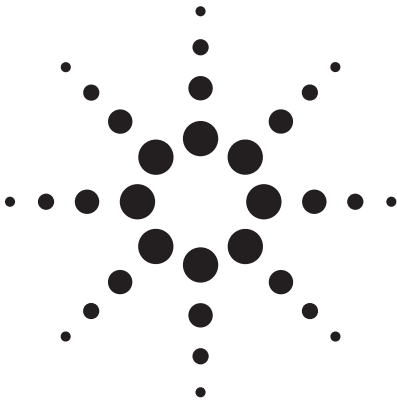


# Agilent HLMP-HD57 5 mm Precision Optical Performance Red Oval LED Lamps

## Data Sheet



### Description

This Precision Optical Performance Oval LED is specifically designed for Full Color/Video and Passenger Information Signs. The Oval shaped radiation pattern and high luminous intensity ensure that this device is excellent for wide field of view outdoor applications where a wide viewing angle and readability in sunlight are

essential. This lamp has very smooth, matched radiation patterns ensuring consistent color mixing in full color applications, message uniformity across the viewing angle of the sign. High efficiency LED material is used in this lamp: Aluminium Indium Gallium Phosphide (AlInGaP) for Red Color. The higher performance AlInGaP II is used.

### Features

- Well defined spatial radiation pattern
- High brightness material
- Red AlInGaP 630 nm

### Benefits

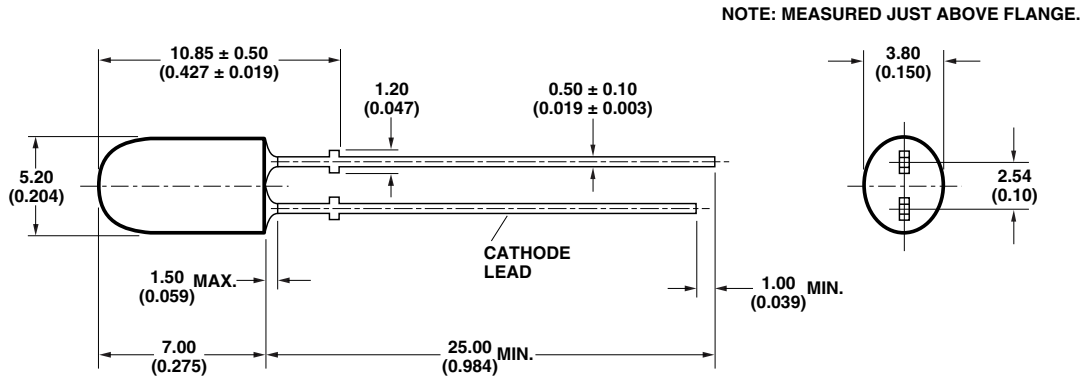
- Viewing angle designed for wide field of view applications
- Superior performance for outdoor environments

### Applications

- Full color signs
- Commercial outdoor advertising



## Package Dimensions



- NOTES:  
 1. DIMENSIONS IN MILLIMETERS (INCHES).  
 2. TOLERANCE ± 0.25 mm UNLESS OTHERWISE NOTED.

## Device Selection Guide

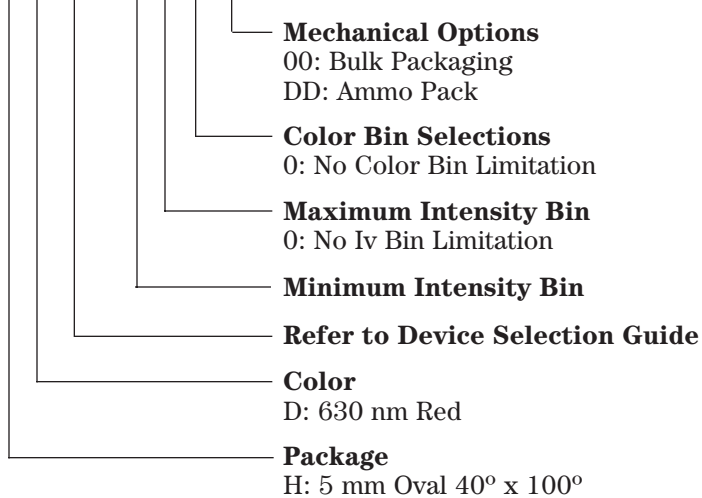
Part Number	Color and Dominant Wavelength $\lambda_d$ (nm) Typ.	Luminous Intensity $I_v$ (mcd) at 20 mA Min.	Luminous Intensity $I_v$ (mcd) at 20 mA Max.	Tinting Type
HLMP-HD57-NR000	Red 630	590	2200	Red

**Notes:**

- The luminous intensity is measured on the mechanical axis of the lamp package.
- The optical axis is closely aligned with the package mechanical axis.
- The dominant wavelength,  $\lambda_d$ , is derived from the Chromaticity Diagram and represents the color of the lamp.

## Part Numbering System

HLMP - X X XX - X X X XX



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

Parameter	Value
DC Forward Current <sup>[1]</sup>	50 mA
Peak Pulsed Forward Current	100 mA
Average Forward Current	30 mA
Power Dissipation	140 mW
Reverse Voltage	5 V ( $I_R = 100 \mu\text{A}$ )
LED Junction Temperature	130°C
Operating Temperature Range	-40°C to +100°C
Storage Temperature Range	-40°C to +120°C
Wave Soldering Temperature	250°C for 3 secs

**Note:**

1. Derate linearly as shown in Figure 3.

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

Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Forward Voltage	$V_F$		2.2	2.4	V	$I_F = 20 \text{ mA}$
Reverse Voltage	$V_R$	5	20			$I_R = 100 \mu\text{A}$
Capacitance	C		40		pF	$V_F = 0, f = 1 \text{ MHz}$
Thermal Resistance	$R\theta_{J-PIN}$		240		°C/W	LED Junction-to-Cathode Lead
Viewing Angle						
Major Axis	$2\theta_{1/2}$		100		deg	
Minor Axis			40			
Dominant Wavelength	$\lambda_d$		630		nm	$I_F = 20 \text{ mA}$
Peak Wavelength	$\lambda_p$		639		nm	Peak of Wavelength of Spectral Distribution at $I_F = 20 \text{ mA}$
Spectral Halfwidth	$\Delta\lambda_{1/2}$		17		nm	Wavelength Width at Spectral Distribution Power Point at $I_F = 20 \text{ mA}$
Luminous Efficacy	$\eta_v$		155		lm/W	Emitted luminous power/Emitted radiant power

**Notes:**

- $2\theta_{1/2}$  is the off-axis angle where the luminous intensity is 1/2 the on axis intensity.
- 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.

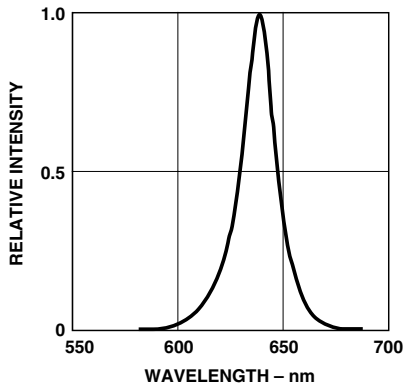


Figure 1. Relative intensity vs. wavelength.

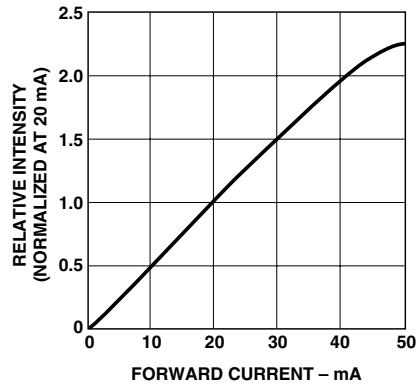


Figure 2. Relative luminous intensity vs. forward current.

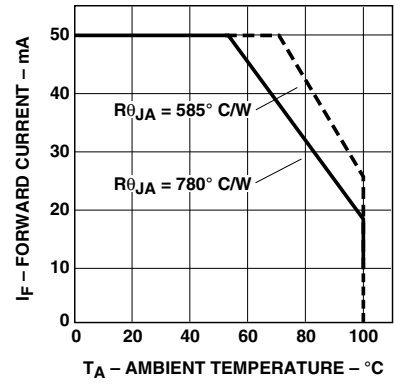


Figure 3. Forward current vs. ambient temperature.

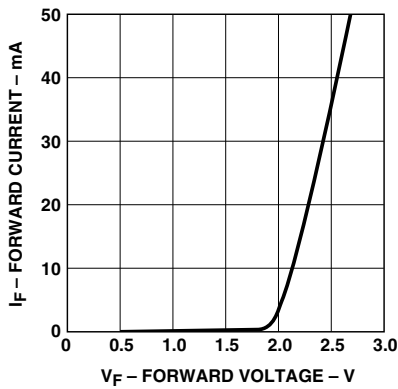


Figure 4. Forward current vs. forward voltage.

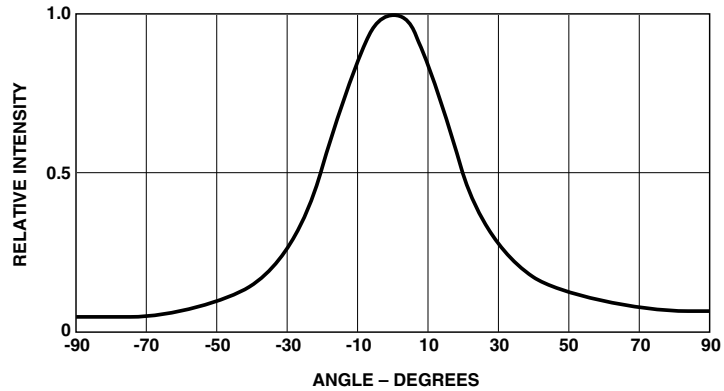


Figure 5. Spatial radiation pattern-minor axis.

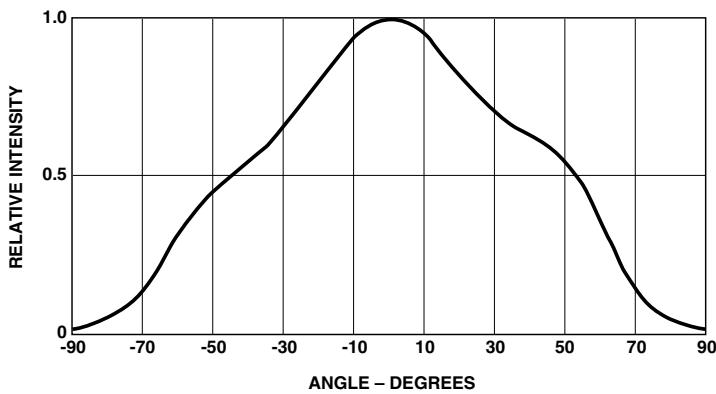


Figure 6. Spatial radiation pattern-major axis.

**Intensity Bin Limits (mcd at 20 mA)**

Bin Name	Min.	Max.
M	520	680
N	680	880
P	880	1150
Q	1150	1500
R	1500	1900

Tolerance will be  $\pm 15\%$  of these limits.

**Note:**

1. Bin categories are established for classification of products. Products may not be available in all bin categories.

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Obsoletes 5988-4074EN

July 14, 2004

5988-7293EN



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