRE TO BOARD DUAL ROW CONNECTOR**

RELEASE DATE: 2022.11.29

REVISION: **D**

ECN No: **ECN-009798**

PAGE: **8** OF **15**

## 7 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group											
	1	2	3	4	5	6	7	8	9	10	11	12
	Test Sequence											
Examination of Product				1、7	1、6	1、4				1	1	1
Low-signal Level Contact Resistance		1、5	1、4	2、10	2、9	2、5				3		
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						3						
Solder ability							1					
Crimping pull out Force								1				
Terminal / Housing Retention Force									1			
Resistance to Soldering Heat										2		
GWIT											2	
GWFI												2
Sample Size	2	4	4	4	4	4	2	4	4	4	5	5



**TITLE: 1.00 MM PITCH SMT WIRE TO BOARD DUAL ROW CONNECTOR**

RELEASE DATE: 2022.11.29

REVISION: **D**

ECN No: **ECN-009798**

PAGE: **9** OF **15**

## 8 INSERTION & WITHDRAWAL FORCE( Mating / Unmating Forces)

Number of	At initial		At 30th
Circuits	I.F.(max)	W.F.(min)	W.F.(min)
03	15	3	3
07	20	5	5
<b>09</b>	<b>40</b>	<b>5</b>	<b>5</b>
20	50	5	5
30	60	6	6
40	70	7	7
50	80	8	8

單位:N

TITLE: 1.00 MM PITCH SMT WIRE TO BOARD DUAL ROW CONNECTOR

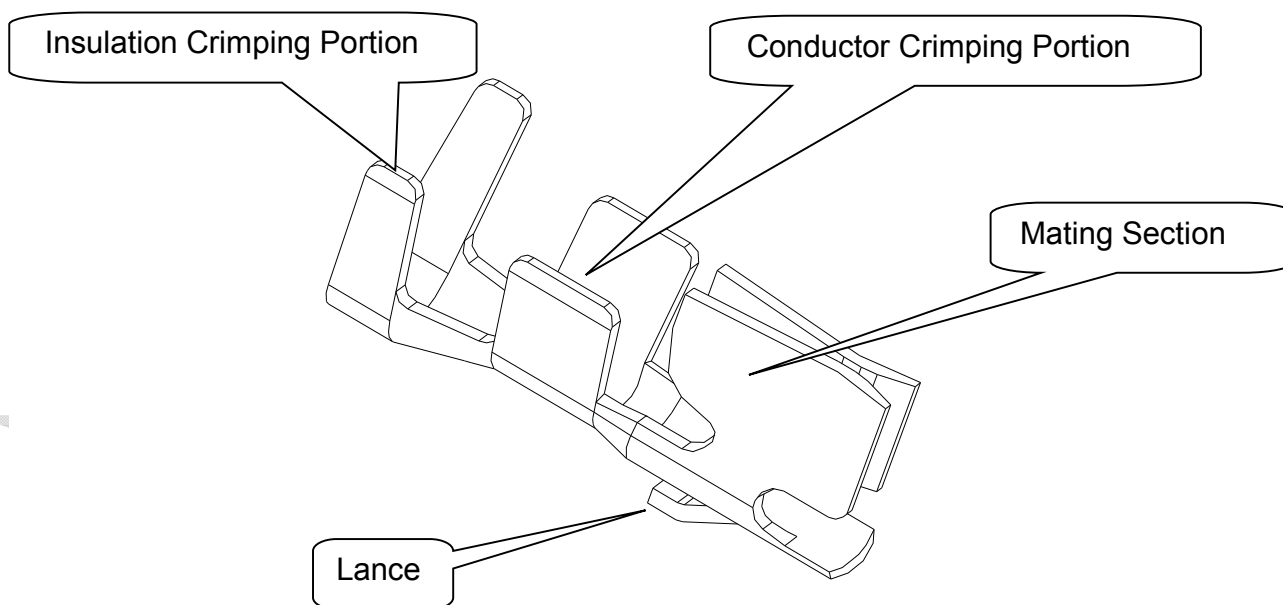
RELEASE DATE: 2022.11.29

REVISION: **D**

ECN No: **ECN-009798**

PAGE: **10** OF **15**

## 9 ANATOMY OF CRIMPING TERMINAL



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

## 10 APPLICABLE WIRES: UL3302 AND UL1571(AWG#34) ETFE WIRE

AWG Size:AWG#28 Insulation OD:  $\Phi 0.65\text{mm}$

AWG Size:AWG#30 Insulation OD:  $\Phi 0.70\text{mm}$

AWG Size:AWG#32 Insulation OD:  $\Phi 0.60\text{mm}$

**TITLE: 1.00 MM PITCH SMT WIRE TO BOARD DUAL ROW CONNECTOR**

RELEASE DATE: 2022.11.29

REVISION: **D**

ECN No: **ECN-009798**

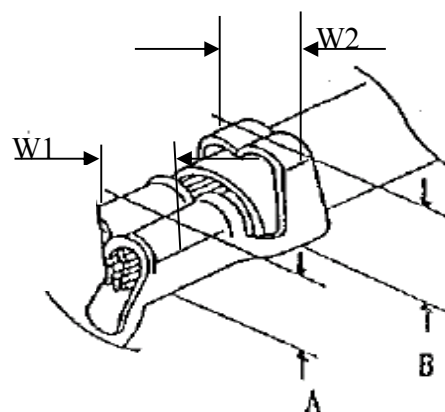
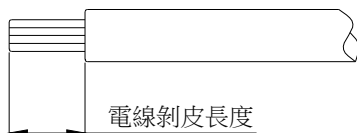
PAGE: **11** OF **15**

## 11 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
87214-W	UL3302	28	0.65	0.80Max	1.05~1.15	0.55~0.65	0.80Max
87214-W	UL3302	30	0.70	0.75Max	1.10~1.20	0.50~0.60	0.80Max
87214-W	UL3302	32	0.60	0.60Max	1.00~1.10	0.50~0.60	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
- 2、W2為電線外被部分鉚壓後之寬度(Insulation Crimping Width)：W2值如上表
- 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)：1.3~1.6mm (參考值)

TITLE: 1.00 MM PITCH SMT WIRE TO BOARD DUAL ROW CONNECTOR

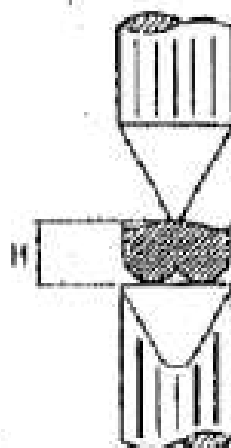
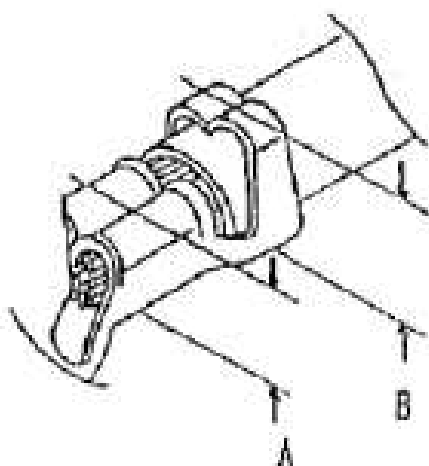
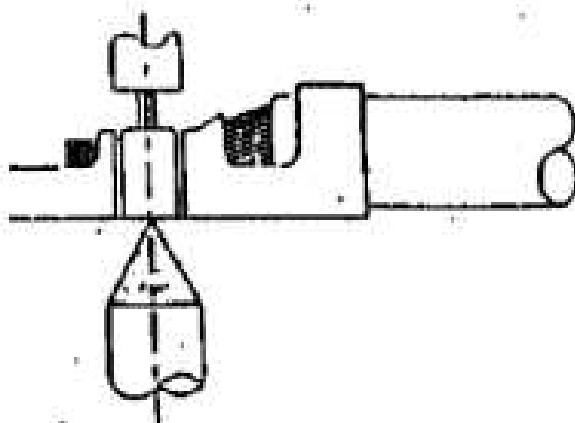
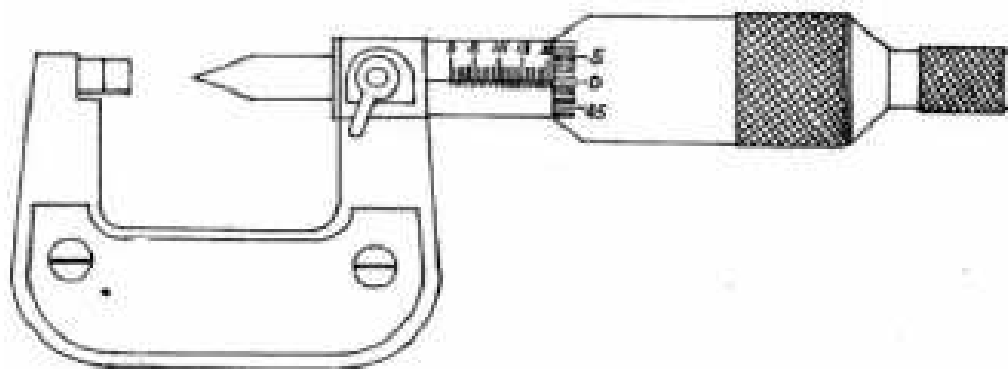
RELEASE DATE: 2022.11.29

REVISION: **D**

ECN No: **ECN-009798**

PAGE: **12** OF **15**

## 12 CRIMPING HEIGHT MEASUREMENT



TITLE: 1.00 MM PITCH SMT WIRE TO BOARD DUAL ROW CONNECTOR

RELEASE DATE: 2022.11.29

REVISION: **D**

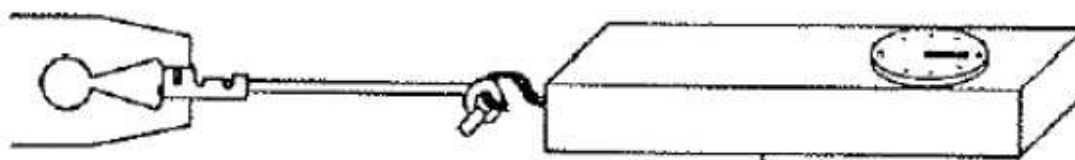
ECN No: **ECN-009798**

PAGE: **13** OF **15**

### 13 PULL FORCE OF CRIMPING SECTION MEASUREMENT

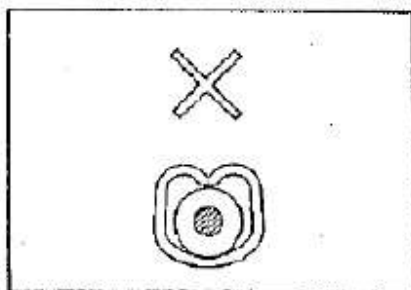


Before test samples, please measure crimp height and do not crimp insulation.

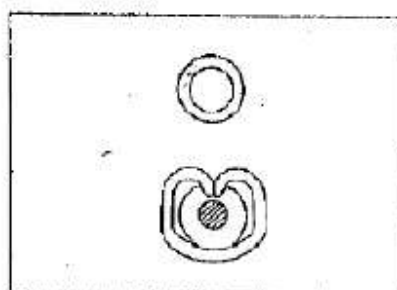


Pull Force of Crimp Section Measurement

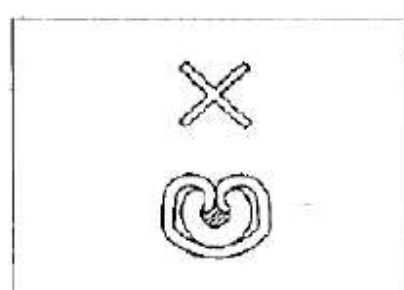
### 14 STANDARD INSULATION CRIMPING



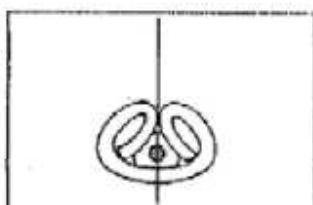
Not enough crimp



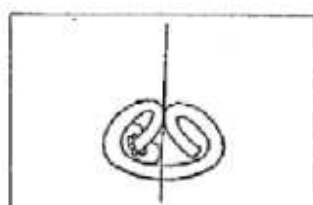
Good



Crimp too much

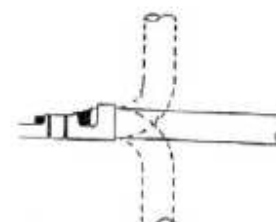


Good



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.

TITLE: 1.00 MM PITCH SMT WIRE TO BOARD DUAL ROW CONNECTOR

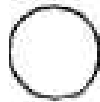
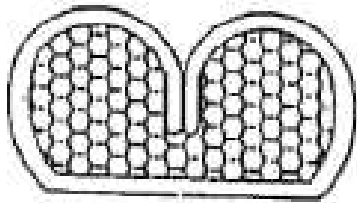
RELEASE DATE: 2022.11.29

REVISION: **D**

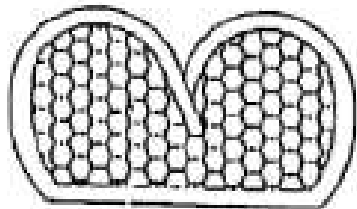
ECN No: **ECN-009798**

PAGE: **14** OF **15**

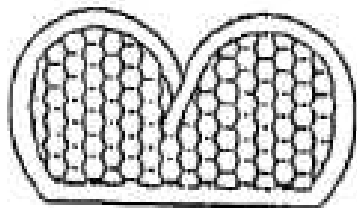
## 15 CONDUCTORS CRIMPING CONDITION



Good

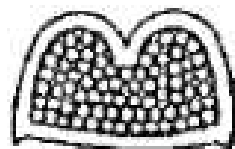


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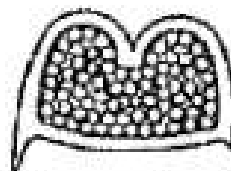


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Lower conduct  
retension force



Good



Large burr

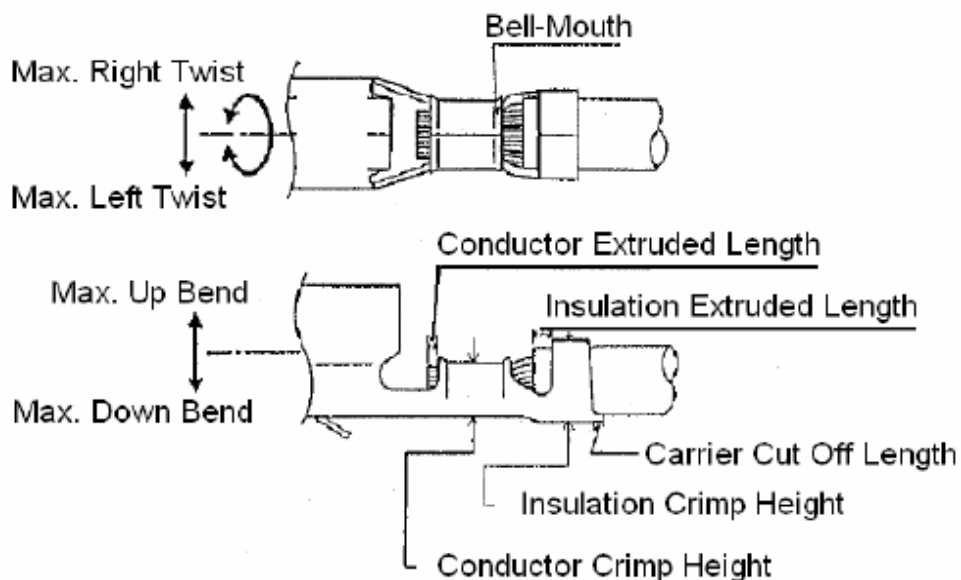
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**TITLE: 1.00 MM PITCH SMT WIRE TO BOARD DUAL ROW CONNECTOR**

RELEASE DATE: 2022.11.29

REVISION: **D**

ECN No: **ECN-009798**

PAGE: **15** OF **15**
**16 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