

# HLMA-SH05

2 mm x 5 mm Rectangular

AlInGaP Lamps



## Data Sheet



### Description

The HLMA-SH05 is an epoxy encapsulated lamp in rectangular package which are easily stacked in arrays or used for discrete front panel indicators. Contrast and light uniformity are enhanced by a special epoxy diffusion and tinting process.

### Technology

This 2x5 rectangular solid state lamp utilizes the newly developed Aluminum Indium Gallium Phosphide (AlInGaP) LED technology. This material has a very high luminous efficiency, capable of producing high light output over a wide range of drive currents.

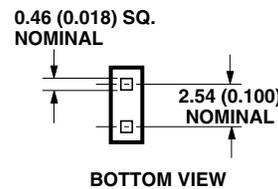
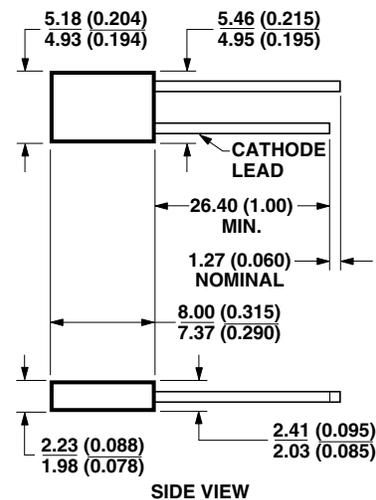
### Device Selection Guide

Package Description	Viewing Angle $2\theta_{1/2}$	Dominant Wavelength
Rectangular, 2mm x 5 mm, Tinted, Diffused	110	615 nm

### Features

- Rectangular light emitting surface
- Excellent for flush mounting on panels
- Long life: solid state reliability
- Excellent uniformity of light output

### Package Dimensions



### NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS (INCHES).
2. AN EPOXY MENISCUS MAY EXTEND ABOUT 1 mm (0.040") DOWN THE LEADS.
3. THERE IS A MAXIMUM 1° TAPER FROM BASE TO THE TOP OF LAMP.

## Absolute Maximum Ratings

<b>DC Forward Current<sup>[1]</sup></b>	<b>50 mA</b>
Peak Forward Current <sup>[2]</sup>	200 mA
Average Forward Current (at $I_{PEAK} = 200 \text{ mA}$ , $f \geq 1 \text{ KHz}$ ) <sup>[2]</sup>	45 mA
Transient Forward Current <sup>[3]</sup> (10 $\mu\text{s}$ Pulse)	500 mA
Reverse Voltage ( $I_R = 100 \mu\text{A}$ )	5 V
LED Junction Temperature	110°C
Operating Temperature Range	-40 to +100°C
Storage Temperature Range	-40 to +100°C
Wave Soldering Temperature (1.59 mm [0.063 in] below Body)	250°C for 3 seconds
Solder Dipping Temperature (1.59 mm [0.063 in] below Body)	260°C for 5 seconds

Notes:

1. Derate linearly as shown in Figure 4.
2. Refer to Figure 5 to establish pulsed operating conditions.
3. The transient peak current is the maximum non-recurring peak current the device can withstand without damaging the LED die and wire bonds.

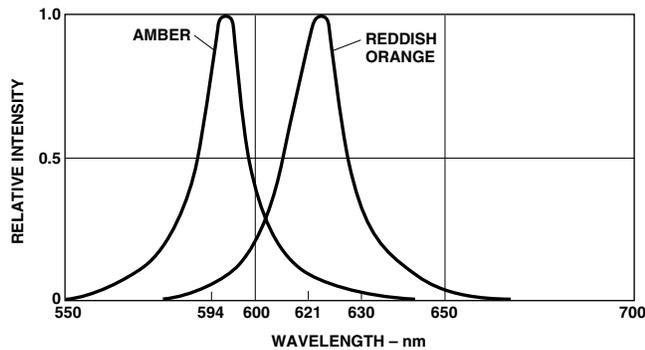


Figure 1. Relative intensity vs. wavelength.

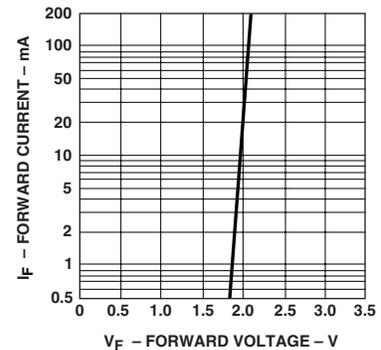


Figure 2. Forward current vs. forward voltage.

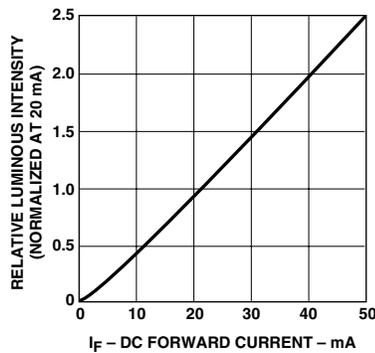


Figure 3. Relative luminous intensity vs. forward current.

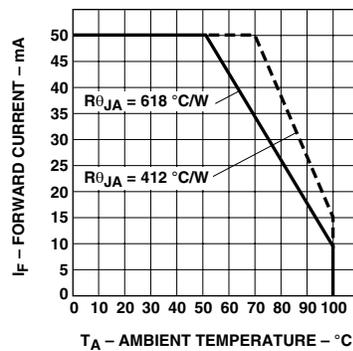


Figure 4. Maximum forward current vs. ambient temperature. Derating based on  $T_{Max} = 110^\circ\text{C}$ .

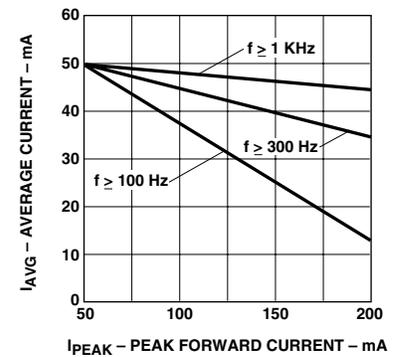


Figure 5. Maximum average current vs. peak forward current.

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

Part Number	Luminous Intensity IV (mcd) @ 20 mA		Peak Wavelength $\lambda_{\text{peak}}$ (nm) Typ.	Color, Dominant Wavelength $\lambda_d^{[1]}$ (nm) Typ.	Viewing Angle $2\theta_{1/2}$ Degrees <sup>[2]</sup> Typ.	Luminous Efficacy $\eta_v$ (lm/w)
	Min.	Typ.				
SH05	8	20	621	615	110	263

Notes:

1. The dominant wavelength,  $\lambda_d$ , is derived from the CIE Chromaticity Diagram and represents the color of the device.
2.  $\theta_{1/2}$  is the off-axis angle where the luminous intensity is 1/2 the peak intensity.

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

Part Number	Forward Voltage $V_F$ (Volts) @ $I_F = 20\text{ mA}$		Reverse Breakdown $V_R$ (Volts) @ $I_R = 100\ \mu\text{A}$		Capacitance C (pF) $V_F = 0$ , $f = 1\text{ MHz}$ Typ.	Thermal Resistance $R\theta_{J-PIN}$ ( $^\circ\text{C}/\text{W}$ )	Speed of Response $\tau_s$ (ns) Time Constant $e^{-t/\tau_s}$ Typ.
	Min.	Typ.	Min.	Typ.			
SH05	1.9	2.4	5	20	40	260	13

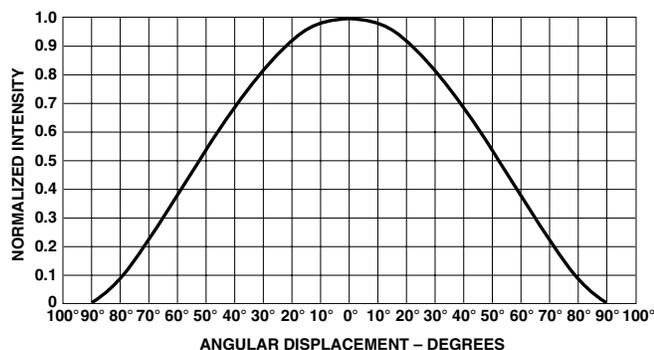


Figure 6.

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

Avago, Avago Technologies, and the A logo are trademarks of Avago Technologies in the United States and other countries. Data subject to change. Copyright © 2005-2008 Avago Technologies. All rights reserved. AV02-1553EN - September 25, 2008

**AVAGO**  
TECHNOLOGIES