

WP914CK/4GDT 2 x 3mm Quad-Level Circuit Board Indicator

DESCRIPTION

- The Green source color devices are made with Gallium Phosphide Green Light Emitting Diode

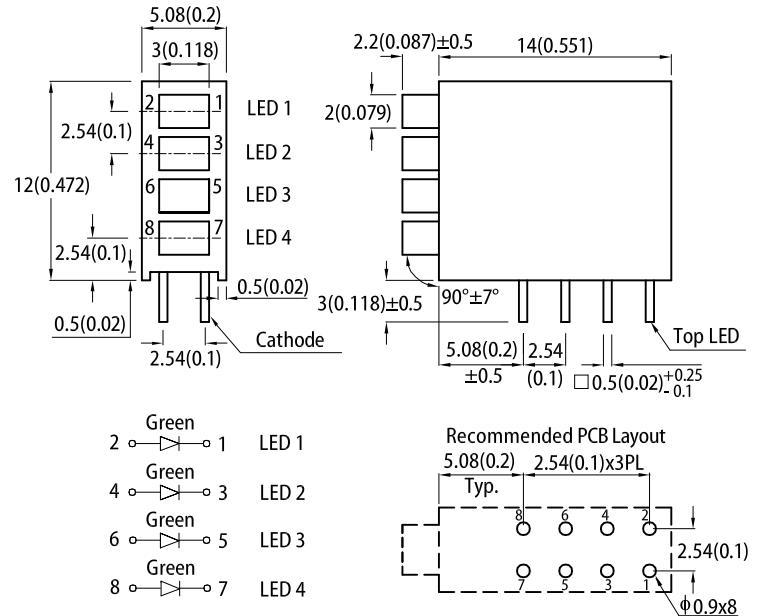
FEATURES

- Quad-level design, save board space
- Different color combination available
- Black case enhances contrast ratio
- 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:

- All dimensions are in millimeters (inches).
- Tolerance is $\pm 0.25(0.01)$ unless otherwise noted.
- Lead spacing is measured where the leads emerge from the package.
- 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
WP914CK/4GDT	■ Green (GaP)	Green Diffused	3	6	140°

- Notes:
- $\theta_{1/2}$ is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
 - Luminous intensity / luminous flux: +/-15%.
 - Luminous intensity value is traceable to CIE127-2007 standards.

ELECTRICAL / OPTICAL CHARACTERISTICS at $T_A=25^\circ\text{C}$

Parameter	Symbol	Emitting Color	Value		Unit
			Typ.	Max.	
Wavelength at Peak Emission $I_F = 10\text{mA}$	λ_{peak}	Green	565	-	nm
Dominant Wavelength $I_F = 10\text{mA}$	$\lambda_{\text{dom}}^{[1]}$	Green	568	-	nm
Spectral Bandwidth at 50% Φ REL MAX $I_F = 10\text{mA}$	$\Delta\lambda$	Green	30	-	nm
Capacitance	C	Green	15	-	pF
Forward Voltage $I_F = 10\text{mA}$	$V_F^{[2]}$	Green	2.0	2.4	V
Reverse Current ($V_R = 5\text{V}$)	I_R	Green	-	10	μA
Temperature Coefficient of λ_{peak} $I_F = 10\text{mA}$, $-10^\circ\text{C} \leq T \leq 85^\circ\text{C}$	$\text{TC}_{\lambda_{\text{peak}}}$	Green	0.1	-	nm/ $^\circ\text{C}$
Temperature Coefficient of λ_{dom} $I_F = 10\text{mA}$, $-10^\circ\text{C} \leq T \leq 85^\circ\text{C}$	$\text{TC}_{\lambda_{\text{dom}}}$	Green	0.06	-	nm/ $^\circ\text{C}$
Temperature Coefficient of V_F $I_F = 10\text{mA}$, $-10^\circ\text{C} \leq T \leq 85^\circ\text{C}$	TC_V	Green	-2	-	mV/ $^\circ\text{C}$

Notes:

- The dominant wavelength (λ_d) above is the setup value of the sorting machine. (Tolerance $\lambda_d : \pm 1\text{nm}$.)
- Forward voltage: $\pm 0.1\text{V}$.
- 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 $T_A=25^\circ\text{C}$

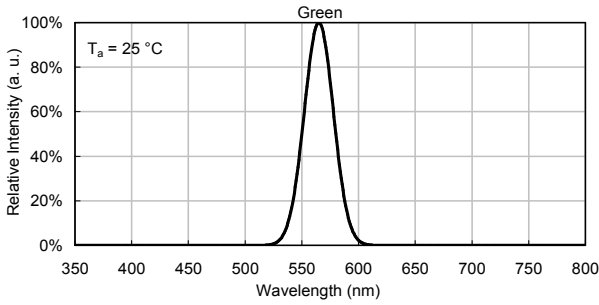
Parameter	Symbol	Value	Unit
Power Dissipation	P_D	62.5	mW
Reverse Voltage	V_R	5	V
Junction Temperature	T_j	110	$^\circ\text{C}$
Operating Temperature	T_{op}	-40 To +85	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 To +85	$^\circ\text{C}$
DC Forward Current	I_F	25	mA
Peak Forward Current	$I_{\text{FM}}^{[1]}$	140	mA
Electrostatic Discharge Threshold (HBM)	-	8000	V
Thermal Resistance (Junction / Ambient)	$R_{\text{th JA}}^{[2]}$	720	$^\circ\text{C}/\text{W}$
Thermal Resistance (Junction / Solder point)	$R_{\text{th JS}}^{[2]}$	480	$^\circ\text{C}/\text{W}$
Lead Solder Temperature ^[3]		260 $^\circ\text{C}$ For 3 Seconds	
Lead Solder Temperature ^[4]		260 $^\circ\text{C}$ For 5 Seconds	

Notes:

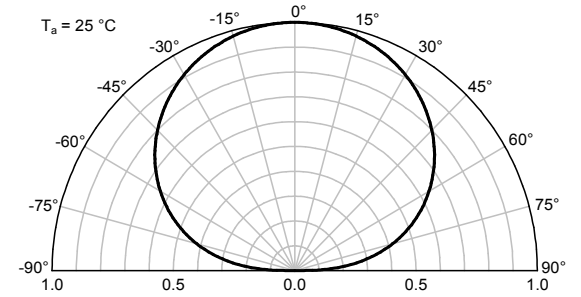
- 1/10 Duty Cycle, 0.1ms Pulse Width.
- $R_{\text{th JA}}$, $R_{\text{th JS}}$ Results from mounting on PC board FR4 (pad size $\geq 16\text{mm}^2$ per pad).
- 2mm below package base.
- 5mm below package base.
- Relative humidity levels maintained between 40% and 60% in production area are recommended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

TECHNICAL DATA

RELATIVE INTENSITY vs. WAVELENGTH

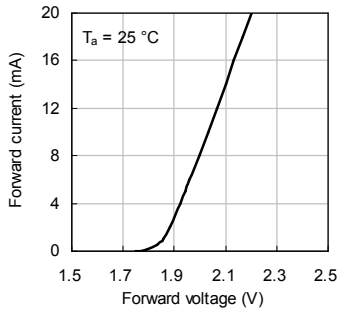


SPATIAL DISTRIBUTION

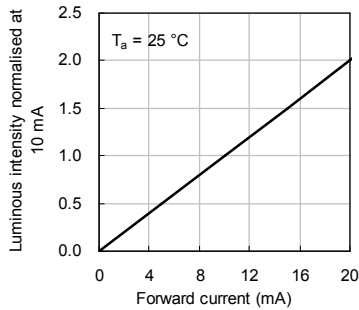


GREEN

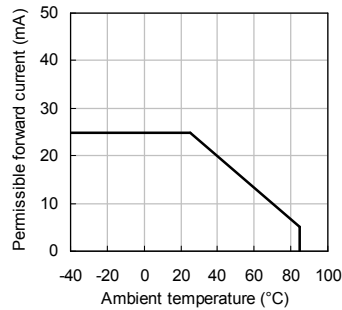
Forward Current vs. Forward Voltage



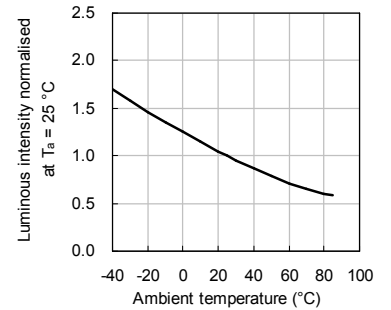
Luminous Intensity vs. Forward Current



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°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

