



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

Part Number: KPHBM-2012QBDSURKC

Blue  
Hyper Red

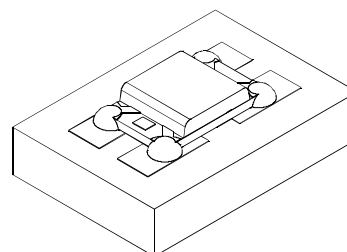
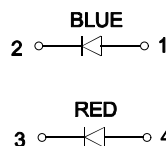
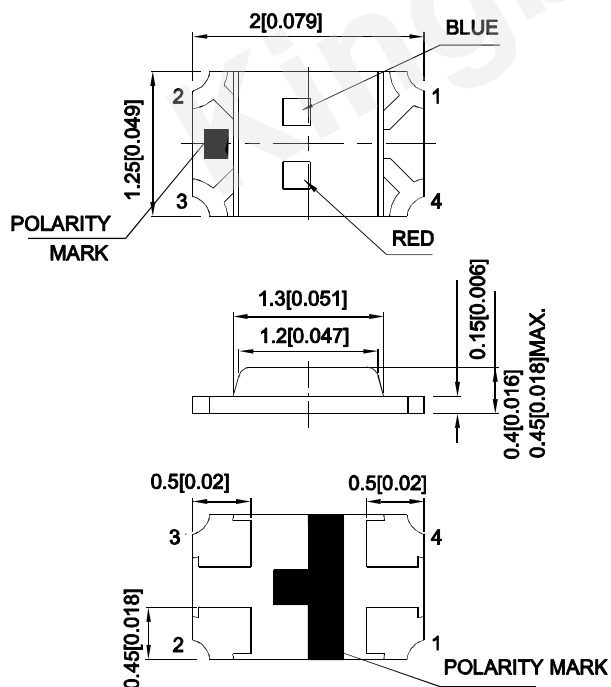
### Features

- 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 Blue source color devices are made with InGaN 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] @ 20mA		Viewing Angle [1]
			Min.	Typ.	2θ1/2
KPHBM-2012QBDSURKC	Blue (InGaN)	Water Clear	40	80	120°
	Hyper Red (AlGaInP)		*40	*80	
			120	250	
			*40	*80	

### 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%.

\* 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
$\lambda_{peak}$	Peak Wavelength	Blue Hyper Red	460 645		nm	I <sub>F</sub> =20mA
$\lambda_D$ [1]	Dominant Wavelength	Blue Hyper Red	465 630		nm	I <sub>F</sub> =20mA
$\Delta\lambda_{1/2}$	Spectral Line Half-width	Blue Hyper Red	25 28		nm	I <sub>F</sub> =20mA
C	Capacitance	Blue Hyper Red	100 35		pF	V <sub>F</sub> =0V; f=1MHz
V <sub>F</sub> [2]	Forward Voltage	Blue Hyper Red	3.3 1.95	4 2.5	V	I <sub>F</sub> =20mA
I <sub>R</sub>	Reverse Current	Blue Hyper Red		50 10	uA	V <sub>R</sub> = 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.

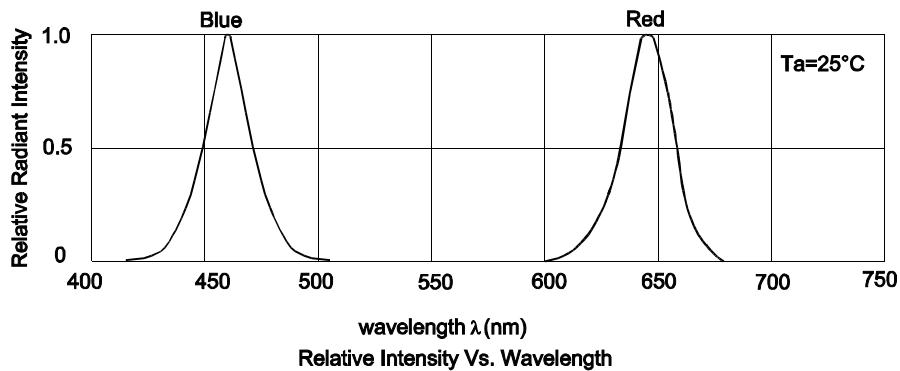
## Absolute Maximum Ratings at TA=25°C

Parameter	Blue	Hyper Red	Units
Power dissipation	120	75	mW
DC Forward Current	30	30	mA
Peak Forward Current [1]	150	185	mA
Electrostatic Discharge Threshold (HBM)	250	3000	V
Reverse Voltage	5		V
Operating Temperature	-40°C To +85°C		
Storage Temperature	-40°C To +85°C		

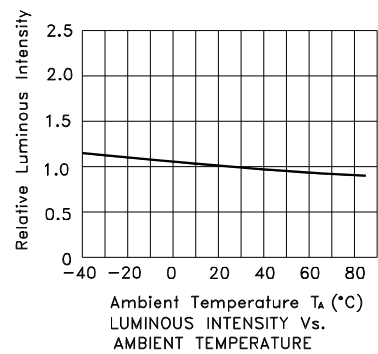
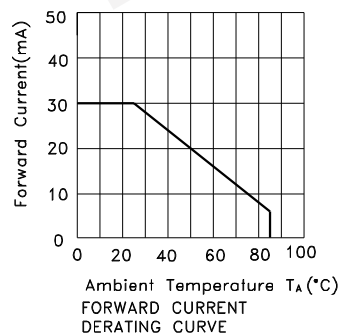
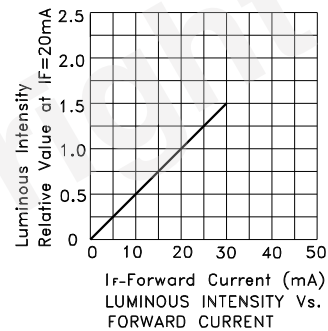
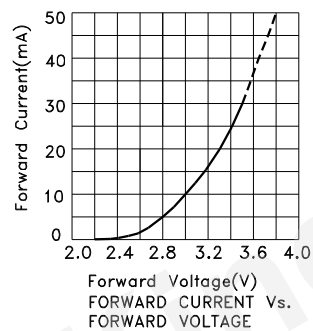
### Notes:

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

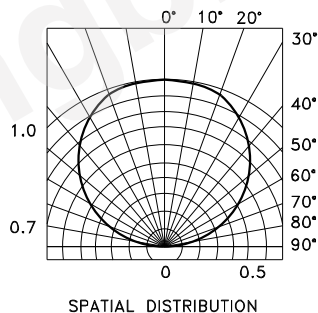
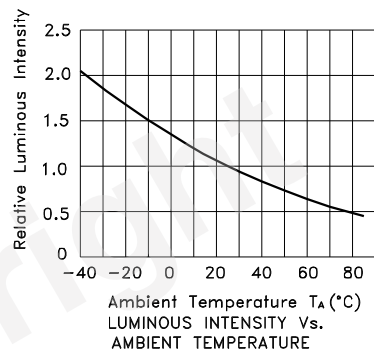
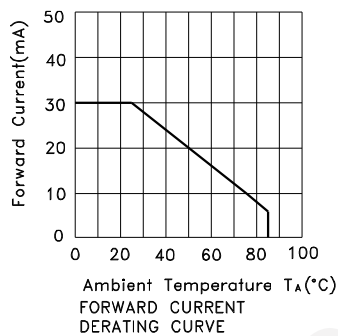
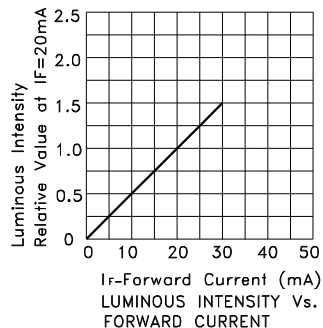
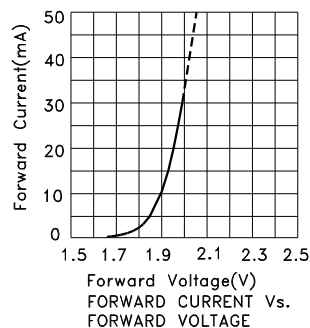
2. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.



## KPHBM-2012QBDSURKC Blue



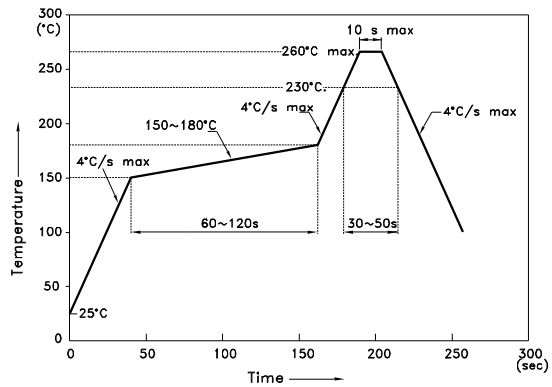
## Hyper Red



**KPHBM-2012QBDSURKC**

**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.**

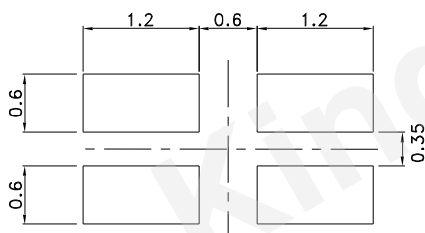
### Reflow Soldering Profile For Lead-free SMT Process.



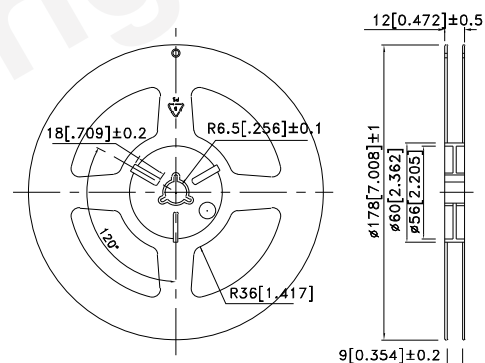
NOTES:

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.

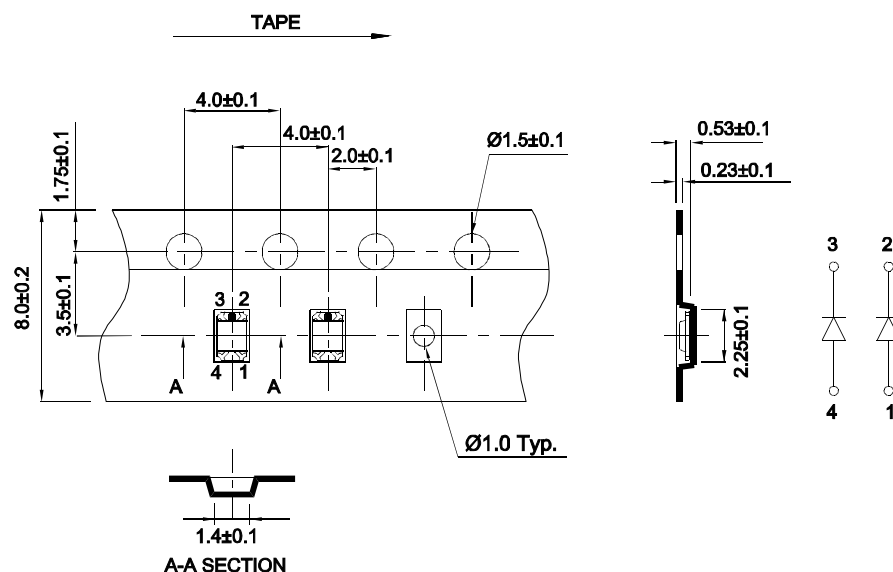
**Recommended Soldering Pattern**  
(Units : mm; Tolerance:  $\pm 0.1$ )



## Reel Dimension

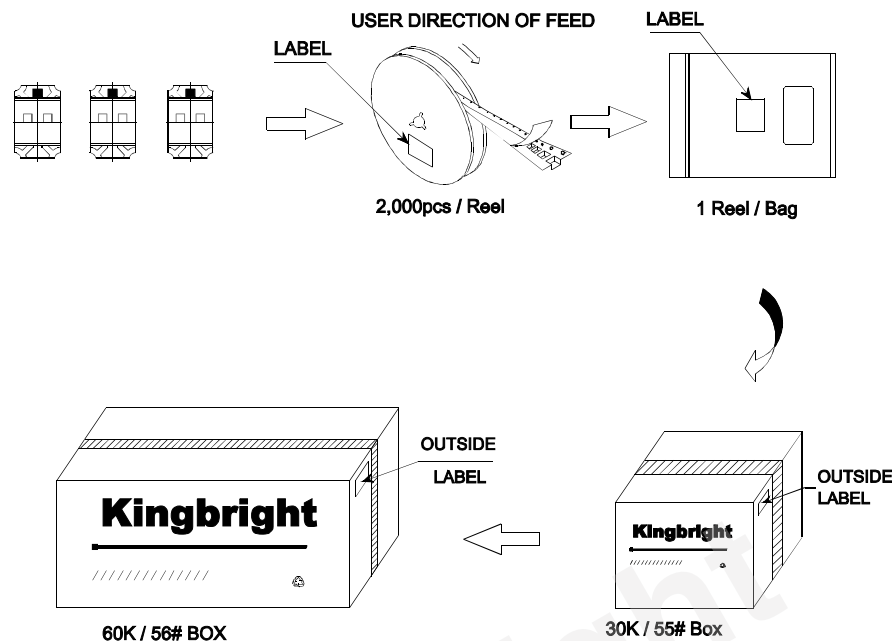



## Tape Dimensions



## PACKING & LABEL SPECIFICATIONS

KPHBM-2012QBDSURKC



<b>Kingbright</b>	
P/NO: KPHBM-2012xxx	
QTY: 2,000 pcs	Q.C.
S/N: XXXX	QC xxxxxxx PASSED
CODE: XXX	
LOT NO:	
	
RoHS Compliant	

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