



# Agilent HLMP-WL02, HLMP-WG02 High Intensity AllnGaP LED Lamps Data Sheet

## Description

This 5 mm LED lamp is specially designed for applications requiring higher levels of intensity than is achieved with a standard lamp. The 5 mm lamp is available with 65 degree viewing angle.

## Features

- T-1 3/4 (5 mm) General Purpose LED Lamps
- AllnGaP SunPower Intensity
- High Light Output
- Tinted Diffused Lens
- Amber and Red
- Available on Tape and Reel

## Applications

- General Purpose
- Consumer Goods
- Indicator Lights

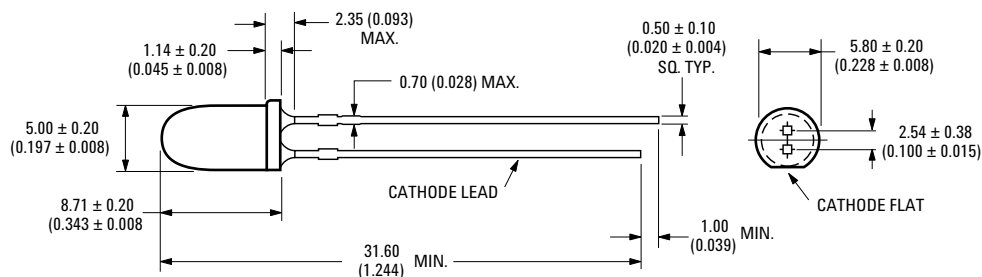
## Device Selection Guide

T-1 3/4 (5 mm) Lamp		Luminous Intensity	
Color	Part Number	Min. mcd, I <sub>f</sub> @ 20 mA	Viewing Angle 2θ <sub>1/2</sub> (Degrees)
Amber	HLMP-WL02	35	65
Red	HLMP- WG02	26	65

### Notes:

1. Dominant Wavelength, λ<sub>d</sub>, is derived from the CIE Chromaticity Diagram, and represents the color of the lamp.
2. θ<sub>1/2</sub> is the off-axis angle where the luminous intensity is one half the on-axis intensity.
3. The luminous intensity is measured on the mechanical axis of the lamp package.
4. The optical axis is closely aligned with the package mechanical axis.

## Package Dimensions



### Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$

Parameter	5 mm
DC Forward Current	50 mA <sup>[1,3,4]</sup>
Peak Pulsed Forward Current <sup>[3,4]</sup>	70 mA
Average Forward Current	30 mA
Reverse Voltage ( $I_R = 100$ mA)	5 V
LED Junction Temperature	130°C
Operating Temperature	-40°C to + 100°C
Storage Temperature	-40°C to + 120°C
Wave Soldering Temperature	250°C for 3 seconds
Soldering Dipping Temperature [1.59 mm (0.06 in.) below body]	260°C for 5 seconds

Notes:

1. Derate linearly as shown in Figure 4.
2. For long term performance with minimal light output degradation, drive currents between 10 and 30 mA are recommended.
3. Please contact your Agilent sales representative about operating currents below 10 mA.

### Electrical/Optical Characteristics at $T_A = 25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Forward Voltage Amber ( $\lambda_d = 590$ nm) Red ( $\lambda_d = 626$ nm)	$V_F$		2.02 1.90	2.4	V	$I_F = 20$ mA
Reverse Voltage	$V_R$	5	20		V	$I_R = 100$ mA
Peak Wavelength Amber Red	$\lambda_{PEAK}$		592 635		nm	Peak of Wavelength of Spectral Distribution at $I_F = 20$ mA
Spectral Halfwidth	$\Delta\lambda_{1/2}$		17		nm	Wavelength Width at Spectral Distribution $1/2$ Power point at $I_F = 20$ mA
Speed of Response	$\tau_s$		20		ns	Exponential Time Constant, $e^{-1/\tau_s}$
Capacitance	C		40		pF	$V_F = 0$ , $f = 1$ MHz
Thermal Resistance	$R\theta_{J-PIN}$		240		°C/W	LED Junction-to-Cathode Lead
Luminous Efficacy <sup>[5]</sup> Amber Red	$\eta_v$		500 155		lm/W	Emitted Luminous Power/Emitted Radiant Power

Note:

1. The radiant intensity,  $I_e$ , in watts per steradian, may be found from the equation  $I_e = I_v/\eta_v$ , where  $I_v$  is the luminous intensity in candelas and  $\eta_v$  is the luminous efficacy in lumens/watt.

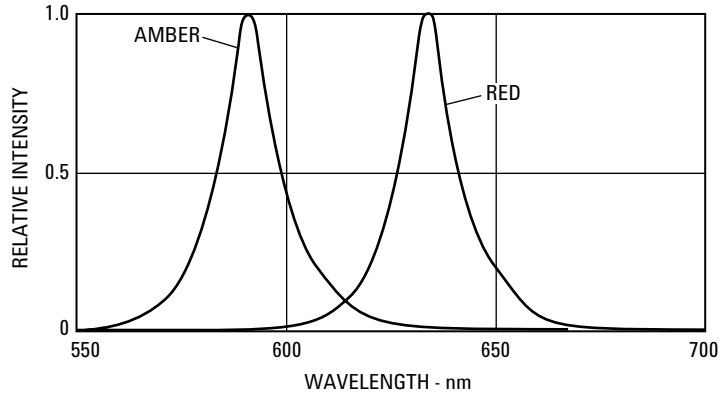


Figure 1. Relative Intensity vs. Peak Wavelength.

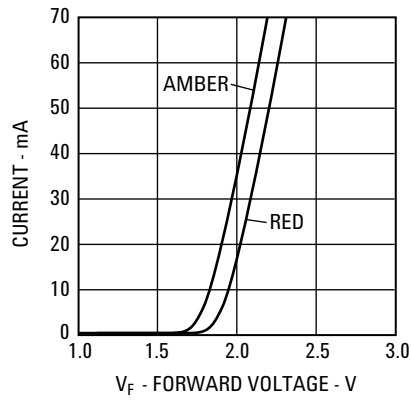


Figure 2. Forward Current vs. Forward Voltage.

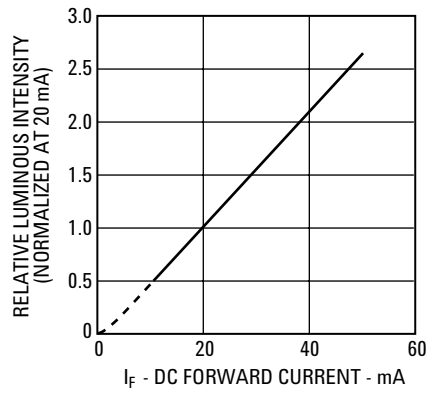


Figure 3. Relative Luminous Intensity vs. Forward Current.

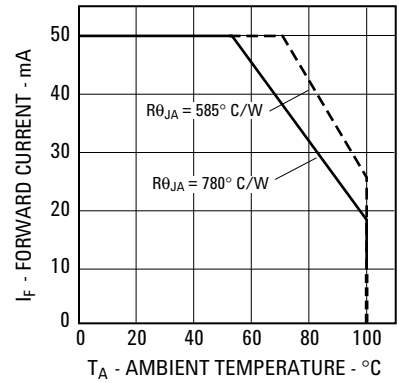


Figure 4. Maximum Forward Current vs. Ambient Temperature. Derating Based on  $T_{JMAX} = 130^{\circ}\text{C}$ .

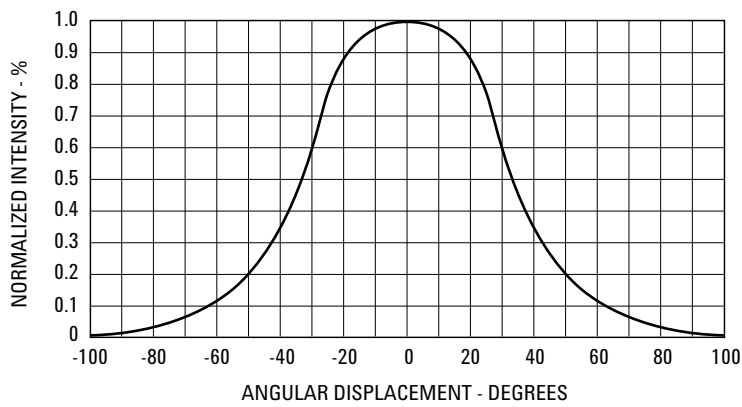


Figure 5. Representative Spatial Radiation Pattern for  $65^{\circ}$

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