



# TOYO LED ELECTRONICS LIMITED

Room 1610, Hong Kong Plaza, 188 Connaught Road West, Hong Kong.  
Tel : (852) 2540 7288 Fax : (852) 2517 1797  
http://www.toyo-led.com E-mail : sales@toyo-led.com



**P/N: TY-P0809ZUR1-F10-A01**

0809Z Package 1.8mm Round Subminiature "Z-Bend" Lead Series

# SPECIFICATION FOR CUSTOMER APPROVAL

## P/N: TY-P0809ZUR1-F10-A01

DATE : August 23, 2016

PREPARED BY : Chen Li fen

CONFIRMED BY :



**PLEASE CONFIRM & SIGN BACK THIS SHEET TO US**

**CUSTOMER:**

\_\_\_\_\_

(COMPANY CHOP)

**APPROVAL BY:**

\_\_\_\_\_

(SIGNATURE)



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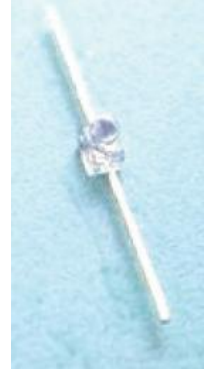
0809Z Package 1.8mm Round Subminiature "Z-Bend" Lead Series

### ◆ Features:

- Package in 12mm tape on 7" diameter reels
- Compatible with automatic placement equipment
- EIA std. package
- Mono-color type

### ◆ Description

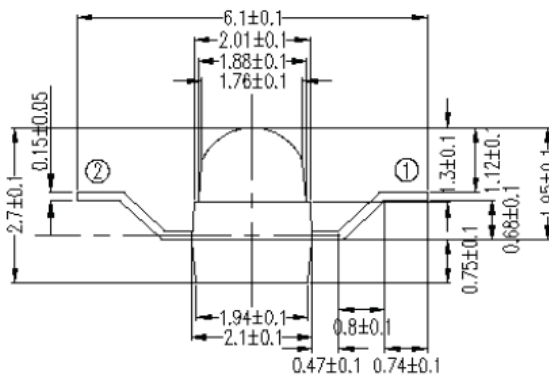
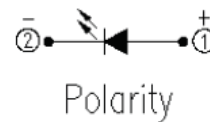
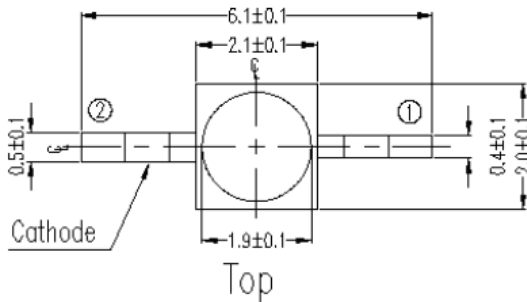
The Red source color devices are made with **AlGaInP** on sapphire Light Emitting Diode.



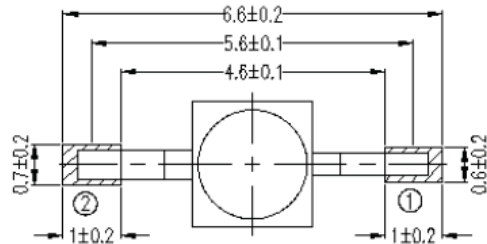
### ◆ Application

- Small indicator for indoor applications
- Indicator and backlighting in telephone and fax
- Flat backlight for LCD, switch and symbol
- Light pipe application
- General use

### ◆ Package Dimensions



### Recommend Soldering Pad



### NOTES:

1. All dimensions are in millimeter[unit];
2. Tolerance is  $\pm 0.1$ mm(0.004") especially other specified;
3. Specifications are subject to change without notice.



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| Part No.             | Emitted Color | Len's Color | Chip Material |
|----------------------|---------------|-------------|---------------|
| TY-P0809ZUR1-F10-A01 | Red           | Water clear | AlGaInP       |

### ✧ Absolute Maximum Ratings(Ta=25°C)

| Item  | Symbol            | Maximum        | Unit |
|---|-------------------|----------------|------|
| Power Dissipation                                       | PD                | 60             | mW   |
| Continuous Forward Current                              | I <sub>Fmax</sub> | 25             | mA   |
| Peak Forward Current(1/10 Duty Cycle 0.1ms Pulse Width) | I <sub>FP</sub>   | 160            | mA   |
| Reverse Voltage   | V <sub>R</sub>    | 5              | V    |
| Electrostatic Discharge                                 | ESD               | 2000           | V    |
| Operating Temperature Range                             | T <sub>opr</sub>  | -40 to+85      | °C   |
| Storage Temperature Range                               | T <sub>stg</sub>  | -40 to+100     | °C   |
| Soldering Temperature                                   | T <sub>sol</sub>  | 260°C for 5sec |      |

### ✧ Electrical/Optical Characteristics(Ta=25°C)

| Item                         | Symbol            | Condition            | Min. | Typ. | Max | Unit |
|------------------------------|-------------------|----------------------|------|------|-----|------|
| Forward Voltage              | V <sub>F</sub>    | I <sub>F</sub> =20mA | --   | 2.0  | 2.4 | V    |
| Luminous Intensity           | I <sub>V</sub>    | I <sub>F</sub> =20mA | 802  | 1232 | --  | mcd  |
| Peak Wavelength              | λ <sub>p</sub>    | I <sub>F</sub> =20mA | --   | 632  | --  | nm   |
| Dominant Wavelength          | λ <sub>d</sub>    | I <sub>F</sub> =20mA | --   | 624  | --  | nm   |
| Viewing Angle                | 2θ <sub>1/2</sub> | I <sub>F</sub> =20mA | --   | 25   | --  | Deg  |
| Spectrum Radiation Bandwidth | λΔ                | I <sub>F</sub> =20mA | --   | 20   | --  | nm   |
| Reverse Current              | I <sub>R</sub>    | V <sub>R</sub> =5V   | --   | 5    | 10  | uA   |



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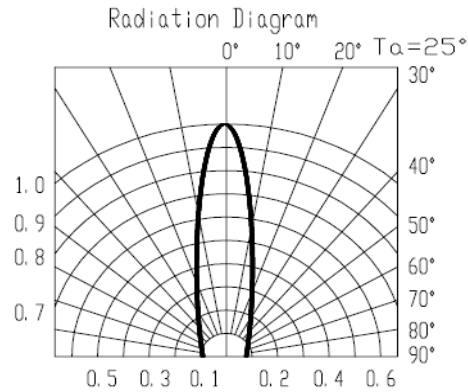
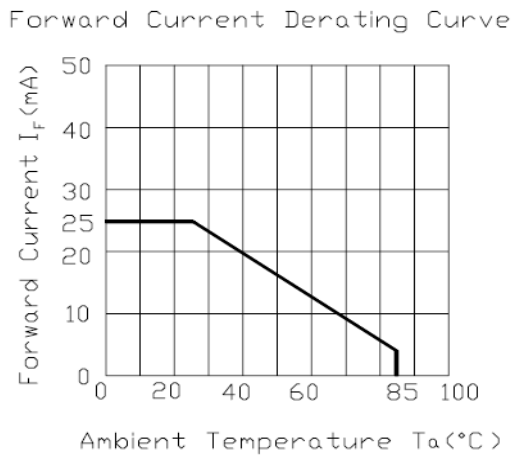
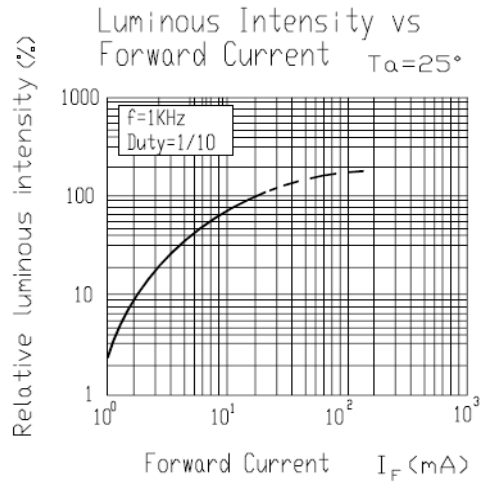
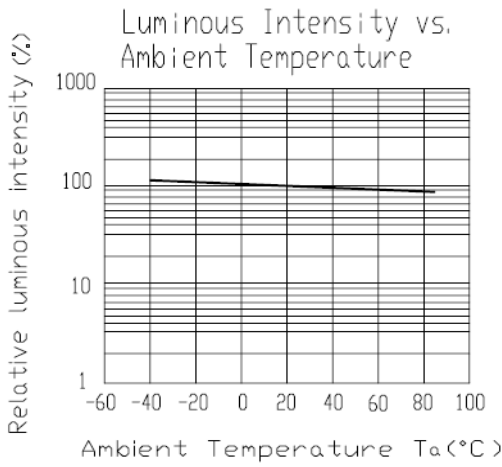
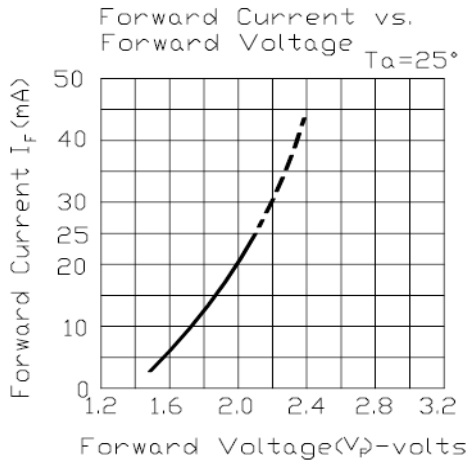
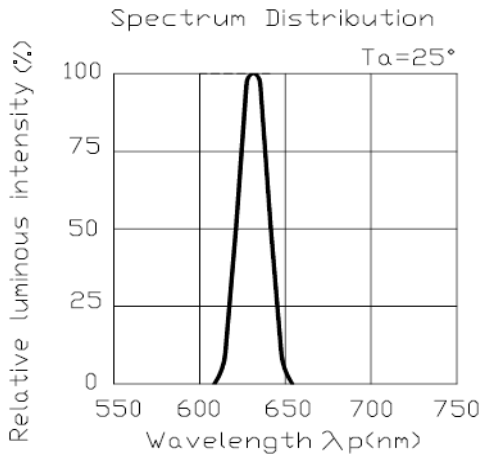
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## ✧ Typical Electro-Optical Characteristics Curves





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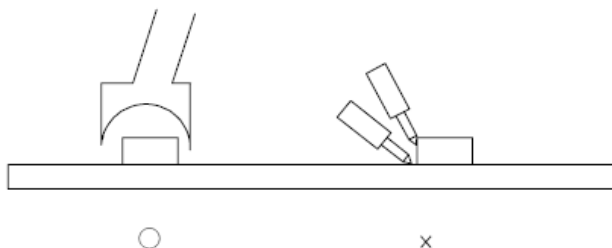
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## ◇ Reliability Test Items And Conditions

| NO. | Item                    | Test Condition                                 | Test Hr/cycle/time | Sample Q'ty | Ac/Re |
|-----|-------------------------|--|--------------------|-------------|-------|
| 1   | Reflow                  | TEMP:260±5°C;<br>Min.5Sec                      | 6 min              | 22pcs       | 0/1   |
| 2   | Temperature Cycle       | H:+100°C 15mins<br>To(5mins)<br>L:-40°C 15mins | 100 cycles         | 22pcs       | 0/1   |
| 3   | Thermal Shock           | H:+100°C 15mins<br>To(5mins)<br>L:-40°C 15mins | 100 cycles         | 22pcs       | 0/1   |
| 4   | Low Temperature Storage | TEMP:-40°C                                     | 1000hrs            | 22pcs       | 0/1   |
| 5   | DC Operating Life       | IF=20MA  | 1000hrs            | 22pcs       | 0/1   |
| 6   | High Temperature        | 85°C   | 1000hrs            | 22pcs       | 0/1   |
| 7   | High Humidity           | 85%R.H.  | 1000hrs            | 22pcs       | 0/1   |

### Rework

1. Customer must finish rework within 5 sec under 245°C.
2. The head of iron can not touch copper foil.
3. Twin-head type is preferred.





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### ❖ Precautions For Use

#### 1. Over-current-proof

Customer must apply resistors for protection , otherwise slight voltage shift will cause big current change ( Burn out will happen ).

#### 2. Storage time

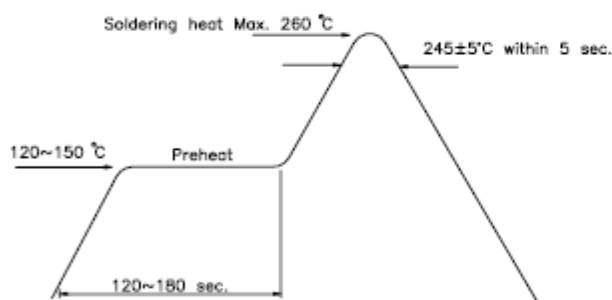
2.1 The operation of Temperature and RH are :  $5^{\circ}\text{C}\sim 35^{\circ}\text{C}$ , RH60%.

2.2 Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp proof box with desiccating agent. Considering the tape life , we suggest our customers to use our products within a year(from production date).

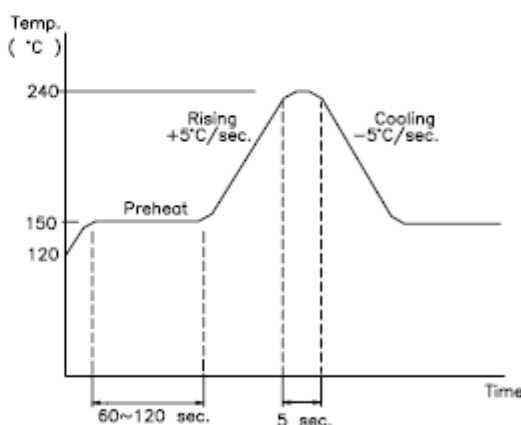
2.3 If opened more than one week in an atmosphere  $5^{\circ}\text{C}\sim 35^{\circ}\text{C}$ , RH 60%, they should be treated at  $60^{\circ}\text{C}\pm 5^{\circ}\text{C}$  for 15hrs.

2.4 When you discover that the desiccant in the package has a pink color (Normal = blue) , you should treat them in the same conditions as 2.3.

### Soldering heat



### Reflow Temp / Time



### Soldering Iron

Basic spec is  $\leq 5$  sec when  $260^{\circ}\text{C}$ . If temperature is higher, time should be shorter ( $+10^{\circ}\text{C}\rightarrow -1$ sec). Power dissipation of Iron should be smaller than 15 W , and temperature should be controllable. Surface temperature of the device should be under  $230^{\circ}\text{C}$ .



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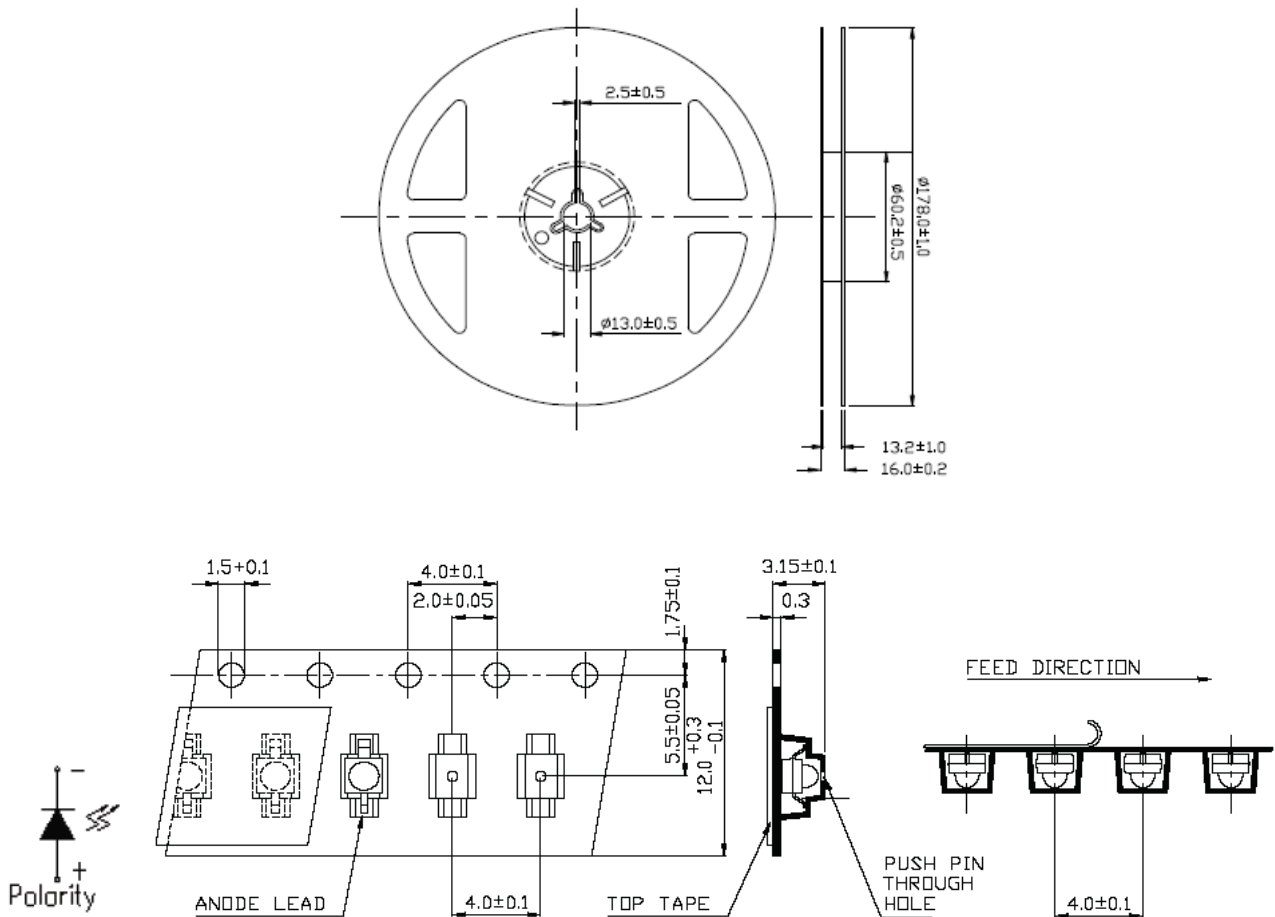
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❖ **Tape Specification: 1,000PCS per reel**



❖ **Package Label**

|   |            |
|---|------------|
| <b>SMD LED</b>  |            |
| PART NO: _____  | QA<br>Pass |
| LOT NO : _____  |            |
| Q' TY : _____   |            |
| VF : _____ IV : _____   |            |
| WL : _____ BIN: _____   | Pb         |
| DATA : _____  |            |
| TOYO LED ELECTRONICS LIMITED  |            |
| Website: <a href="http://www.toyo-led.com">http://www.toyo-led.com</a> E-mail: <a href="mailto:sales@toyo-led.com">sales@toyo-led.com</a> |            |



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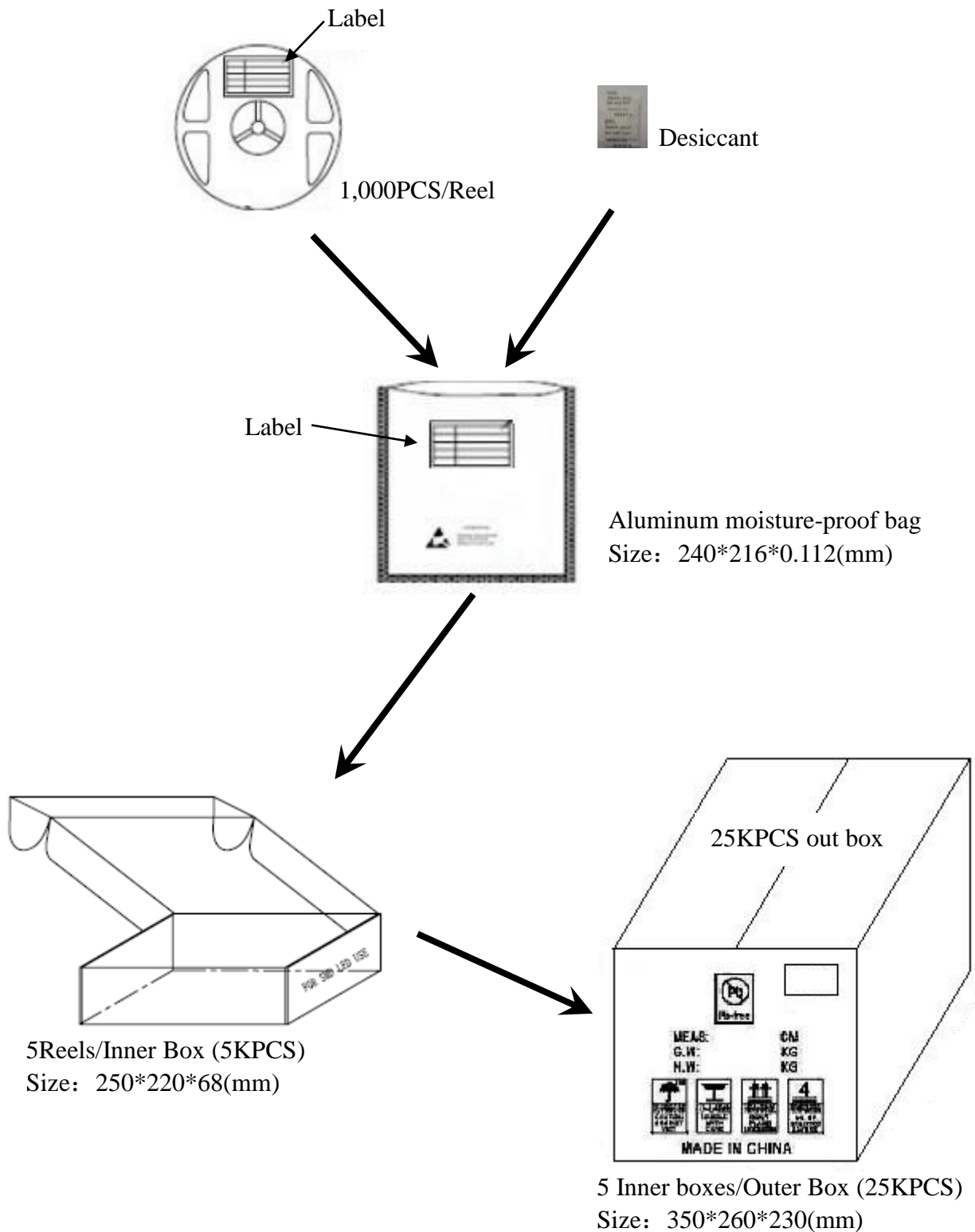
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## ❖ Package & Shipping Instructions







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## REVISION HISTORY

| DATE       | REVISION CONTENTS | VERSION |
|------------|-------------------|---------|
| 2016-08-23 | New               | A       |
|            |                   |         |
|            |                   |         |
|            |                   |         |
|            |                   |         |
|            |                   |         |
|            |                   |         |