

Cree® P4 LED

Model # LP476TYL1-90G-01

Data Sheet

90-degree, 7.6 x 7.6 mm LED lamp in amber color with water-transparent lens and stopper

Applications

- Advertising Signs
- Indicators
- Automotive Lighting

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$)

Items	Symbol	Absolute Maximum Rating	Unit
Forward Current Note 2	I_F	70	mA
Peak Forward Current Note 1	I_{FP}	200	mA
Reverse Voltage	V_R	5	V
Power Dissipation	P_D	220	mW
Operation Temperature	T_{opr}	-40 ~ +100	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 ~ +100	$^\circ\text{C}$
Lead Soldering Temperature	T_{sol}	Max. 260 $^\circ\text{C}$ for 3 sec. max. (3 mm from the base of the epoxy bulb)	

Notes:

1. Pulse width ≤ 0.1 msec, duty $\leq 1/10$.
2. A heat sink is recommended if the device is operated at ambient temperatures higher than 25 $^\circ\text{C}$.

Typical Electrical & Optical Characteristics ($T_A = 25^\circ\text{C}$)

Characteristics	Symbol	Condition	Unit	Minimum	Typical	Maximum
Forward Voltage	V_F	$I_F = 70$ mA	V		2.6	3.2
Reverse Current	I_R	$V_R = 5$ V	μA			100
Dominant Wavelength	λ_D	$I_F = 70$ mA	nm	584	591	599
Luminous Flux	Φ_V	$I_F = 70$ mA	mlm	1100	2500	
50% Power Angle	2 $\theta_{1/2\text{H-H}}$	$I_F = 70$ mA	deg		90	
	2 $\theta_{1/2\text{V-V}}$	$I_F = 70$ mA	deg		35	

Standard Bins for LP476TYL1-90G-01 ($I_F = 70 \text{ mA}$)

Lamps are sorted to luminous intensity (I_V), V_F and dominant wavelength (λ_D) bins shown.

Orders for LP476TYL1-90G-01 may be filled with any or all bins contained as below.

All luminous intensity (I_V), V_F and dominant wavelength (λ_D) values shown and specified are at $I_F = 70 \text{ mA}$.

Luminous Intensity (I_V)

	X2	X3	X4	X5	X6	
4180 mcd						X or above
3000 mcd						W
2130 mcd						V
1520 mcd						U
1100 mcd						T
	584 nm	587 nm	590 nm	593 nm	596 nm	599 nm
	Dominant Wavelength (λ_D)					

Forward Voltage (V_F)

Rank	V4	V5	V6	V7	V8
Voltage	2.2-2.4 V	2.4-2.6 V	2.6-2.8 V	2.8-3.0 V	3.0-3.2 V

Important Notes:

1. All ranks will be included per delivery; rank ratio will be based on the dice distribution.
2. Tolerance of measurement of luminous intensity is $\pm 15\%$.
3. Tolerance of measurement of dominant wavelength is $\pm 1 \text{ nm}$.
4. Tolerance of measurement of V_F is $\pm 0.05 \text{ V}$.
5. Packaging methods are available for selection; please refer to the "Cree LED Lamp Packaging Standard" document.
6. Please refer to the "Cree LED Lamp Reliability Test Standards" document for reliability test conditions.
7. Please refer to the "Cree LED Lamp Soldering & Handling" document for information about how to use this LED product safely.

Graphs

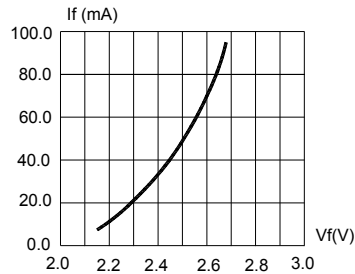


FIG.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

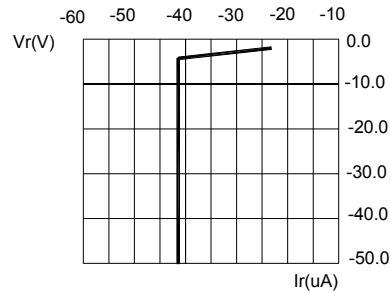


FIG.2 REVERSE CURRENT VS. REVERSE VOLTAGE.

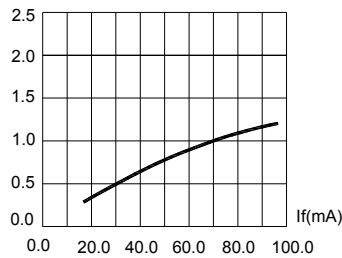


FIG.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT.

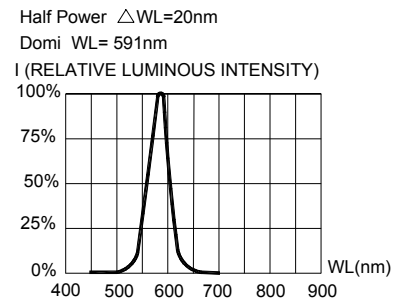


FIG.4 RELATIVE LUMINOUS INTENSITY VS. WAVELENGTH.

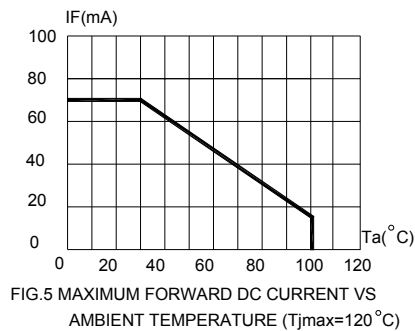


FIG.5 MAXIMUM FORWARD DC CURRENT VS AMBIENT TEMPERATURE ($T_{jmax}=120^{\circ}C$)

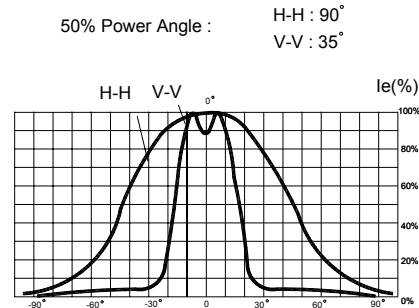


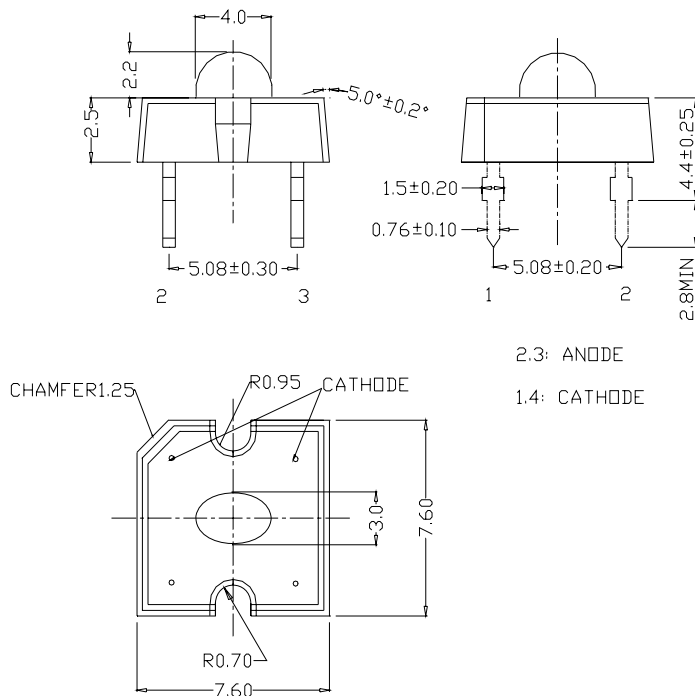
FIG.6 FAR FIELD PATTERN

Mechanical Dimensions

All dimensions are in mm. Tolerance is ± 0.25 mm unless otherwise noted.

An epoxy meniscus may extend about 1.5 mm down the leads.

Burr around bottom of epoxy may be 0.5 mm max.



2.3: ANODE

1.4: CATHODE

Notes

RoHS Compliance

The levels of environmentally sensitive, persistent biologically toxic (PBT), persistent organic pollutants (POP), or otherwise restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), as amended through April 21, 2006.

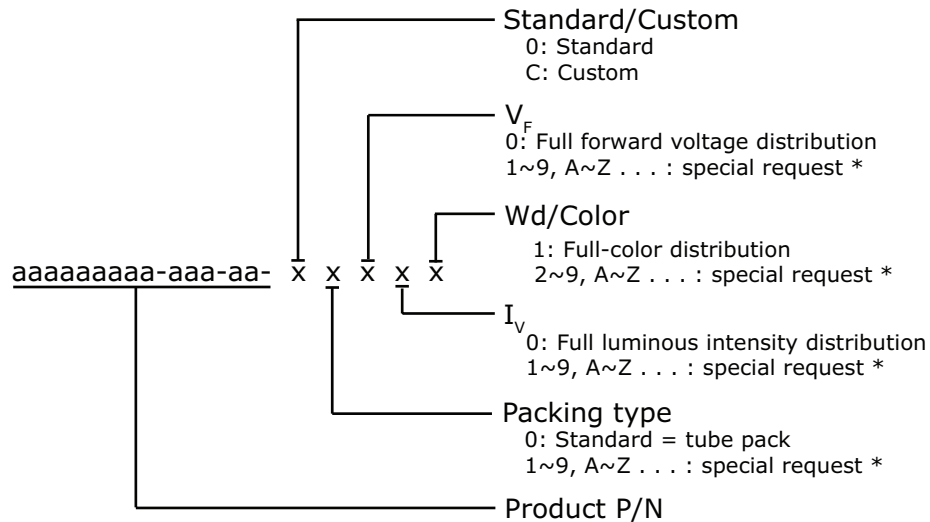
Vision Advisory Claim

Users should be cautioned not to stare at the light of this LED product. The bright light can damage the eye.

Kit Number System

Cree LED lamps are tested and sorted into performance bins. A bin is specified by ranges of color, forward voltage, and brightness. Sorted LEDs are packaged for shipping in various convenient options. Please refer to the "Cree LED Lamp Packaging Standard" document for more information about shipping and packaging options.

Cree LEDs are sold by order codes in combinations of bins called kits. Order codes are configured in the following manner:



* Contact your Cree sales representative for ordering information.

Standard Available Kits*

Kit Number	Description
LP476TYL1-90G-01-00001	P4 90 Amber 591nm, FULL RANK, Tube Pack
LP476TYL1-90G-01-00011	P4 90 Amber 591nm, U or above, Tube Pack

* Please contact your Cree representative about the availability of non-standard kits.