

KPHHS-1005QBC-D-V

1.0 x 0.5 mm SMD Chip LED Lamp

DESCRIPTIONS

- The Blue source color devices are made with InGaN 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

- 1.0 mm x 0.5 mm SMD LED, 0.5 mm thickness
- Low power consumption
- Ideal for backlight and indicator
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- Halogen-free
- RoHS compliant

APPLICATIONS

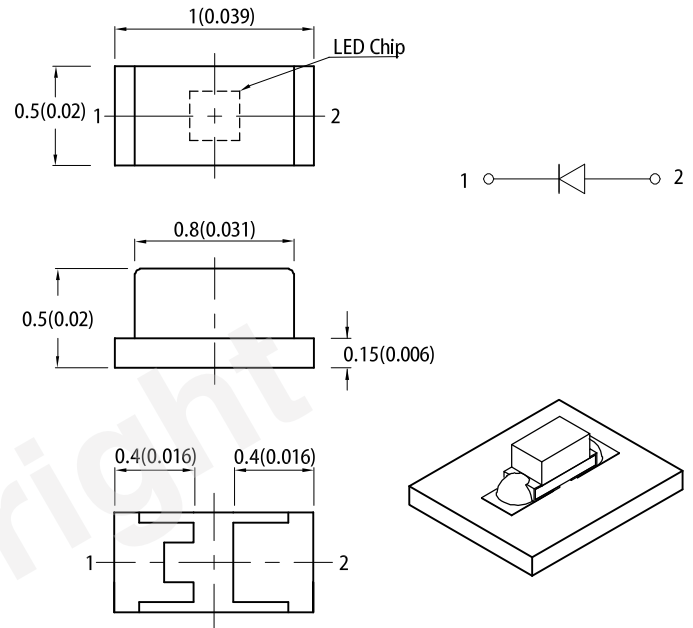
- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

ATTENTION

Observe precautions for handling electrostatic discharge sensitive devices

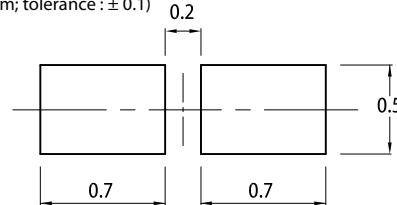


PACKAGE DIMENSIONS



RECOMMENDED SOLDERING PATTERN

(units : mm; tolerance : ± 0.1)



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 Number	Emitting Color (Material)	Lens Type	Iv (mcd) @ 20mA ^[2]		Viewing Angle ^[1]
			Min.	Typ.	2θ1/2
KPHHS-1005QBC-D-V	Blue (InGaN)	Water Clear	40	60	140°

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: $\pm 15\%$.
3. Luminous intensity value is traceable to CIE127-2007 standards.

ELECTRICAL / OPTICAL CHARACTERISTICS at T_A=25°C

Parameter	Symbol	Emitting Color	Value		Unit
			Typ.	Max.	
Wavelength at Peak Emission I _F = 20mA	λ_{peak}	Blue	460	-	nm
Dominant Wavelength I _F = 20mA	λ_{dom} ^[1]	Blue	465	-	nm
Spectral Bandwidth at 50% Φ REL MAX I _F = 20mA	$\Delta\lambda$	Blue	25	-	nm
Capacitance	C	Blue	100	-	pF
Forward Voltage I _F = 20mA	V _F ^[2]	Blue	3.3	4	V
Reverse Current (V _R = 5V)	I _R	Blue	-	50	μA
Temperature Coefficient of λ_{peak} I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _{λ_{peak}}	Blue	0.04	-	nm/°C
Temperature Coefficient of λ_{dom} I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _{λ_{dom}}	Blue	0.03	-	nm/°C
Temperature Coefficient of V _F I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _V	Blue	-2.9	-	mV/°C

Notes:

1. The dominant wavelength (λ_d) above is the setup value of the sorting machine. (Tolerance λ_d : ±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.

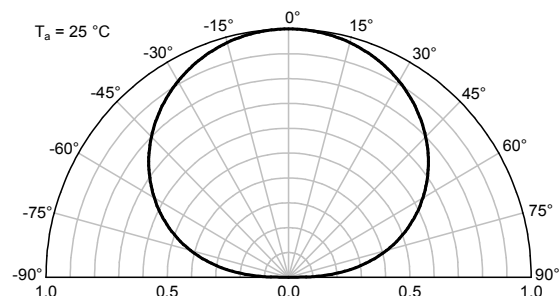
ABSOLUTE MAXIMUM RATINGS at T_A=25°C

Parameter	Symbol	Value	Unit
Power Dissipation	P _D	120	mW
Reverse Voltage	V _R	5	V
Junction Temperature	T _J	115	°C
Operating Temperature	T _{op}	-40 to +85	°C
Storage Temperature	T _{stg}	-40 to +85	°C
DC Forward Current	I _F	30	mA
Peak Forward Current	I _{FM} ^[1]	150	mA
Electrostatic Discharge Threshold (HBM)	-	250	V
Thermal Resistance (Junction / Ambient)	R _{th JA} ^[2]	700	°C/W
Thermal Resistance (Junction / Solder point)	R _{th JS} ^[2]	600	°C/W

Notes:

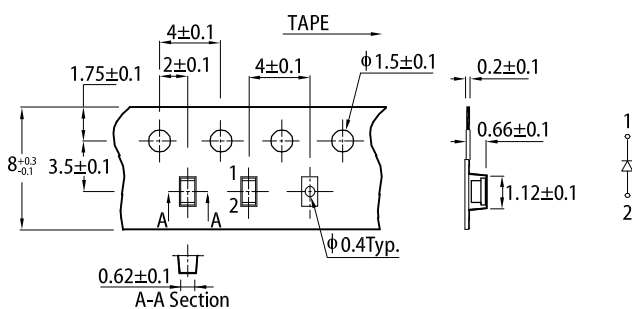
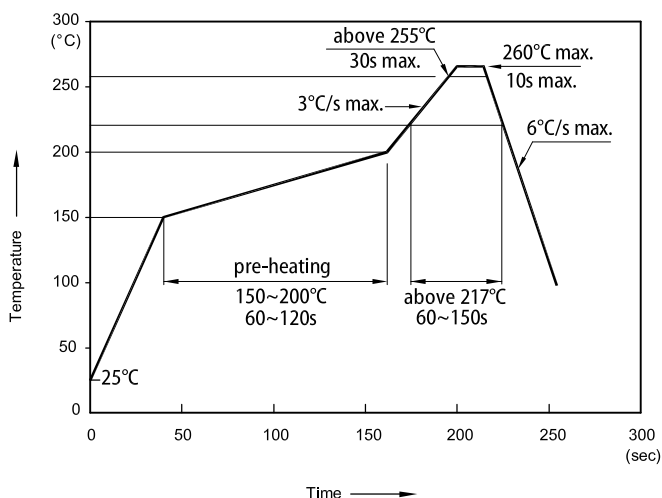
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. R_{th JA}, R_{th JS} Results from mounting on PC board FR4 (pad size ≥ 16 mm² per pad).
3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

RELATIVE INTENSITY vs. WAVELENGTH

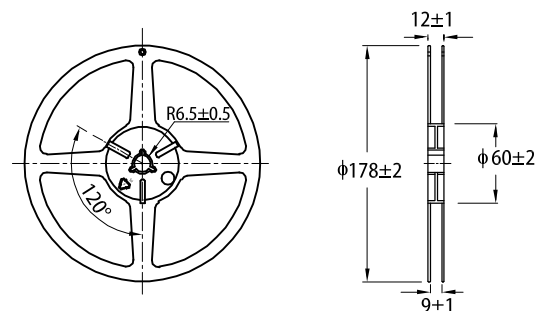


The figure contains four graphs:

- Forward Current vs. Forward Voltage:** A graph showing Forward current (mA) on the y-axis (0 to 50) versus Forward voltage (V) on the x-axis (2.0 to 4.0). The curve shows an exponential relationship, starting near 0 mA at 2.4 V and reaching 30 mA at approximately 3.5 V. The ambient temperature is $T_a = 25^\circ\text{C}$.
- Luminous Intensity vs. Forward Current:** A graph showing Luminous intensity normalised at 20 mA on the y-axis (0.0 to 2.5) versus Forward current (mA) on the x-axis (0 to 50). The relationship is linear, reaching a normalised intensity of 1.5 at 30 mA. The ambient temperature is $T_a = 25^\circ\text{C}$.
- Forward Current Derating Curve:** A graph showing Permissible forward current (mA) on the y-axis (0 to 50) versus Ambient temperature ($^\circ\text{C}$) on the x-axis (-40 to 100). The current is constant at 30 mA from -40 $^\circ\text{C}$ to 25 $^\circ\text{C}$, then derates linearly to 0 mA at 85 $^\circ\text{C}$.
- Luminous Intensity vs. Ambient Temperature:** A graph showing Luminous intensity normalised at $T_a = 25^\circ\text{C}$ on the y-axis (0.0 to 2.5) versus Ambient temperature ($^\circ\text{C}$) on the x-axis (-40 to 100). The intensity decreases linearly from approximately 1.2 at -40 $^\circ\text{C}$ to approximately 0.9 at 85 $^\circ\text{C}$.

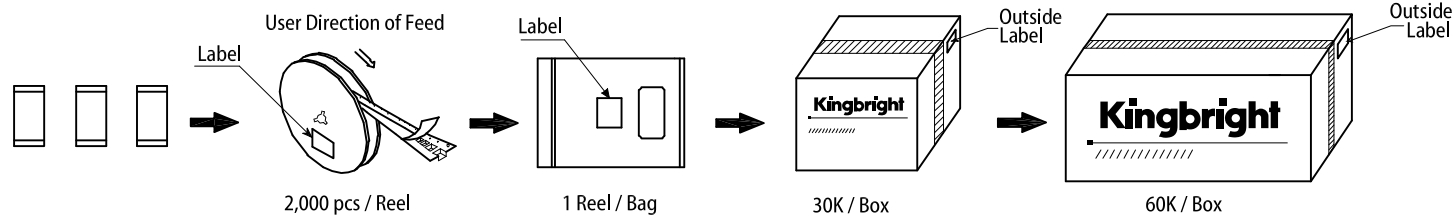
TAPE SPECIFICATIONS (units : mm)

REEL DIMENSION (units : mm)



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PACKING & LABEL SPECIFICATIONS



Kingbright

XXXXXXXXXX-XXXX

P/NO: XXXXXXXX

QTY: XXXXXpcs

S/N: XXXX

CODE: XX

COUNTRY: CN

LOT NO:

QC DATE: XXX XX XXXX PASSED

XXXXXXXXXXXXXXX

(SP)XXXXXXXXXX

RoHS Compliant

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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