



## L-154A4SUREQBFZGC

T-1 3/4 (5mm) Full Color LED Lamp

### DESCRIPTIONS

- The Hyper Red source color devices are made with AlGaInP on GaAs substrate Light Emitting Diode
- 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
- 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

- Uniform light output
- Low power consumption
- Long life-solid state reliability
- RoHS compliant

### APPLICATIONS

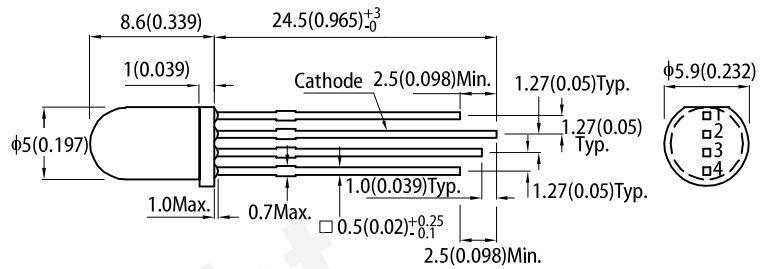
- Status indicator
- Illuminator
- Signage applications
- Decorative and entertainment lighting
- Commercial and residential architectural lighting

### ATTENTION

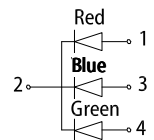
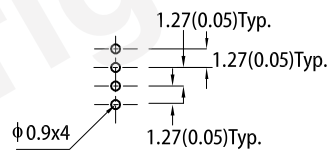
Observe precautions for handling electrostatic discharge sensitive devices



### PACKAGE DIMENSIONS



Recommended PCB Layout



#### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25(0.01)$  unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.
4. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

### SELECTION GUIDE

Part Number	Emitting Color (Material)	Lens Type	Iv (mcd) @ 20mA <sup>[2]</sup>		Viewing Angle <sup>[1]</sup>
			Min.	Typ.	2θ1/2
L-154A4SUREQBFZGC	■ Hyper Red (AlGaInP)	Water Clear	650	1300	50°
	■ Blue (InGaN)		*200	*400	
	■ Green (InGaN)		400	900	
			1000	1700	
			*1000	*1700	

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<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>	Hyper Red Blue Green	645 460 515	-	nm
Dominant Wavelength I <sub>F</sub> = 20mA	λ <sub>dom</sub> <sup>[1]</sup>	Hyper Red Blue Green	630 465 525	-	nm
Spectral Bandwidth at 50% Φ REL MAX I <sub>F</sub> = 20mA	Δλ	Hyper Red Blue Green	25 25 30	-	nm
Capacitance	C	Hyper Red Blue Green	45 100 45	-	pF
Forward Voltage I <sub>F</sub> = 20mA	V <sub>F</sub> <sup>[2]</sup>	Hyper Red Blue Green	1.9 3.3 3.3	2.5 4 4.1	V
Reverse Current (V <sub>R</sub> = 5V)	I <sub>R</sub>	Hyper Red Blue Green	-	10 50 50	μA
Temperature Coefficient of λ <sub>peak</sub> I <sub>F</sub> = 20mA, -10°C ≤ T ≤ 85°C	TC <sub>λpeak</sub>	Hyper Red Blue Green	0.14 0.04 0.05	-	nm/°C
Temperature Coefficient of λ <sub>dom</sub> I <sub>F</sub> = 20mA, -10°C ≤ T ≤ 85°C	TC <sub>λdom</sub>	Hyper Red Blue Green	0.05 0.03 0.03	-	nm/°C
Temperature Coefficient of V <sub>F</sub> I <sub>F</sub> = 20mA, -10°C ≤ T ≤ 85°C	TC <sub>V</sub>	Hyper Red Blue Green	-1.9 -3 -3	-	mV/°C

**Notes:**

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

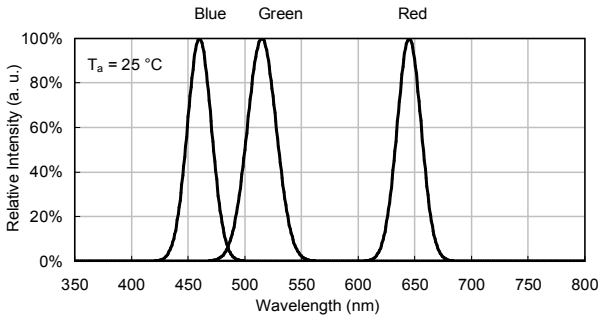
Parameter	Symbol	Value			Unit
		Hyper Red	Blue	Green	
Power Dissipation	P <sub>D</sub>	75	120	102.5	mW
Reverse Voltage	V <sub>R</sub>	5	5	5	V
Junction Temperature	T <sub>j</sub>	115	115	115	°C
Operating Temperature	T <sub>op</sub>	-40 to +85			°C
Storage Temperature	T <sub>stg</sub>	-40 to +85			°C
DC Forward Current	I <sub>F</sub>	30	30	25	mA
Peak Forward Current	I <sub>FM</sub> <sup>[1]</sup>	200	150	150	mA
Electrostatic Discharge Threshold (HBM)	-	3000	250	450	V
Thermal Resistance (Junction / Ambient)	R <sub>th JA</sub> <sup>[2]</sup>	340	190	280	°C/W
Thermal Resistance (Junction / Solder point)	R <sub>th JS</sub> <sup>[2]</sup>	270	110	220	°C/W
Lead Solder Temperature <sup>[3]</sup>		260°C For 3 Seconds			
Lead Solder Temperature <sup>[4]</sup>		260°C For 5 Seconds			

**Notes:**

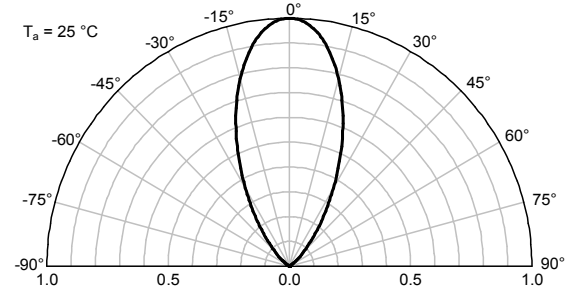
- 1/10 Duty Cycle, 0.1ms Pulse Width.
- R<sub>th JA</sub>, R<sub>th JS</sub> Results from mounting on PC board FR4 (pad size ≥ 16 mm<sup>2</sup> per pad).
- 2mm below package base.
- 5mm below package base.
- Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

## TECHNICAL DATA

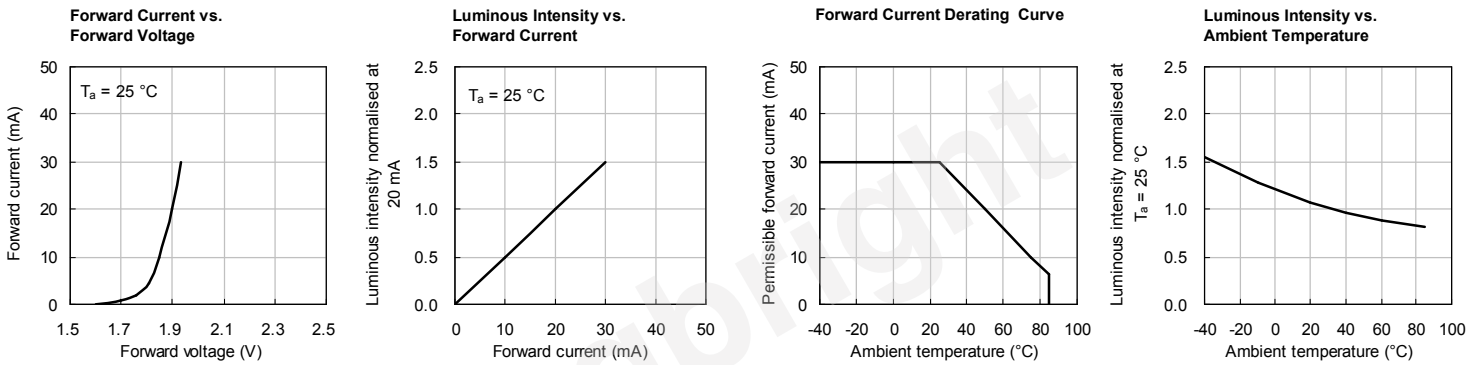
### RELATIVE INTENSITY vs. WAVELENGTH



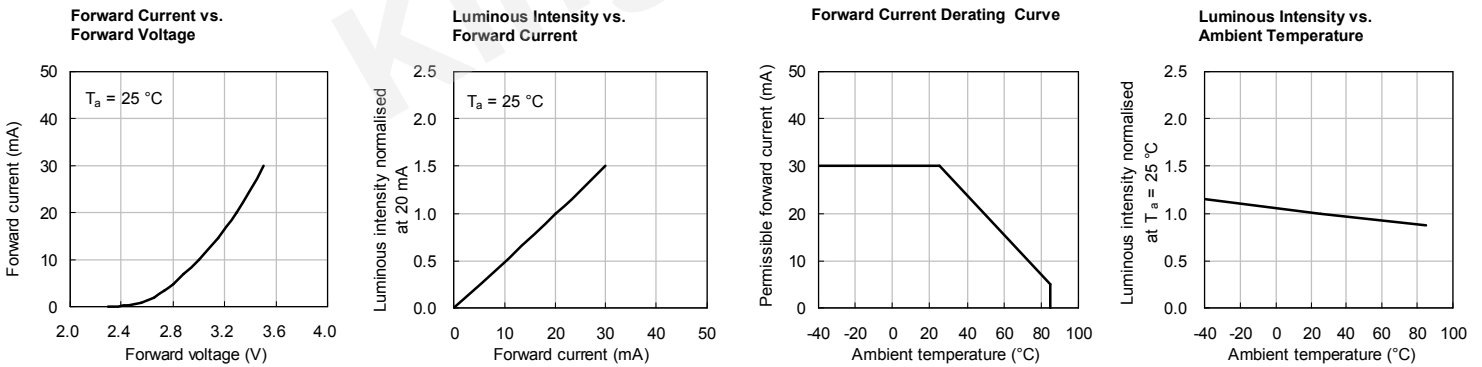
### SPATIAL DISTRIBUTION



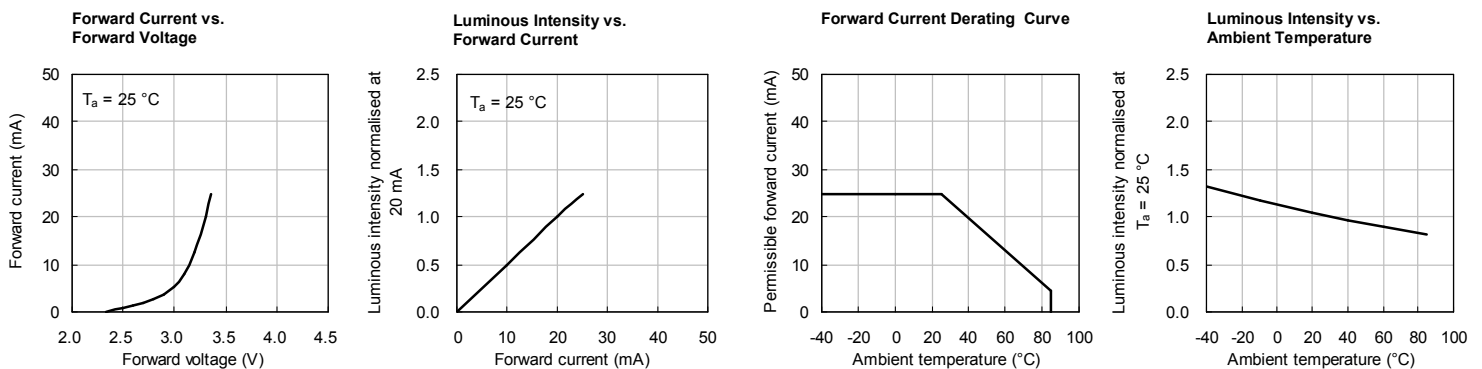
## HYPER RED



## BLUE



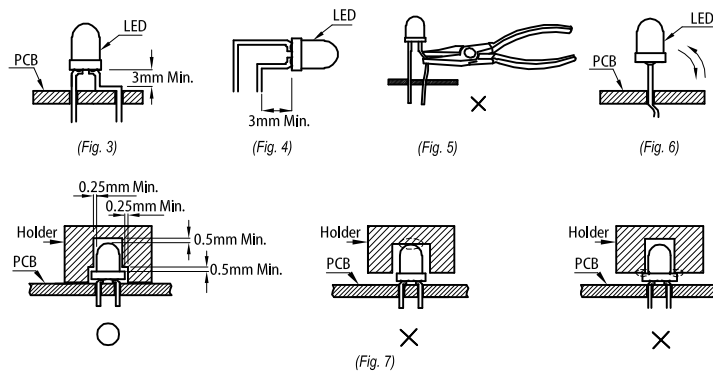
## GREEN



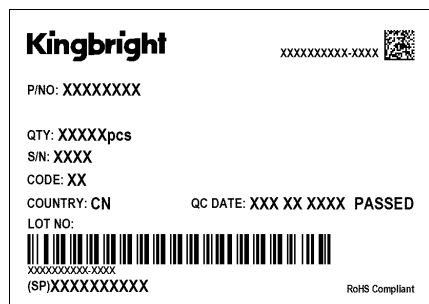
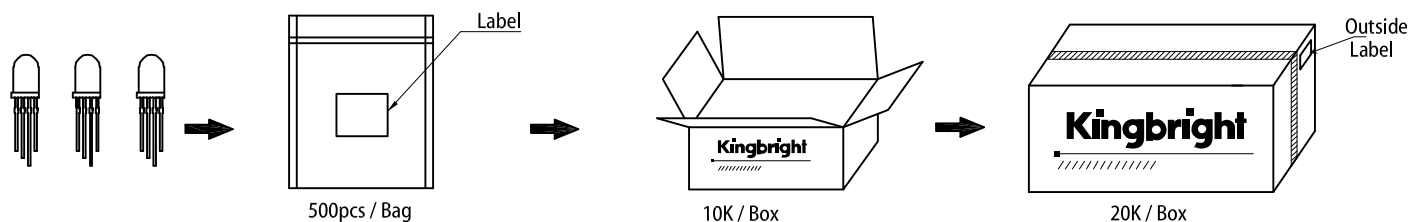


### Lead Forming Procedures

1. Do not bend the leads more than twice. (Fig. 6)
2. During soldering, component covers and holders should leave clearance to avoid placing damaging stress on the LED during soldering. (Fig. 7)
3. The tip of the soldering iron should never touch the lens epoxy.
4. Through-hole LEDs are incompatible with reflow soldering.
5. If the LED will undergo multiple soldering passes or face other processes where the part may be subjected to intense heat, please check with Kingbright for compatibility.



### 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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