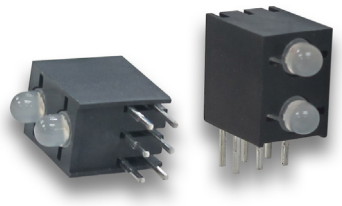
Kingbright



WP130WCP/2EGW

T-1 (3 mm) Bi-Level Circuit Board Indicator

DESCRIPTIONS

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

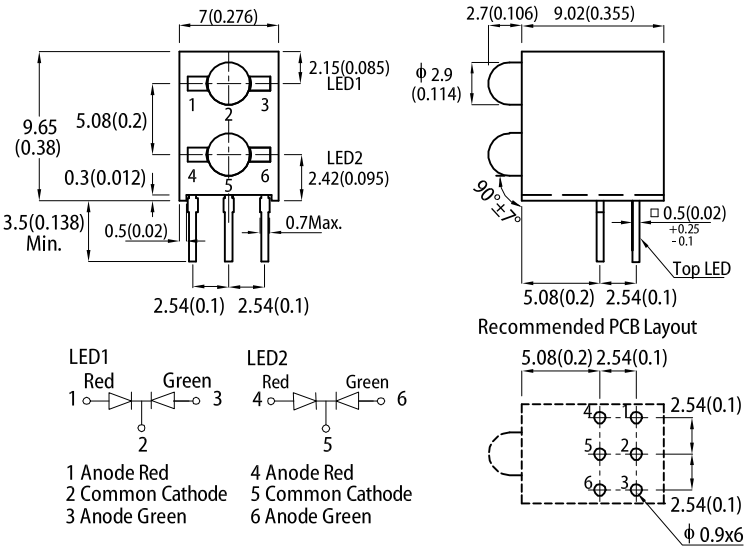
FEATURES

- Bi-level right angle housing LED
- Pre-trimmed leads for pc board mounting
- Black case enhances contrast
- High reliability
- Housing UL rating: 94V-0
- Housing material: Type 66 nylon
- Halogen-free
- RoHS compliant

APPLICATIONS

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

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 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 [2]		Viewing Angle [1]
			Min.	Typ.	2θ1/2
WP130WCP/2EGW	High Efficiency Red (GaAsP/GaP)	White Diffused	12	30	60°
			*10	*24	
	Green (GaP)		12	30	
			*12	*30	

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 Ta=25°C

Parameter	Symbol	Emitting Color	Value		Unit
			Typ.	Max.	
Wavelength at Peak Emission I_F = 20mA	λ_{peak}	High Efficiency Red Green	627 565	-	nm
Dominant Wavelength I_F = 20mA	λ_{dom} [1]	High Efficiency Red Green	617 568	-	nm
Spectral Bandwidth at 50% Φ REL MAX I_F = 20mA	Δλ	High Efficiency Red Green	45 30	-	nm
Capacitance	C	High Efficiency Red Green	15 15	-	pF
Forward Voltage I_F = 20mA	V_F [2]	High Efficiency Red Green	2.0 2.2	2.5 2.5	V
Reverse Current (V_R = 5V)	I_R	High Efficiency Red Green	-	10 10	μA
Temperature Coefficient of λ_{peak} I_F = 20mA, -10°C ≤ T ≤ 85°C	$TC_{\lambda peak}$	High Efficiency Red Green	0.13 0.1	-	nm/°C
Temperature Coefficient of λ_{dom} I_F = 20mA, -10°C ≤ T ≤ 85°C	$TC_{\lambda dom}$	High Efficiency Red Green	0.06 0.06	-	nm/°C
Temperature Coefficient of V_F I_F = 20mA, -10°C ≤ T ≤ 85°C	TC_V	High Efficiency Red Green	-1.9 -2.0	-	mV/°C

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.

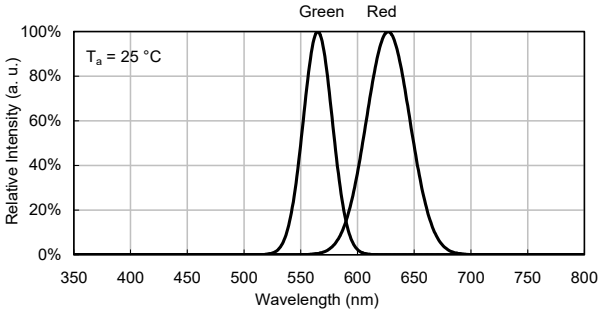
ABSOLUTE MAXIMUM RATINGS at T_A=25°C

Parameter	Symbol	Value		Unit
		High Efficiency Red	Green	
Power Dissipation	P_D	75	62.5	mW
Reverse Voltage	V_R	5	5	V
Junction Temperature	T_j	125	110	°C
Operating Temperature	T_{op}	-40 to +85		°C
Storage Temperature	T_{stg}	-40 to +85		°C
DC Forward Current	I_F	30	25	mA
Peak Forward Current	I_{FP} [1]	160	140	mA
Electrostatic Discharge Threshold (HBM)	-	8000	8000	V
Thermal Resistance (Junction / Ambient)	$R_{th\ JA}$ [2]	610	530	°C/W
Thermal Resistance (Junction / Solder point)	$R_{th\ JS}$ [2]	370	330	°C/W
Lead Solder Temperature [3]		260°C For 3 Seconds		
Lead Solder Temperature [4]		260°C For 5 Seconds		

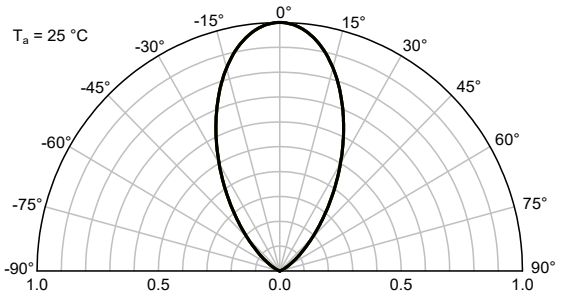
Notes:
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. $R_{th\ JA}$,$R_{th\ JS}$ Results from mounting on PC board FR4 (pad size ≥ 16 mm^2 per pad).
3. 2mm below package base.
4. 5mm below package base.
5. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

TECHNICAL DATA

RELATIVE INTENSITY vs. WAVELENGTH

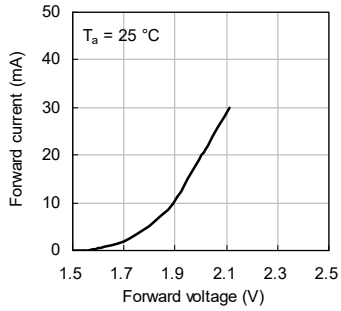


SPATIAL DISTRIBUTION

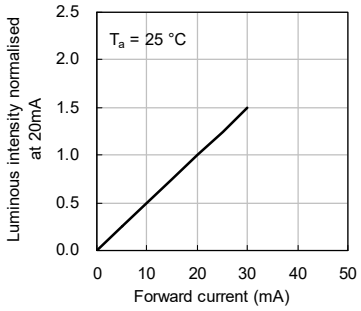


HIGH EFFICIENCY RED

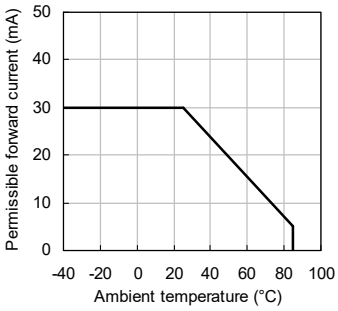
Forward Current vs. Forward Voltage



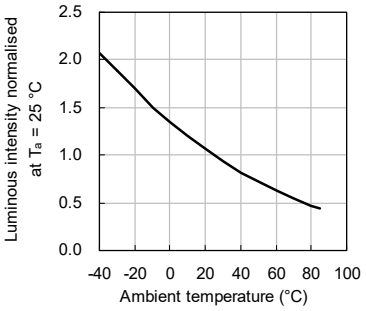
Luminous Intensity vs. Forward Current



Forward Current Derating Curve

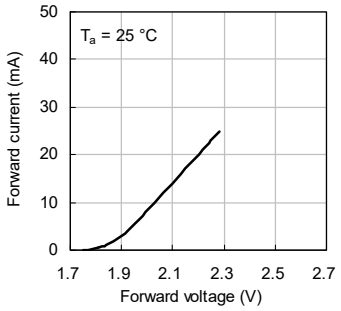


Luminous Intensity vs. Ambient Temperature

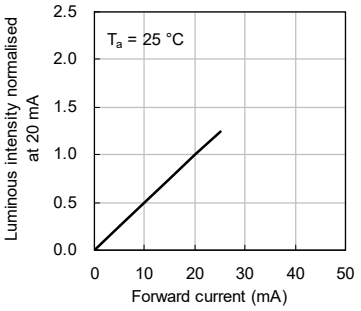


GREEN

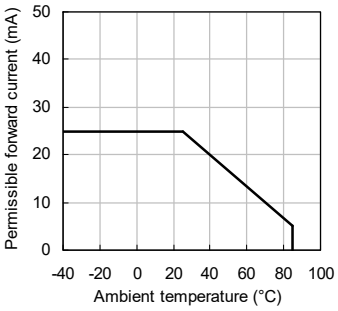
Forward Current vs. Forward Voltage



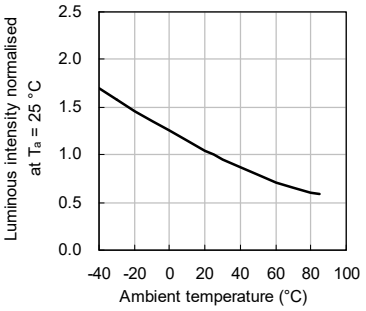
Luminous Intensity vs. Forward Current



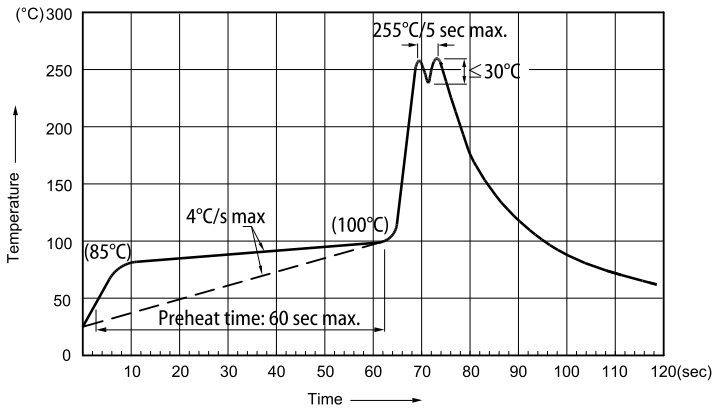
Forward Current Derating Curve



Luminous Intensity vs. Ambient Temperature



RECOMMENDED WAVE SOLDERING PROFILE



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°Cfor 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.*

