



*TAIWAN TONGJIA OPTOELECTRONICS TECHNOLOGY CO., LTD*

*GUANGDONG TONGJIA OPTOELECTRONICS TECHNOLOGY CO., LTD*

## 承認書

### Specification For Approval

Customer: (客戶)

\_\_\_\_\_

Description: (產品描述)

SMD3528燈珠暖白

\_\_\_\_\_

Part number: (產品型號)

TJ-S3528UG6W9TLC3DW-A5

\_\_\_\_\_

Date: (日期)

\_\_\_\_\_

Approved By: (客戶承認)

|  |
|--|
|  |
|--|

Prepared By: (我司承認)

| Approval | Check | Design | Sales |
|----------|-------|--------|-------|
|          |       |        |       |

核准

審核

製作

業務

Customer Service Hotline: **400-676-8616**

TEL: 0769-8662 5999    0769-8200 2226

E-MIAL : dg@togialed.com

FAX: 0769-8200 2227

WEB: www.togialed.com

### Features

3.5mm x 2.8mm SMT LED, 1.9mm thickness

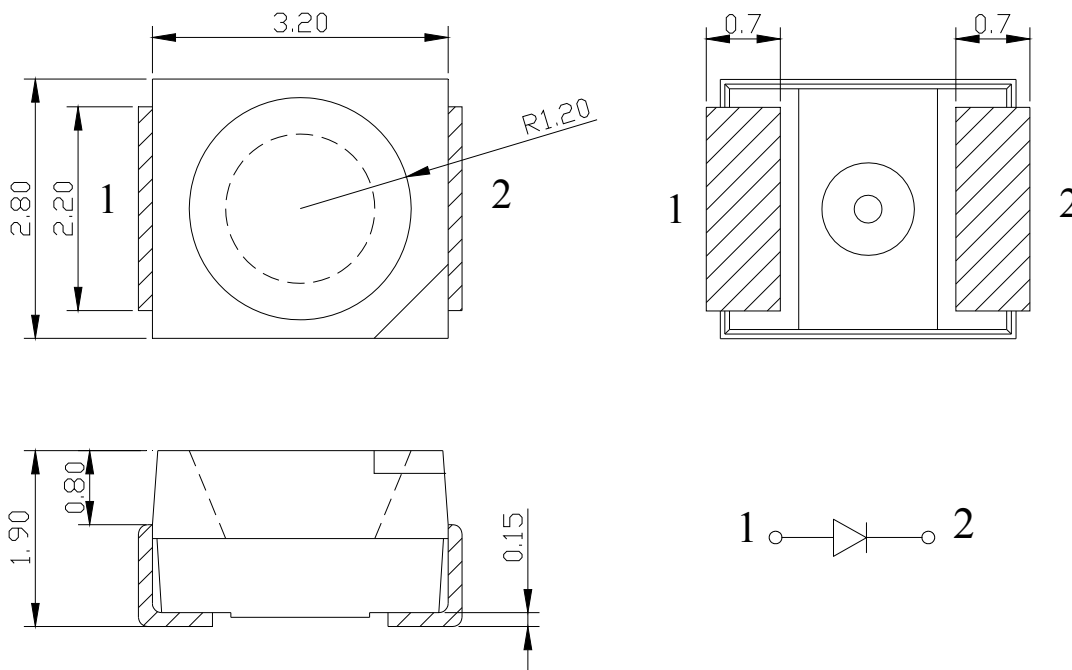
Low power consumption

Wide view angle

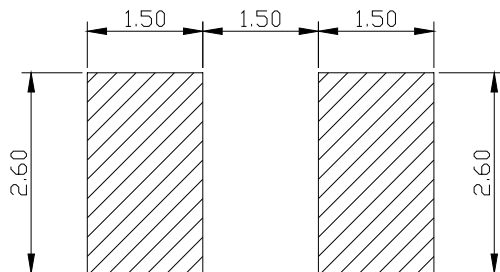
Package: 2000pcs/reel

RoHS Compliant

### Package outlines



### Recommend Pad Layout



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
SENSITIVE DEVICES

### Notes:

1. All dimensions are in millimeters (inches);
2. Tolerances are  $\pm 0.1\text{mm}$  (0.004inch) unless otherwise noted.

Absolute maximum ratings (TA=25°C)

| Parameter                              | Symbol | Value    | Unit |
|--|--------|----------|------|
| Forward current                        | If     | 30       | mA   |
| Reverse voltage                        | Vr     | 5        | V    |
| Power dissipation                      | Pd     | 108      | mW   |
| Operating temperature                  | Top    | -40 ~+80 | °C   |
| Storage temperature                    | Tstg   | -40 ~+85 | °C   |
| Peak pulsing current (1/8 duty f=1kHz) | Ifp    | 125      | mA   |

Electro-optical characteristics (TA=25°C)

| Parameter               | Test Condition | Symbol | Value |     |      | Unit |
|-------------------------|----------------|--------|-------|-----|------|------|
|                         |                |        | Min   | Typ | Max  |      |
| Color Temperature       | If=20mA        | CCT    | 2700  | --  | 3300 | K    |
| Forward voltage         | If=20mA        | Vf     | 2.8   | --  | 3.6  | V    |
| Luminous intensity      | If=20mA        | Iv     | 6     | --  | 9    | LM   |
| Viewing angle at 50% Iv | If=10mA        | 2θ 1/2 | --    | 120 | --   | Deg  |
| Reverse current         | Vr=5V          | Ir     | --    | --  | 10   | μA   |

## Optical characteristic curves

Fig.1 RELATIVE INTENSITY VS. WAVELENGTH

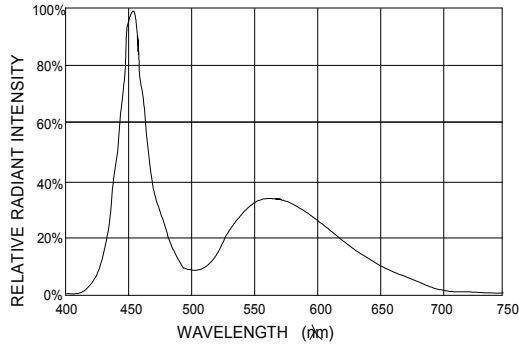


Fig.2 FORWARD CURRENT VS. AMBIENT TEMPERATURE

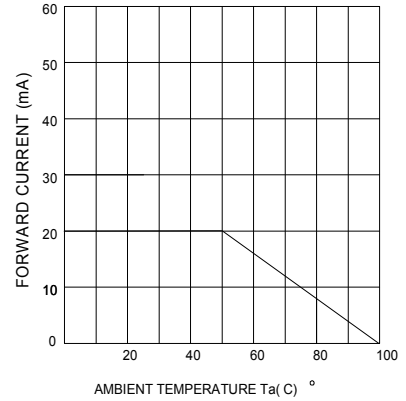


Fig.3 FORWARD CURRENT VS. FORWARD VOLTAGE

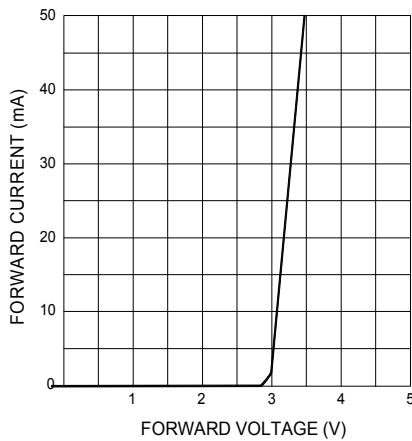


Fig.4 RELATIVE LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

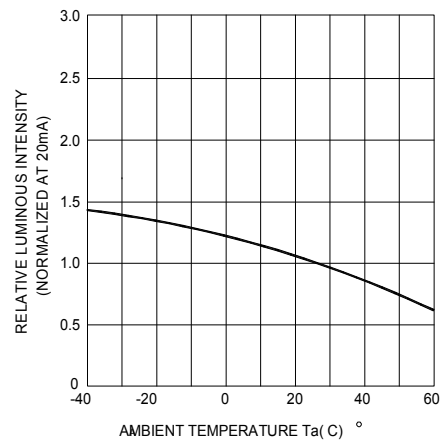


Fig.5 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

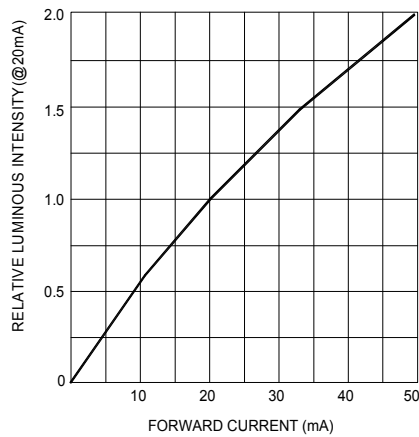
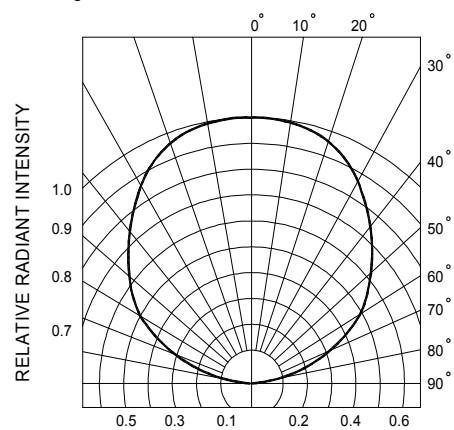
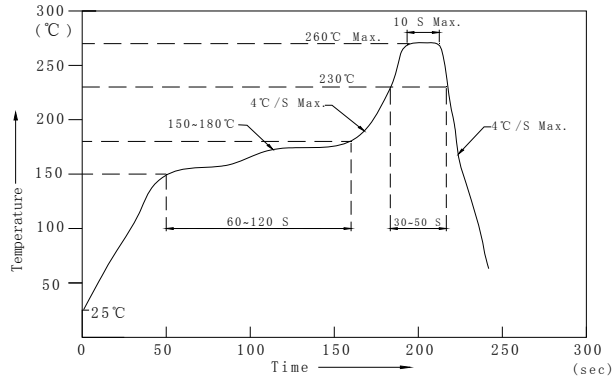


Fig.6 RADIATION DIAGRAM



## Reflow Profile

### ■ Reflow Temp/Time



### Notes:

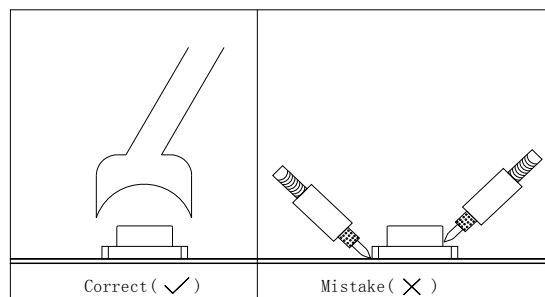
1. We recommend the reflow temperature  $245^{\circ}\text{C} (\pm 5^{\circ}\text{C})$ . the maximum soldering temperature should be limited to  $260^{\circ}\text{C}$ .
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

### ■ Soldering iron

Basic spec is  $\leq 5\text{sec}$  when  $260^{\circ}\text{C}$ . If temperature is higher, time should be shorter ( $+10^{\circ}\text{C} \rightarrow -1\text{sec}$ ). Power dissipation of iron should be smaller than 20W, and temperatures should be controllable. Surface temperature of the device should be under  $230^{\circ}\text{C}$ .

### ■ Rework

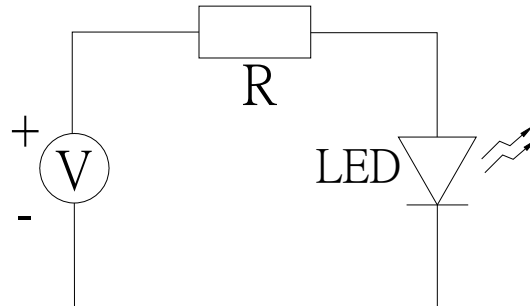
1. Customer must finish rework within 5 sec under  $260^{\circ}\text{C}$ .
2. The head of iron can not touch copper foil
3. Twin-head type is preferred.



- Avoid rubbing or scraping the resin by any object, during high temperature, for example reflow solder etc.

## Test circuit and handling precautions

### ■ Test circuit



### ■ Handling precautions

#### 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

2.1 It is recommended to store the products in the following conditions:

Humidity: 60% R.H. Max.

Temperature : 5°C~30°C(41°F~86°F)

2.2 Shelf life in sealed bag: 12 month at <5°C~30°C and <30% R.H. after the package is Opened, the products should be used within a week or they should be keeping to stored at  $\leq 20$  R.H. with zip-lock sealed.

#### 3. Baking

It is recommended to baking before soldering when the pack is unsealed after 72hrs. The Conditions are as followings:

3.1  $60 \pm 3^\circ\text{C}$  x(12~24hrs) and <5%RH, taped reel type

3.2  $100 \pm 3^\circ\text{C}$  x(45min~1hr), bulk type

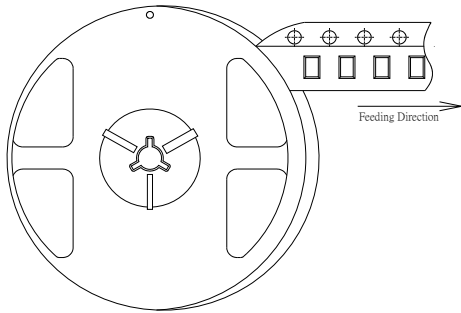
3.3  $130 \pm 3^\circ\text{C}$  x(15~30min), bulk type

Test items and results of reliability

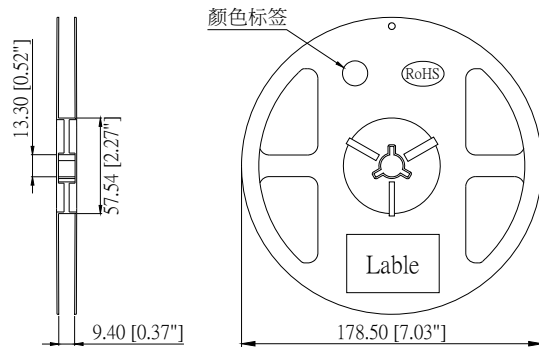
| Type                   | Test Item                    | Test Conditions                   | Note      | Number of Damaged |
|------------------------|------------------------------|-----------------------------------|-----------|-------------------|
| Environmental Sequence | Temperature Cycle            | -20°C 30min<br>↑ ↓<br>80°C 30min  | 100 cycle | 0/22              |
|                        | Thermal Shock                | -20°C 15min<br>↑ ↓<br>80°C 15min  | 100 cycle | 0/22              |
|                        | High Humidity Heat Cycle     | 30°C ↔ 65°C<br>90%RH 24hrs/1cycle | 10 cycle  | 0/22              |
|                        | High Temperature Storage     | Ta=80°C                           | 1000 hrs  | 0/22              |
|                        | Humidity Heat Storage        | Ta=60°C<br>RH=90%                 | 1000 hrs  | 0/22              |
|                        | Low Temperature Storage      | Ta=-30°C                          | 1000 hrs  | 0/22              |
| Operation Sequence     | Life Test                    | Ta=25°C<br>IF=20mA                | 1000 hrs  | 0/22              |
|                        | High Humidity Heat Life Test | 60°C RH=90%<br>IF=10mA            | 500 hrs   | 0/22              |
|                        | Low Temperature Life Test    | Ta=-20°C<br>IF=20mA               | 1000 hrs  | 0/22              |

### 3528 Series SMD LED Lamps Packaging Specifications

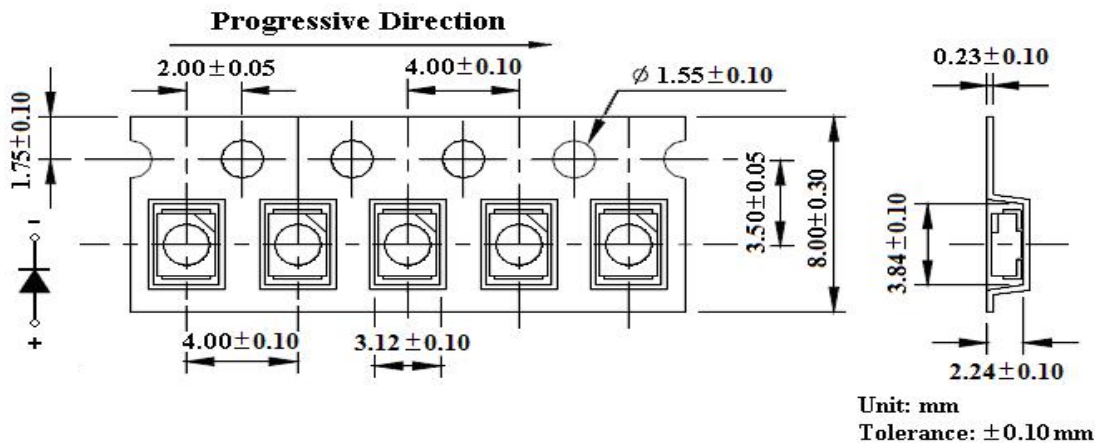
- Feeding Direction



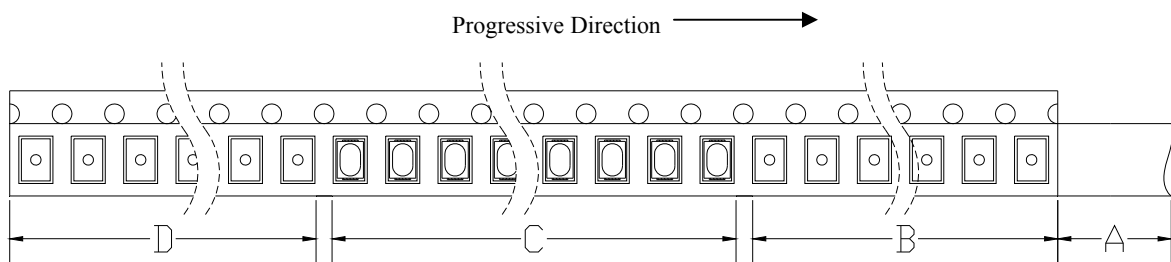
- Dimensions of Reel (Unit: mm)



- Dimensions of Tape (Unit: mm)



- Arrangement of Tape



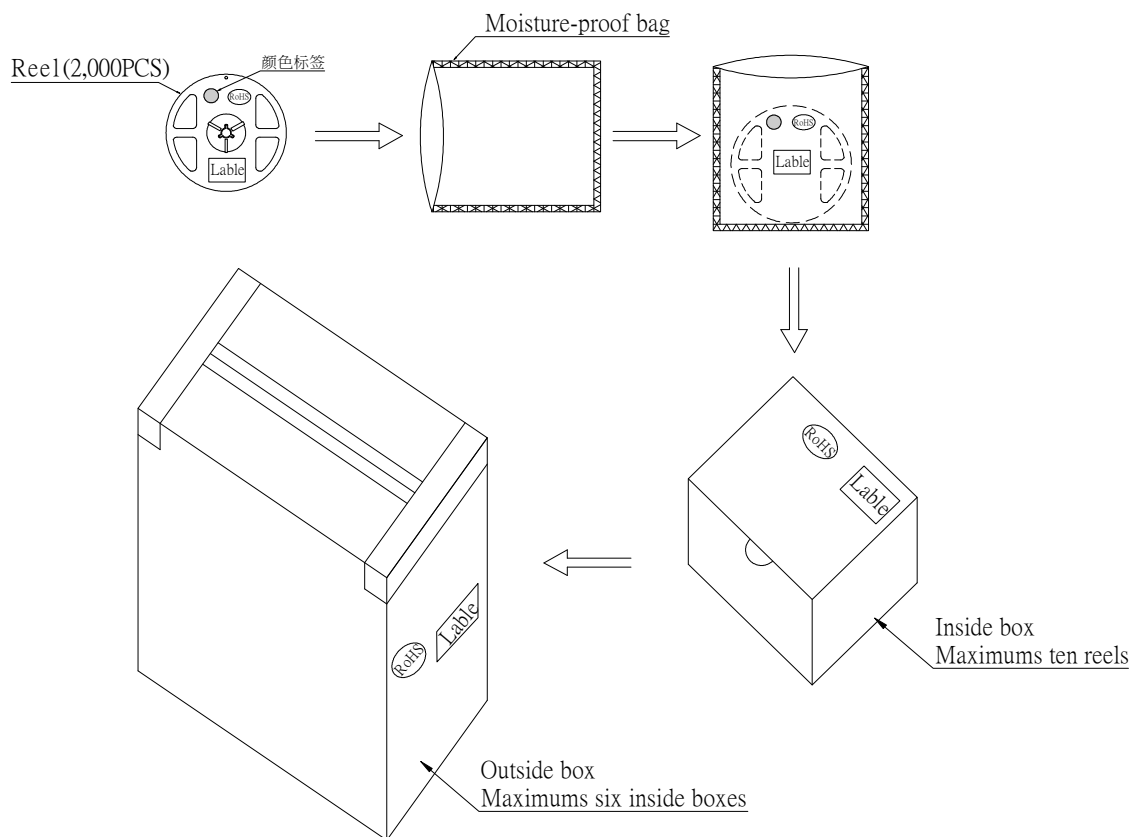
#### Notes:

1. Empty component pockets are sealed with top cover tape;
2. The maximum number of missing lamps is two;
3. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications.
4. 2,000 pcs/Reel.



## 3528 Series SMD LED Lamps Packaging Specifications

- Packaging specifications



### Notes:

Reeled products (numbers of products are 2,000pcs) packed in a seal off moisture-proof bag along with a desiccant one by one, Seven moisture-proof bag of maximums (total maximum number of products are 20,000pcs) packed in an inside box (about size: 260x 220x 130mm) and four inside boxes of maximums are put in the outside box (about size: 450mm x 260mm x 400mm) Together with buffer material, and it is packed. (Part No., Lot No., quantity should appear on the label on the moisture-proof bag, part No. And quantity should appear on the label on the cardboard box.) The number of the loading steps of outside box (cardboard box) has it to three steps.

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