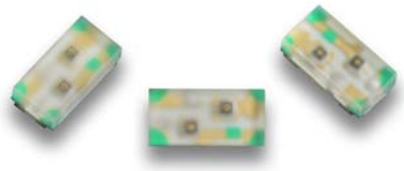
Kingbright



KPHB-1608SGEC-GX

1.6 x 0.8 x 0.5 mm Bi-Color Surface Mount LED

DESCRIPTIONS

- The Super Bright Green source color devices are made with Gallium Phosphide Green Light Emitting Diode
- The High Efficiency Red source color devices are Made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode

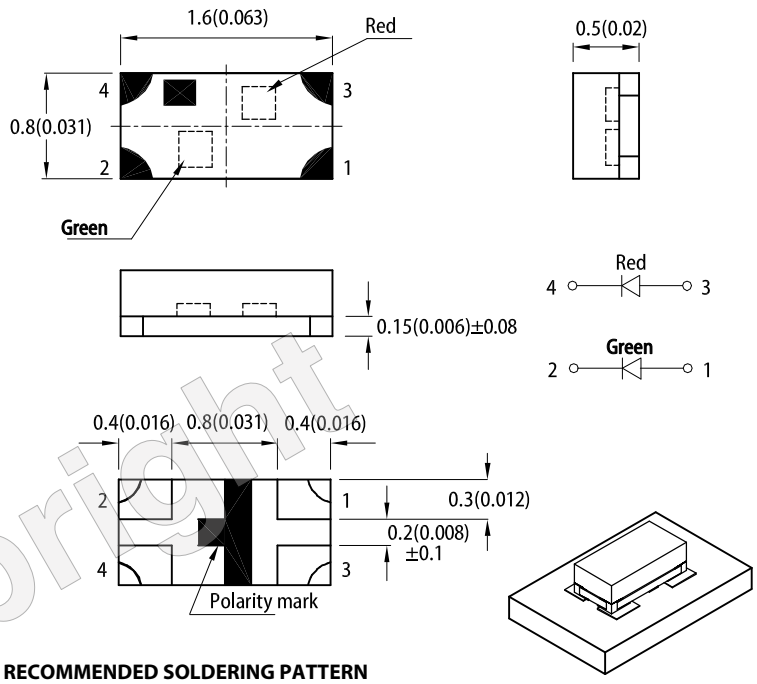
FEATURES

- 1.6 x 0.8 mm SMD LED, 0.5 mm thickness
- Compatible with reflow soldering
- Available in various color combination
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- Tinned pads for improved solderability
- RoHS compliant

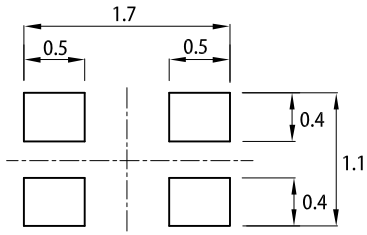
APPLICATIONS

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

PACKAGE DIMENSIONS



RECOMMENDED SOLDERING PATTERN
(units : mm; tolerance : ± 0.1)



Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±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 Number	Emitting Color (Material)	Lens Type	Iv (mcd) @ 20mA [2]		Viewing Angle [1]
			Min.	Typ.	2θ1/2
KPHB-1608SGEC-GX	Super Bright Green (GaP)	Water Clear	5	15	130°
			*5	*15	
	High Efficiency Red (GaAsP/GaP)		7	15	
			*5	*12	

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.*

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}	Super Bright Green High Efficiency Red	565 627	-	nm
Dominant Wavelength I_F = 20mA	λ_{dom} [1]	Super Bright Green High Efficiency Red	568 617	-	nm
Spectral Bandwidth at 50% Φ REL MAX I_F = 20mA	Δλ	Super Bright Green High Efficiency Red	30 45	-	nm
Capacitance	C	Super Bright Green High Efficiency Red	15 15	-	pF
Forward Voltage I_F = 20mA	V_F [2]	Super Bright Green High Efficiency Red	2.2 2	2.5 2.5	V
Reverse Current (V_R = 5V)	I_R	Super Bright Green High Efficiency Red	-	10 10	uA

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

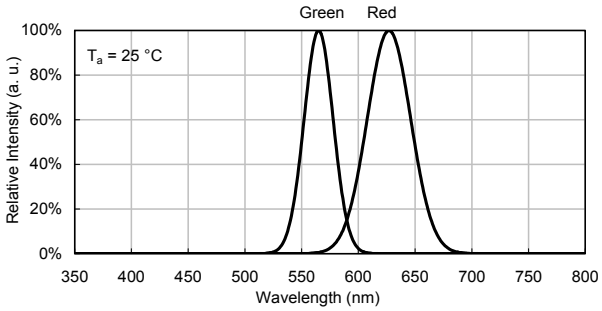
ABSOLUTE MAXIMUM RATINGS at T_A=25°C

Parameter	Symbol	Value		Unit
		Super Bright Green	High Efficiency Red	
Power Dissipation	P_D	62.5	75	mW
Reverse Voltage	V_R	5	5	V
Junction Temperature	T_j	110	125	°C
Operating Temperature	T_{op}	-40 to +85		°C
Storage Temperature	T_{stg}	-40 to +85		°C
DC Forward Current	I_F	25	30	mA
Peak Forward Current	I_{FM} [1]	140	160	mA
Electrostatic Discharge Threshold (HBM)	-	8000	8000	V

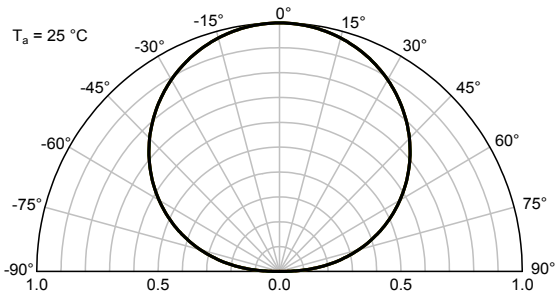
Notes:
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

TECHNICAL DATA

RELATIVE INTENSITY vs. WAVELENGTH

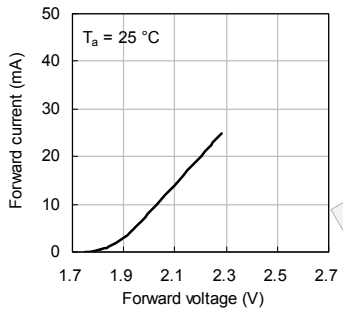


SPATIAL DISTRIBUTION

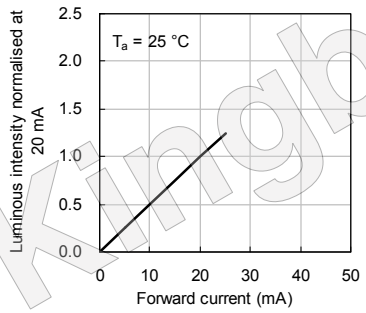


SUPER BRIGHT GREEN

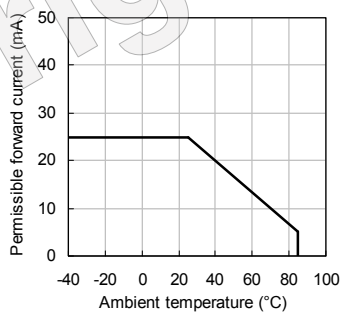
Forward Current vs. Forward Voltage



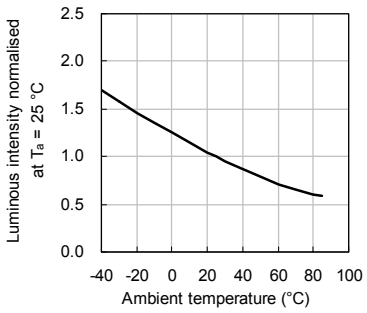
Luminous Intensity vs. Forward Current



Forward Current Derating Curve

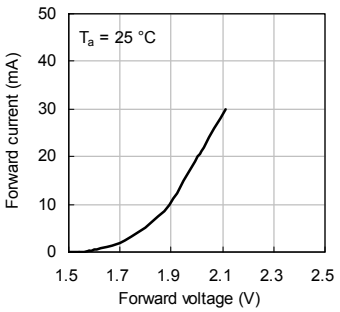


Luminous Intensity vs. Ambient Temperature

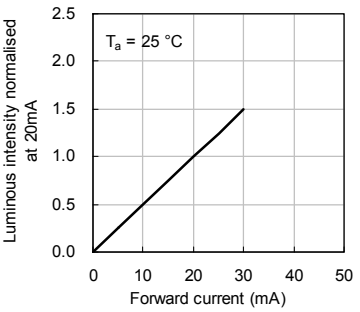


HIGH EFFICIENCY RED

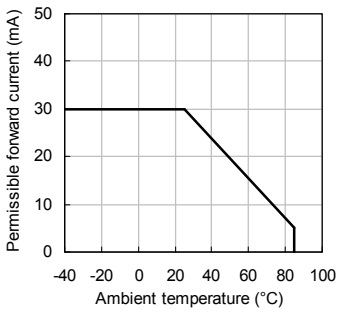
Forward Current vs. Forward Voltage



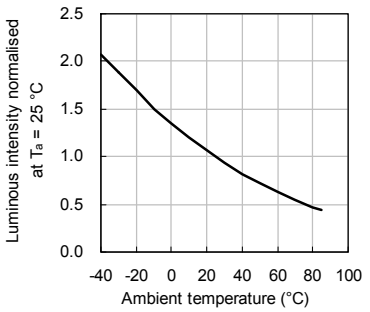
Luminous Intensity vs. Forward Current



Forward Current Derating Curve

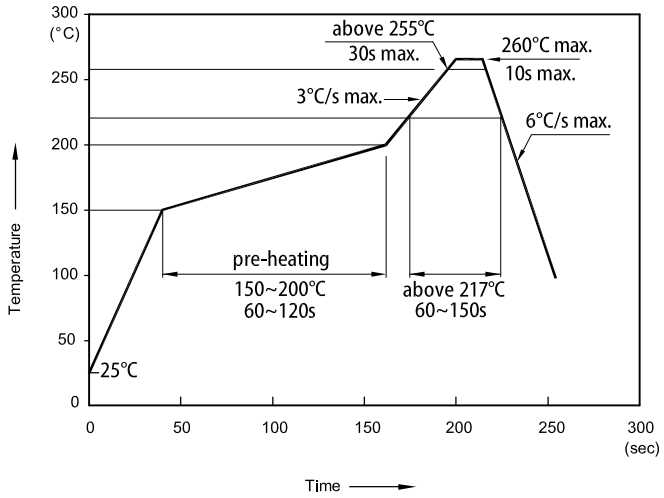


Luminous Intensity vs. Ambient Temperature



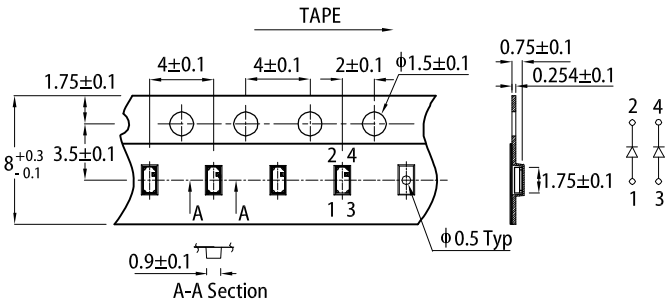
TECHNICAL DATA

REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS

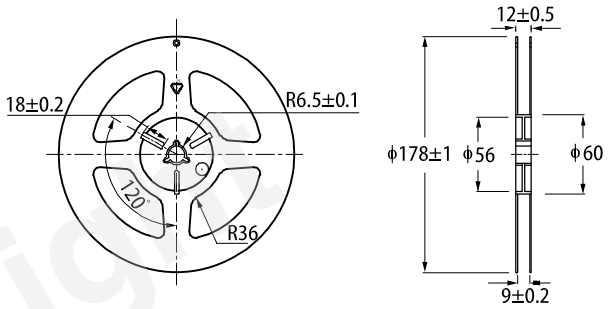


Notes:
1. Don't cause stress to the LEDs while it is exposed to high temperature.
2. The maximum number of reflow soldering passes is 2 times.
3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.

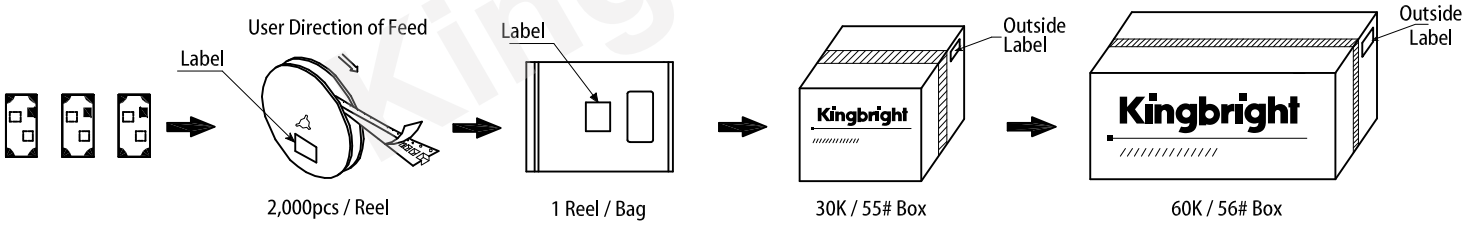
TAPE SPECIFICATIONS (units : mm)

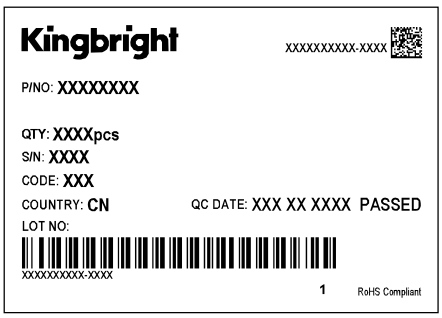


REEL DIMENSION (units : mm)



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.
4. The information in this document applies to typical usage in consumer electronics applications. If customer's application has special reliability requirements or have life-threatening liabilities, such as automotive or medical usage, please consult with Kingbright representative for further assistance.
5. The contents and information of this document may not be reproduced or re-transmitted without permission by Kingbright.
6. All design applications should refer to Kingbright application notes available at http://www.Kingbright.com/application_notes

