

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}	Hyper Red Green Blue	640 515 460	-	nm
Dominant Wavelength I _F = 20mA	λ _{dom} ^[1]	Hyper Red Green Blue	625 525 465	-	nm
Spectral Bandwidth at 50% Φ REL MAX I _F = 20mA	Δλ	Hyper Red Green Blue	20 35 25	-	nm
Capacitance	C	Hyper Red Green Blue	27 45 100	-	pF
Forward Voltage I _F = 20mA	V _F ^[2]	Hyper Red Green Blue	2.2 3.3 3.3	2.8 4.1 4.0	V
Reverse Current (V _R = 5V)	I _R	Hyper Red Green Blue	-	10 50 50	uA
Temperature Coefficient of λ _{peak} I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _{λpeak}	Hyper Red Green Blue	0.13 0.05 0.04	-	nm/°C
Temperature Coefficient of λ _{dom} I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _{λdom}	Hyper Red Green Blue	0.06 0.03 0.03	-	nm/°C
Temperature Coefficient of V _F I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _V	Hyper Red Green Blue	-2.0 -2.9 -2.9	-	mV/°C

Notes:

- The dominant wavelength (λ_d) above is the setup value of the sorting machine. (Tolerance λ_d: ±1nm.)
- Forward voltage: ±0.1V.
- Wavelength value is traceable to CIE127-2007 standards.
- 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

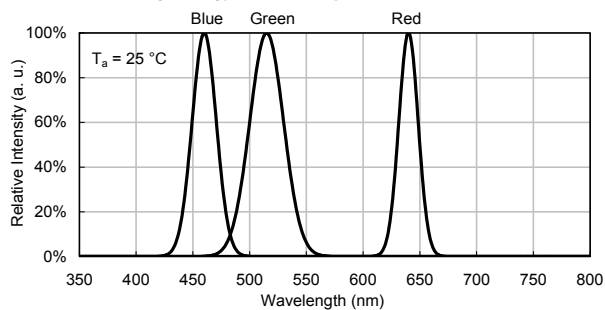
Parameter	Symbol	Value			Unit
		Hyper Red	Green	Blue	
Power Dissipation	P _D	140	123	120	mW
Reverse Voltage	V _R	5	5	5	V
Junction Temperature	T _j	115	115	115	°C
Operating Temperature	T _{op}	-40 to +85			°C
Storage Temperature	T _{stg}	-40 to +85			°C
DC Forward Current	I _F	50	30	30	mA
Peak Forward Current	I _{FM} ^[1]	150	150	150	mA
Electrostatic Discharge Threshold (HBM)	-	3000	450	250	V
Thermal Resistance (Junction / Ambient)	R _{th JA} ^[2]	300	320	340	°C/W
Thermal Resistance (Junction / Solder point)	R _{th JS} ^[2]	195	250	225	°C/W

Notes:

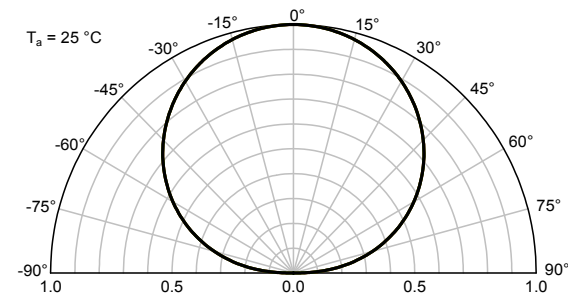
- 1/10 Duty Cycle, 0.1ms Pulse Width.
- R_{th JA}, R_{th JS} Results from mounting on PC board FR4 (pad size ≥ 16 mm² per pad).
- Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

TECHNICAL DATA

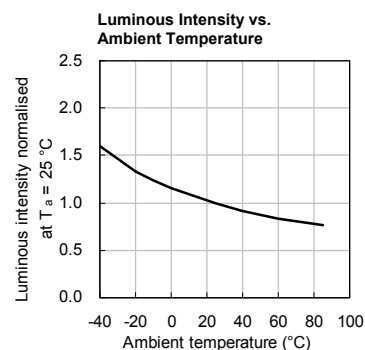
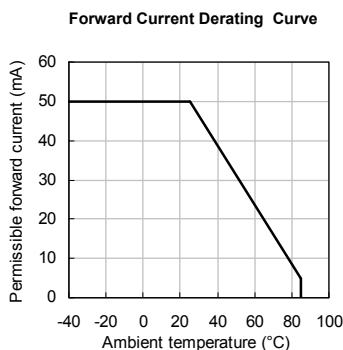
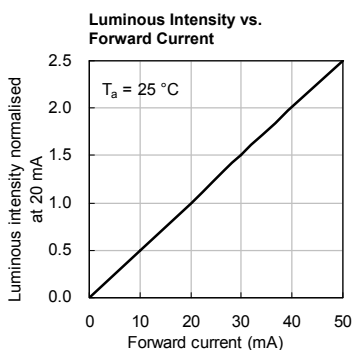
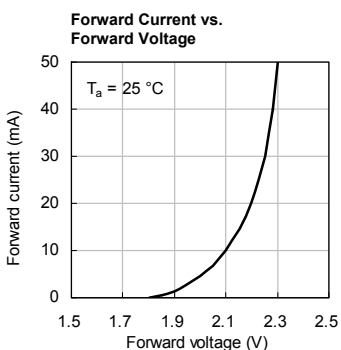
RELATIVE INTENSITY vs. WAVELENGTH



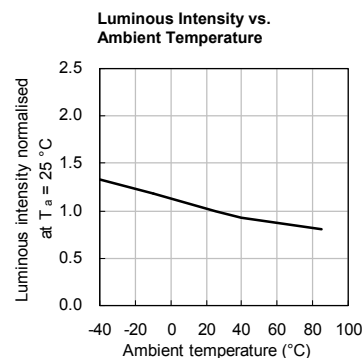
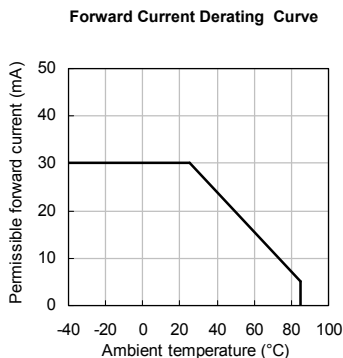
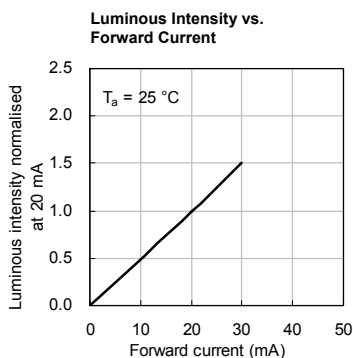
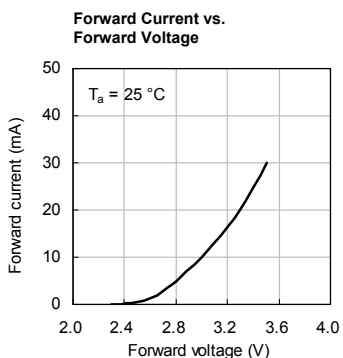
SPATIAL DISTRIBUTION



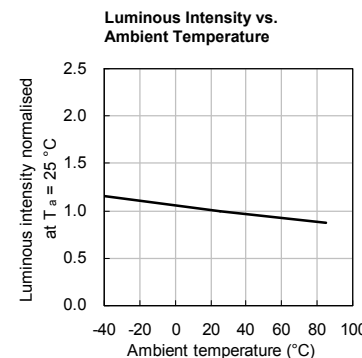
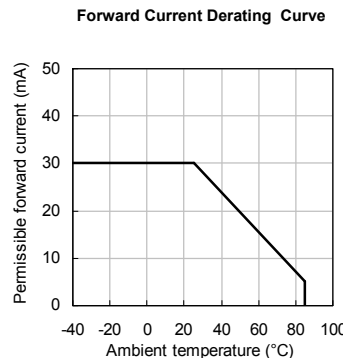
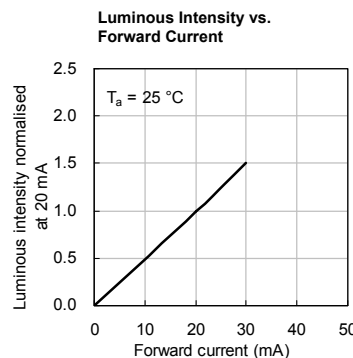
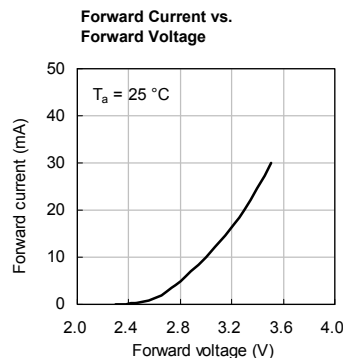
HYPER RED



GREEN

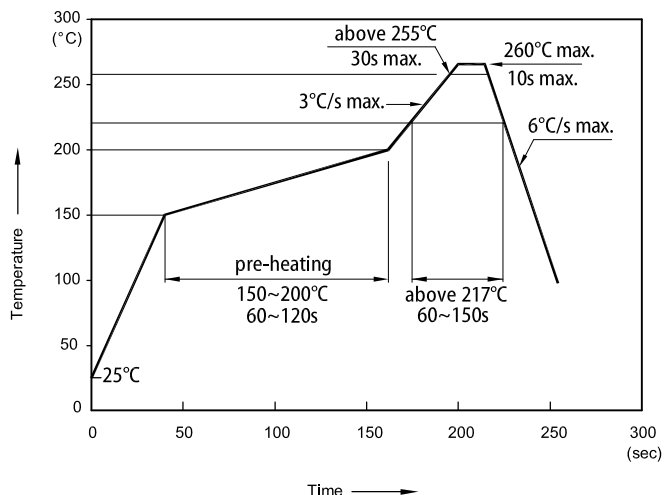


BLUE



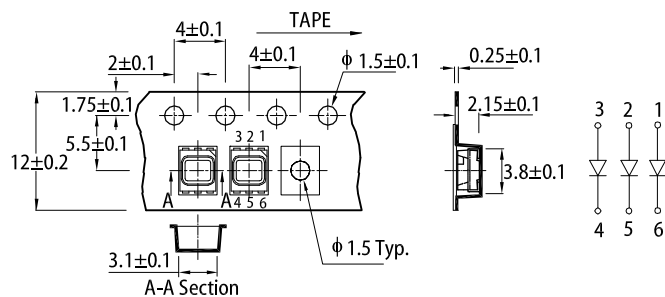
TECHNICAL DATA

REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS

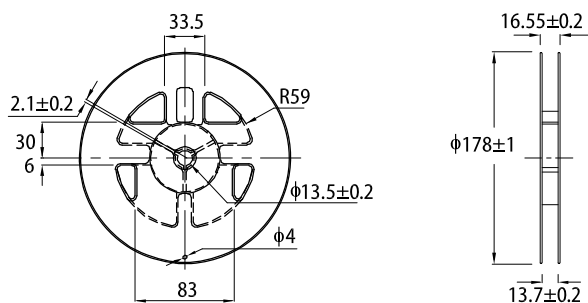


- Notes:
1. Don't cause stress to the LEDs while it is exposed to high temperature.
 2. The maximum number of reflow soldering passes is 2 times.
 3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.

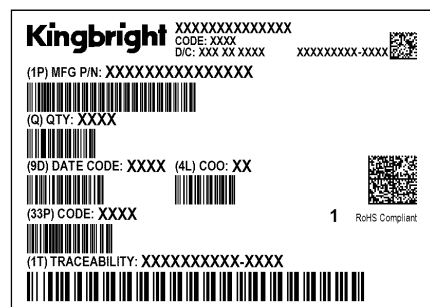
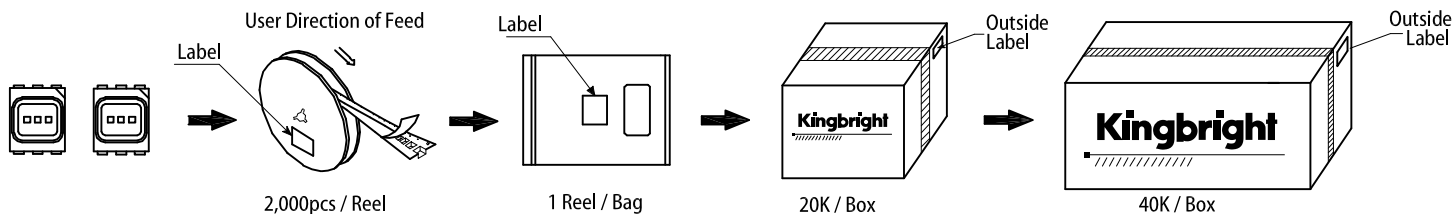
TAPE SPECIFICATIONS (units : mm)



REEL DIMENSION (units : mm)



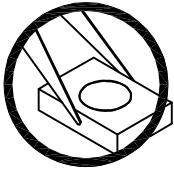
PACKING & LABEL SPECIFICATIONS



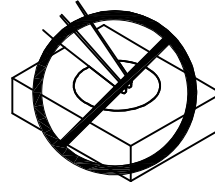
HANDLING PRECAUTIONS

Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force. As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might lead to damage and premature failure of the LED.

1. Handle the component along the side surfaces by using forceps or appropriate tools.



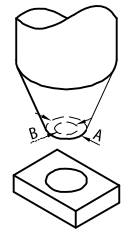
2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.



3. Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the silicone lens or damage the internal circuitry.



- 4-1. The inner diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks.
- 4-2. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup.
- 4-3. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.
5. As silicone encapsulation is permeable to gases, some corrosive substances such as H_2S might corrode silver plating of leadframe. Special care should be taken if an LED with silicone encapsulation is to be used near such substances.



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.
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