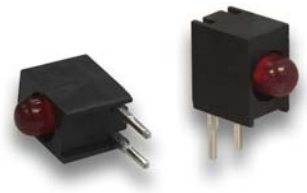
Kingbright



WP934AD/ID

3mm Single-Level Circuit Board Indicator

DESCRIPTION

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

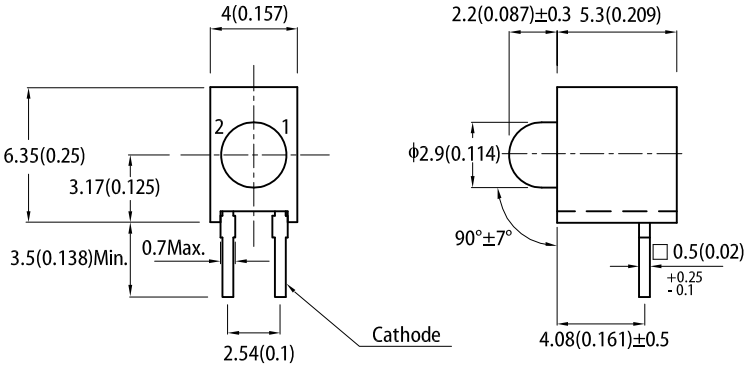
FEATURES

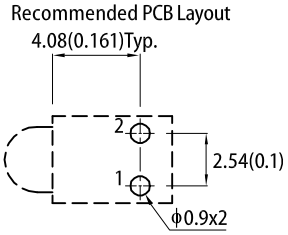
- Ideal for card edge status indication
- Pre-trimmed leads for pc board mounting
- Black case enhances contrast ratio
- High reliability - life measured in years
- Housing UL rating: 94V-0
- Housing material: Type 66 nylon
- RoHS compliant

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 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) @ 10mA [2]		Viewing Angle [1]
			Min.	Typ.	2θ1/2
WP934AD/ID	High Efficiency Red (GaAsP/GaP)	Red Diffused	12	30	50°
			*10	*20	

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_A=25°C

Parameter	Symbol	Emitting Color	Value		Unit
			Typ.	Max.	
Wavelength at Peak Emission I_F = 10mA	λ_{peak}	High Efficiency Red	627	-	nm
Dominant Wavelength I_F = 10mA	λ_{dom} [1]	High Efficiency Red	617	-	nm
Spectral Bandwidth at 50% Φ REL MAX I_F = 10mA	Δλ	High Efficiency Red	45	-	nm
Capacitance	C	High Efficiency Red	15	-	pF
Forward Voltage I_F = 10mA	V_F [2]	High Efficiency Red	1.9	2.3	V
Reverse Current (V_R = 5V)	I_R	High Efficiency Red	-	10	μA
Temperature Coefficient of λ_{peak} I_F = 10mA, -10°C ≤ T ≤ 85°C	$TC_{\lambda peak}$	High Efficiency Red	0.13	-	nm/°C
Temperature Coefficient of λ_{dom} I_F = 10mA, -10°C ≤ T ≤ 85°C	$TC_{\lambda dom}$	High Efficiency Red	0.06	-	nm/°C
Temperature Coefficient of V_F I_F = 10mA, -10°C ≤ T ≤ 85°C	TC_V	High Efficiency Red	-1.9	-	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.

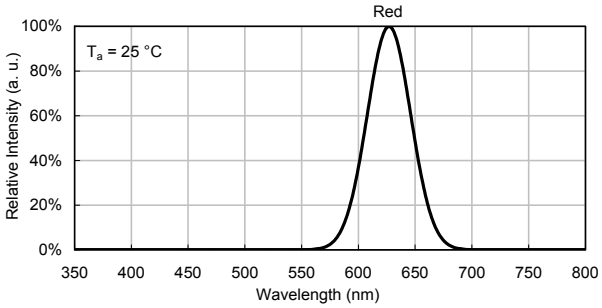
ABSOLUTE MAXIMUM RATINGS at T_A=25°C

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	75	mW
Reverse Voltage	V_R	5	V
Junction Temperature	T_j	125	°C
Operating Temperature	T_{op}	-40 To +85	°C
Storage Temperature	T_{stg}	-40 To +85	°C
DC Forward Current	I_F	30	mA
Peak Forward Current	I_{FM} [1]	160	mA
Electrostatic Discharge Threshold (HBM)	-	8000	V
Thermal Resistance (Junction / Ambient)	$R_{th\ JA}$ [2]	600	°C/W
Thermal Resistance (Junction / Solder point)	$R_{th\ JS}$ [2]	410	°C/W
Lead Solder Temperature [3]		260°C For 3 Seconds	
Lead Solder Temperature [4]		260°C For 5 Seconds	

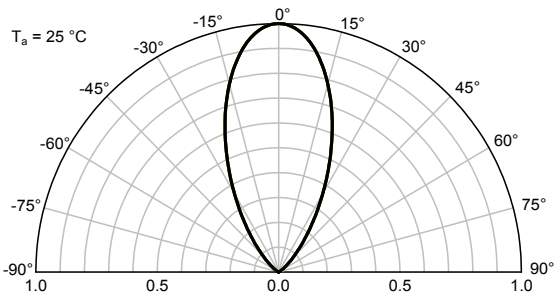
Notes:
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. $R_{th\ JA}$,$R_{th\ JS}$ Results from mounting on PC board FR4 (pad size ≥ 16 mm^2 per pad).
3. 2mm below package base.
4. 5mm below package base.
5. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the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

TECHNICAL DATA

RELATIVE INTENSITY vs. WAVELENGTH

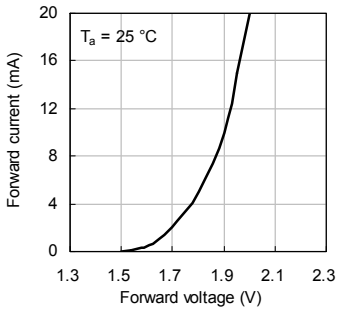


SPATIAL DISTRIBUTION

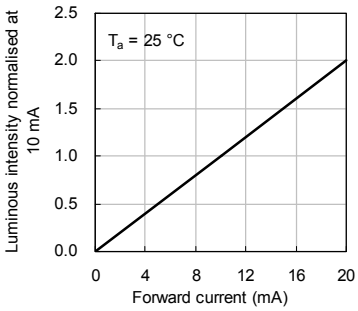


HIGH EFFICIENCY RED

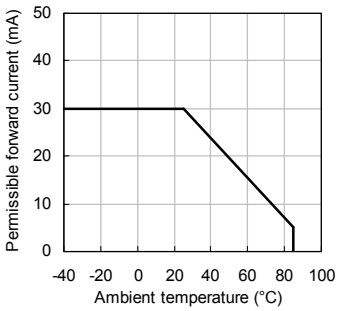
Forward Current vs. Forward Voltage



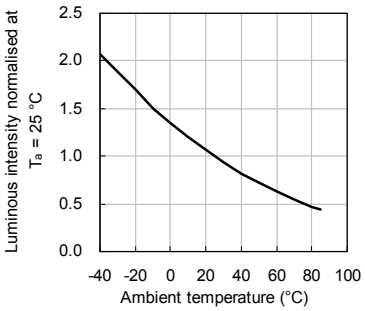
Luminous Intensity vs. Forward Current



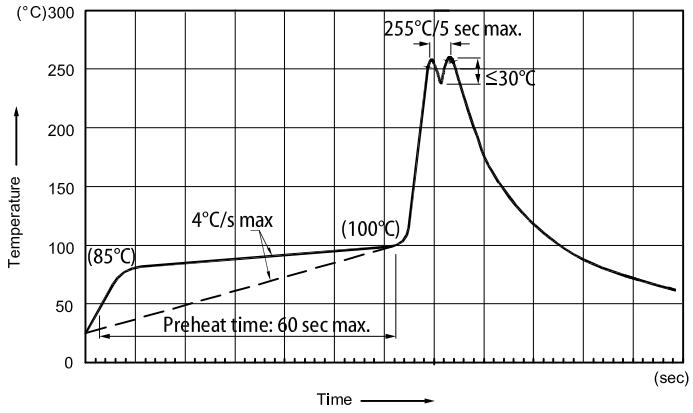
Forward Current Derating Curve



Luminous Intensity vs. Ambient Temperature



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°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.*

PACKING & LABEL SPECIFICATIONS