



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

Part Number: APHB1608ZGSURKC

Green  
Hyper Red

### Features

- 1.6mmX0.8mm SMT LED, 0.5mm thickness.
- Compatible with reflow soldering.
- Available in various color combination.
- Package: 2000pcs / reel.
- Moisture sensitivity level : level 3.
- Tinned pads for improved solderability.
- RoHS compliant.

### Description

The Green source color devices are made with InGaN on Sapphire Light Emitting Diode.

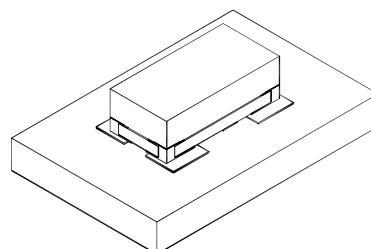
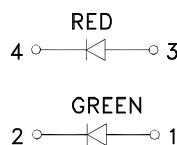
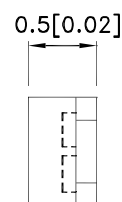
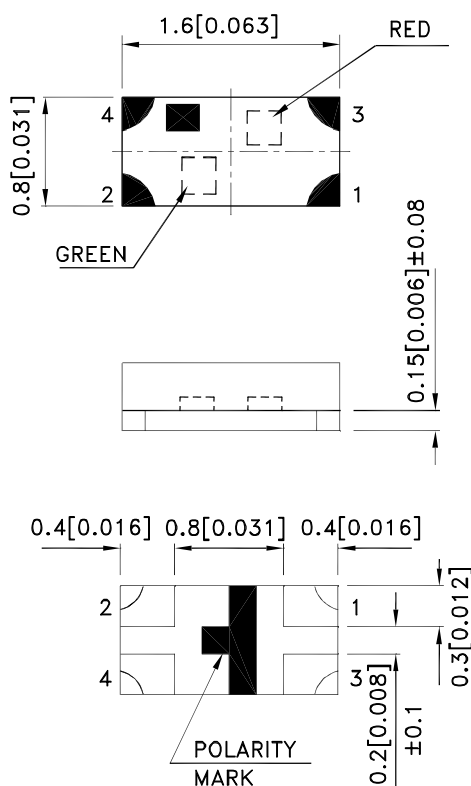
The Hyper Red source color devices are made with Al-GaN on GaAs substrate Light Emitting Diode.

Static electricity and surge 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  $\pm 0.15(0.006)$  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.        | Dice                | Lens Type   | Iv (mcd) [2]<br>@ 20mA |      |      | Viewing<br>Angle [1] |
|-----------------|---------------------|-------------|------------------------|------|------|----------------------|
|                 |                     |             | Min.                   | Typ. | Max. | 2θ1/2                |
| APHB1608ZGSURKC | Green (InGaN)       | Water Clear | 200                    | -    | 500  | 130°                 |
|                 |                     |             | *200                   | -    | *500 |                      |
|                 | Hyper Red (AlGaInP) |             | 120                    | 250  | -    |                      |
|                 |                     |             | *40                    | *90  | -    |                      |

### 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 the CIE127-2007 compliant national standards.

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

| Symbol | Parameter                | Device             | Typ.        | Max.       | Units | Test Conditions |
|--------|--------------------------|--------------------|-------------|------------|-------|-----------------|
| λpeak  | Peak Wavelength          | Green<br>Hyper Red | 515<br>645  |            | nm    | IF=20mA         |
| λD [1] | Dominant Wavelength      | Green<br>Hyper Red | 525<br>630  |            | nm    | IF=20mA         |
| Δλ1/2  | Spectral Line Half-width | Green<br>Hyper Red | 30<br>28    |            | nm    | IF=20mA         |
| C      | Capacitance              | Green<br>Hyper Red | 45<br>35    |            | pF    | VF=0V;f=1MHz    |
| VF [2] | Forward Voltage          | Green<br>Hyper Red | 3.3<br>1.95 | 4.1<br>2.5 | V     | IF=20mA         |
| IR     | Reverse Current          | Green<br>Hyper Red |             | 50<br>10   | uA    | VR = 5V         |

### Notes:

1. Wavelength: +/-1nm.

2. Forward Voltage: +/-0.1V.

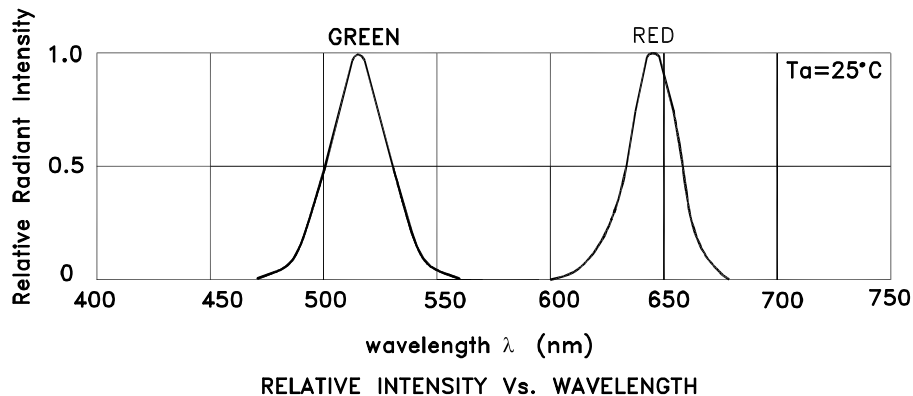
3. Wavelength value is traceable to the CIE127-2007 compliant national standards.

## Absolute Maximum Ratings at TA=25°C

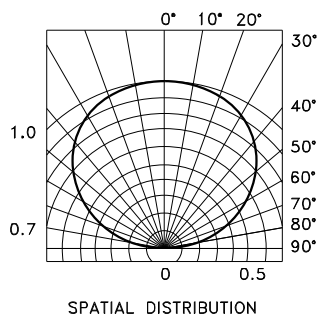
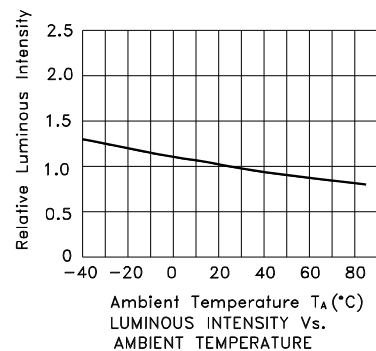
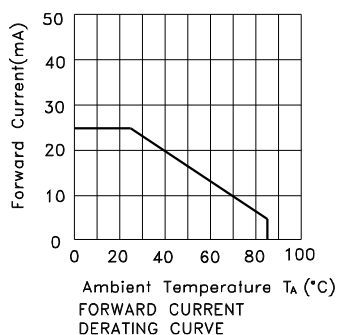
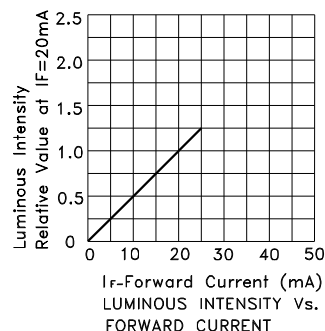
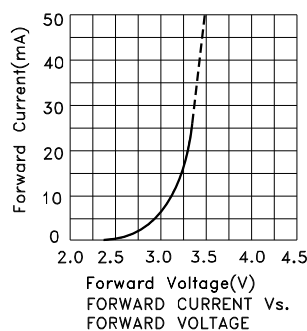
| Parameter                | Green          | Hyper Red | Units |
|--------------------------|----------------|-----------|-------|
| Power dissipation        | 102.5          | 75        | mW    |
| DC Forward Current       | 25             | 30        | mA    |
| Peak Forward Current [1] | 150            | 185       | mA    |
| Reverse Voltage          | 5              |           | V     |
| Operating Temperature    | -40°C To +85°C |           |       |
| Storage Temperature      | -40°C To +85°C |           |       |

### Note:

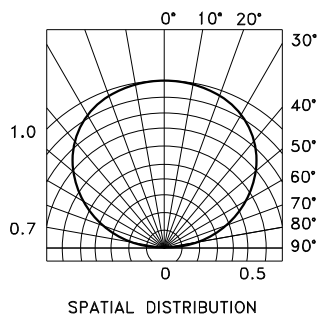
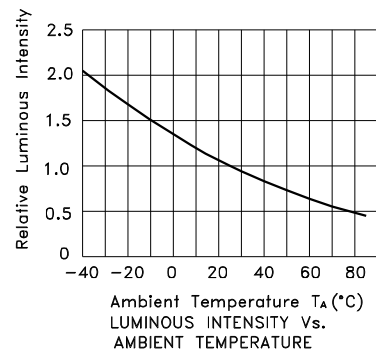
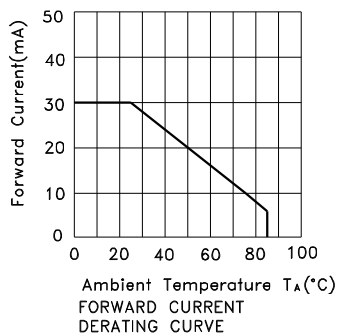
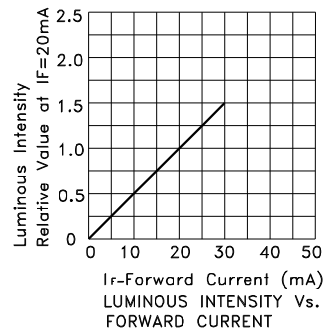
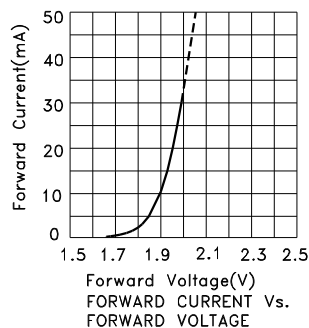
1. 1/10 Duty Cycle, 0.1ms Pulse Width.



**APHB1608ZGSURKC**  
**Green**



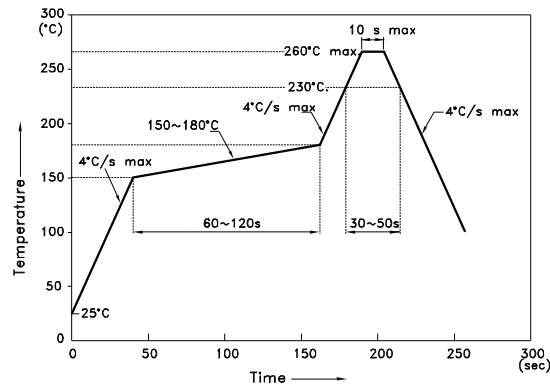
## Hyper Red



## APHB1608ZGSURKC

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.

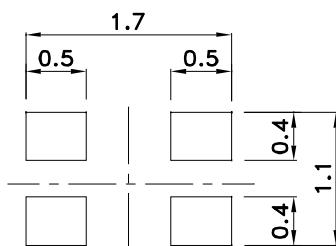
Reflow Soldering Profile For Lead-free SMT Process.



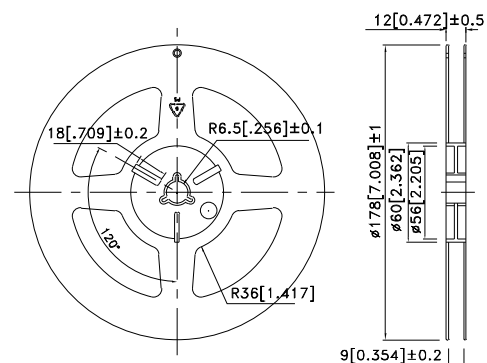
### NOTES:

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.

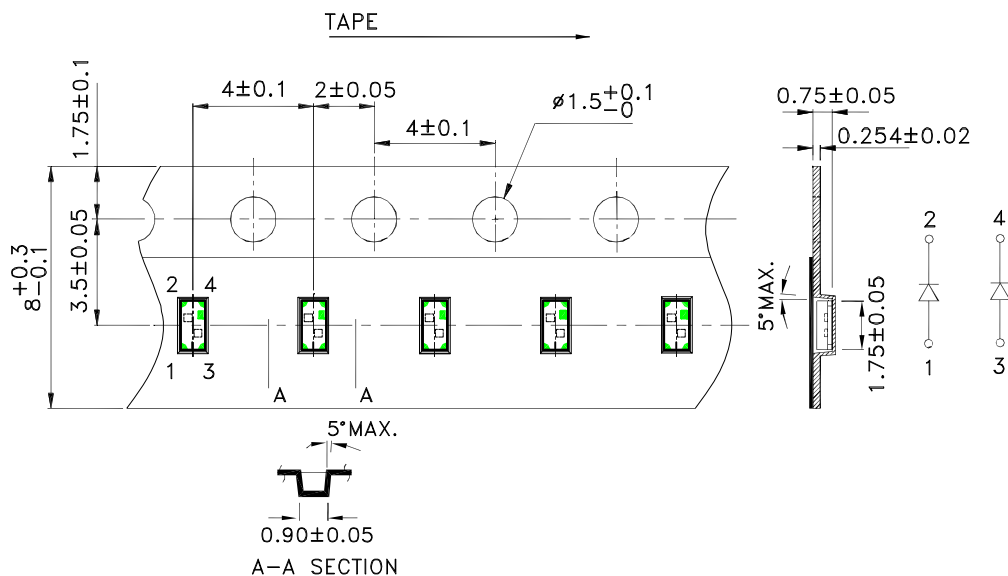
### Recommended Soldering Pattern (Units : mm; Tolerance: $\pm 0.1$ )



### Reel Dimension

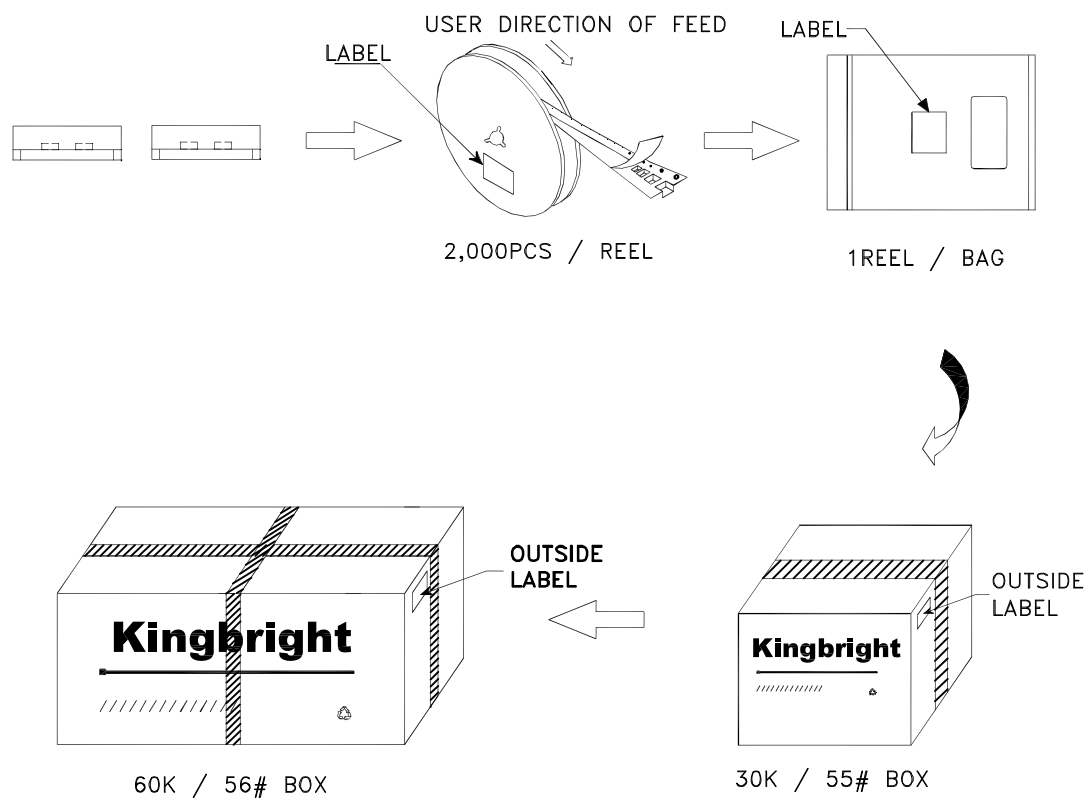



### Tape Dimensions (Units : mm)



PACKING & LABEL SPECIFICATIONS

APHB1608ZGSURKC



|  |      |                             |
|--|------|-----------------------------|
| <b>Kingbright</b>  |      |                             |
| P/NO: APHB1608xxx  |      |                             |
| QTY: 2,000 pcs   | Q.C. | Q C<br>xx xx xxxx<br>PASSED |
| S/N: XXXX  |      |                             |
| CODE: XXX  |      |                             |
| LOT NO:  |      |                             |
|  |      |                             |
| RoHS Compliant   |      |                             |

All design applications should refer to Kingbright application notes available at <http://www.KingbrightUSA.com/ApplicationNotes>