

# 承認書

## SPECIFICATION FOR APPROVAL

|                     |                   |
|---------------------|-------------------|
| ● 客戶名称              |                   |
| ● Customer          |                   |
| ● 客戶品號              |                   |
| ● Customer Part No. |                   |
| ● 产品品號              | HC-B3010RGB12ZCGA |
| ● Brightek Part No. |                   |
| ● 产品規格描述            | 3010 四脚全彩共阳       |
| ● Specification     |                   |
| ● 製錶人               | 王清                |
| ● Prepared By       |                   |
| ● 審 核               | 李东平               |
| ● Checkedy          |                   |
| ● 客 戶 回 簽           |                   |
| ● Customer          |                   |
| ● 送样日期:             |                   |
| ● Deliver date:     |                   |

說明：一、謹致執事者：茲提供敝公司產品之有關詳細規格及圖面資料，敬請給予辦理測試認定手續。同時敬請 送返一份附有貴公司簽認之測試認定後之樣品認定書。

We are sending you our specification and drawings for your approval. Please return to us one copy "For Approval" with your approved signatures.

二、客戶意見欄 Customer' S Proposal

☐ Approve 承認 (請於認可欄中簽名)

☐ Disagree 不同意

Reason 原因:

光宇集團 中高端光电元件定制企业，20 多年封装经验，品质稳定，值得信赖，体现光的价值。

光宇集团国际（香港）有限公司

GTU Group International (HK) Co., Limited

广东光宇半导体科技有限公司

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东莞市弘呈光电有限公司

DongGuan Hong cheng Optoelectronics Co., Ltd.

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ISO 14001  
环境管理  
体系认证



ISO 9001  
环境管理  
体系认证



| 版本/版次 | 修改日期 | 修改内容 |
|-------|------|------|
|       |      |      |
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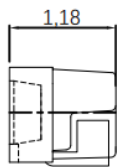
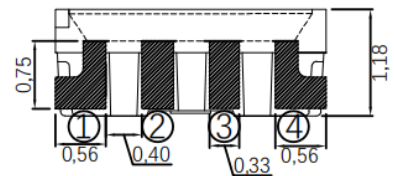
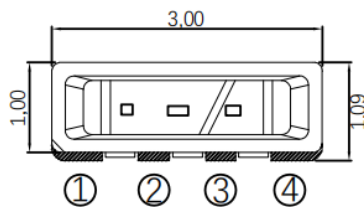
## 1、Features:

- 1.1 Package:3.8\*0.64\*1.0mm;
- 1.2 Emitted Color:Red,Green and Blue;
- 1.3 Soldering methods:All SMT assembly methods;
- 1.4 Comply RoHS standard;

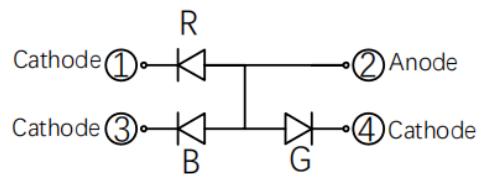
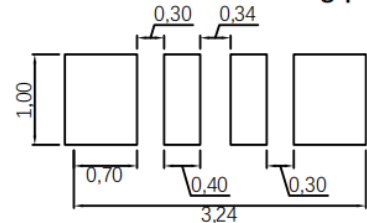
## 2、Applications:

Applied range:Keyboard

## 3、Package Outline Dimension:



### Recommended soldering pattern



## 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)

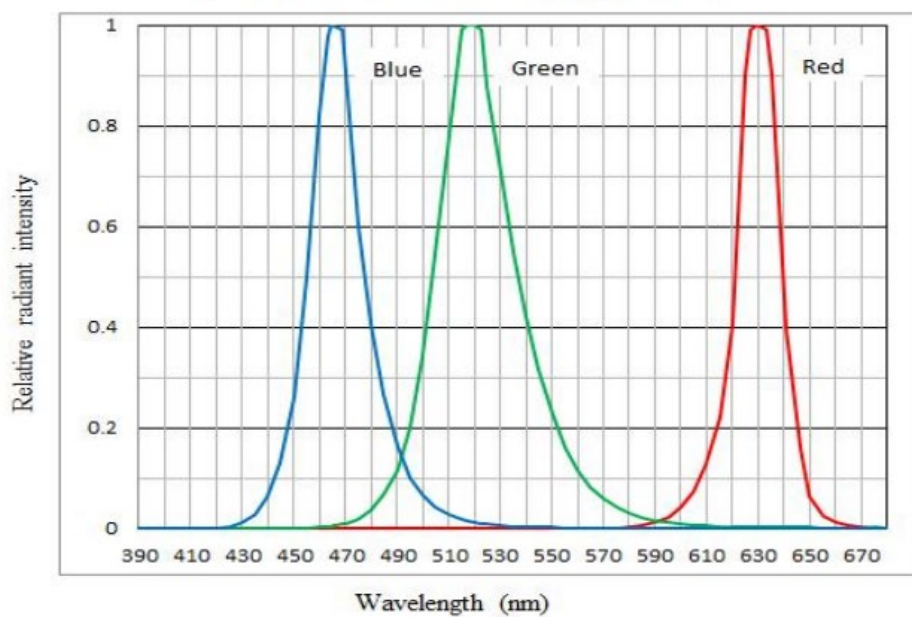
| Parameter                              | Symbol | Value    |    |    | Unit |
|----------------------------------------|--------|----------|----|----|------|
|                                        |        | R        | G  | B  |      |
| Power dissipation                      | Pd     | 45       | 60 | 65 | mW   |
| Forward current                        | If     | 20       |    |    | 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    | 100      |    |    | mA   |

### Electro-Optical Characteristics (TA=25°C)

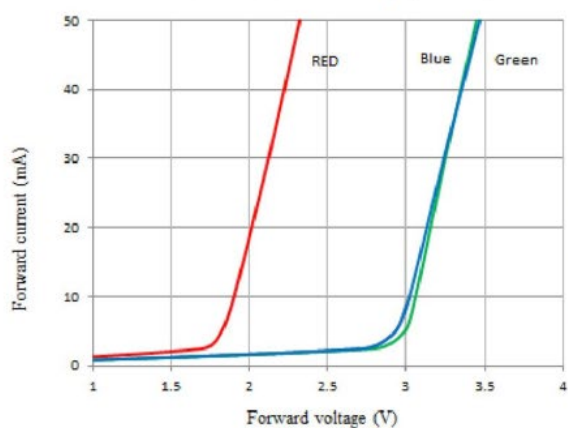
| Parameter                   | Test Condition | Symbol  | Value |      |     | Unit |
|-----------------------------|----------------|---------|-------|------|-----|------|
|                             |                |         | Min   | Typ  | Max |      |
| Wavelength at peak emission | If=20mA        | R       | --    | 632  | --  | nm   |
|                             |                | G       | --    | 515  | --  |      |
|                             |                | B       | --    | 465  | --  |      |
| Dominant wavelength         | If=20mA        | R       | 620   | --   | 630 | nm   |
|                             |                | G       | 515   | --   | 530 |      |
|                             |                | B       | 465   | --   | 475 |      |
| Forward voltage             | If=20mA        | R       | 1.8   | --   | 2.4 | V    |
|                             |                | G       | 2.8   | --   | 3.5 |      |
|                             |                | B       | 2.8   | --   | 3.5 |      |
| Luminous intensity          | If=20mA        | R       | 100   | 300  | --  | mcd  |
|                             |                | G       | 800   | 1500 | --  |      |
|                             |                | B       | 100   | 200  | --  |      |
| Viewing angle at 50% Iv     | If=10mA        | 2 θ 1/2 | --    | 120  | --  | Deg  |
| Reverse current             | Vr=5V          | Ir      | --    | --   | 10  | μA   |

## Optical Characteristic Curves

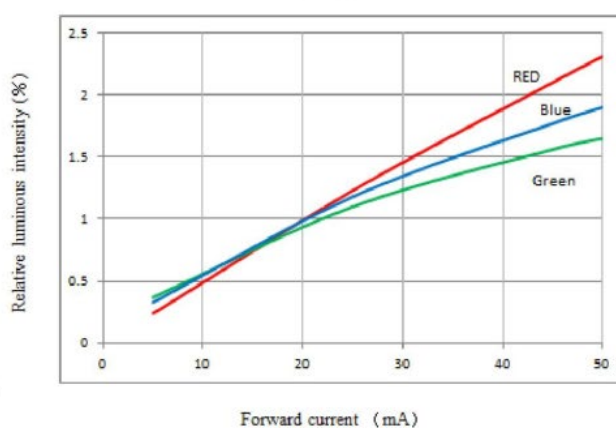
Relative intensity VS. Wavelength (Ta=25°C)



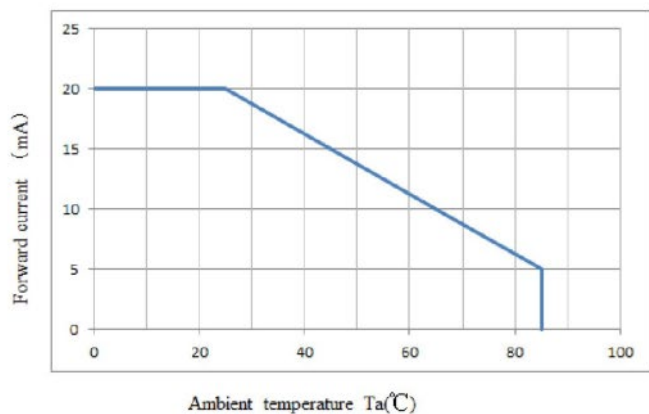
Forward current VS. Forward Voltage (Ta=25°C)



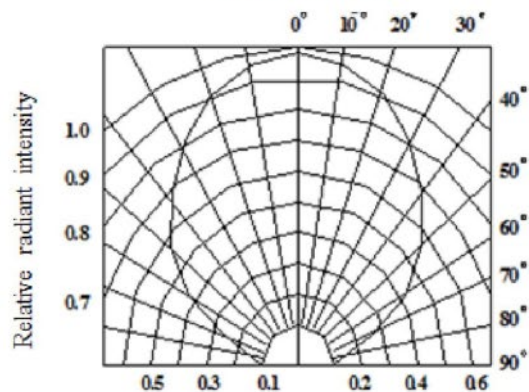
Relative luminous intensity VS. Forward current



Forward current derating curve VS. Ambient temperature

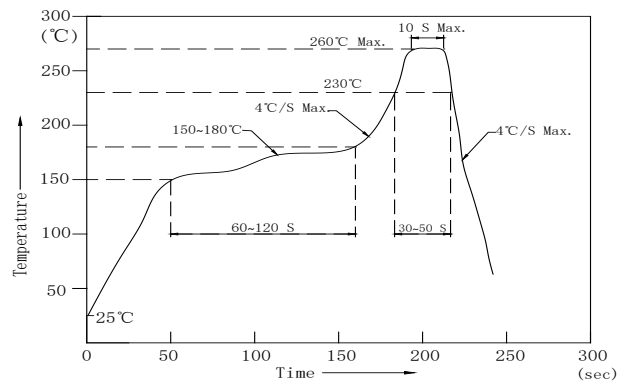


Radiation diagram



## Reflow Profile

### ■ Reflow Temp/Time



### Notes:

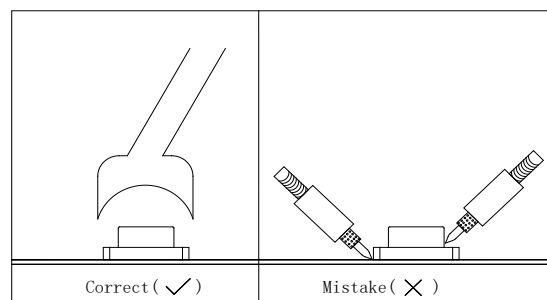
1. We recommend the reflow temperature 245°C(±5°C).the maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 1 times or less.

### ■ Soldering iron

Basic spec is  $\leq 5\text{sec}$  when 320°C(±20°C). If temperature is higher, time should be shorter(+10°C → -1sec ).Power dissipation of iron should be smaller than 20W, and temperatures should be controllable .Surface temperature of the device should be under 350°C.

### ■ Rework

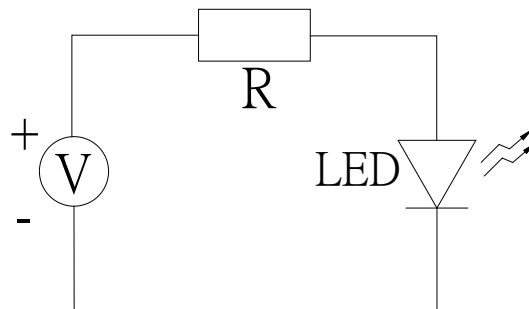
1. Customer must finish rework within 5 sec under 340°C.
2. The head of iron cannot touch copper foil
3. Twin-head type is preferred.



- 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 :  $5^{\circ}\text{C}\sim 30^{\circ}\text{C}$  ( $41^{\circ}\text{F}\sim 86^{\circ}\text{F}$ )

2.2 Shelf life in sealed bag: 12 month at  $<5^{\circ}\text{C}\sim 30^{\circ}\text{C}$  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

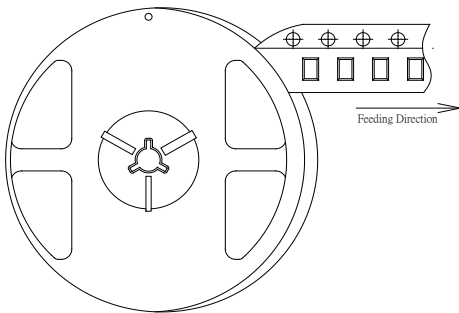
3.3  $130\pm 3^{\circ}\text{C}$  x(15~30min), bulk type

## Test items and results of reliability

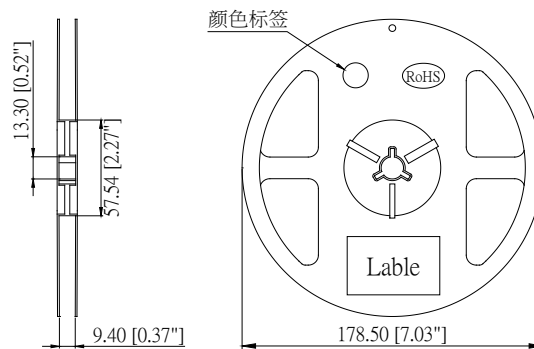
| Type                   | Test Item                    | Test Conditions                              | Note      | Number of Damaged |
|------------------------|------------------------------|----------------------------------------------|-----------|-------------------|
| Environmental Sequence | Temperature Cycle            | -40℃ 30min<br>↑ → (25℃/5min) ↓<br>100℃ 30min | 100 cycle | 0/22              |
|                        | Thermal Shock                | -40℃ 15min<br>↑ ↓<br>100℃ 15min              | 100 cycle | 0/22              |
|                        | High Humidity Heat Cycle     | 30℃ ⇔ 65℃<br>90%RH 24hrs/1cycle              | 10 cycle  | 0/22              |
|                        | High Temperature Storage     | Ta=100℃                                      | 1000 hrs  | 0/22              |
|                        | Humidity Heat Storage        | Ta=60℃<br>RH=95%                             | 1000 hrs  | 0/22              |
|                        | Low Temperature Storage      | Ta=-40℃                                      | 1000 hrs  | 0/22              |
| Operation Sequence     | Life Test                    | Ta=25℃<br>IF=20mA                            | 1000 hrs  | 0/22              |
|                        | High Humidity Heat Life Test | 60℃ RH=95%<br>IF=10mA                        | 500 hrs   | 0/22              |
|                        | Low Temperature Life Test    | Ta=-20℃<br>IF=20mA                           | 1000 hrs  | 0/22              |

## 020 Series SMD Chip LED Lamps Packaging Specifications

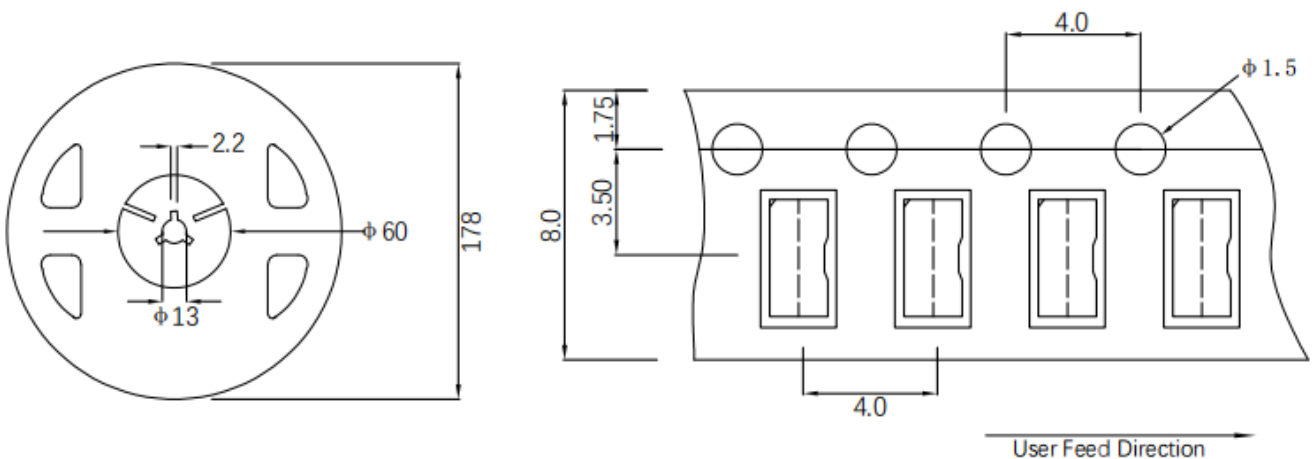
### ● Feeding Direction



### ● Dimensions of Reel (Unit:



### ● 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.