

### PRELIMINARY SPEC

Part Number: KPGF-0606GBRC-120



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

Green  
Blue  
Hyper Red



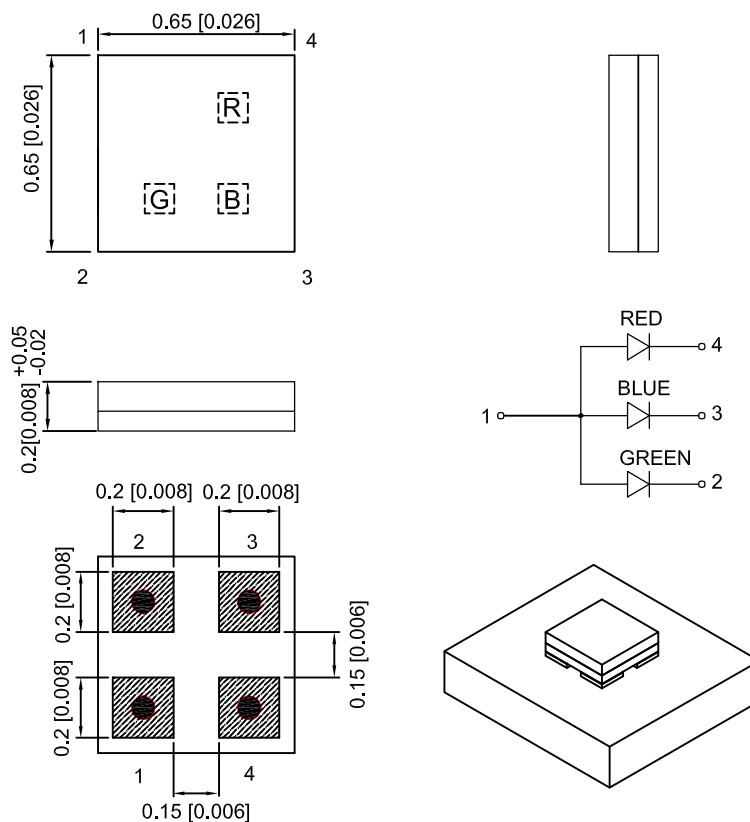
### Features

- 0.65mmX0.65mm SMD LED, 0.2mm thickness.
- Low power consumption.
- Can produce any color in visible spectrum.
- Package : 4000pcs / reel.
- Moisture sensitivity level : level 3.
- Low current IF=5mA operating.
- RoHS compliant.

### Descriptions

- The Green source color devices are made with InGaN on SiC substrate Light Emitting Diode.
- The Blue source color devices are made with InGaN on SiC substrate Light Emitting Diode.
- The Hyper Red source color devices are made with AlGaInP on GaAs substrate Light Emitting Diode.
- Electrostatic discharge and power surge could damage the LEDs.
- It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.
- All devices, equipments and machineries must be electrically grounded.

### Package Dimensions



#### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.1(0.004)$  unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
4. The device has a single mounting surface. The device must be mounted according to the specifications.



## Selection Guide

| Part No.          | Emitting Color (Material) | Lens Type   | Iv (mcd) [2]<br>@ 5mA |      | Viewing Angle [1] |
|-------------------|---------------------------|-------------|-----------------------|------|-------------------|
|                   |                           |             | Min.                  | Typ. | 2θ1/2             |
| KPGF-0606GBRC-120 | Green (InGaN)             | Water Clear | 30                    | 90   | 145°              |
|                   | Blue (InGaN)              |             | 5                     | 20   | 140°              |
|                   | Hyper Red (AlGaInP)       |             | 10                    | 30   | 130°              |

Notes:

1.  $\theta 1 / 2$  is the angle from optical centerline where the luminous intensity is  $1 / 2$  of the optical peak value.
2. Luminous intensity / luminous Flux:  $+ / -15\%$ .
3. Luminous intensity value is traceable to the CIE127-2007 compliant national standards.

## Electrical / Optical Characteristics at TA=25°C

| Symbol                | Parameter                | Emitting Color             | Typ.              | Max.              | Units   | Test Conditions  |
|-----------------------|--------------------------|----------------------------|-------------------|-------------------|---------|------------------|
| $\lambda_{peak}$      | Peak Wavelength          | Green<br>Blue<br>Hyper Red | 518<br>461<br>632 |                   | nm      | $I_F=5mA$        |
| $\lambda_D$ [1]       | Dominant Wavelength      | Green<br>Blue<br>Hyper Red | 527<br>467<br>624 |                   | nm      | $I_F=5mA$        |
| $\Delta\lambda_{1/2}$ | Spectral Line Half-width | Green<br>Blue<br>Hyper Red | 35<br>22<br>20    |                   | nm      | $I_F=5mA$        |
| $V_F$ [2]             | Forward Voltage          | Green<br>Blue<br>Hyper Red | 3<br>2.9<br>1.95  | 3.2<br>3.1<br>2.3 | V       | $I_F=5mA$        |
| C                     | Capacitance              | Green<br>Blue<br>Hyper Red | 100<br>110<br>25  |                   | pF      | $V_F=0V; f=1MHz$ |
| $I_R$                 | Reverse Current          | Green<br>Blue<br>Hyper Red |                   | 50<br>50<br>10    | $\mu A$ | $V_R=5V$         |

Notes:

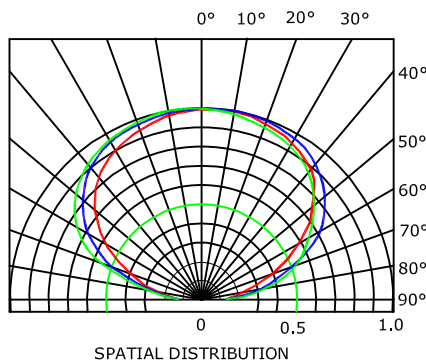
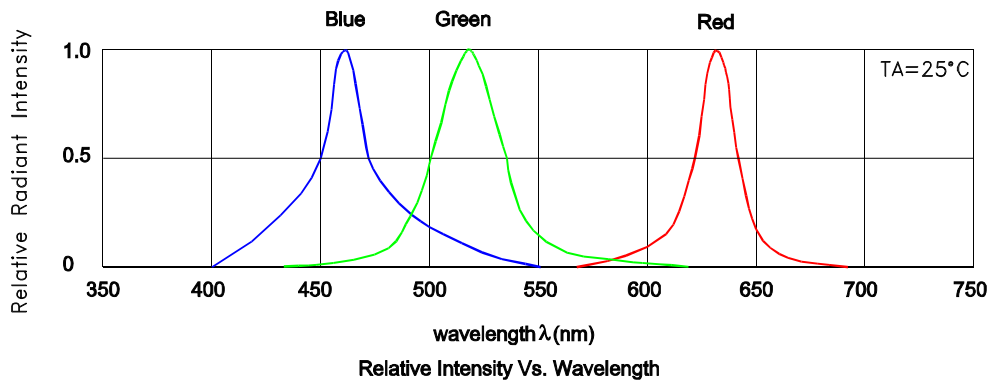
1. Wavelength:  $+ / -1nm$ .
2. Forward Voltage:  $+ / -0.1V$ .
3. Wavelength value is traceable to the CIE127-2007 compliant national standards.
4. Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

## Absolute Maximum Ratings at TA=25°C

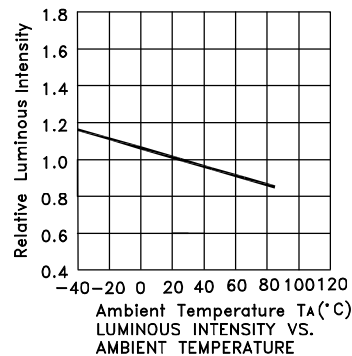
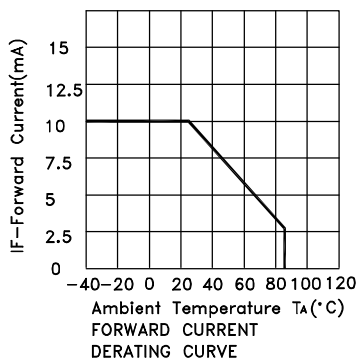
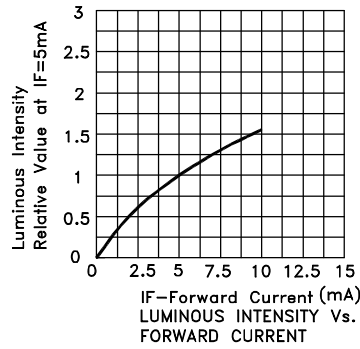
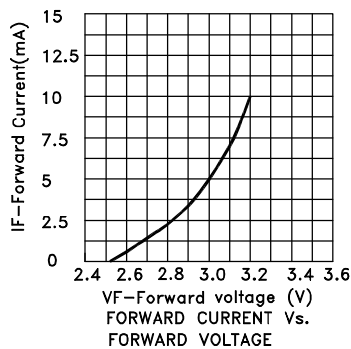
| Parameter                               | Green           | Blue | Hyper Red | Units |
|---|-----------------|------|-----------|-------|
| Power dissipation [1]                   | 35              |      |           | mW    |
| DC Forward Current [2]                  | 10              | 10   | 10        | mA    |
| Peak Forward Current [3]                | 50              | 50   | 50        | mA    |
| Electrostatic Discharge Threshold (HBM) | 1000            | 1000 | 3000      | V     |
| Reverse Voltage                         | 5               |      |           | V     |
| Operating Temperature                   | -40°C To +85°C  |      |           |       |
| Storage Temperature                     | -40°C To +100°C |      |           |       |

Notes:

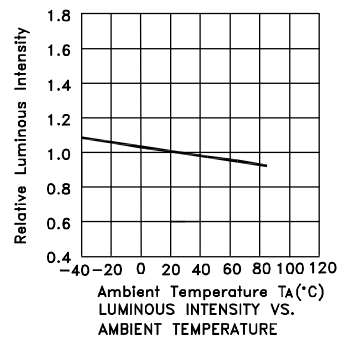
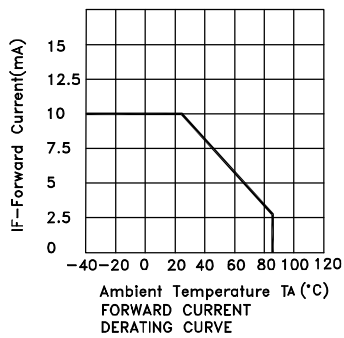
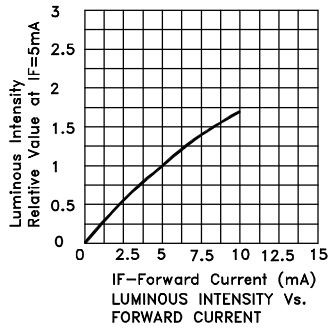
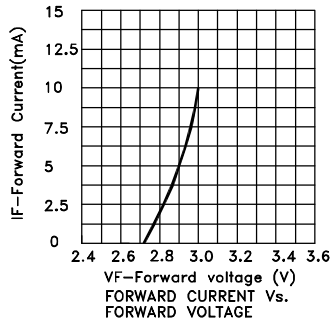
1. Within 35mW when multiple chips are lightened
2. The maximum ratings are valid for the case of lighting a single chip  
When two chips are lit at the same time, each chip should be driven at a current lower than 50% of the absolute maximum ratings  
When three chips are lit at the same time, each chip should be driven at a current lower than 30% of the absolute maximum ratings
3. Duty Cycle 1 / 20, Pulse Width=1ms.



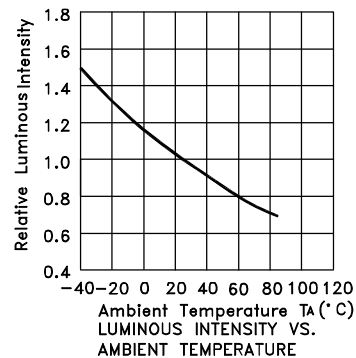
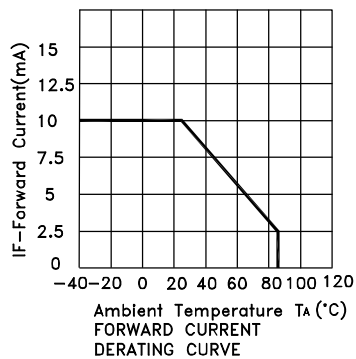
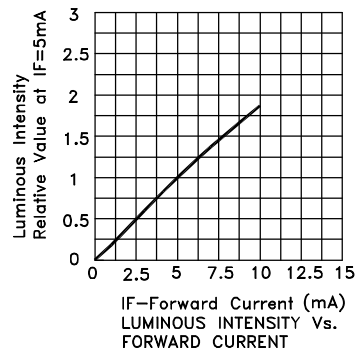
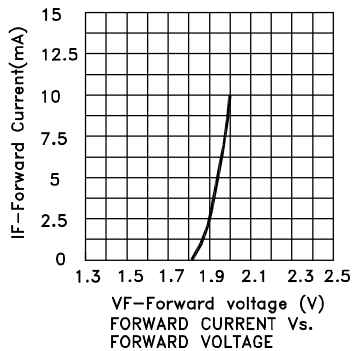
**KPGF-0606GBRC-120**  
Green



## Blue



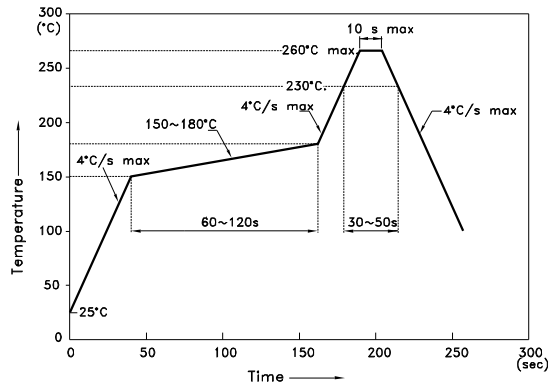
## Hyper Red



## KPGF-0606GBRC-120

Reflow soldering is recommended and the soldering profile is shown below.  
Other soldering methods are not recommended as they might cause damage to the product.

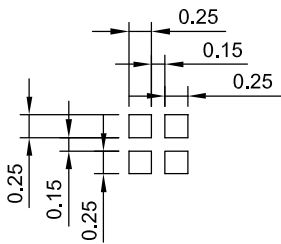
Reflow Soldering Profile For Lead-free SMT Process.



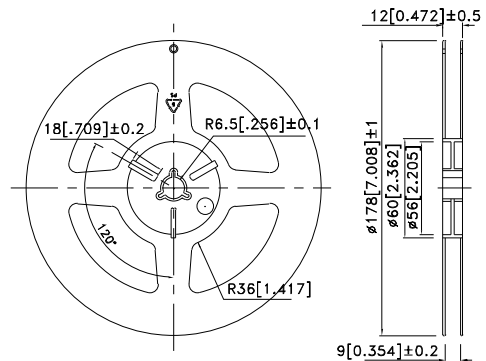
NOTES:

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.

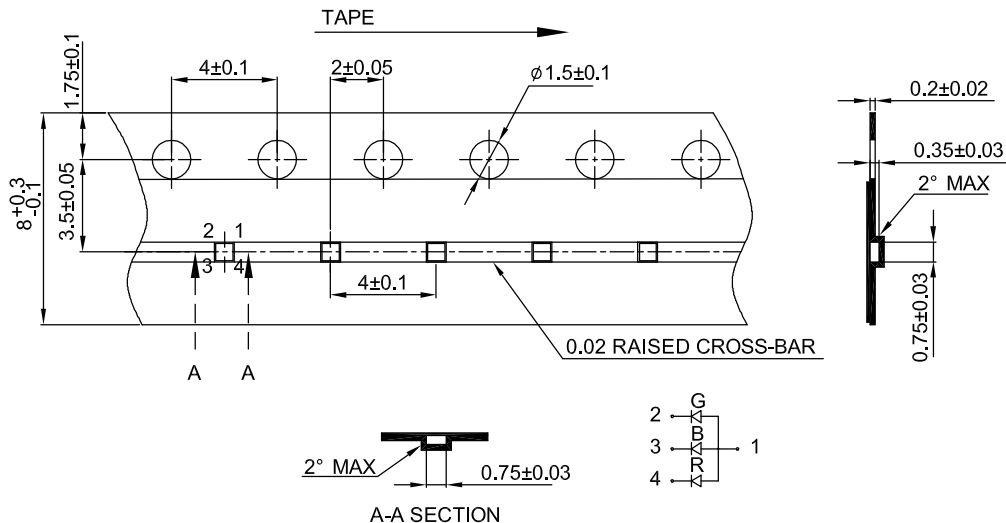
### Recommended Soldering Pattern (Units : mm; Tolerance: ± 0.1)



### Reel Dimension

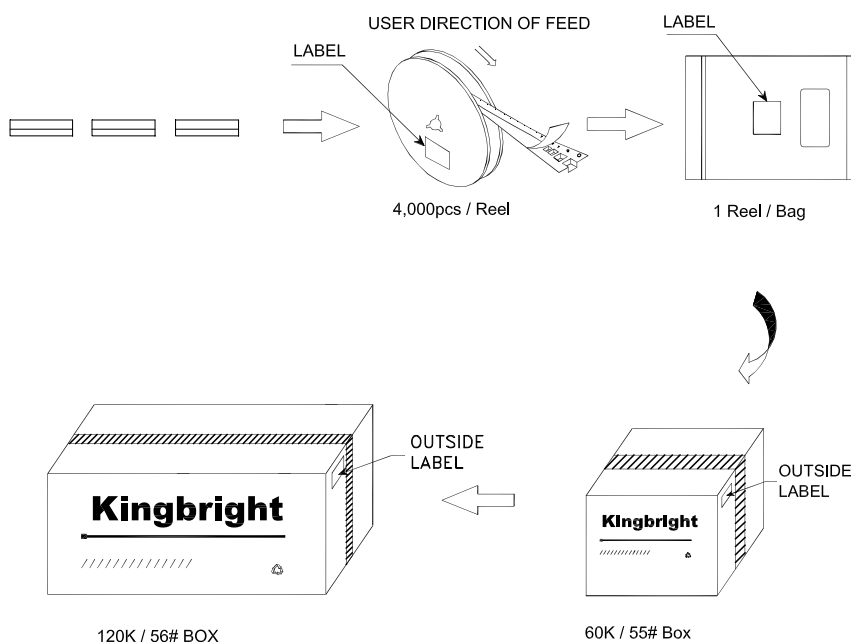



### Tape Dimensions (Units : mm)



## PACKING & LABEL SPECIFICATIONS

**KPGF-0606GBRC-120**



|   |   |     |            |        |
|---|---|-----|------------|--------|
| <h1>Kingbright</h1>   |   |     |            |        |
| P/NO: KPGF-0606xxx  |   |     |            |        |
| QTY: 4,000 pcs  | Q.C.  |     |            |        |
| S/N: XXXX   | <table border="1"> <tr> <td>Q C</td> </tr> <tr> <td>xx xx xxxx</td> </tr> <tr> <td>PASSED</td> </tr> </table> | Q C | xx xx xxxx | PASSED |
| Q C   |   |     |            |        |
| xx xx xxxx  |   |     |            |        |
| PASSED  |   |     |            |        |
| CODE: XXX   |   |     |            |        |
| LOT NO:   |   |     |            |        |
|  |   |     |            |        |
| RoHS Compliant  |   |     |            |        |

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