

# HLMP-EJ37-R0PDD

T-1 3/4 (5mm) Precision Optical Performance

AllnGaP LED Lamp



## Data Sheet

### Description

This Precision Optical Performance AllnGaP LED provide superior light output for excellent readability in sunlight and are extremely reliable. AllnGaP LED technology provides extremely stable light output over long periods of time. Precision Optical Performance lamps utilize the Aluminium Indium Gallium Phosphide (AllnGaP) technology.

This LED lamp is orange tinted, nondiffused, T-1 3/4 package incorporating second generation optics producing well defined spatial radiation at specific viewing cone angle. This lamp is made with an advanced optical grade epoxy, offering superior high temperature and high moisture resistance performance in outdoor signal and sign applications.

The high maximum LED junction temperature limit of +130°C enables high temperature operation in bright sunlight conditions. The package epoxy contains both uv-a and uv-b inhibitors to reduce the effects of long term exposure to direct sunlight.

### Features

- Well defined Spatial radiation Patterns
- High Luminous Output
- AllnGaP Orange
- High Operating Temperature:  $T_{JLED} = +130^{\circ}\text{C}$
- Superior Resistance to moisture

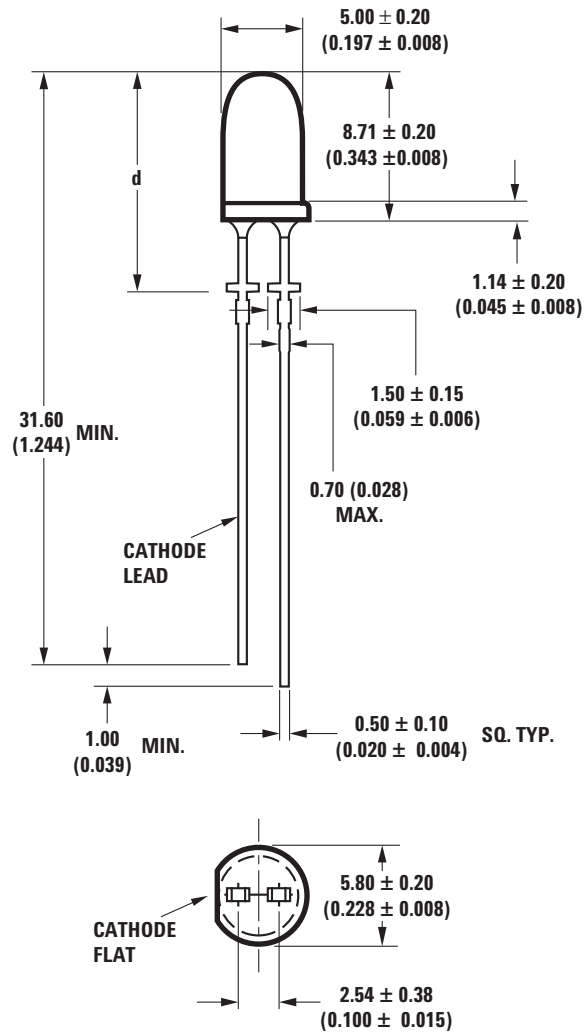
### Applications

- Comercial Outdoor Advertising:
  - Signs
  - Marquees
- Variable Message Sign

### Benefits

- Superior Light Output performance In Outdoor Environments
- Suitable for Auto-insertion into PC Boards

## Package Dimensions



### Notes :

1. All dimensions are in millimetres (inches).
2. Leads are mild steel, solder dipped.
3. Tapers shown at top of leads (bottom of lamp package) indicate an epoxy meniscus that may extend about 1mm (0.040in.) down the leads.
4. Recommended PC board hole diameters = 0.965/0.889 (0.038/0.035)
5. For dome heights above lead standoff seating plane,  $d = 11.96 \pm 0.25$  ( $0.471 \pm 0.010$ ).

## Device Selection Guide

| Part Number     | Dominant Wavelength Range (nm) | Luminous Intensity, Min (mcd at 20mA) |
|-----------------|--------------------------------|---------------------------------------|
| HLMP-EJ37-R0PDD | 605.5 -612.5                   | 1500                                  |

Tolerance for luminous intensity is  $\pm 15\%$ .  
Tolerance for color bin limit is  $\pm 0.5$  nm

### Notes:

1. The luminous intensity is measured on the mechanical axis of the lamp package.
3. The optical axis is closely aligned with the package mechanical axis.
4. The dominant wavelength,  $\lambda_d$ , is derived from the CIE Chromaticity Diagram and represents the color of the lamp.
5.  $\theta_{1/2}$  is the off axis angle where the luminous intensity is one half the on-axis intensity.

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

| Parameters                                 | Value               |
|--|---------------------|
| DC forward current <sup>[1]</sup>          | 50 mA               |
| Peak pulsed forward current <sup>[2]</sup> | 100 mA              |
| Average forward current                    | 30 mA               |
| Reverse voltage ( $I_r = 100$ mA)          | 5 V                 |
| LED junction temperature                   | 130°C               |
| Power Dissipation                          | 120mW               |
| Operating temperature                      | -40°C to +100°C     |
| Storage temperature                        | -40°C to +120°C     |
| Through the wave soldering temperature     | 250°C for 3 seconds |

### Note:

1. Derate linearly as shown in figure 4.
2. For long terms performance with minimum light output degradation, drive currents between 10mA and 30 mA are recommended. For more information on recommended drive condition, please refer to Application Brief I-024.
3. Operating at current below 1mA is not recommended. Please contact your local representative for further information.

### Electrical and Optical Characteristics (T<sub>A</sub>=25°C)

| Parameters         | Min | Typ  | Max  | Unit | Test Condition  |
|--------------------|-----|------|------|------|---|
| Forward voltage    |     | 1.98 | 2.40 | V    | I <sub>F</sub> = 20 mA  |
| Reverse voltage    | 5   | 20   |      | V    | I <sub>R</sub> = 100 μA   |
| Peak Wavelength    |     | 609  |      | nm   | Peak wavelength of spectral distribution at I <sub>F</sub> = 20 mA                |
| Spectral Halfwidth |     | 17   |      | nm   | Wavelength width at spectral distribution ½ power point at I <sub>F</sub> = 20 mA |
| Speed of Response  |     | 20   |      | ns   | Exponential time constant   |
| Capacitance        |     | 40   |      | pF   | V <sub>F</sub> =0, f=1 MHz  |
| Thermal Resistance |     | 240  |      | °C/W | LED Junction to cathode   |

Notes:

- The radiant intensity, I<sub>e</sub> in watts per steradian, may be found from the equation  $I_e = I_v/h\nu$  where I<sub>v</sub> is the luminous intensity in candelas and hν is the luminous efficacy in lumens/watt.

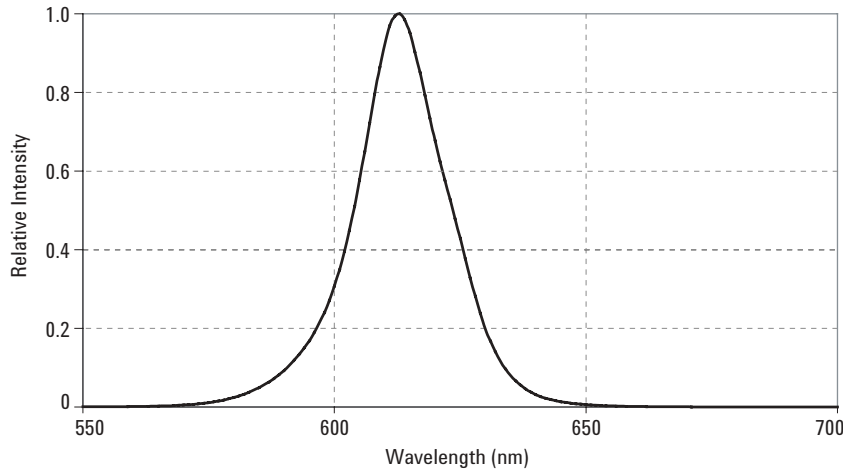


Figure 1. Relative Intensity vs. Peak Wavelength

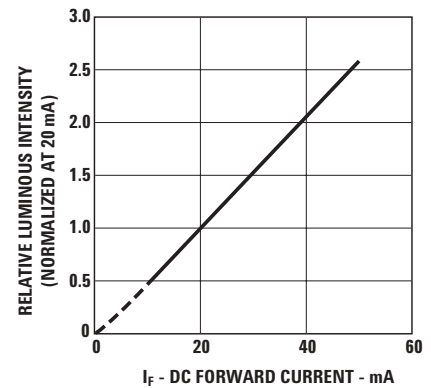


Figure 3. Relative Luminous Intensity vs. Forward Current

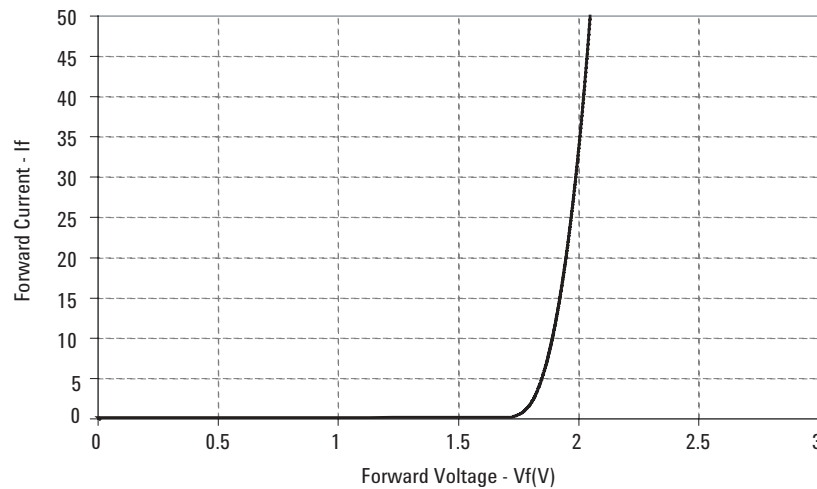


Figure 2. Forward Current vs. Forward Voltage

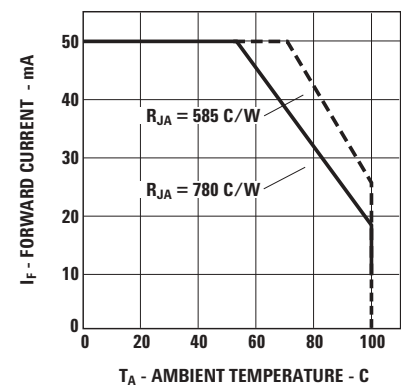


Figure 4. Maximum Forward Current vs. Ambient Temperature.

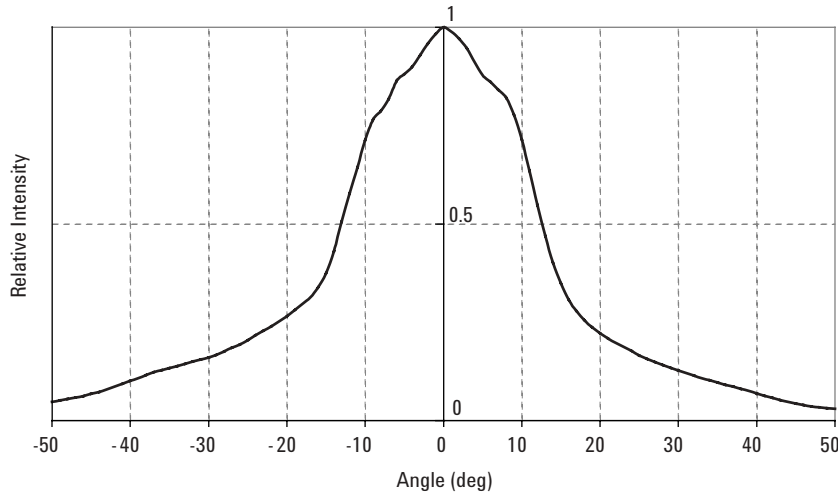


Figure 5. Spatial Radiation pattern

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

| Bin Name | Min. | Max. |
|----------|------|------|
| R        | 1500 | 1900 |
| S        | 1900 | 2500 |
| T        | 2500 | 3200 |
| U        | 3200 | 4200 |
| V        | 4200 | 5500 |

Tolerance for each bin limits is  $\pm 15\%$

**Color Bin Limits  
(nm at 20 mA)**

| Bin Name | Min.  | Max.  |
|----------|-------|-------|
| CA       | 605.5 | 609   |
| CB       | 609   | 612.5 |

Tolerance for each bin limits is  $\pm 0.5\text{nm}$

Note:

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

For product information and a complete list of distributors, please go to our web site: [www.avagotech.com](http://www.avagotech.com)

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#### Как с нами связаться

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