

# 承認書

## SPECIFICATION FOR APPROVAL

|                     |                |
|---------------------|----------------|
| ● 客戶名称              |                |
| ● Customer          |                |
| ● 客戶品號              |                |
| ● Customer Part No. |                |
| ● 产品品號              | HC-020RGB6-01  |
| ● Brightek Part No. |                |
| ● 产品規格描述            | 020RGB 六脚贴片侧发光 |
| ● 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:

光宇集团 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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业务联系人：李顺阳 13925714318 (微信同号) 销售总监

企业邮箱: [sales@led-hc.com](mailto:sales@led-hc.com)



ISO 14001  
环境管理  
体系认证

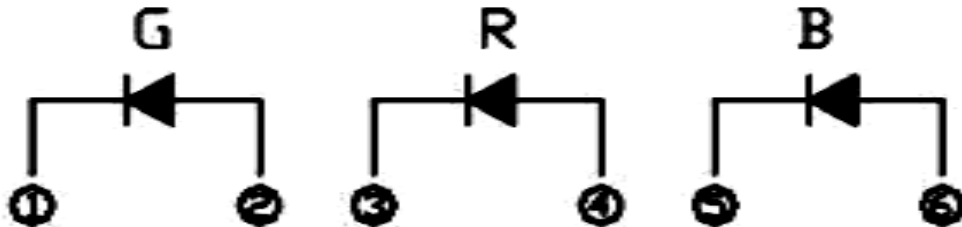
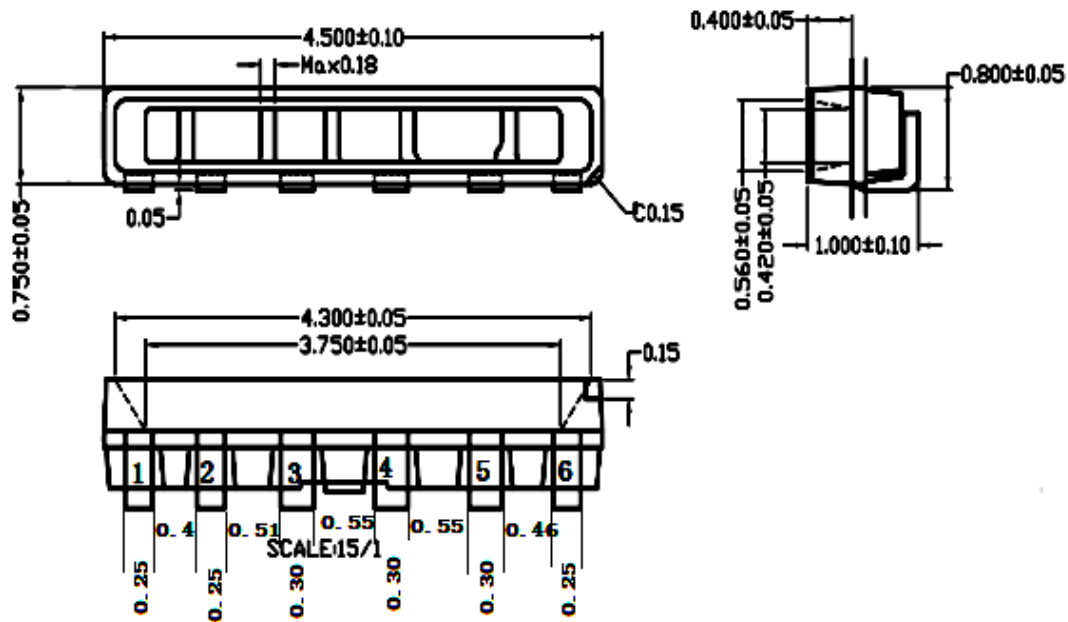


ISO 9001  
环境管理  
体系认证



| 版本/版次 | 修改日期 | 修改内容 |
|-------|------|------|
|       |      |      |
|       |      |      |
|       |      |      |
|       |      |      |

## Package Dimensions( 封装尺寸 )



### 注意:

所有尺寸单位为 mm ，如无特殊说明误差范围为  $\pm 0.1\text{mm}$

All dimensions area in mm tolerance is  $\pm 0.1\text{mm}$  unless otherwise noted.

## Absolute Maximum Rating 极限工作参数

| Parameter<br>正向电流                                                   | Symbol<br>代号 | Absolute Maximum Rating<br>极限工作参数                                  | Unit<br>单位 |
|---------------------------------------------------------------------|--------------|--------------------------------------------------------------------|------------|
| Forward Current                                                     | IF           | 30                                                                 | mA         |
| Peak pulseCurrent<br>(1/10 Duty cycle,Pulse width=0.1msec )<br>脉冲电流 | IFP          | 60                                                                 | mA         |
| ReverseVoltage<br>反向电压                                              | VR           | 5                                                                  | V          |
| Power Dissipation<br>(at room temperature)<br>消耗功率                  | PD           | 300                                                                | mw         |
| Operating Temperature<br>工作温度范围                                     | TOPR         | -20~+80                                                            | ℃          |
| Storage Temperature<br>存放温度范围                                       | TSTG         | -40~+80                                                            | ℃          |
| Soldering Temperature<br>最高焊接温度                                     | TSOL         | Reflow Soldering: 260℃ for 5 sec<br>Hand Soldering: 300℃ for 3 sec |            |

## Electro-Optical Characteristics (Ta=25℃) 光电特性参数

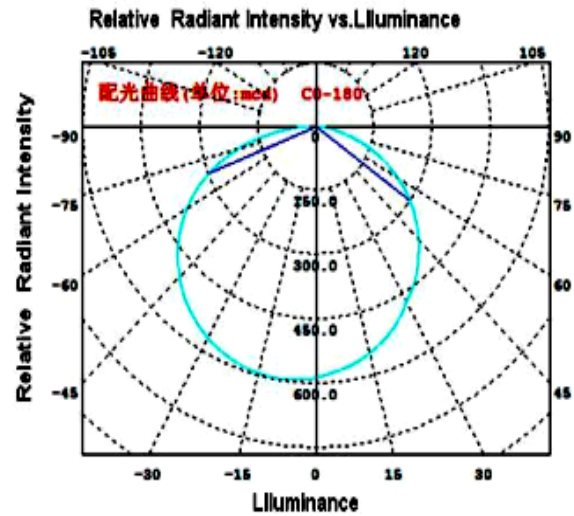
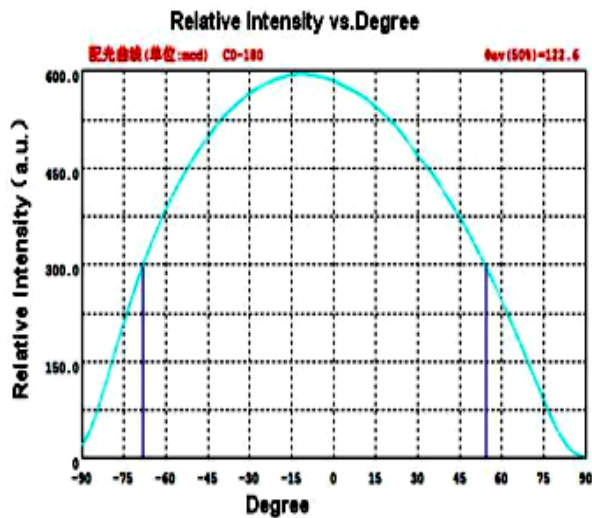
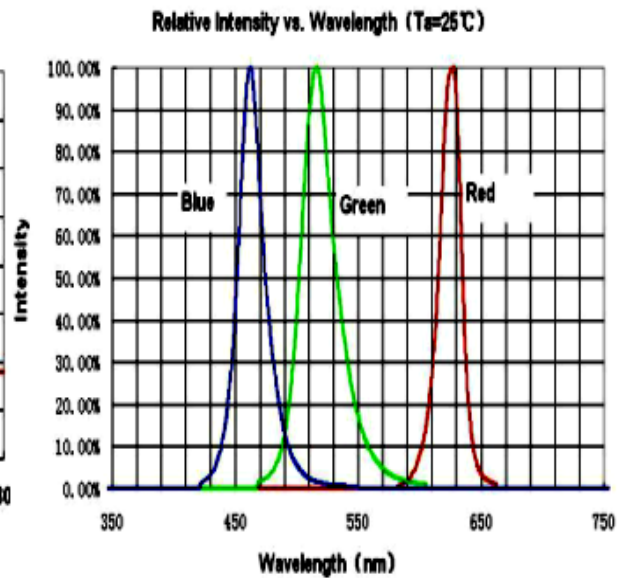
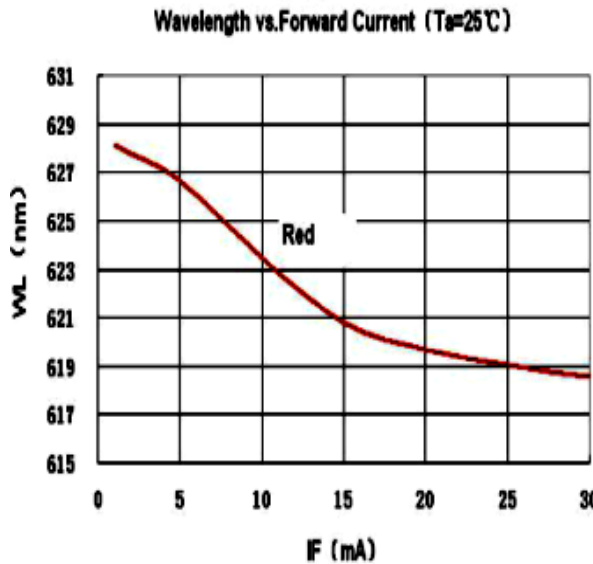
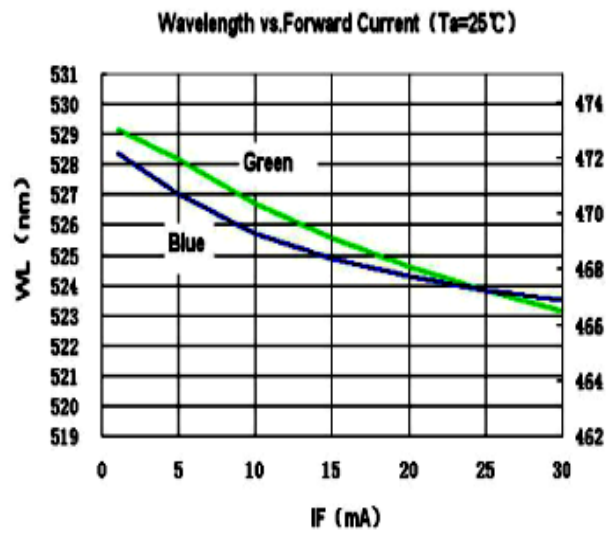
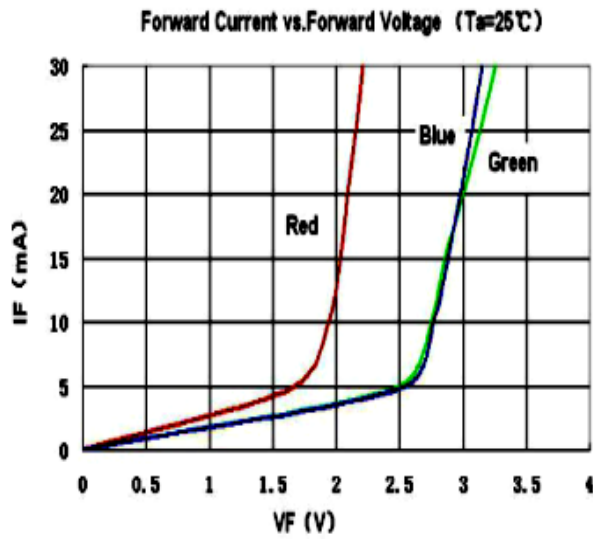
| Item<br>项目                 | Symbol<br>代号 | Condition<br>测试条件 | Min<br>最小值 | Typ<br>典型值 | Max<br>最大值 | Unit<br>单位 |     |
|----------------------------|--------------|-------------------|------------|------------|------------|------------|-----|
| Forward Voltage    正向电压    | VF           | IF=5mA            | R          | 1.8        | 2.0        | 2.2        | V   |
|                            |              |                   | G          | 2.5        | 2.7        | 2.9        |     |
|                            |              |                   | B          | 2.5        | 2.7        | 2.9        |     |
| Luminous Intensity    发光强度 | IV           | IF=5mA            | R          | 100        | -          | 200        | mcd |
|                            |              |                   | G          | 650        | -          | 850        |     |
|                            |              |                   | B          | 100        | -          | 170        |     |
| Wavelength    波长           | WD           | IF=5mA            | R          | 620        | -          | 625        | nm  |
|                            |              |                   | G          | 525        | -          | 530        |     |
|                            |              |                   | B          | 458        | -          | 464        |     |
| Reverse Current    反向电流    | IR           | VR=5V             |            | 0          | /          | 1          | uA  |
| Viewing Angle    半光全角      | 2 θ 1/2      | IF=5mA            |            | -          | 120        | -          | deg |

### Notes:

- 1.Work absolute ratings Ta=25℃ 工作常规值 温度=25℃
- 2.Tolerance of measurement of forward voltage±0.1V 正向电压误差范围±0. 1V

## 特性曲线 Characteristic curve

### ●光电特性曲线 Typical Electro-Optical Characteristics Curves



## 可靠性 RELIABILITY

### (1)测试项目及结果 Test Items and Results

| 序号 | 试验项目                                                                              | 参考标准 | 试验条件                                                    | 持续时间              | 取样数 | 接收水准（不合格数量/抽样总数） |
|----|-----------------------------------------------------------------------------------|------|---------------------------------------------------------|-------------------|-----|------------------|
| 1  | 温度循环                                                                              |      | -40℃~25℃~100℃~<br>25℃<br>30 分钟 5 分钟 30 分钟<br>5 分钟       | 循环 100 回合         | 50  | 0/50             |
| 2  | 冷热冲击                                                                              |      | -40℃~100℃<br>15 分钟 15 分钟                                | 循环 500 回合         | 50  | 0/50             |
| 3  | 高温储存                                                                              |      | T <sub>a</sub> =100℃                                    | 1000 小时           | 50  | 0/50             |
| 4  | 低温储存                                                                              |      | T <sub>a</sub> =-40℃                                    | 1000 小时           | 50  | 0/50             |
| 5  | 常温寿命<br>试验                                                                        |      | T <sub>a</sub> =25±5℃<br>I <sub>F</sub> =20mA           | 1000 小时           | 50  | 0/50             |
| 6  | 高温高湿<br>寿命试验                                                                      |      | T <sub>a</sub> =60℃ RH=85%<br>I <sub>F</sub> =20mA      | 1000 小时           | 50  | 0/50             |
| 7  | 可焊性<br>（回流<br>焊）                                                                  |      | T <sub>sol</sub> =235℃±5℃, 5 秒<br>使用助焊剂                 | 焊接一次, 5 秒         | 10  | 0/10             |
| 8  | 耐焊性<br>（回流焊）                                                                      |      | T <sub>sol</sub> =260℃, 10 秒<br>预处理: 35℃ 95%RH 96<br>小时 | 焊接二次, 每<br>次 10 秒 | 10  | 0/10             |
| 备注 | 以上试验项目如与客户试验要求存在差异的或者特殊客户特殊要求的可根据实际情况按照客户的要求进行试作, 客户未要求的按我司试验标准试作. 不同产品使用不同电流进行测试 |      |                                                         |                   |     |                  |

## 注意事项 Cautions

### (1) 焊接条件 Soldering Conditions

本产品最多只可回焊两次,且在首次回焊后须冷却至室温之后方可进行第二次回焊.

Number of reflow process shall be less than 2 times and cooling process to normal temperature is required between first and Second soldering process.

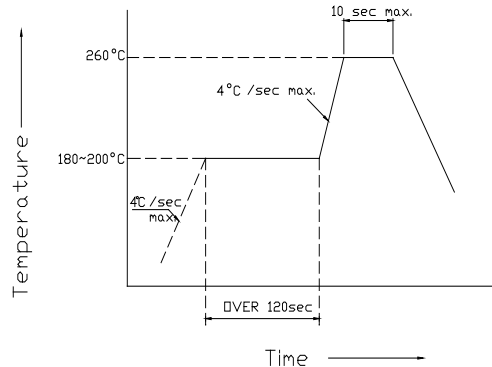
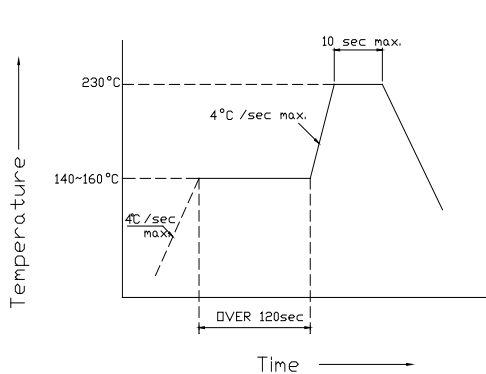
推荐焊接条件(Recommended soldering conditions)

| 回流焊接 Reflow Soldering |                |                     | 手工焊接 Hand Soldering |                 |
|-----------------------|----------------|---------------------|---------------------|-----------------|
|                       | 有铅 Lead Solder | 无铅 Lead-free Solder | 温度 Temperature      | 300°C Max.      |
| 预热温度 Pre-heat         | 140 ~ 160°C    | 180 ~ 200°C         | 焊接时间 Soldering time | 3 sec. Max.     |
| 预热时间 Pre-heat time    | 120 sec. Max.  | 120 sec. Max.       |                     | (one time only) |
| 峰值温度 Peak temperature | 230°C Max.     | 260°C Max.          |                     |                 |
| 焊接时间 Soldering time   | 10 sec. Max.   | 5 sec. Max.         |                     |                 |
| 条件 Condition          | 参考下图           | 参考下图                |                     |                 |

有  
铅  
回  
焊  
(Lead Solder)

er)

无铅回焊 (Lead-Free Solder)



### (2) 静电 Static Electricity

触摸 LED 时,推荐使用防静电手腕带或防静电手套.

It is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.

所有装置、设备、机器均应接地.

All devices, equipment and machinery must be properly grounded.

静电损坏的 LED 会显示出异常特征:正向电压变低或在低电流时死灯.标准:  $I_F=0.5\text{mA}$  时,  $V_F > 2.0\text{V}$

Damaged LEDs will show some unusual characteristics such as the forward voltage becomes lower, or the LEDs do not light at the low current. Criteria : ( $V_F > 2.0\text{V}$  at  $I_F=0.5\text{mA}$ )

### (3) 防潮包装 Moisture Proof Package

使用防潮包装

It is recommended that moisture proof package be used .

### (4) 储藏 Storage

打开包装袋之前,LED 在温度为 30°C 或更低湿度 70%RH 以下,可保存一年.

Before opening the package ,The LEDs should be kept at 30°C or less and 70%RH or less. The LEDs should be used within a year.

### (5) 打开包装之后,应在 24hrs 内焊接完毕.

After opening the package, The LEDs should be soldered within 24 hours (1days) after opening the package.

### (6) 使用注意事项

Cautions:

6. 1. 在开包装之前,请先检查包装袋有无漏气,如果有漏气现象,请退回我司重新烘烤除湿包装后再使用。

Please check if there is air leak before opening the package, if so, please return the goods back to take drying process for later using.

6.2 抽真空包装材料未超过 15 天可正常使用, 包装袋开启后, 产品必须:

Products can be used within 15days after packaging, after that, they must be:

6.2.1 在 24hrs 内未焊接完毕。

Soldered within 24 hrs

6.2.2 要在规定环境条件中使用: 温度:30℃以内 湿度:60%RH 以下

Used in the condition: 30℃ within and 60%RH below

6.2.3 存储低于 30%RH。

Stored in 30%RH for moisture below.

6.3. 抽真空包装材料超过 30 天(含)以上未使用, 再使用时需重新拆铝箔袋取出烘烤 85℃/12H 除湿后才可使用。

Products cannot be used for and over 30days after being packaged unless opening the package and take drying our process in 85℃/12H.

6.4. 抽真空包装材料超过 60 天(含)以上未使用, 请退回我司重新烘烤除湿包装后再使用。

Products not be used for or over 60days after being packaged please return back to take drying out and packaging process for forward using.

6.5. 材料拆装后使用时间超过 24H 未用完, 需烘烤 65℃/8H 除湿后才可使用。

Products not be used after opening the package need to be dried out for 65℃/8H

## 其他事项 Others

直接用手拿取产品不仅会污染封装树脂表面, 而且还可能影响其光学特性。过度的压力也可能直接影响封装内部的芯片和导线, 因此请勿对产品施加过度压力, 特别是在产品处于高温状态下, 例如在回流焊接过程中。LED 的封装胶体部分相当脆弱, 请勿用坚硬、尖锐的物体刮、擦封装树脂部分, 在用镊子夹取 LED 的时候也应当小心注意。

When handling the product, touching the encapsulant with hands will not only contaminate its surface, but also affect its optical characteristics. Excessive force to the encapsulant might result in catastrophic failure of the LEDs due to die breakage or wire deformation. For this reason, please do not put excessive stress on LEDs, especially when the LEDs are heated such as during Reflow Soldering. The resin of encapsulant is fragile, so please avoid scratch or friction over the resin.