

### PRELIMINARY SPEC



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
DISCHARGE  
SENSITIVE  
DEVICES

Part Number: WP154A4SUREPBGVGAW

Hyper Red  
Blue  
Green

### Features

- UNIFORM LIGHT OUTPUT.
- LOW POWER CONSUMPTION.
- I.C.COMPATIBLE.
- LONG LIFE-SOLID STATE RELIABILITY.
- RoHS COMPLIANT.

### Description

The Hyper Red source color devices are made with DH InGaAlP on GaAs substrate Light Emitting Diode.

The Blue source color devices are made with InGaN on SiC Light Emitting Diode.

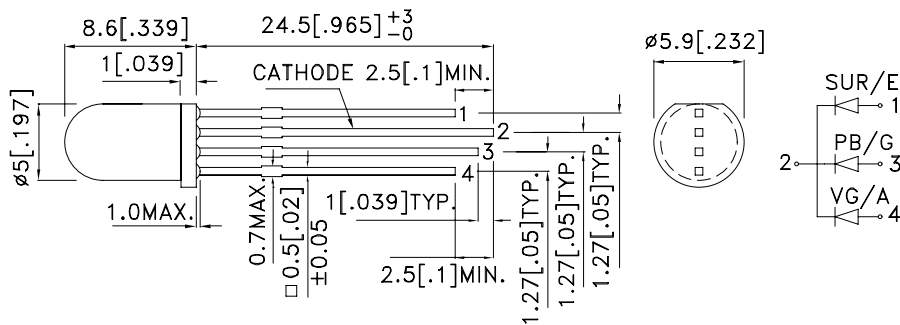
The Green source color devices are made with InGaN on G-SiC Light Emitting Diode.

Static electricity and surge damage the LEDs.

It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.

All devices, equipment and machinery must be electrically grounded.

### Package Dimensions



#### 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. Specifications are subject to change without notice.



## Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) [2] @ 20mA		Viewing Angle [1]
			Min.	Typ.	2θ1/2
WP154A4SUREPBGVGAW	Hyper Red (InGaAlP)	WHITE DIFFUSED	380	750	60°
	Blue (InGaN)		180	450	
	Green (InGaN)		180	500	

**Notes:**

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
2. Luminous intensity/ luminous Flux: +/-15%.

## Electrical / Optical Characteristics at TA=25°C

Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
λ <sub>peak</sub>	Peak Wavelength	Hyper Red Blue Green	640 468 520		nm	I <sub>F</sub> =20mA
λ <sub>D</sub> [1]	Dominant Wavelength	Hyper Red Blue Green	630 470 525		nm	I <sub>F</sub> =20mA
Δλ <sub>1/2</sub>	Spectral Line Half-width	Hyper Red Blue Green	25 21 35		nm	I <sub>F</sub> =20mA
C	Capacitance	Hyper Red Blue Green	45 100 100		pF	V <sub>F</sub> =0V;f=1MHz
V <sub>F</sub> [2]	Forward Voltage	Hyper Red Blue Green	1.9 3.2 3.2	2.5 4 4	V	I <sub>F</sub> =20mA
I <sub>R</sub>	Reverse Current	Hyper Red Blue Green		10 10 10	uA	V <sub>R</sub> =5V

**Notes:**

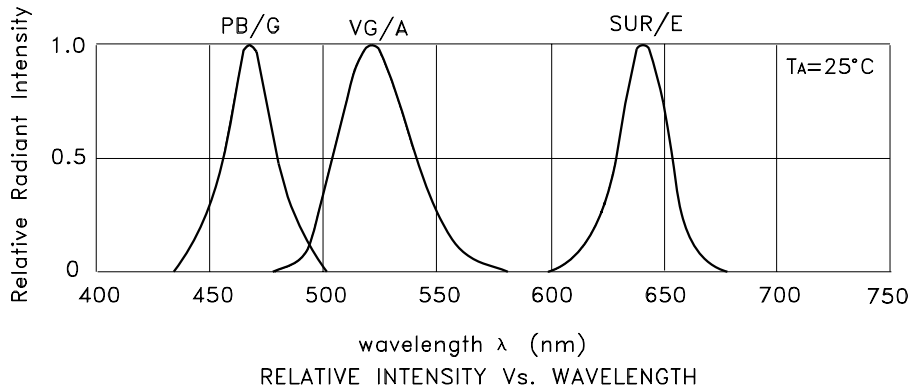
1. Wavelength: +/-1nm.
2. Forward Voltage: +/-0.1V.

## Absolute Maximum Ratings at TA=25°C

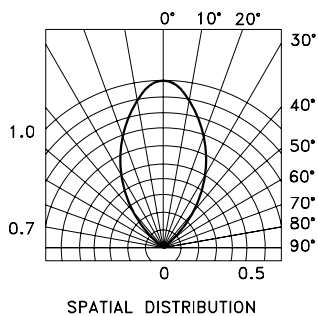
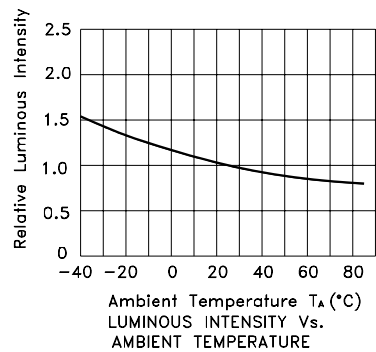
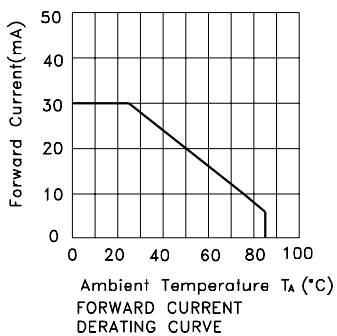
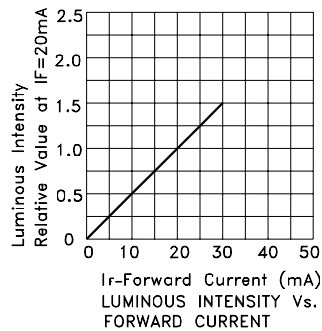
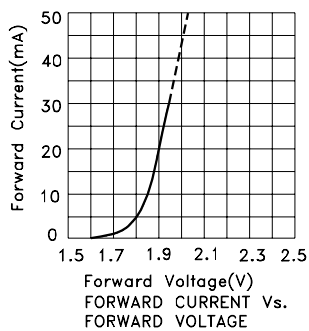
Parameter	Hyper Red	Blue	Green	Units
Power dissipation	75	120	120	mW
DC Forward Current	30	30	30	mA
Peak Forward Current [1]	200	100	100	mA
Reverse Voltage	5			V
Operating/Storage Temperature	-40°C To +85°C			
Lead Solder Temperature [2]	260°C For 3 Seconds			
Lead Solder Temperature [3]	260°C For 5 Seconds			

**Notes:**

1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. 2mm below package base.
3. 5mm below package base.

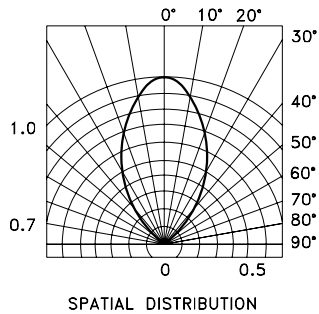
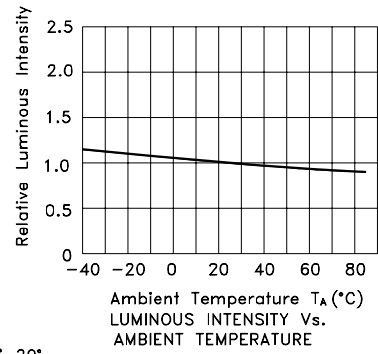
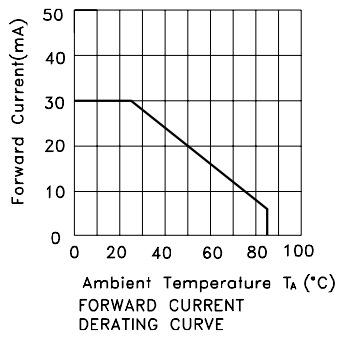
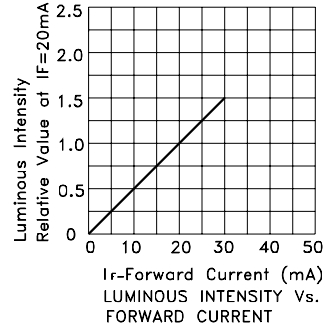
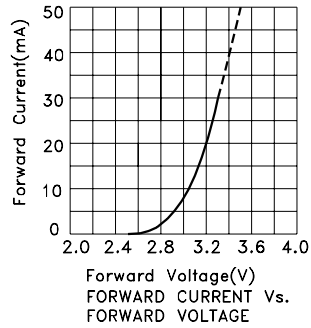


## WP154A4SUREPBGVGAW Hyper Red



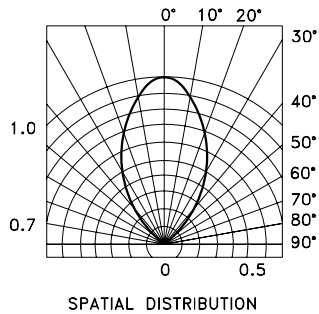
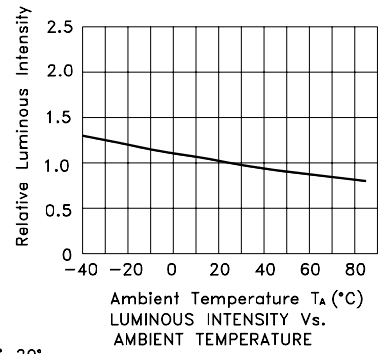
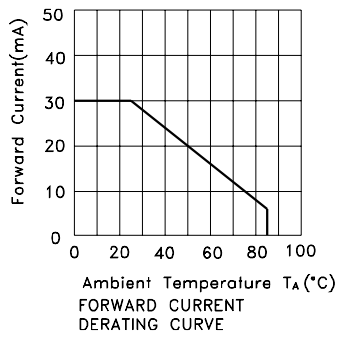
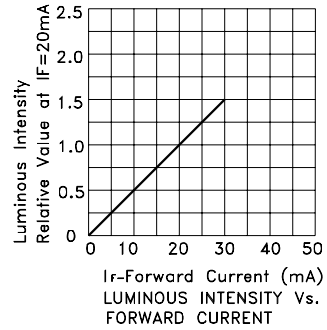
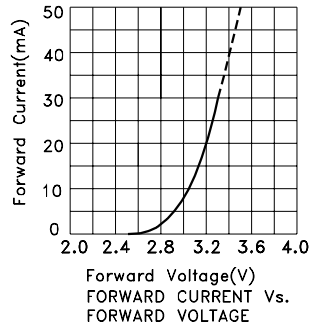
# Kingbright

## Blue



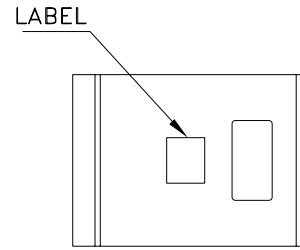
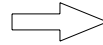
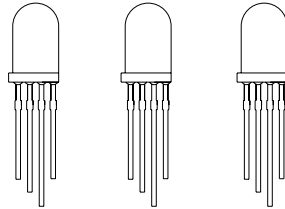
# Kingbright

## Green



**PACKING & LABEL SPECIFICATIONS**

**WP154A4SUREPBGVGAW**

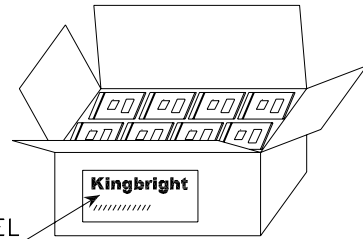
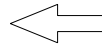


500PCS / BAG




20K / 9# BOX

OUTSIDE LABEL



10K / 5# BOX

OUTSIDE LABEL

<h1>Kingbright</h1>	
Q.C.	QC XX XX XX PASSED
TYPE NO : WP154A4xxx	
QUANTITY : 500 pcs	
S/N : XX	CODE: XX
LOT NO : 	
RoHS Compliant	

## LED MOUNTING METHOD

1. The lead pitch of the LED must match the pitch of the mounting holes on the PCB during component placement. Lead-forming may be required to insure the lead pitch matches the hole pitch. Refer to the figure below for proper lead forming procedures.

(Fig. 1)

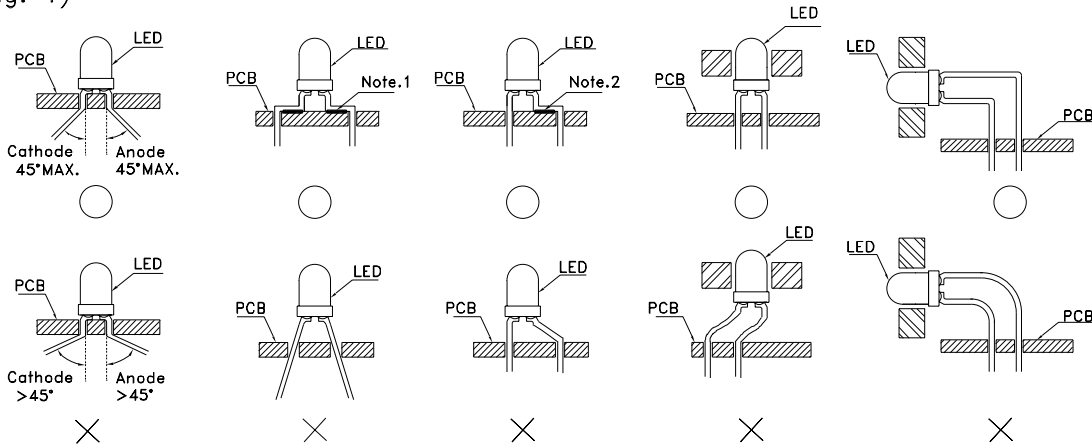


Fig.1

“○” Correct mounting method “×” Incorrect mounting method

Note 1-2 : Do not route PCB trace in the contact area between the leadframe and the PCB to prevent short-circuits.

2. When soldering wire to the LED, use individual heat-shrink tubing to insulate the exposed leads to prevent accidental contact short-circuit.

(Fig. 2)

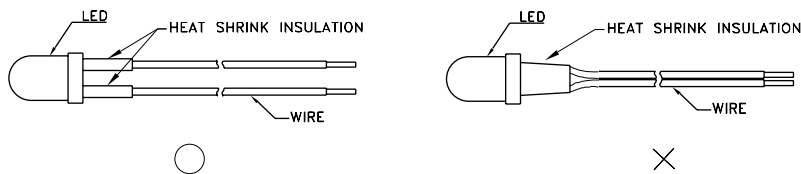


Fig. 2

3. Use stand-offs (Fig. 3) or spacers (Fig. 4) to securely position the LED above the PCB.

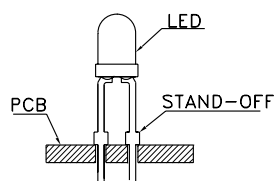


Fig. 3

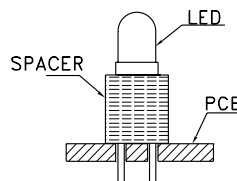


Fig. 4

## LEAD FORMING PROCEDURES

1. Maintain a minimum of 2mm clearance between the base of the LED lens and the first lead bend. (Fig. 5 and 6)

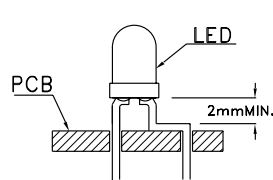


Fig. 5

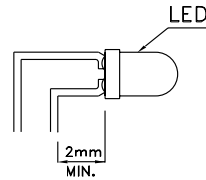


Fig. 6

2. Lead forming or bending must be performed before soldering, never during or after Soldering.
3. Do not stress the LED lens during lead-forming in order to fractures in the lens epoxy and damage the internal structures.
4. During lead forming, use tools or jigs to hold the leads securely so that the bending force will not be transmitted to the LED lens and its internal structures. Do not perform lead forming once the component has been mounted onto the PCB. (Fig. 7)
5. Do not bend the leads more than twice. (Fig. 8)

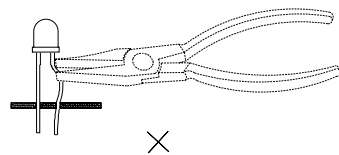


Fig. 7

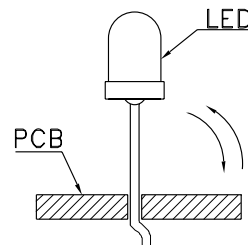


Fig. 8

6. After soldering or other high-temperature assembly, allow the LED to cool down to 50°C before applying outside force (Fig. 9). In general, avoid placing excess force on the LED to avoid damage. For any questions please consult with Kingbright representative for proper handling procedures.

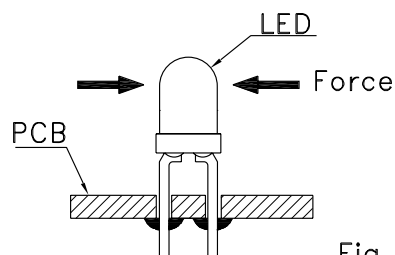


Fig. 9