



## KPFA-3010QBDZGSURKC

3.0 x 1.0 mm Right Angle SMD Chip LED Lamp

### DESCRIPTIONS

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

### FEATURES

- 3.0 x 1.5 x 1.0 mm right angle SMD LED, 1.0 mm thickness
- Low power consumption
- Wide viewing angle
- Ideal for backlight and indicator
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- Tinned pads for improved solderability
- Halogen-free
- RoHS compliant

### APPLICATIONS

- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

### ATTENTION

Observe precautions for handling electrostatic discharge sensitive devices

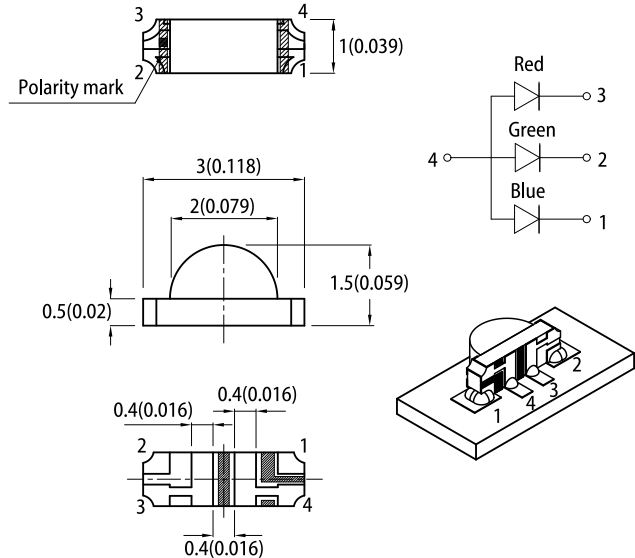


### SELECTION GUIDE

Part Number	Emitting Color (Material)	Lens Type	Iv (mcd) @ 20mA [2]		Viewing Angle [1]
			Min.	Typ.	2θ1/2
KPFA-3010QBDZGSURKC	Blue (InGaN)	Water Clear	40	70	150°
	Green (InGaN)		*40	*70	
	Hyper Red (AlGaInP)		200	400	
			120	220	
			*55	*80	

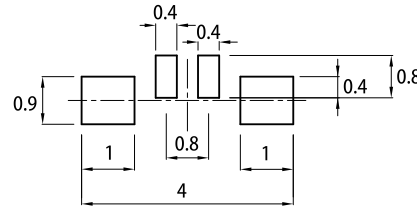
Notes:  
 1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.  
 2. Luminous intensity / luminous flux: +/-15%.  
 \* Luminous intensity value is traceable to CIE127-2007 standards.

### PACKAGE DIMENSIONS



### RECOMMENDED SOLDERING PATTERN

(units : mm; tolerance : ± 0.1)



Notes:  
 1. All dimensions are in millimeters (inches).  
 2. Tolerance is ±0.2(0.008") 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.  
 5. For right angle SMD LEDs, the solder stencil should be at least 5mil in thickness, to prevent poor solder wetting due to insufficient solder paste.

**ELECTRICAL / OPTICAL CHARACTERISTICS at T<sub>A</sub>=25°C**

Parameter	Symbol	Emitting Color	Value		Unit
			Typ.	Max.	
Wavelength at Peak Emission I <sub>F</sub> = 20mA	λ <sub>peak</sub>	Blue Green Hyper Red	460 515 645	-	nm
Dominant Wavelength I <sub>F</sub> = 20mA	λ <sub>dom</sub> <sup>[1]</sup>	Blue Green Hyper Red	465 525 630	-	nm
Spectral Bandwidth at 50% Φ REL MAX I <sub>F</sub> = 20mA	Δλ	Blue Green Hyper Red	25 30 28	-	nm
Capacitance	C	Blue Green Hyper Red	100 45 35	-	pF
Forward Voltage I <sub>F</sub> = 20mA	V <sub>F</sub> <sup>[2]</sup>	Blue Green Hyper Red	3.3 3.3 1.95	4 4.1 2.5	V
Reverse Current (V <sub>R</sub> = 5V)	I <sub>R</sub>	Blue Green Hyper Red	-	50 50 10	μA

**Notes:**

1. The dominant wavelength (λ<sub>d</sub>) above is the setup value of the sorting machine. (Tolerance λ<sub>d</sub>: ±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 T<sub>A</sub>=25°C**

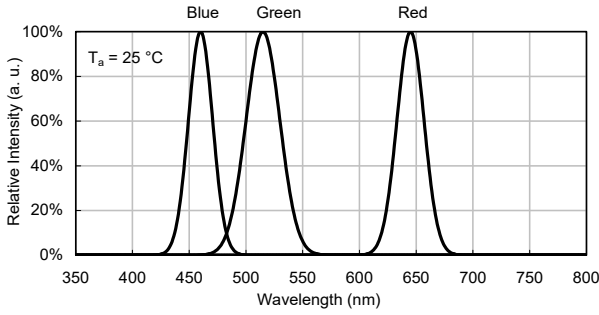
Parameter	Symbol	Value			Unit
		Blue	Green	Hyper Red	
Power Dissipation	P <sub>D</sub>	120	102.5	75	mW
Reverse Voltage	V <sub>R</sub>	5	5	5	V
Junction Temperature	T <sub>j</sub>	115	115	115	°C
Operating Temperature	T <sub>op</sub>	-40 to +85			°C
Storage Temperature	T <sub>stg</sub>	-40 to +85			°C
DC Forward Current	I <sub>F</sub>	30	25	30	mA
Peak Forward Current	I <sub>FP</sub> <sup>[1]</sup>	150	150	185	mA
Electrostatic Discharge Threshold (HBM)	-	250	450	3000	V

**Notes:**

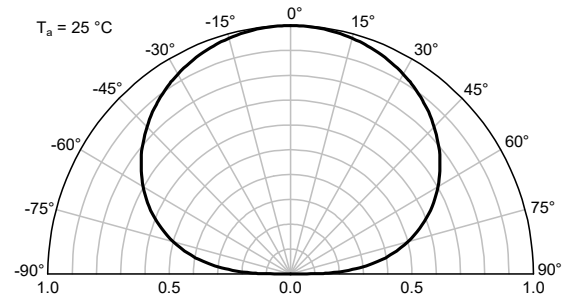
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

### TECHNICAL DATA

#### RELATIVE INTENSITY vs. WAVELENGTH

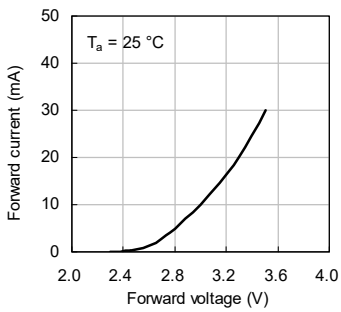


#### SPATIAL DISTRIBUTION

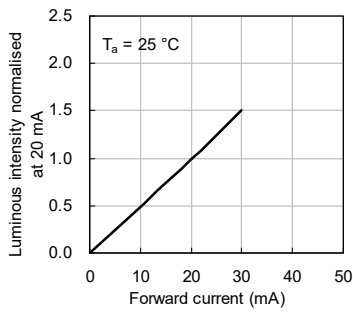


### BLUE

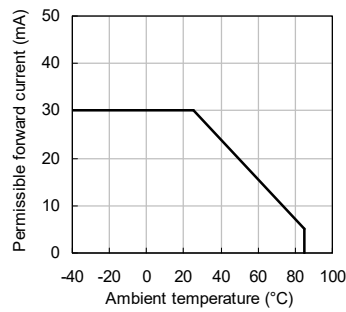
Forward Current vs. Forward Voltage



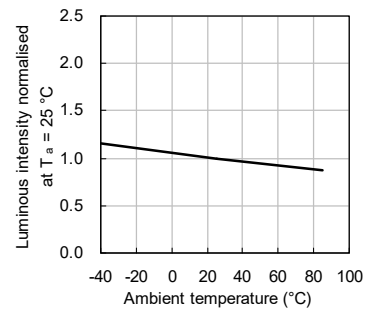
Luminous Intensity vs. Forward Current



Forward Current Derating Curve

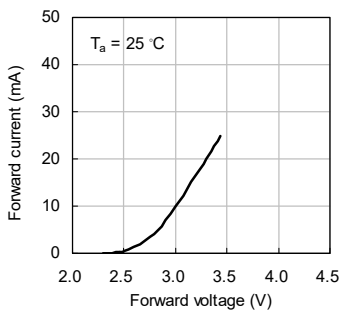


Luminous Intensity vs. Ambient Temperature

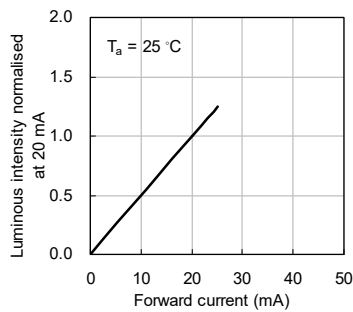


### GREEN

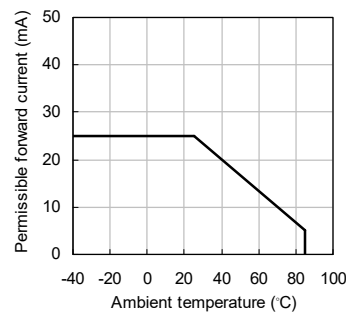
Forward Current vs. Forward Voltage



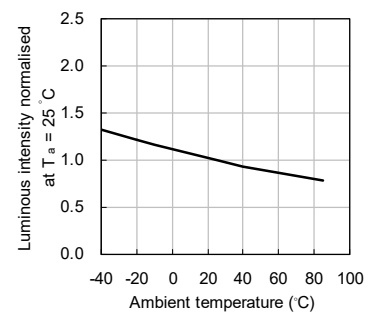
Luminous Intensity vs. Forward Current



Forward Current Derating Curve

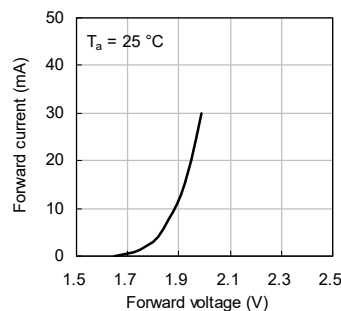


Luminous Intensity vs. Ambient Temperature

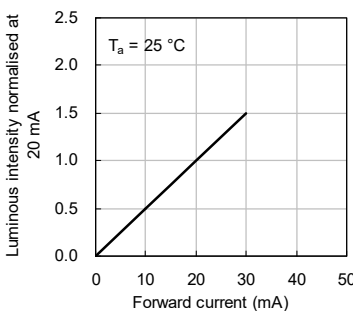


### HYPER RED

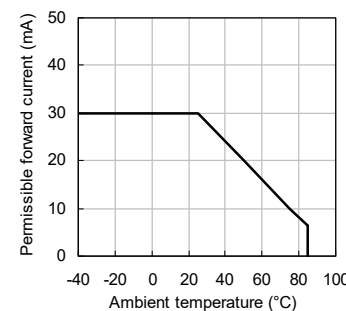
Forward Current vs. Forward Voltage



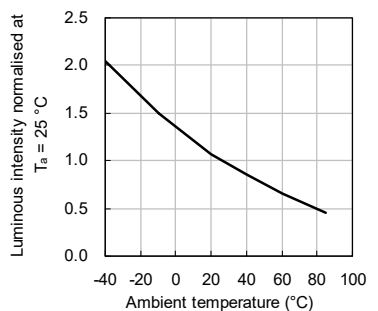
Luminous Intensity vs. Forward Current



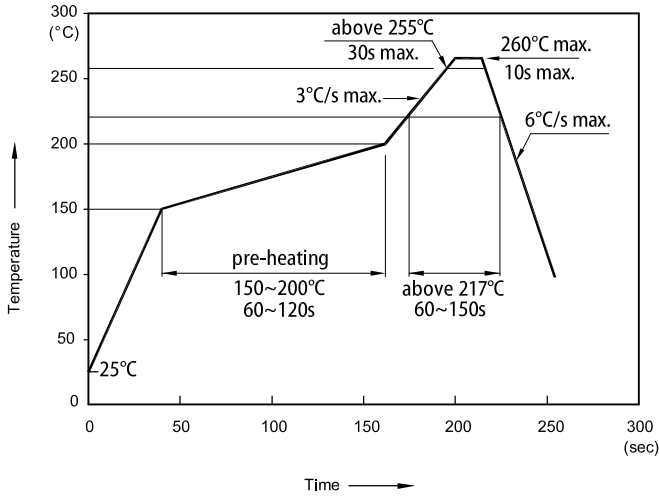
Forward Current Derating Curve



Luminous Intensity vs. Ambient Temperature

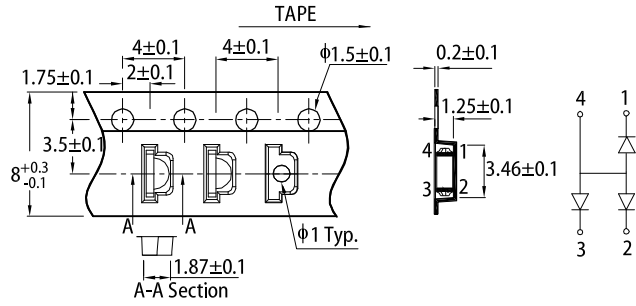


### REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS

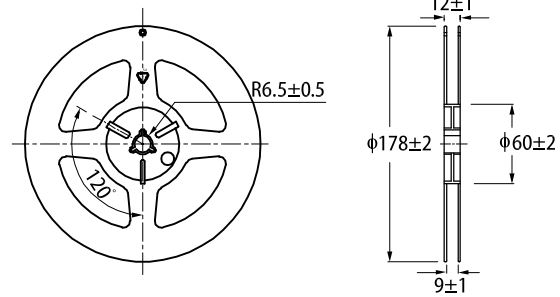


- Notes:
1. Don't cause stress to the LEDs while it is exposed to high temperature.
  2. The maximum number of reflow soldering passes is 2 times.
  3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.

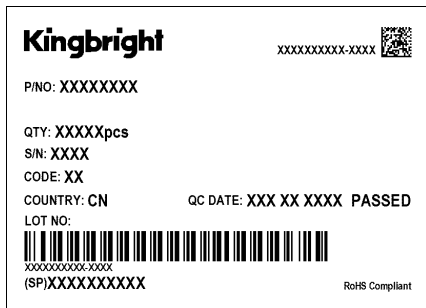
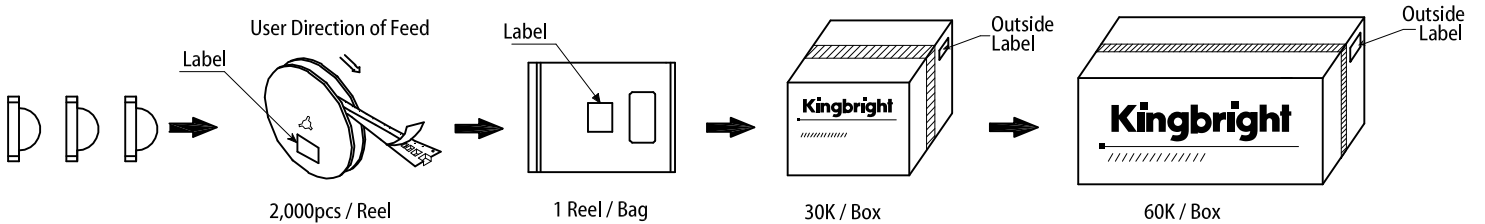
### TAPE SPECIFICATIONS (units : mm)



### REEL DIMENSION (units : mm)



### PACKING & LABEL SPECIFICATIONS



### PRECAUTIONARY NOTES

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.
3. When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If customer usage exceeds the specified limits, Kingbright will not be responsible for any subsequent issues.
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