



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

Part Number: KPGF-1011GBRC-120

Green  
Blue  
Hyper-Red

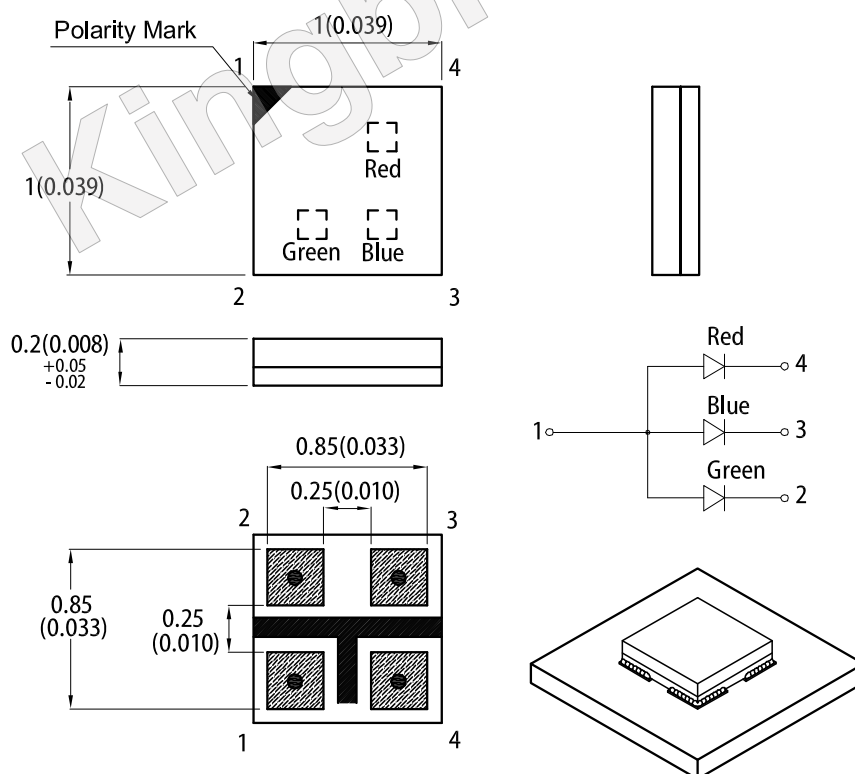
### Features

- 1.0mmX1.0mm SMD LED, 0.2mm thickness.
- Low power consumption.
- 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] @ 5mA		Viewing Angle [1]
			Min.	Typ.	2θ1/2
KPGF-1011GBRC-120	Green (InGaN)	Water Clear	50	80	150°
	Blue (InGaN)		10	23	
	Hyper-Red (AlGaInP)		15	30	

### 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 CIE127-2007 standards.

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

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

### Notes:

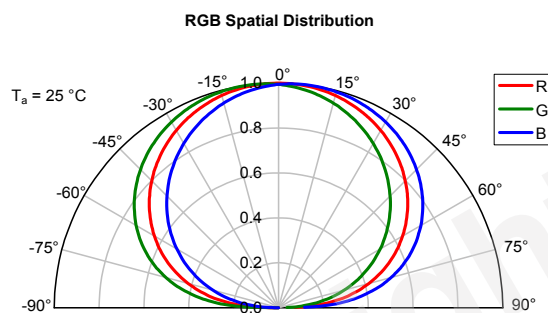
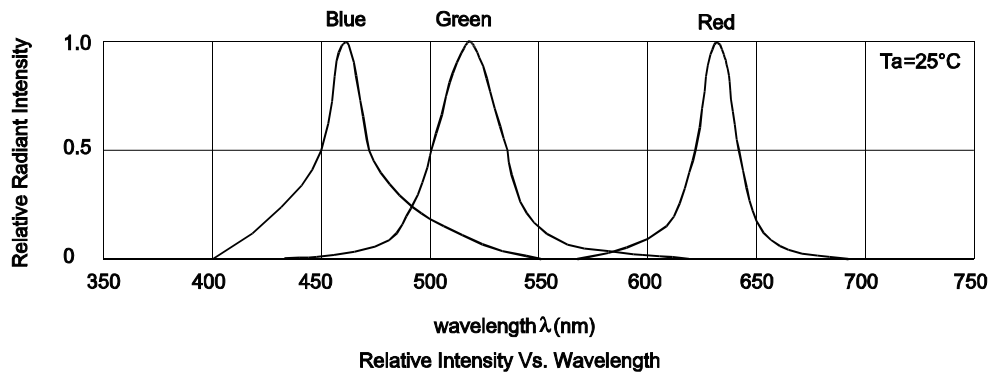
1. Wavelength: +/-1nm.
2. Forward Voltage: +/-0.1V.
3. Wavelength value is traceable to CIE127-2007 standards.
4. Excess driving current and/or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

## Absolute Maximum Ratings at TA=25°C

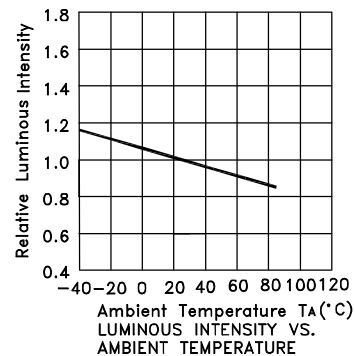
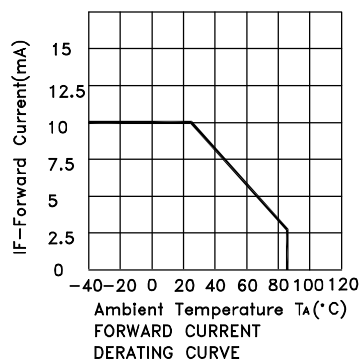
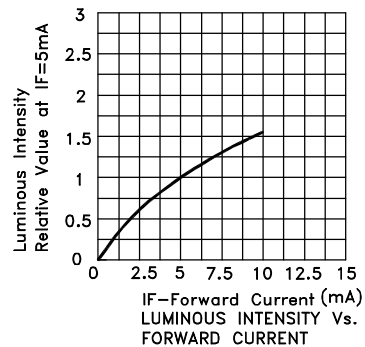
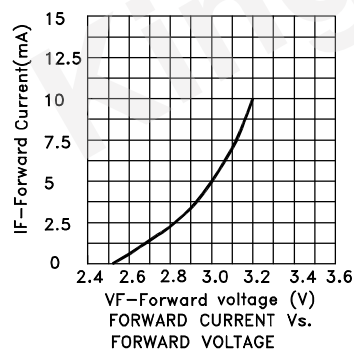
Parameter	Green	Blue	Hyper-Red	Units
Power dissipation [1]	35			mW
DC Forward Current [2]	10	10	10	mA
Peak Forward Current [3]	50	50	50	mA
Electrostatic Discharge Threshold (HBM)	1000	1000	3000	V
Reverse Voltage	5			V
Operating Temperature	-40°C To +85°C			
Storage Temperature	-40°C To +100°C			

### Notes:

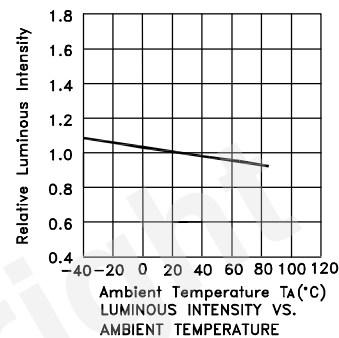
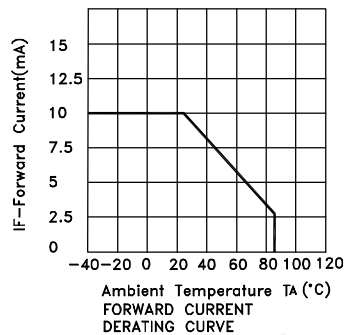
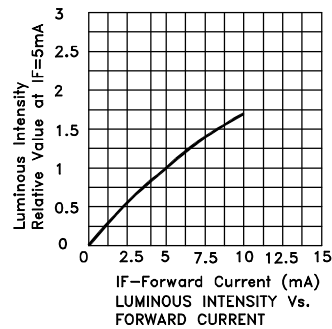
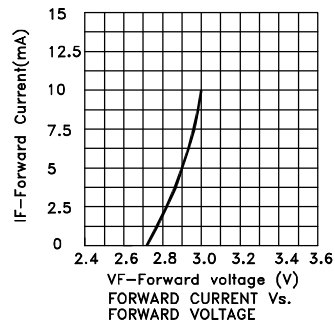
1. Within 35mW when multiple chips are lightened
2. The maximum ratings are valid for the case of lighting a single chip  
When two chips are lit at the same time, each chip should be driven at a current lower than 50% of the absolute maximum ratings  
When three chips are lit at the same time, each chip should be driven at a current lower than 30% of the absolute maximum ratings
3. Duty Cycle 1/20, Pulse Width=1ms.
4. 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.



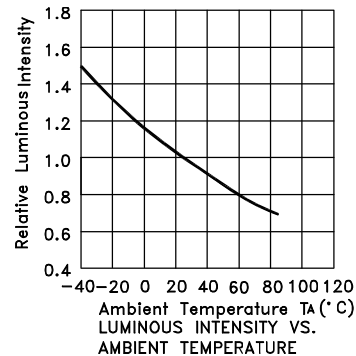
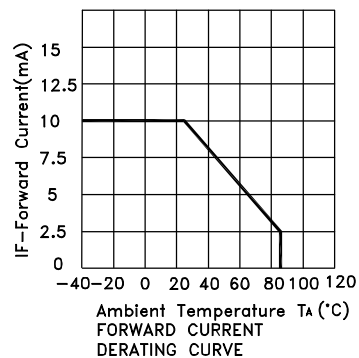
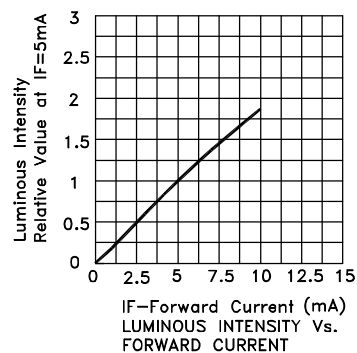
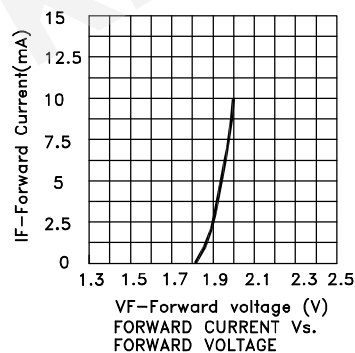
## KPGF-1011GBRC-120 Green



## Blue

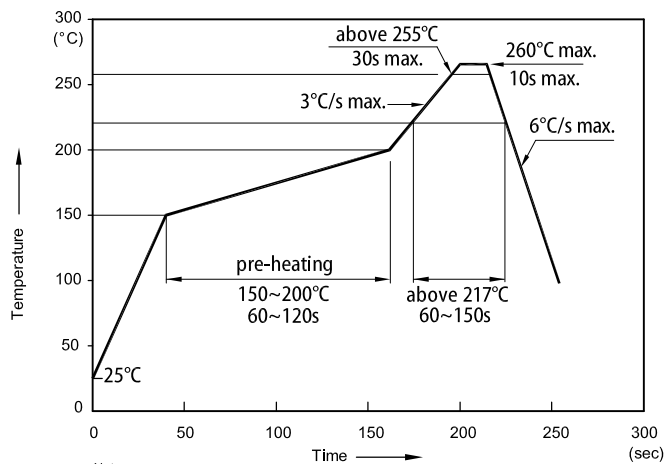


## Hyper-Red



## KPGF-1011GBRC-120

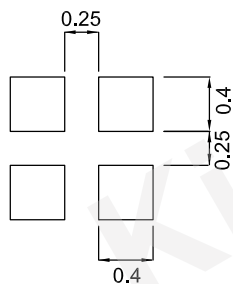
Reflow Soldering Profile for Lead-free SMD Process



Notes:

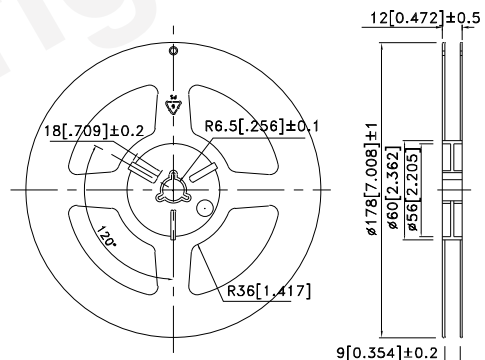
1. Don't cause stress to the LEDs while it is exposed to high temperature.
2. The maximum number of reflow soldering passes is 2 times.
3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.

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

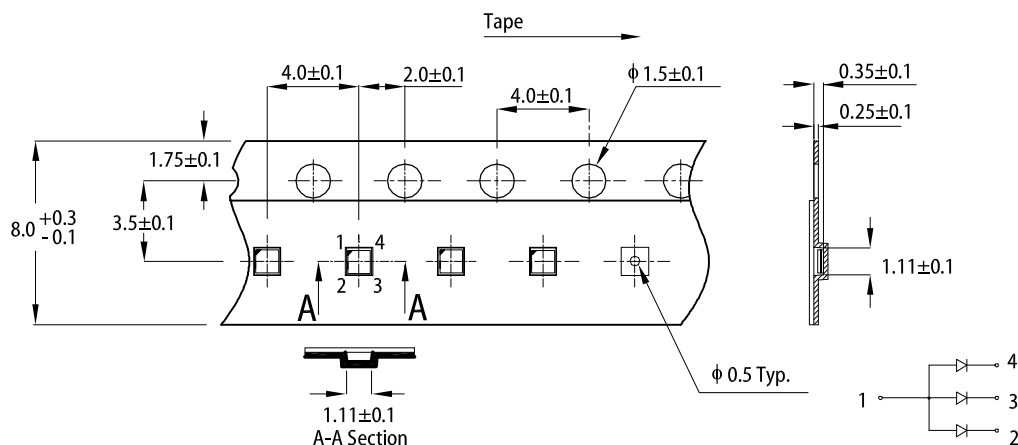


Mask open area ratio:80%;  
Mask thickness:80~100um;

### Reel Dimension

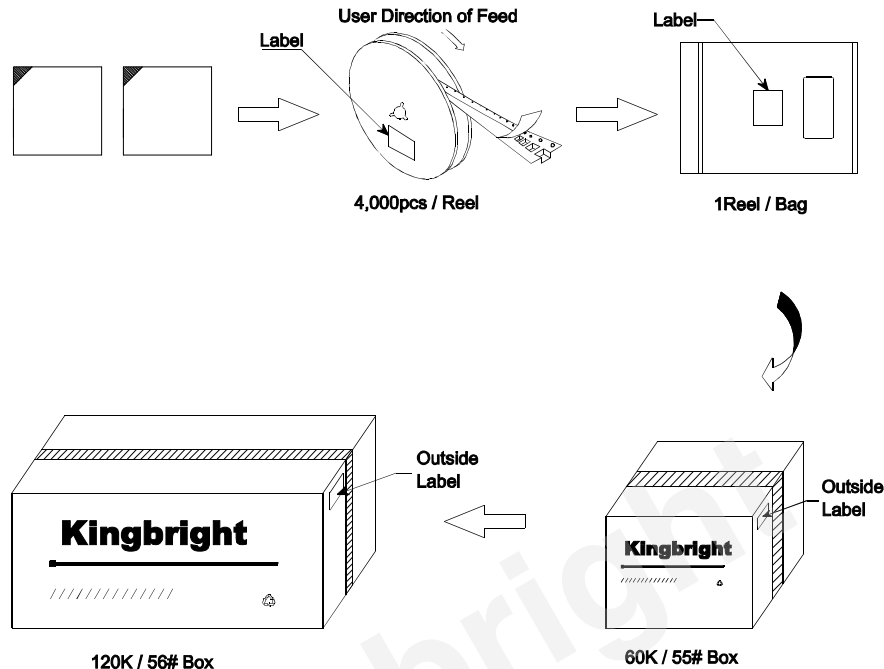


### Tape Dimensions (Units : mm)



## PACKING & LABEL SPECIFICATIONS

## KPGF-1011GBRC-120



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

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