



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

Part Number: KPHBM-2012SURKCGKC

Hyper Red  
Green

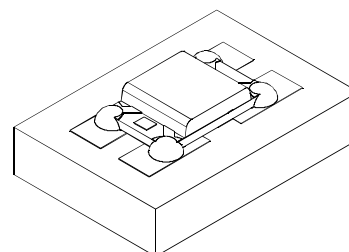
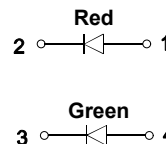
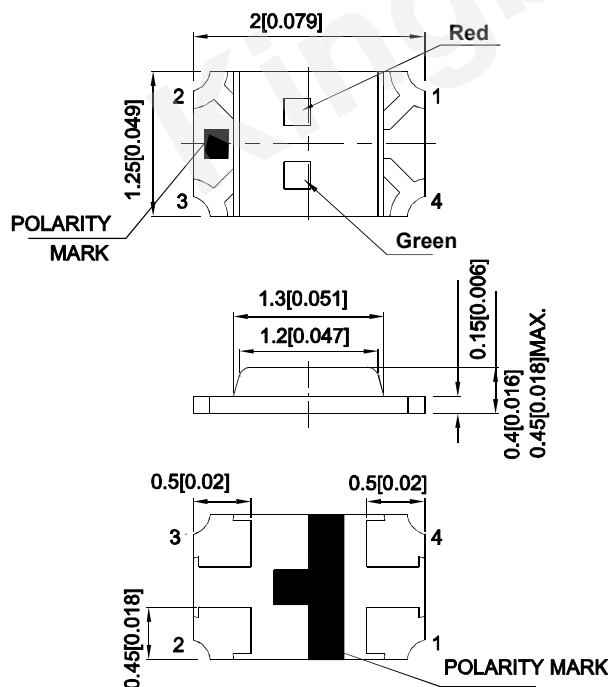
### Features

- 2.0mmx1.25mm SMD LED, 0.45mm max. thickness.
- Bi-color, low power consumption.
- Wide viewing angle.
- Ideal for backlight and indicator.
- Package : 2000pcs / reel.
- Moisture sensitivity level : level 3.
- RoHS compliant.

### Descriptions

- The Hyper Red source color devices are made with AlGaInP on GaAs substrate Light Emitting Diode.
- The Green 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, equipment and machinery 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>@ 20mA |      | Viewing<br>Angle [1] |
|--------------------|---------------------------|-------------|------------------------|------|----------------------|
|                    |                           |             | Min.                   | Typ. | 2θ1/2                |
| KPHBM-2012SURKCGKC | Hyper Red (AlGaInP)       | Water Clear | 120                    | 250  | 120°                 |
|                    |                           |             | *40                    | *80  |                      |
|                    | Green (AlGaInP)           |             | 20                     | 50   |                      |
|                    |                           |             | *20                    | *50  |                      |

### Notes:

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.

2. Luminous intensity / luminous Flux: +/-15%.

\* Luminous intensity value is traceable to CIE127-2007 standards.

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

| Symbol | Parameter                | Emitting Color     | Typ.        | Max.       | Units | Test Conditions |
|--------|--------------------------|--------------------|-------------|------------|-------|-----------------|
| λpeak  | Peak Wavelength          | Hyper Red<br>Green | 645<br>574  |            | nm    | If=20mA         |
| λD [1] | Dominant Wavelength      | Hyper Red<br>Green | 630<br>570  |            | nm    | If=20mA         |
| Δλ1/2  | Spectral Line Half-width | Hyper Red<br>Green | 28<br>20    |            | nm    | If=20mA         |
| C      | Capacitance              | Hyper Red<br>Green | 35<br>15    |            | pF    | VF=0V;f=1MHz    |
| VF [2] | Forward Voltage          | Hyper Red<br>Green | 1.95<br>2.1 | 2.5<br>2.5 | V     | If=20mA         |
| IR     | Reverse Current          | Hyper Red<br>Green |             | 10<br>10   | uA    | VR = 5V         |

### Notes:

1. Wavelength: +/-1nm.

2. Forward Voltage: +/-0.1V.

3. Wavelength value is traceable to CIE127-2007 standards.

4. Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

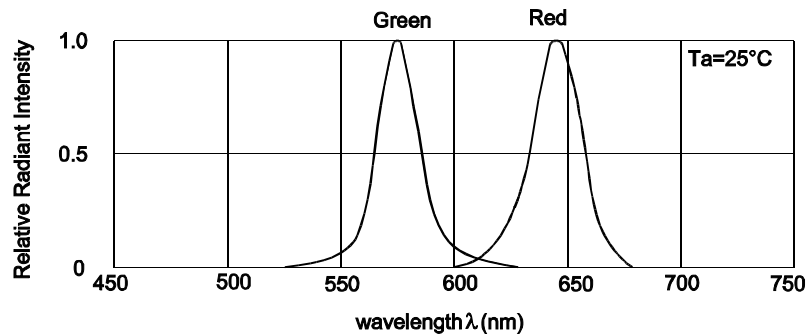
## Absolute Maximum Ratings at TA=25°C

| Parameter                | Hyper Red      | Green | Units |
|--------------------------|----------------|-------|-------|
| Power dissipation        | 75             | 75    | mW    |
| DC Forward Current       | 30             | 30    | mA    |
| Peak Forward Current [1] | 185            | 150   | mA    |
| Reverse Voltage          | 5              |       | V     |
| Operating Temperature    | -40°C To +85°C |       |       |
| Storage Temperature      | -40°C To +85°C |       |       |

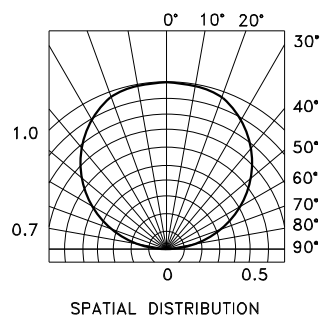
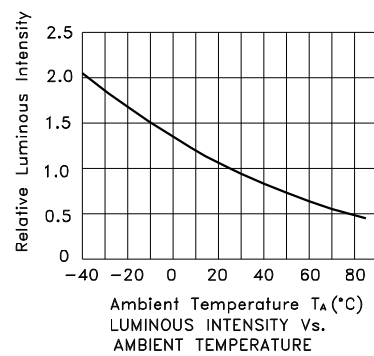
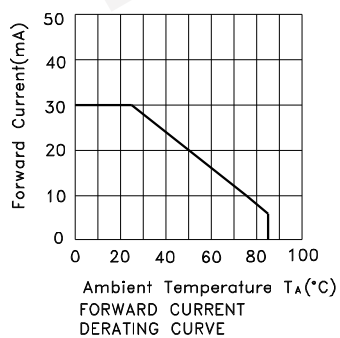
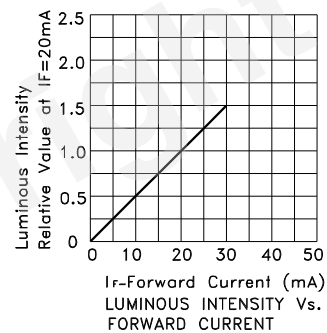
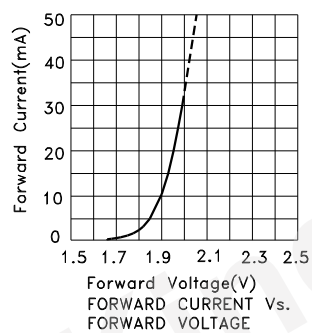
### Notes:

1. 1/10 Duty Cycle, 0.1ms Pulse Width.

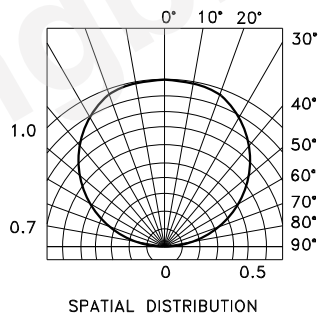
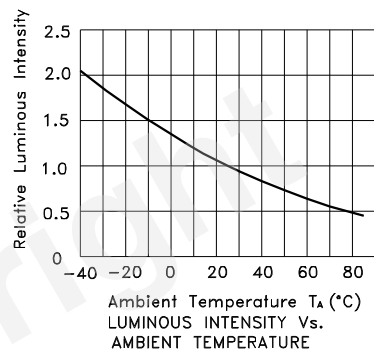
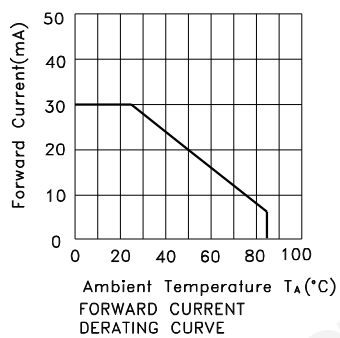
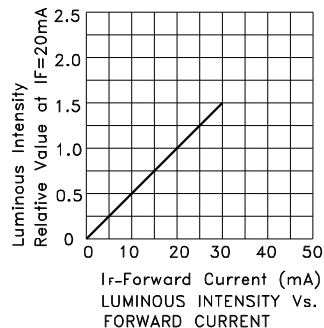
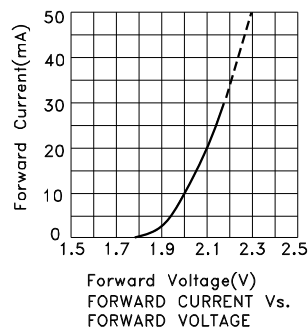
2. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.



## KPHBM-2012SURKCGKC Hyper Red



## Green



## KPHBM-2012SURKCGKC

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.

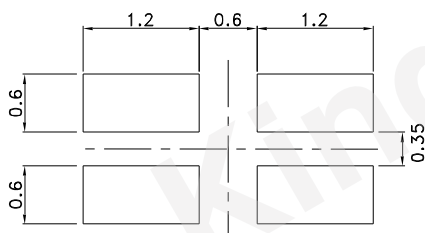
Reflow Soldering Profile For Lead-free SMT Process.



### 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.

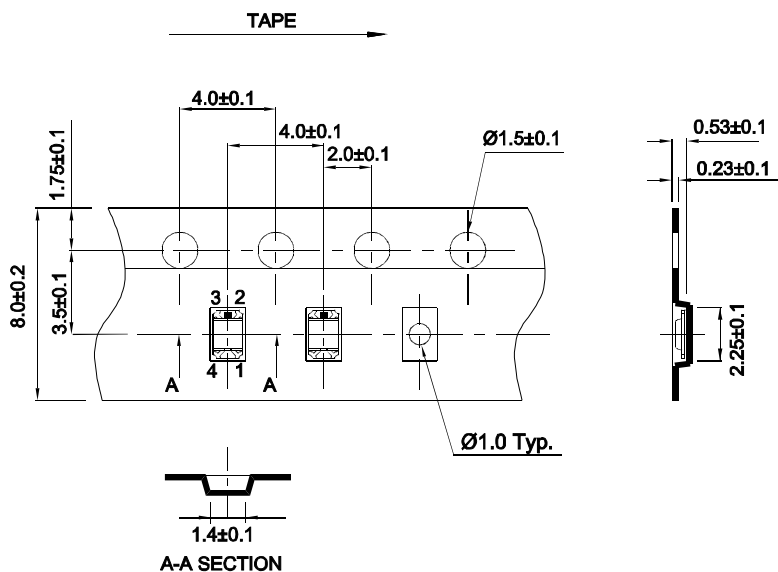
## Recommended Soldering Pattern (Units : mm; Tolerance: $\pm 0.1$ )



## Reel Dimension

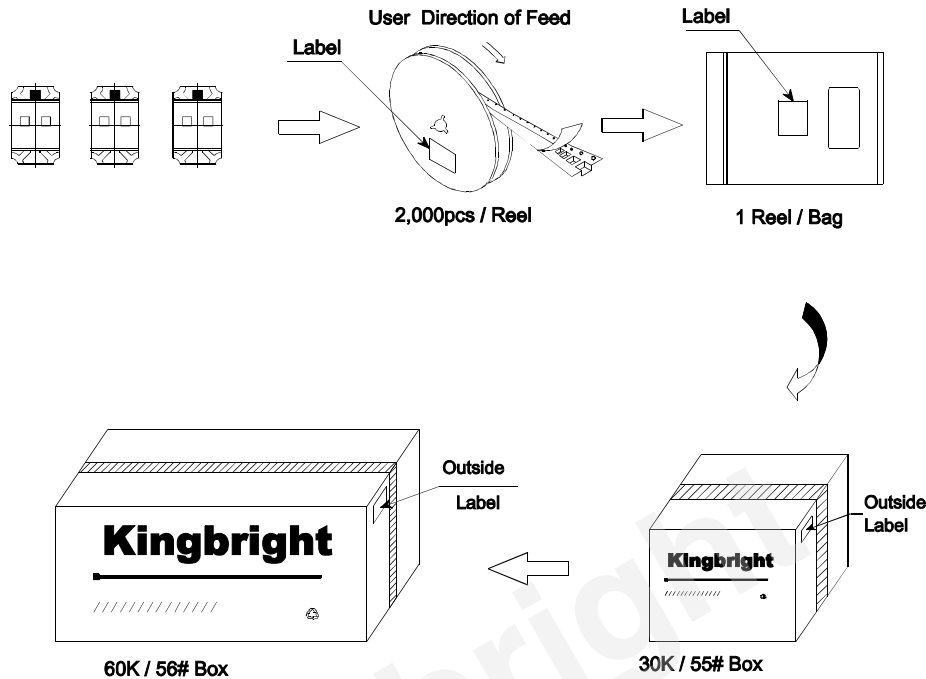


## Tape Dimensions (Units : mm)



## PACKING & LABEL SPECIFICATIONS

KPHBM-2012SURKCGKC



|                   |  |                             |  |
|-------------------|--|-----------------------------|--|
| <b>Kingbright</b> |  | XXXXXXXX-XXXX               |  |
| P/NO: XXXXXXXX    |  |                             |  |
| QTY: XXXXpcs      |  |                             |  |
| S/N: XXXX         |  |                             |  |
| CODE: XXX         |  |                             |  |
| COUNTRY: CN       |  | QC DATE: XXX XX XXXX PASSED |  |
| LOT NO:           |  |                             |  |
|                   |  |                             |  |
| XXXXXXXX-XXXX     |  |                             |  |
|                   |  | 1 RoHS Compliant            |  |

### Terms and conditions for the usage of this document

1. The information included in this document reflects representative usage scenarios and is intended for technical reference only.
2. The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.
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