

TO

**SPECIFICATION FOR APPROVAL**

DESCRIPTION: Pitch 2.0mm Wafer SMT R/A Type

CUSTOMER PROD.NO/DWG.NO:

E&T PROD.NO:

APPROVAL SHEET NO:

E&T DWG. NO./DOCUMENT: 4531K-XXXN-XXX

REV: A2

**PLEASE RETURN TO US ONE COPY OF"SPECIFICATION  
FOR APPROVAL"WITH YOUR APPROVED SIGNATURES.**

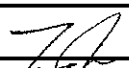
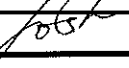
APPROVED SIGNATURES			



**ENTERY INDUSTRIAL CO., LTD.  
E&T ELECTRONICS (DONG GUAN) CO., LTD.  
E&T ELECTRONICS (SU ZHOU) CO., LTD.**

# ENTERY INDUSTRIAL CO., LTD.

**Title: Pitch 2.0mm Wafer SMT R/A Type**

Release History		Title: Pitch 2.00mm Wafer SMT R/A Type	
A3	2011/10/25	This Document Contains Information That Is Proprietary To E&T And Should Not Be Used Without Written Permission	
Rev	Description		
Document No.		Prepared By: MAX	Date: 09,28'2009
4531K-XXXN-XXX		Checked By: 	Date: 12,15,2011
		Approved By: 	Date:

## GROUP AND TEST SEQUENCE

[illegible]

# ENTERY INDUSTRIAL CO., LTD.

## PROUDCT SPECIFICATION

### 1. SCOPE :

This specification covers the 2.0 mm wafer SMT connector series..

### 2. PRODUCT NAME AND PART NUMBER :

Product Name	E&T Part Number
2.0mm Wafer SMT R/A Type	4531K-XXXN-XXX

### 3. RATINGS :

Item	Standard	
Rated Voltage (MAX.)	30 V	(AC(rms/DC)
Rated Current (MAX.)	1 A	
Ambient Temperature Range		-25 <sup>0</sup> C ~ +85 <sup>0</sup> C

\*1. Including terminal temperature rise.

### 4. PERFORMANCE :

#### 4-1 Electrical Performance

Item		Test Condition	Requirement
4-1-1	Contact Resistance	Mate applicable PIN header and measure by dry circuit , 20mV MAX., ( Based upon JIS C5402 5.4 )	20 mΩMAX.
4-1-2	Insulation Resistance	Mate applicable PIN header and apply 500V DC between adjacent terminal or ground. (Based upon JIS C5402 5.2 / MIL- STD -202 Method 302 Condition .B )	1000MΩMIN.
4-1-3	Dielectric Strength	Mate applicable PIN header and apply 800V AC (rms) for 1 minute between adjacent terminal or ground. ( Based upon JIS C5402 5.1/MIL- STD -202 Method 301 )	No Breakdown

# ENTERY INDUSTRIAL CO., LTD.

## 4-2 Mechanical Performance

Item		Test Condition	Requirement
4-2-1	Insertion Withdrawal Force	Mate applicable PIN header and Insert and Withdraw actuator at the speed rate of $25 \pm 3 \text{ mm / minute}$ .	See 5-1
4-2-2	Terminal/Housing Retention Force	Apply axial pull out force at the speed Rate of $25 \pm 3 \text{ mm / minute}$ on the terminal Assembled in the housing.	0.5 kgf MIN.
4-2-3	Durability	The contacts of connector shall be subject to 30 cycles of mating and unmating.	Contact Resistance
			Initial Value $\leq 20 \text{ m}\Omega$
			Final Value $\leq 40 \text{ m}\Omega$

## 4-3 Environmental Performance and Others

Item		Test Condition	Requirement
4-3-1	Heat Resistance	$85 \pm 2^\circ\text{C}$ , 96 hours ( Based upon JIS C0021/MIL-STD-202 Method 108A Condition A )	Appearance : No Damage Contact Resistance : $40 \text{ m}\Omega\text{MAX}$
4-3-2	Temperature Cycling	5 cycles of : a) $-25 \pm 3^\circ\text{C}$ 30 minutes b) $+25 \pm 3^\circ\text{C}$ 30 minutes b) $+85 \pm 3^\circ\text{C}$ 30 minutes ( Based upon JIS C0025 )	Appearance : No Damage. Contact Resistance : $40 \text{ m}\Omega\text{MAX}$ .
4-3-3	Humidity	Temperature : $40 \pm 2^\circ\text{C}$ Relative Humidity : 90~95% Duration : 96 hours ( Based upon JIS C0022/MIL-STD-202 Method 103B Condition .B )	Appearance : No Damage. Contact Resistance : $40 \text{ m}\Omega\text{MAX}$ . Dielectric Strength : Must meet 4-1-3 Insulation Resistance : $500 \text{ M}\Omega\text{MIN}$ .
4-3-4	Cold Resistance	$-40 \pm 2^\circ\text{C}$ , 96 hours ( Based upon JKS C0020 )	Appearance : No Damage. Contact Resistance: $40 \text{ m}\Omega\text{MAX}$ .
4-3-5	Salt Spray	$48 \pm 4$ hours exposure to a salt spray from the $5 \pm 1\%$ solution at $35 \pm 2^\circ\text{C}$ . ( Based upon JIS C5028/MIL-STD-202 Method 101D Condition . B )	Appearance : No Damage. Contact Resistance : $40 \text{ m}\Omega \text{ max}$ .
4-3-6	Solder ability	Soldering Time : $3 \pm 0.5 \text{ sec}$ . Solder Temperature : $235 \pm 5^\circ\text{C}$	Solder Wetting : 95% of immersed area must show no voids, pin holes
4-3-7	Resistance to Wave Soldering Heat	Soldering Time : $5 \pm 0.5 \text{ sec}$ . Solder Temperature : $260 \pm 5^\circ\text{C MAX}$	Appearance : No Damage

# ENTERY INDUSTRIAL CO., LTD.

Item		Test Condition	Requirement	
4-3-8	Vibration	Amplitude : 1.5 mm Frequency range: 10~55~10 Hz in 1 minute Duration: 2 hours in each X.Y.Z axes Current: 100mA. Test Method: MIL-STD-202F, Method 201	Appearance	No Damage
			Contact Resistance	$\leq 40 \text{ m}\Omega$
			Discontinuity	1μsec
4-3-9	Steam Aging	Steam Aging Temperature : 98±2℃ Duration: 8 hours Solder Temperature : 235±5℃ Soldering Time : 3±0.5 sec Test Method: MIL-STD-202F , Method 208	Appearance	No Damage
			Solder Wetting	95% Of Immersed Area Must Show No Voids, Pin Holes

## 5-1 Insertion / Withdrawal Force

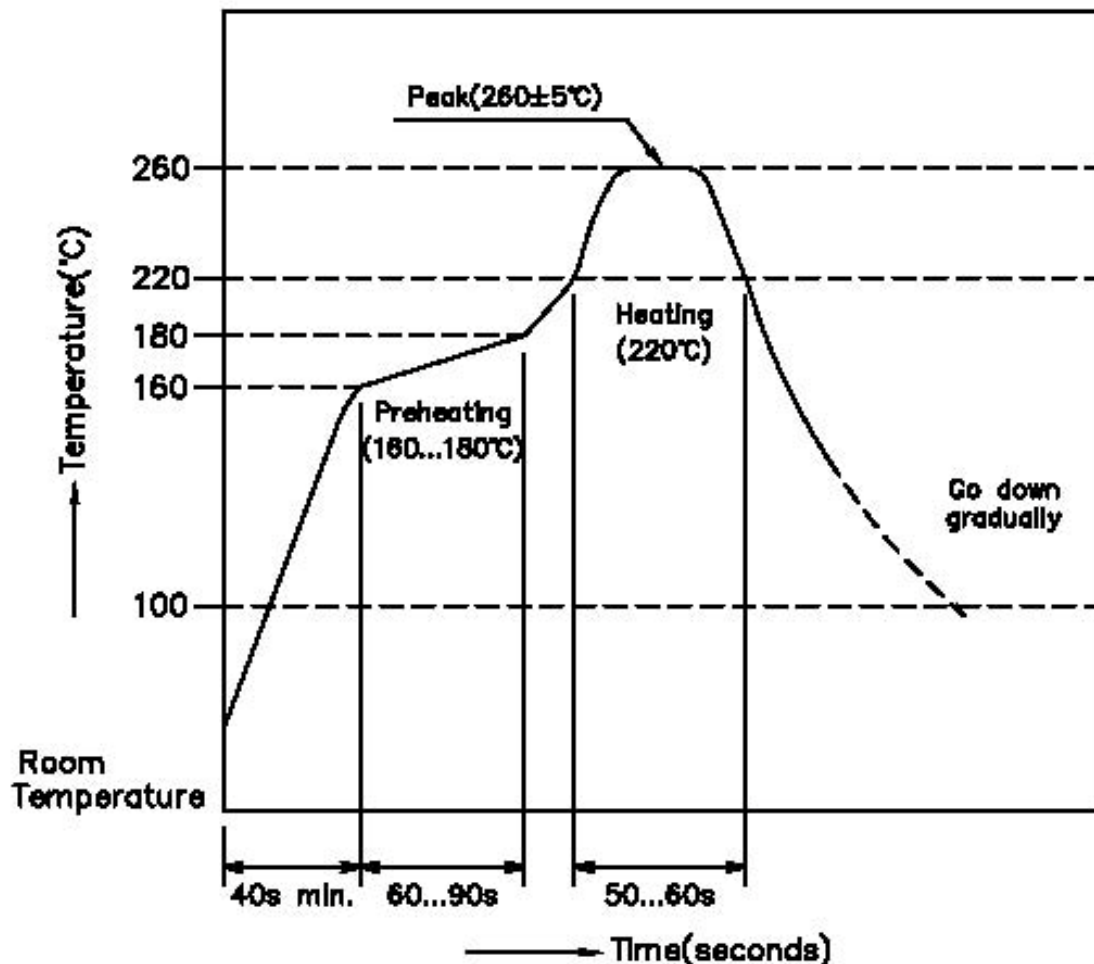
Unit:kgf

PIN NO.	At Initial		At 30th
	Insertion Force(MAX)	Withdrawal Force(Min)	Withdrawal Force(Min)
06	2.50	0.65	0.55
08	3.20	0.80	0.60
10	3.90	1.00	0.80
12	4.60	1.25	1.00
14	5.30	1.46	1.25
16	6.00	1.60	1.40
18	6.70	1.80	1.60
20	7.40	2.06	1.80
22	8.10	2.28	2.00
24	8.80	2.42	2.20
26	9.50	2.55	2.40
28	10.20	2.71	2.50
30	10.90	2.80	2.60
32	11.60	2.90	2.70

# ENTERY INDUSTRIAL CO., LTD.

## 6. INFRARED REFLOW CONDITION

- 1) Ascending time to preheating temperature 170°C shall be 40 seconds minimum.
- 2) Preheating shall be fixed at 160...180°C for 60...90 seconds.
- 3) Heating shall be fixed at 220°C for 50...60 seconds.
- 4) At  $260\pm 5^{\circ}\text{C}$  peak shall be 10 seconds maximum.



## Wire To Board Handling Precautions

This manual is to describe basic precautions. When there are doubtful points in use of, please contact E&T.

### 1. Common Handling Precautions

- Do not expose E&T's wire to board connector, processing process product and processing product to corrosive substance, corrosive gas, high temperature and high humidity and direct sunshine. It causes corrosion of contact and deterioration of insulation performance of housing, etc., so that it causes motion defect of appliances.
- Do not apply external load to E&T's wire to board connector, processing process product and processing product. Deformation and breakage, etc. occur, and it causes performance defect of.
- There may be slight differences in the housing coloring, but there will be no influence on the product's performance.
- Please do not conduct any "washing process" on the connector because it may damage the product's function.
- E&T's wire to board connector is not designed for the mating and unmating of the connectors to be performed under the condition of an active electrical circuit. It may cause a spark and product defect if the connectors are mated and unmated in this way.

### 2. PC Board Precautions

- Exercise caution when handling boards with the connectors installed. Do not apply any forces affecting soldered joints. (see figure 1).
- The mounting specification for coplanarity does not include the influence of warpage of the printed circuit board. (see figure 1).
- Changing recommended pattern causes problems.

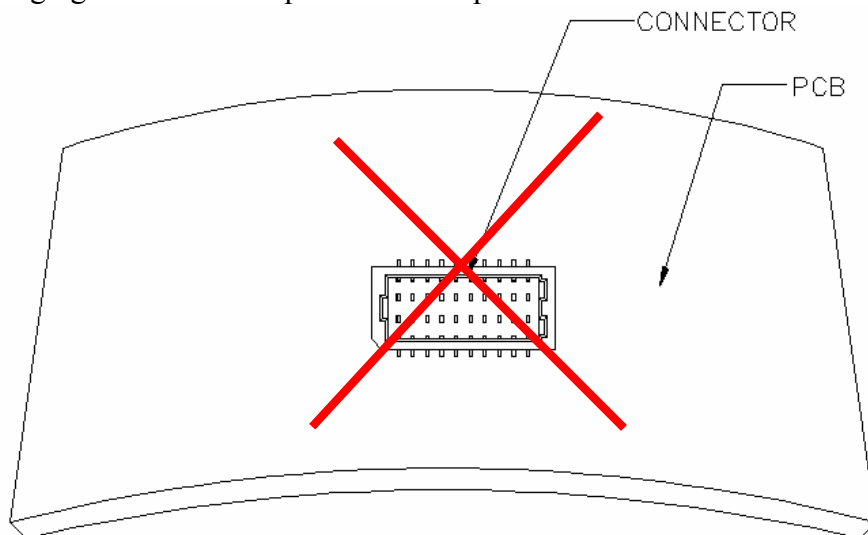


Figure 1.



## 3. Precautions Crimped Terminal Insertion

- Terminal must be inserted horizontally oriented (see figure 2).
- Do not attempt to insert crimped terminal in any other direction. (see figure 2).

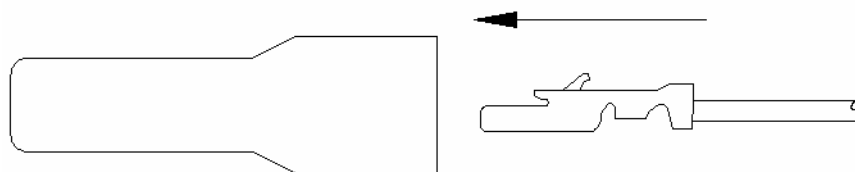


Figure 2.

## 4. Precautions When Inserting or Withdrawal Wire To Board

- Do not insert and remove at an angle of  $25^\circ$  or greater. Doing so will cause contact deformation or case damage. (see figure 3).
- Push the wire side connector until firmly closed. At this time, confirm that the wire side connector is mated securely.
- When mounting of connectors, its slant or aberration shall be  $3^\circ$  max.
- Do not insert and remove the connectors when the board side connector is not mounted on the PC board.
- Used Lock type, when removed to connectors, please released positive locks.

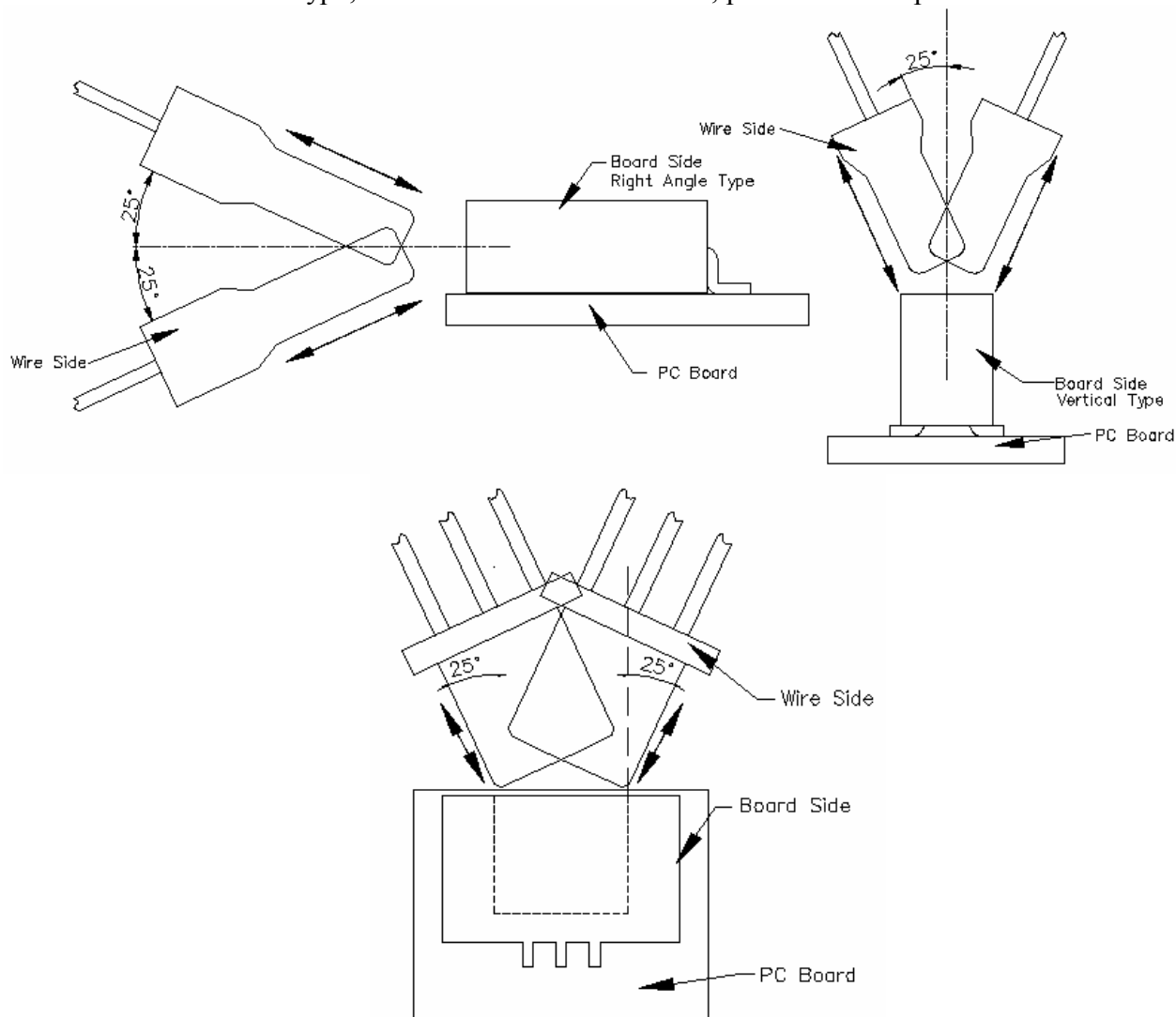


Figure 3.

## 5. Precautions Cable Assembly

- The cable assembly should not have a constant stress or pulling force applied on it when it is in the mated condition. Therefore, when designing the wire positioning, please ensure that there is enough length of wire to avoid stress on the connector. (see figure 4).

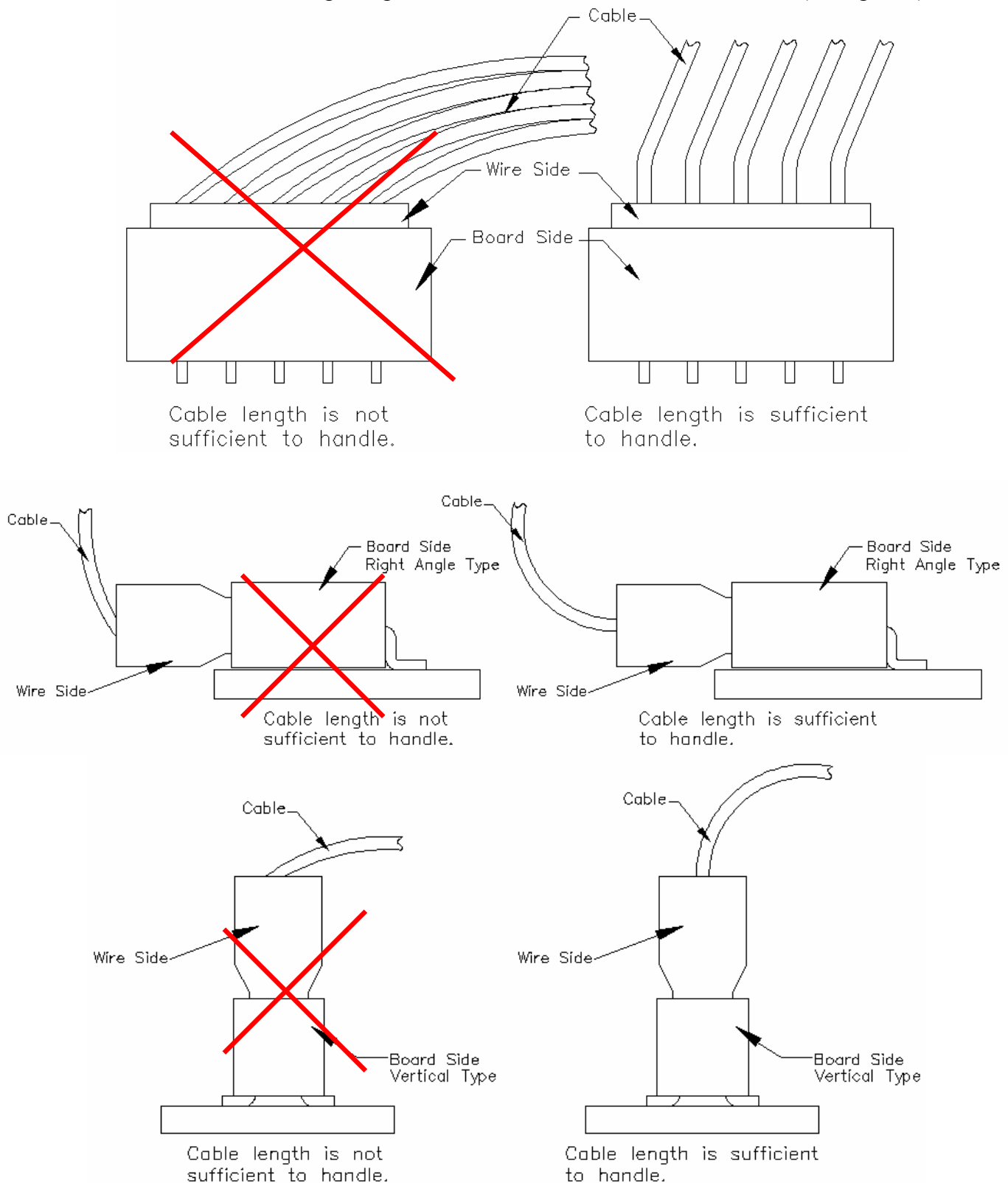


Figure 4.

**ENTERY INDUSTRIAL CO., LTD.**

**RELEASE HISTORY**

<b>Rev.</b>	<b>Revisions</b>	<b>Date</b>	<b>Executor</b>	<b>Description</b>
A3	RE201110012 RE201111028	Oct-18-2011	Juno	Add Handling Precautions Cancel Packaging Spec