HEWLETT PACKARD

T-1 3/4 (5 mm) AlInGaP Lamps

Technical Data

HLMP-Cx08 Series
HLMP-Cx25 Series

Features

- **High Intensity**
- **General Purpose Leads**
- **Popular 5 mm Diameter**
- **Available in Bulk, Tape and Reel, or Ammopack**
- **8° or 25° Viewing Angles**
- **Choice of Colors: Amber or Red**

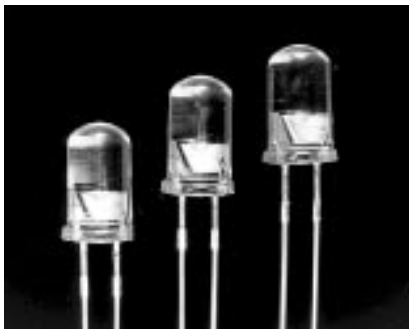
Applications

- **Indoor/Outdoor Applications**
- **Small Store-front Signs**
- **Message Panels**
- **Road Construction Barrier Lights**
- **Center High Mount Stop Lights**
- **Spoiler, Car Decorative Lighting**
- **Motorcycle/Bicycle Warning Lights**

Description

The HLMP-Cx08 and HLMP-Cx25 series are 5 mm lamps specially designed for applications requiring very high on-axis intensity that is not achievable with a standard lamp. These devices are capable of producing light output over a wide range of drive currents.

Built using AlInGaP technology, they are well suited for typical 5 mm TS-AlGaAs lamp applications, and have significantly



SUPERIOR RELIABILITY than most TS-AlGaAs lamps in wet/hot environments. These lamps come with clear non-diffused lens and are optically designed to yield superior light output.

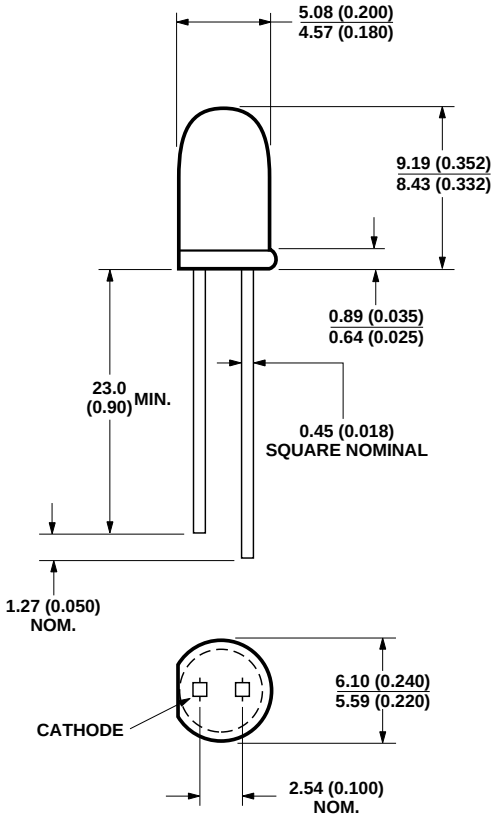
Device Selection

Part Number	Typical Viewing Angle[1] (degrees), $2\theta_{1/2}$ Typ.	Luminous Intensity, Iv (mcd) @ 20 mA Min.	Typ.	Color	Dominant Wavelength[2]
HLMP-C008-U0000	8	2900	6000	Red	626
HLMP-C208-S0000	8	2600	3000	Amber	590
HLMP-C608-R0000	8	1000	2000	Red	635
HLMP-C025-P0000	25	500	1000	Red	626
HLMP-C225-O0000	25	450	800	Amber	590
HLMP-C625-P0000	25	500	700	Red	635

Notes:

1. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half of the axial luminous intensity.
2. The dominant wavelength λ_d, is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

Package Dimensions



NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS (INCHES).
2. AN EPOXY MENISCUS MAY EXTEND ABOUT 1 mm (0.040") DOWN THE LEADS.

Absolute Maximum Ratings at T_A=25°C

Parameter	Absolute Maximum	Units
Peak Forward Current	70	mA
Average Forward Current[1]	30	mA
DC Current[2]	50	mA
Reverse Voltage (I_R = 100 μA)	5	V
LED Junction Temperature	110	°C
Operating Temperature	-40 to +100	°C
Storage Temperature	-40 to +100	
Lead Soldering Temperature [1.59 mm (0.060 in.) below seating plane]	260°C for 5 seconds	

Notes:
1. See Figure 2 to establish pulsed operating conditions.
2. Derate linearly from 50°C at 0.5 mA/°C.
3. The transient peak current is the maximum non-recurring peak current that can be applied to the device without damaging the LED die and wirebond. It is not recommended that this device be operated at peak currents above the Absolute Maximum Peak Forward Current.

Optical/Electrical Characteristics at T_A=25°C

Symbol	Parameter	Device HLMP-	Min.	Typ.[3]	Max.	Units	Test Conditions
I_v	Luminous Intensity	C008-U0000	2900	6000		mcd	I_F=20 mA
		C208-S0000	2600	3000			
		C608-R0000	1000	2000			
		C025-P0000	500	1000			
		C225-O0000	450	800			
		C625-P0000	500	700			
$2\theta^1/_2$	Included Angle Between Half Luminous Intensity Points[1]	C008-U0000		8		Deg.	I_F=20 mA See Note 1
		C208-S0000		8			
		C608-R0000		8			
		C025-P0000		25			
		C225-O0000		25			
		C625-P0000		25			
λ_d	Dominant Wavelength[2]	C008-U0000		626		nm	See Note 2
		C208-S0000		590			
		C608-R0000		635			
		C025-P0000		626			
		C225-O0000		590			
		C625-P0000		635			
λ_{PEAK}	Peak Wavelength	C008-U0000		635		nm	Measurement at Peak
		C208-S0000		594			
		C608-R0000		650			
		C025-P0000		635			
		C225-O0000		594			
		C625-P0000		650			
$\Delta\lambda^1/_2$	Spectral Line Halfwidth			17		nm	
τ_s	Speed of Response			20		ns	
C	Capacitance			40		pF	V_F = 0; f = 1 MHz
$R\theta_{J\text{-}PIN}$	Thermal Resistance			260		°C/W	Junction to Cathode Lead
V_F	Forward Voltage	C008-U0000		1.9	2.4	V	I_F = 20 mA
		C208-S0000		1.9	2.6		
		C608-R0000		1.9	2.6		
		C025-P0000		1.9	2.4		
		C225-O0000		1.9	2.6		
		C625-P0000		1.9	2.6		
V_R	Reverse Breakdown Voltage		5.0			V	I_R = 100 µA

Notes:

1. $\theta^1/_2$ is the off-axis angle at which the luminous intensity is half of the axial luminous intensity.
2. The dominant wavelength, λ_d, is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.
3. Typical specification for reference only. Do not exceed absolute maximum ratings.

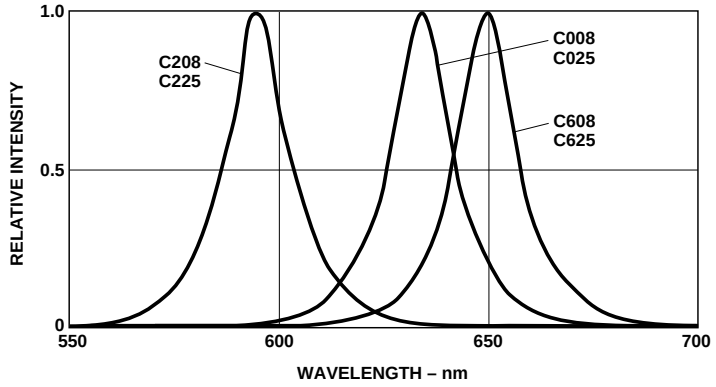


Figure 1. Relative Intensity vs. Wavelength.

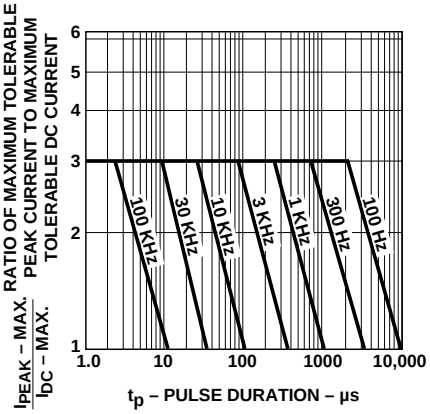


Figure 2. Maximum Tolerable Peak Current vs. Pulse Duration.

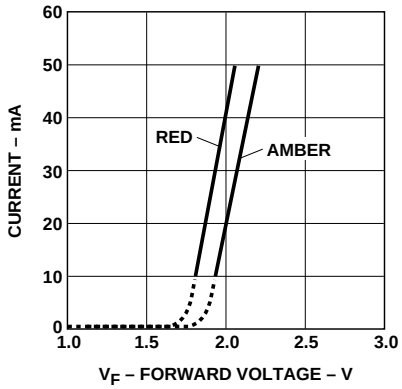


Figure 3. Forward Current vs. Forward Voltage.

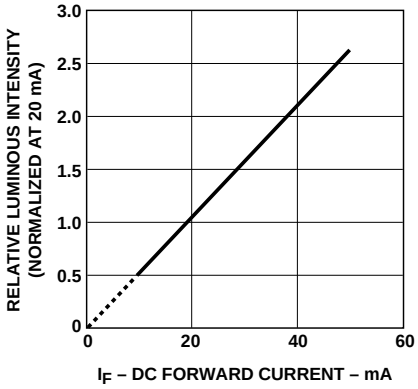


Figure 4. Relative Luminous Intensity vs. Forward Current.

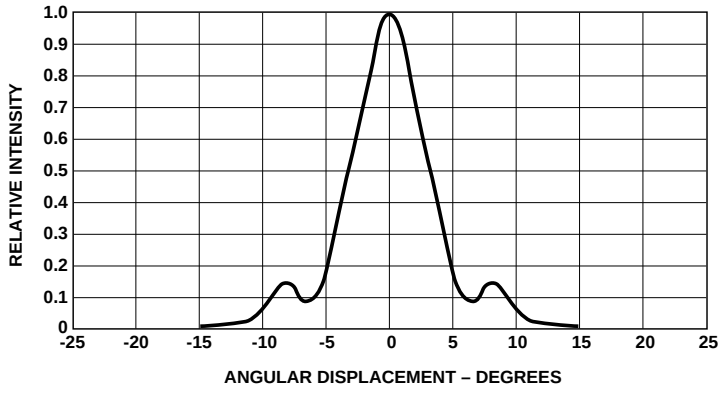


Figure 5. Relative Luminous Intensity vs. Angular Displacement for HLMP-Cx08.

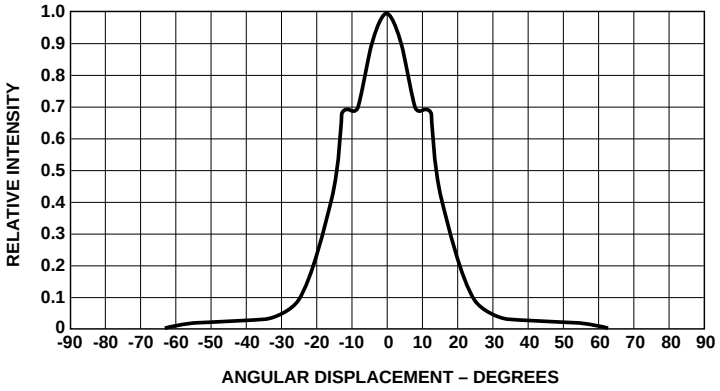


Figure 6. Relative Luminous Intensity vs. Angular Displacement for HLMP-Cx25.

Soldering/Cleaning

Cleaning agents from the ketone family (acetone, methyl ethyl ketone, etc.) and from the chlorinated hydrocarbon family (methylene chloride, trichloro-ethylene, carbon tetrachloride, etc.) are not recommended for cleaning LED parts. All of these various solvents attack or dissolve the encapsulating epoxies used to form the package of plastic LED parts.

For information on soldering LEDs please refer to Application Note 1027.

www.hp.com/go/led

For technical assistance or the location of your nearest Hewlett-Packard sales office, distributor or representative call:

Americas/Canada: 1-800-235-0312 or 408-654-8675

Far East/Australasia: Call your local HP sales office.

Japan: (81 3) 3335-8152

Europe: Call your local HP sales office.

Data subject to change.

Obsoletes 5966-4005E

5968-7196E (8/99)