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# Kingbright

## T-1(3mm) BI-COLOR INDICATOR LAMP

Part Number: WP937EYW

High Efficiency Red  
Yellow

### Features

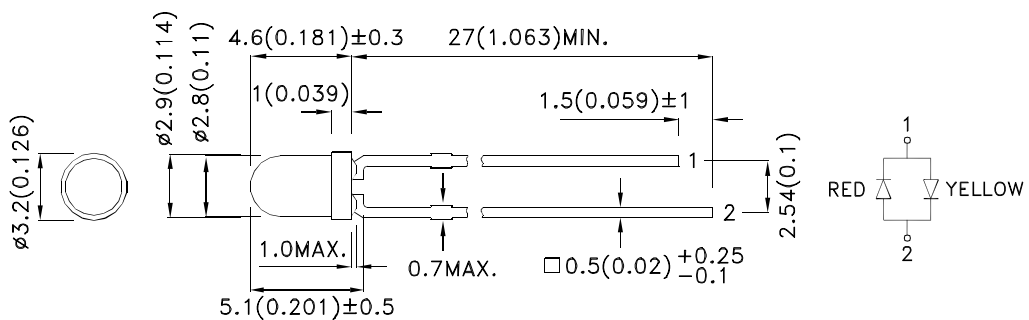
- Uniform light output.
- Low power consumption.
- Long life - solid state reliability.
- RoHS compliant.

### Description

The High Efficiency Red source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode.

The Yellow source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Yellow Light Emitting Diode.

### Package Dimensions



#### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±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.



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## Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) [2] @ 20mA		Viewing Angle [1]
			Min.	Typ.	2θ1/2
WP937EYW	High Efficiency Red (GaAsP/GaP)	White Diffused	6	14	60°
			*4	*10	
	Yellow (GaAsP/GaP)		4	8	
			*4	*8	

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 the CIE127-2007 compliant national standards.

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

Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
λ <sub>peak</sub>	Peak Wavelength	High Efficiency Red Yellow	627 590		nm	I <sub>F</sub> =20mA
λ <sub>D</sub> [1]	Dominant Wavelength	High Efficiency Red Yellow	617 588		nm	I <sub>F</sub> =20mA
Δλ <sub>1/2</sub>	Spectral Line Half-width	High Efficiency Red Yellow	45 35		nm	I <sub>F</sub> =20mA
C	Capacitance	High Efficiency Red Yellow	15 20		pF	V <sub>F</sub> =0V;f=1MHz
V <sub>F</sub> [2]	Forward Voltage	High Efficiency Red Yellow	2 2.1	2.5 2.5	V	I <sub>F</sub> =20mA

Notes:

- 1.Wavelength: +/-1nm.
2. Forward Voltage: +/-0.1V.
- 3.Wavelength value is traceable to the CIE127-2007 compliant national standards.

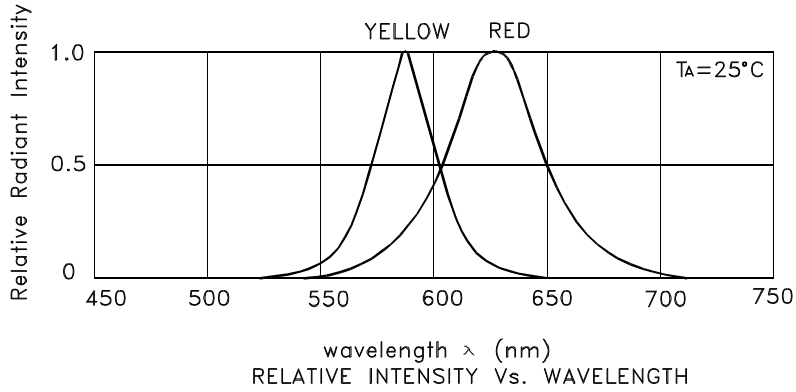
## Absolute Maximum Ratings at TA=25°C

Parameter	High Efficiency Red	Yellow	Units
Power dissipation	75	75	mW
DC Forward Current	30	30	mA
Peak Forward Current [1]	160	140	mA
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		

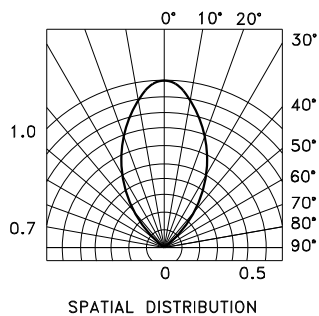
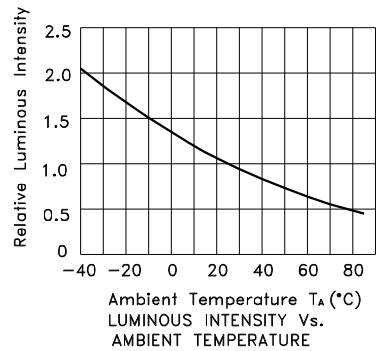
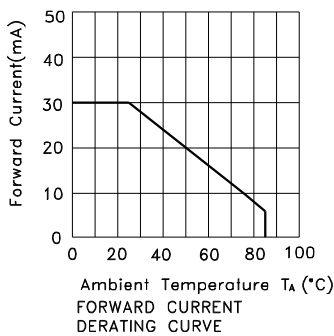
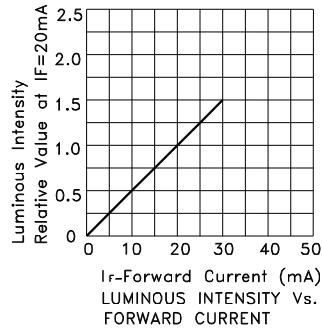
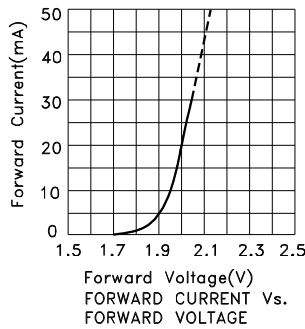
Notes:

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

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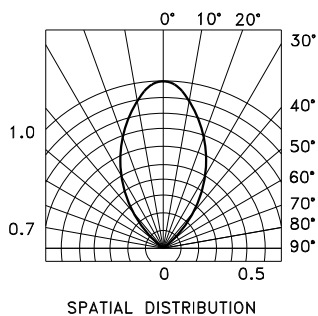
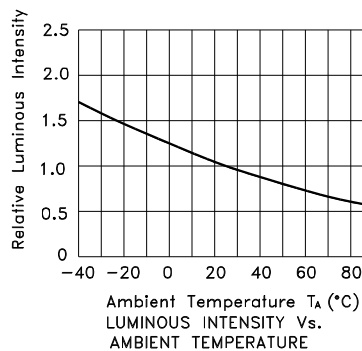
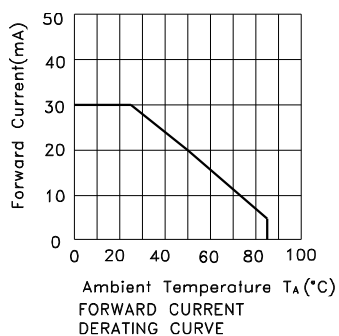
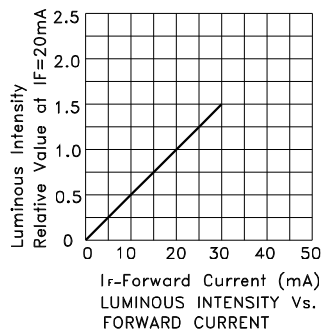
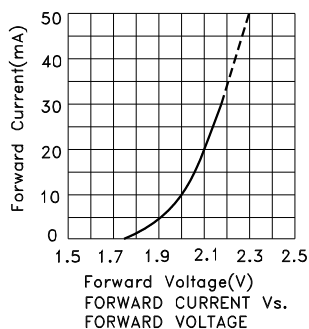


## WP937EYW High Efficiency Red



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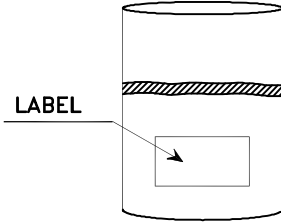
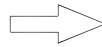
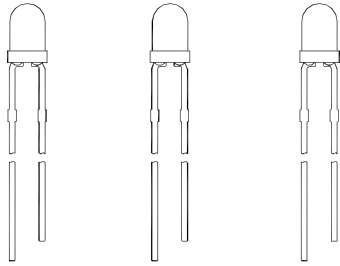
## Yellow



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**PACKING & LABEL SPECIFICATIONS**

**WP937EYW**

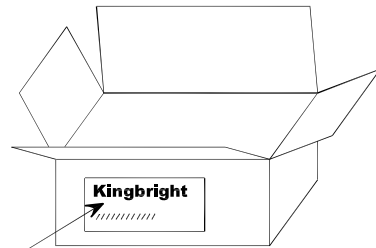
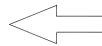


500PCS / BAG



40K / 9# BOX

OUTSIDE LABEL



OUTSIDE LABEL

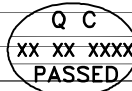
20K / 5# BOX

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P/NO: WP937xxx

QTY: 500 pcs

Q.C.



S/N: XXXX

CODE: XXX

LOT NO:



XXXXXXXXXXXX

RoHS Compliant

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## PRECAUTIONS

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)

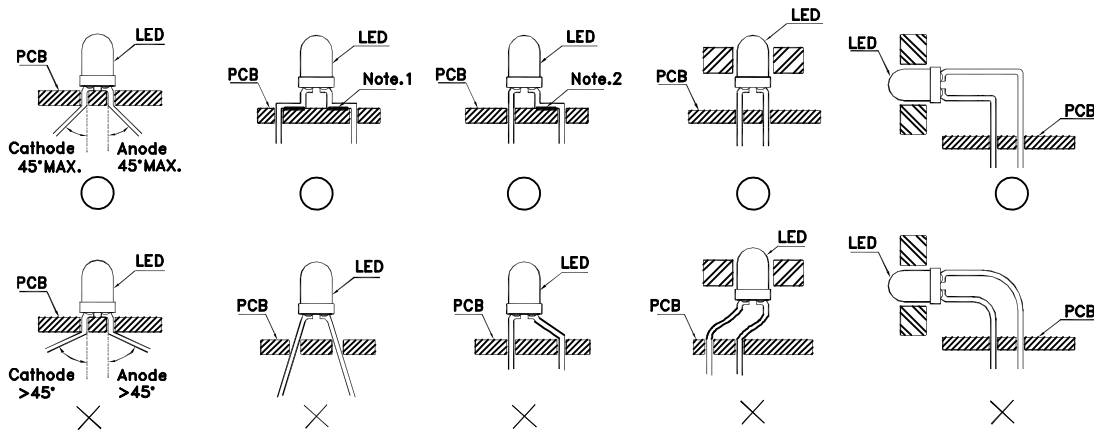


Fig.1

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

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

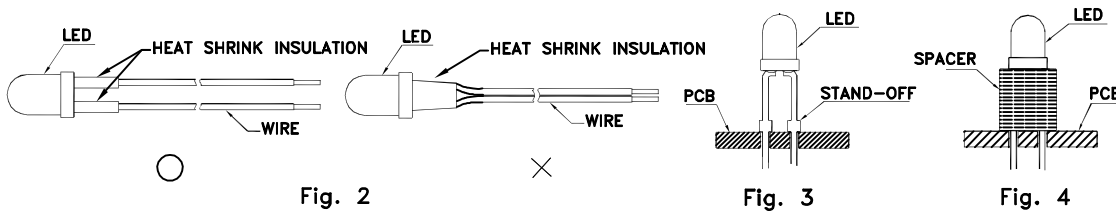


Fig. 2

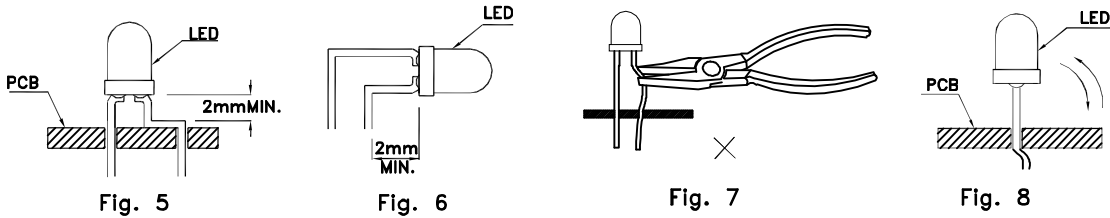
Fig. 3

Fig. 4

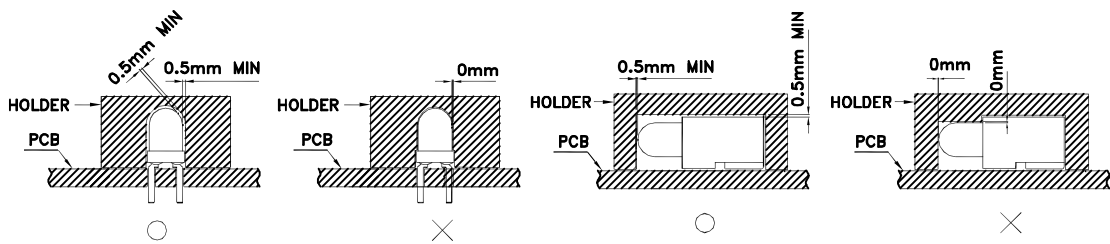
4. Maintain a minimum of 2mm clearance between the base of the LED lens and the first lead bend. (Fig. 5 and 6)
5. During lead forming, use tools or jigs to hold the leads securely so that the bending force will not be transmitted to the LED lens and its internal structures. Do not perform lead forming once the component has been mounted onto the PCB. (Fig. 7)

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6. Do not bend the leads more than twice. (Fig. 8)



7. During soldering, component covers and holders should leave clearance to avoid placing damaging stress on the LED during soldering.

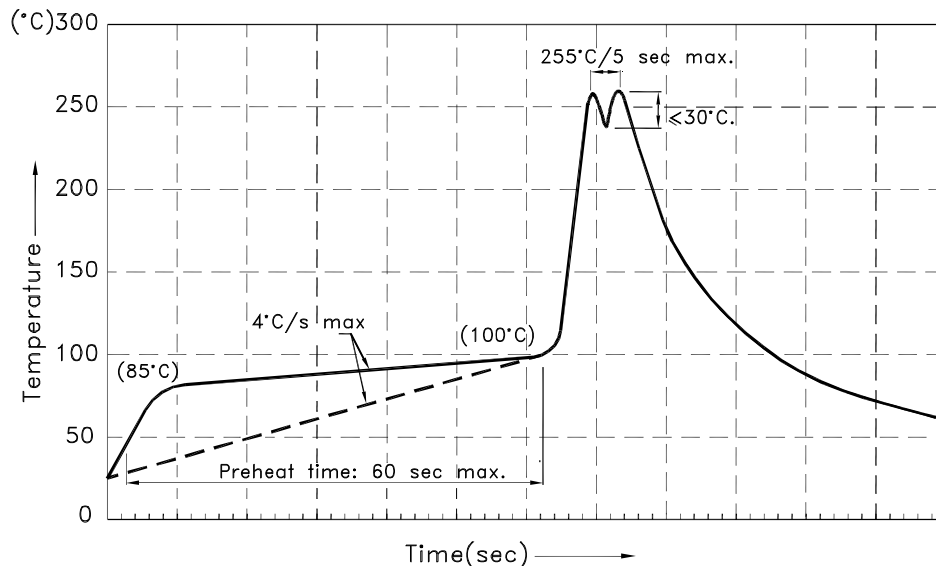


8. The tip of the soldering iron should never touch the lens epoxy.

9. Through-hole LEDs are incompatible with reflow soldering.

10. 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.

11. Recommended Wave Soldering Profiles:



Notes:

1. Recommend pre-heat temperature of 105°C or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260°C
2. Peak wave soldering temperature between 245°C ~ 255°C for 3 sec (5 sec max).
3. Do not apply stress to the epoxy resin while the temperature is above 85°C.
4. Fixtures should not incur stress on the component when mounting and during soldering process.
5. SAC 305 solder alloy is recommended.
6. No more than one wave soldering pass.

All design applications should refer to Kingbright application notes available at <http://www.KingbrightUSA.com/ApplicationNotes>