

## 承認書

## Specification For Approval

Customer: (客戶) \_\_\_\_\_

Description: (產品描述) SMDLED3210 1206側發RGB共陰透明  
\_\_\_\_\_Part number: (產品型號) TJ-S3210RGB15A42HQTMFJ-A3  
\_\_\_\_\_

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-MAIL: dg@togialed.com

FAX: 0769-8200 2227

WEB: www.togialed.com

## Features

3.2mm x 1.0mm SMT LED, 1.5mm thickness

Low power consumption TOGIALED

Wide view angle

Package: 3000pcs/reel

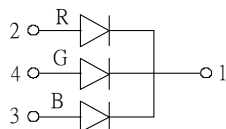
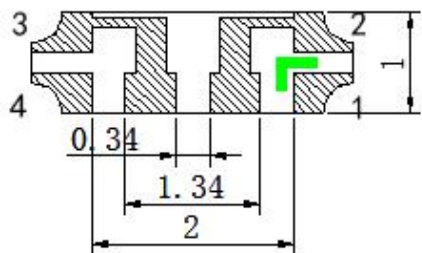
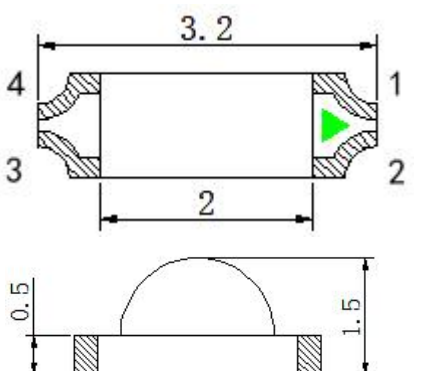
RoHS Compliant

## Applications

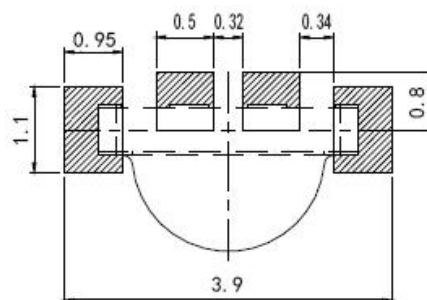
Ideal for back light and indicator

Various colors and lens types available

## Package outlines



## Recommend Pad Layout



| Part No.                  | Emitted color | Dice Material | Lens color        |
|---------------------------|---------------|---------------|-------------------|
| TJ-S3210RGB15A42HQTMFJ-A3 | Red           | AlGaInP       | Water transparent |
|                           | Green         | InGaN/GaN     |                   |
|                           | Blue          | InGaN/GaN     |                   |

## 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)**

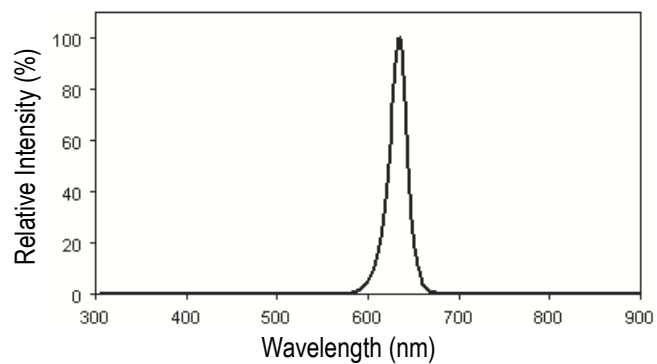
| Parameter                              | Symbol | Value    |     |     | Unit |
|----------------------------------------|--------|----------|-----|-----|------|
|                                        |        | R        | G   | B   |      |
| Power dissipation                      | Pd     | 72       | 111 | 111 | mW   |
| Forward current                        | If     | 30       |     |     | mA   |
| Reverse voltage                        | Vr     | 5        |     |     | V    |
| 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)**

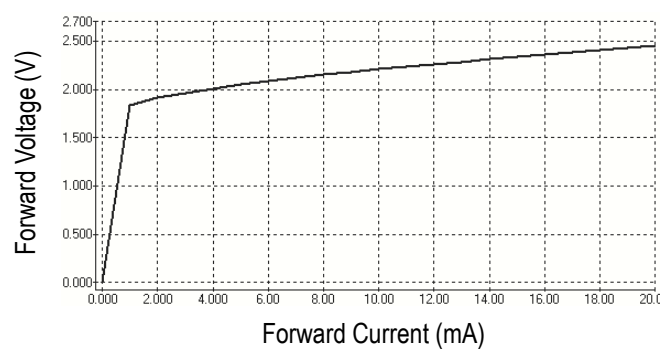
| Parameter                   | Test Condition | Symbol             | Value |     |     | Unit |
|-----------------------------|----------------|--------------------|-------|-----|-----|------|
|                             |                |                    | Min   | Typ | Max |      |
| Wavelength at peak emission | If=20mA        | $\lambda_p$ R      | --    | 635 | --  | nm   |
|                             |                | G                  | --    | 520 | --  |      |
|                             |                | B                  | --    | 465 | --  |      |
| Spectral half bandwidth     | If=20mA        | $\Delta \lambda$ R | --    | 20  | --  | nm   |
|                             |                | G                  | --    | 35  | --  |      |
|                             |                | B                  | --    | 25  | --  |      |
| Dominant wavelength         | If=20mA        | $\lambda_d$ R      | 620   | --  | 630 | nm   |
|                             |                | G                  | 515   | --  | 530 |      |
|                             |                | B                  | 460   | --  | 475 |      |
| Forward voltage             | If=20mA        | Vf R               | 1.8   | --  | 2.4 | V    |
|                             |                | G                  | 2.8   | --  | 3.4 |      |
|                             |                | B                  | 2.8   | --  | 3.4 |      |
| Luminous intensity          | If=20mA        | Iv R               | 80    | 200 | --  | mcd  |
|                             |                | G                  | 400   | 800 | --  |      |
|                             |                | B                  | 80    | --  | 200 |      |
| Viewing angle at 50% Iv     | If=10mA        | 2 $\theta$ 1/2     | --    | 120 | --  | Deg  |
| Reverse current             | Vr=5V          | Ir                 | --    | --  | 10  | μA   |

## Optical characteristic curves (Red)

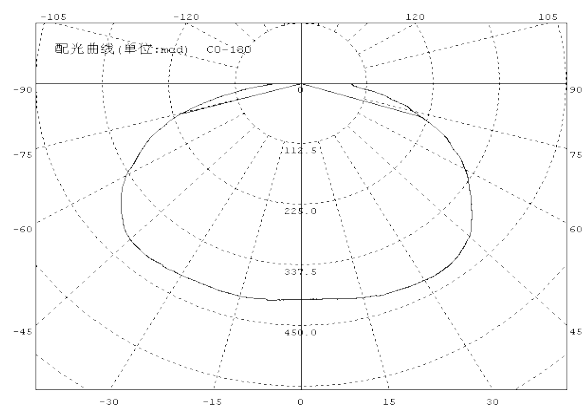
Relative Intensity vs. Wavelength



Forward Current vs. Forward Voltage

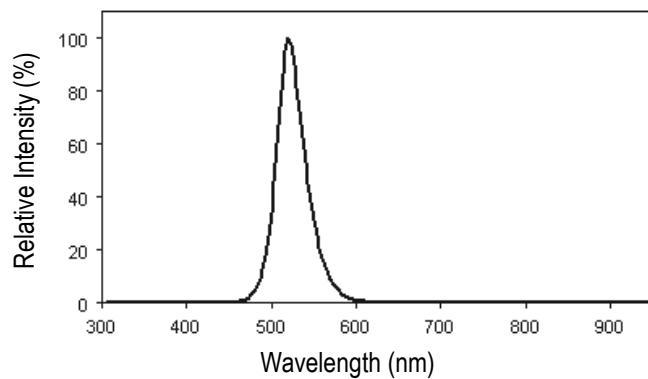


Directive Characteristics

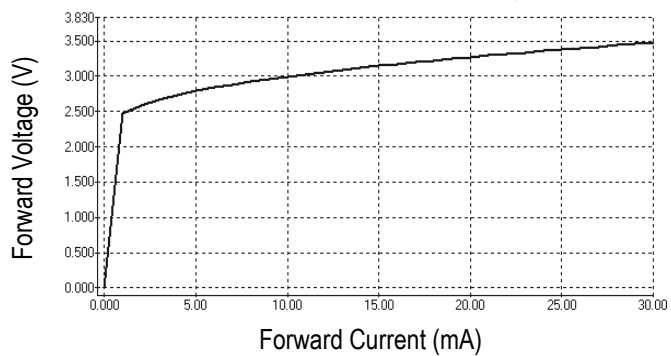


## Optical characteristic curves (Green)

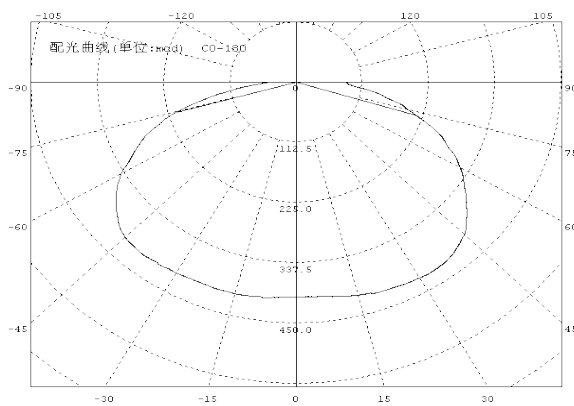
Relative Intensity vs. Wavelength



Forward Current vs. Forward Voltage

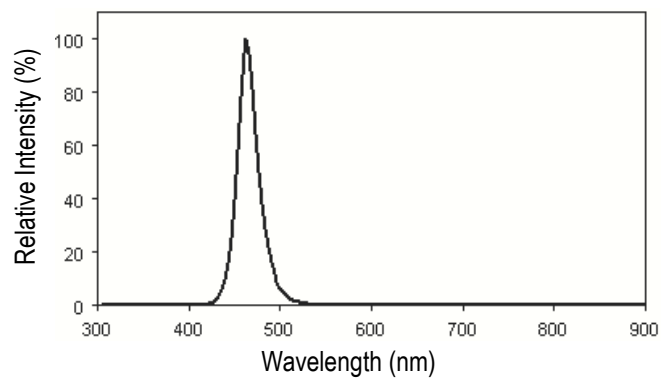


Directive Characteristics

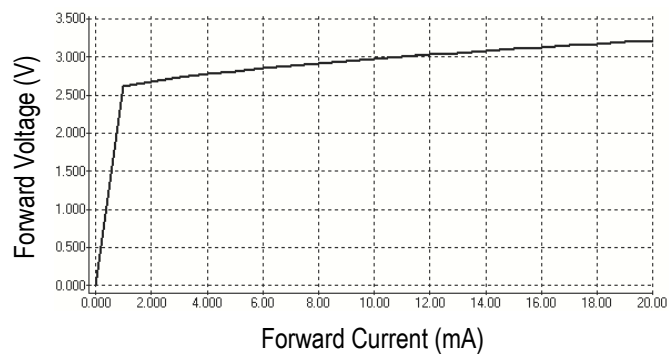


## Optical characteristic curves (Blue)

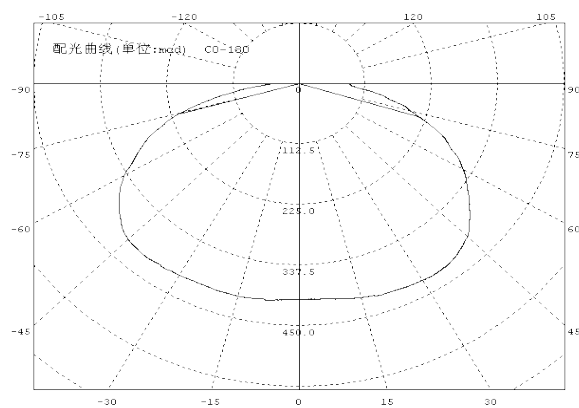
Relative Intensity vs. Wavelength



Forward Current vs. Forward Voltage

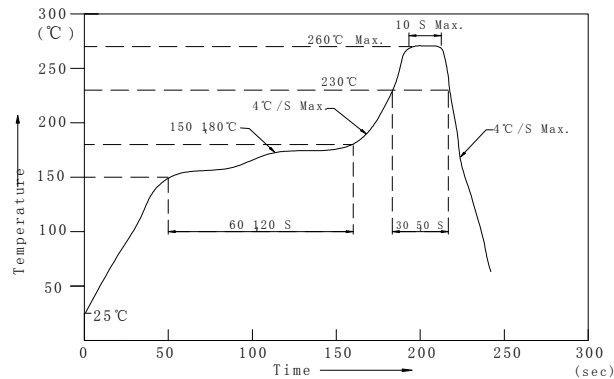


Directive Characteristics



## Reflow Profile

### ■ Reflow Temp/Time



### Notes:

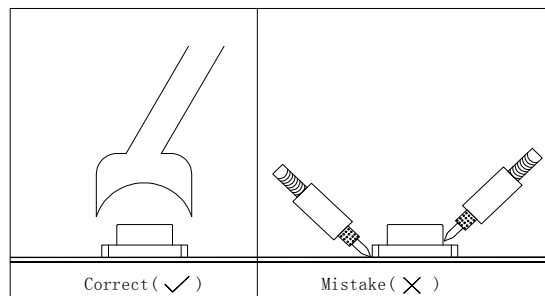
1. We recommend the reflow temperature 245°C (±5°C). the maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

### ■ Soldering iron

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

### ■ Rework

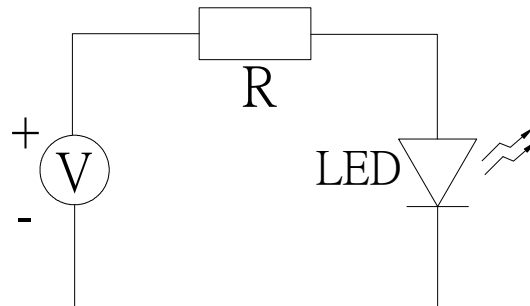
1. Customer must finish rework within 5 sec under 260°C.
2. The head of iron can not touch copper foil
3. Twin-head type is preferred.



- 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

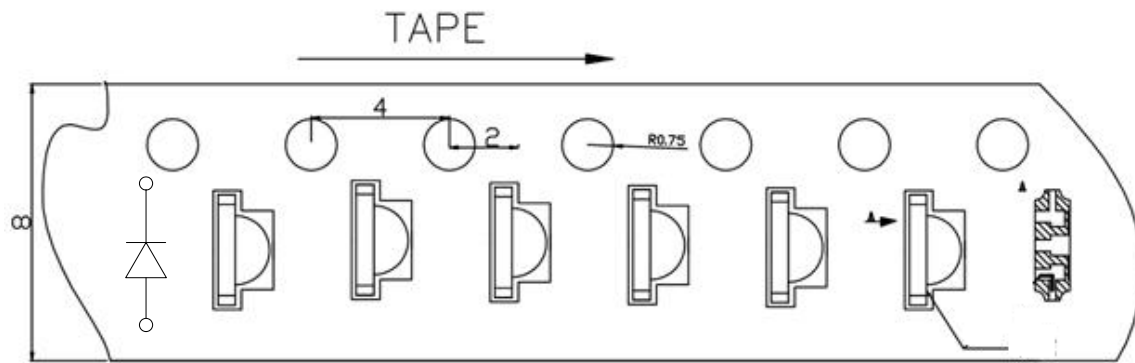
3.3  $130 \pm 3^\circ\text{C}$  x(15~30min), bulk type

**Test items and results of reliability**

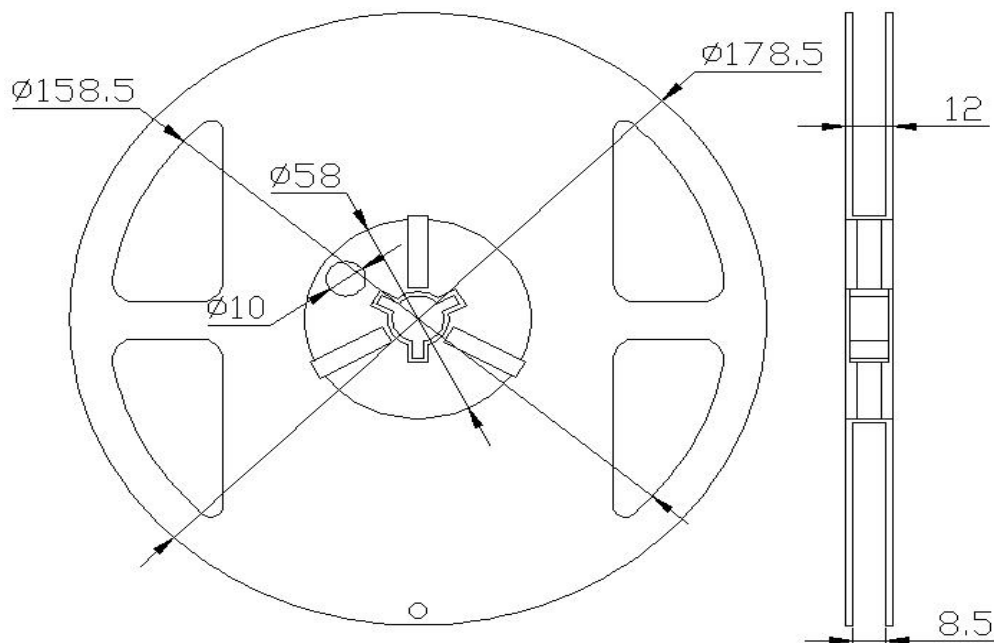
| Type                   | Test Item                    | Test Conditions                 | Note      | Number of Damaged |
|------------------------|------------------------------|---------------------------------|-----------|-------------------|
| Environmental Sequence | Temperature Cycle        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

## 3210 Series SMD Chip LED Lamps Packaging Specifications

- (1) The LEDs are packed in cardboard boxes after taping.
- (2) Taping Specifications      Units:mm      TOGIALED
- (3) . Manner of packing



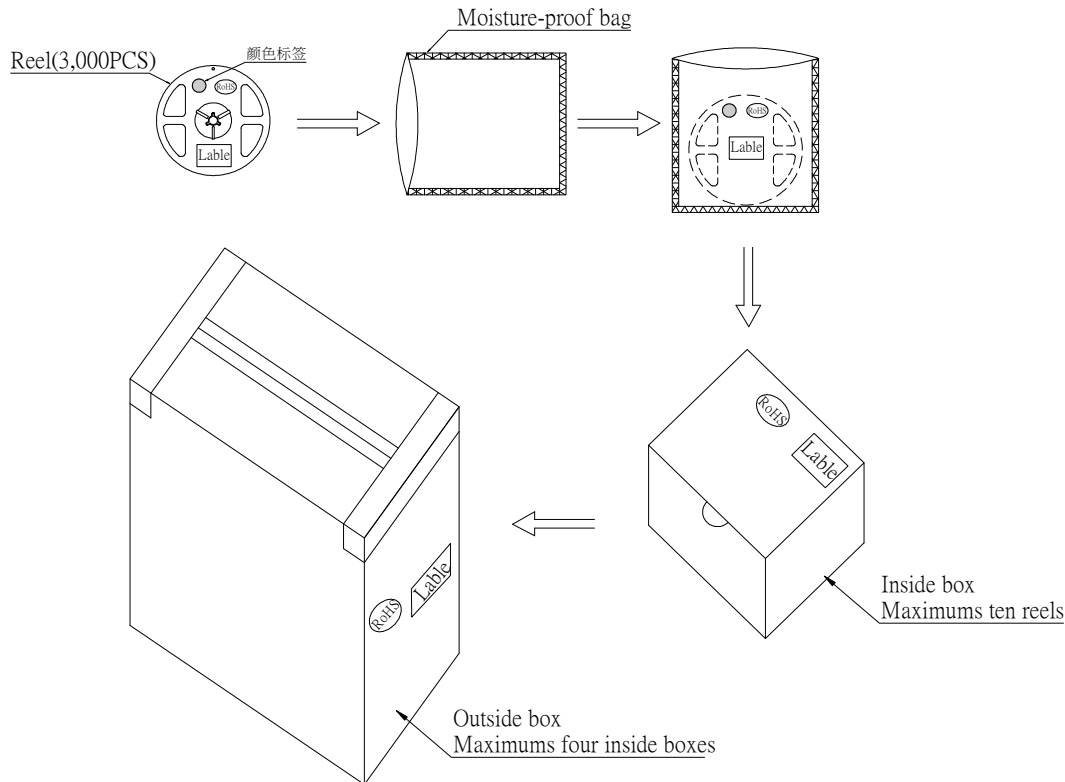
### (4) Reel Dimensions



PACKAGE:3000Pcs/Reel

## 3210 Series SMD Chip LED Lamps Packaging Specifications

- Packaging specifications



### Notes:

Reeled products (numbers of products are 3,000pcs) packed in a seal off moisture-proof bag along with a desiccant one by one, ten moisture-proof bag of maximums (total maximum number of products are 30,000pcs) packed in an inside box (about size: 240x 220x 120mm) and four inside boxes of maximums are put in the outside box (about size: 460mm x 246mm x 250mm) 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.