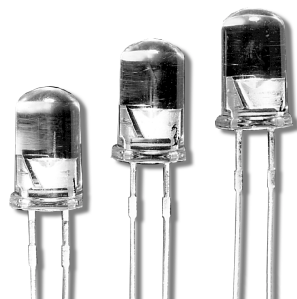
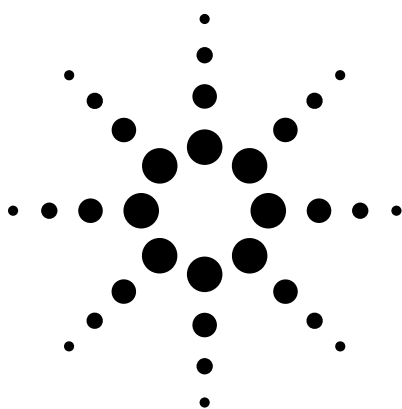


Agilent T-1³/₄ (5 mm) AlInGaP Lamps

Data Sheet



HLMP-Cx08 Series, HLMP-Cx25 Series HLMP-Cx27 Series, HLMP-C610

Description

The HLMP-Cx08, HLMP-Cx25, HLMP-Cx27, and HLMP-C610 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.

Features

- High intensity
- General purpose leads
- Popular 5 mm diameter
- Available in bulk, tape and reel, or ammpack
- 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

Device Selection

Part Number	Standoff	Typical Viewing Angle ^[1] (degrees), 2 $\theta^{1/2}$	Luminous Intensity, Iv (mcd) @ 20 mA		Color	Dominant Wavelength ^[2]
			Min.	Typ.		
HLMP-C008-U00xx	No	8	2900.0	6000.0	Red	626
HLMP-C208-S00xx		8	2600.0	3000.0	Amber	590
HLMP-C608-R00xx		8	1000.0	2000.0	Red	635
HLMP-C610-R00xx	Yes	8	1000.0	2000.0	Red	635
HLMP-C025-P00xx	No	25	500.0	1000.0	Red	626
HLMP-C225-O00xx		25	450.0	800.0	Amber	590
HLMP-C625-P00xx		25	500.0	700.0	Red	635
HLMP-C027-P00xx	Yes	25	500.0	1000.0	Red	626
HLMP-C627-P00xx		25	500.0	700.0	Red	635

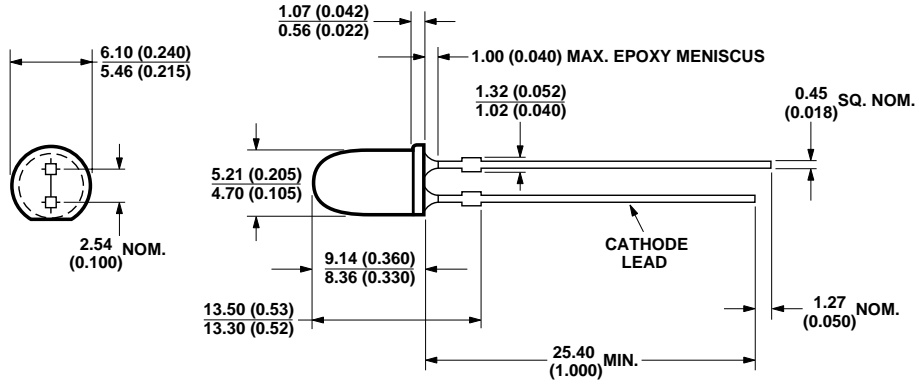
Notes:

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.

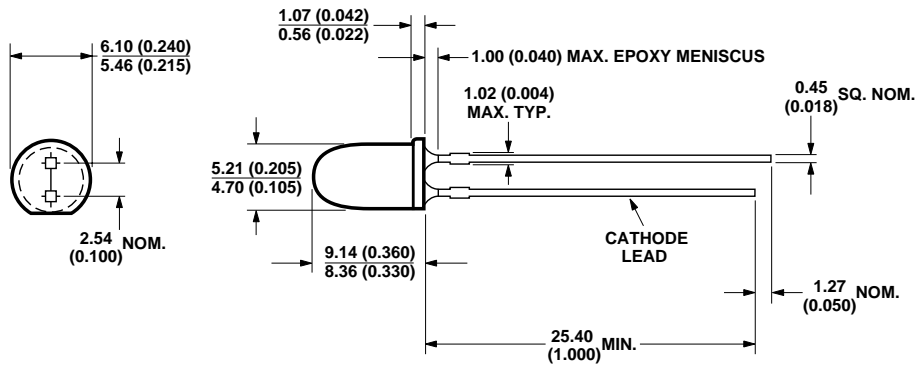


Package Dimensions

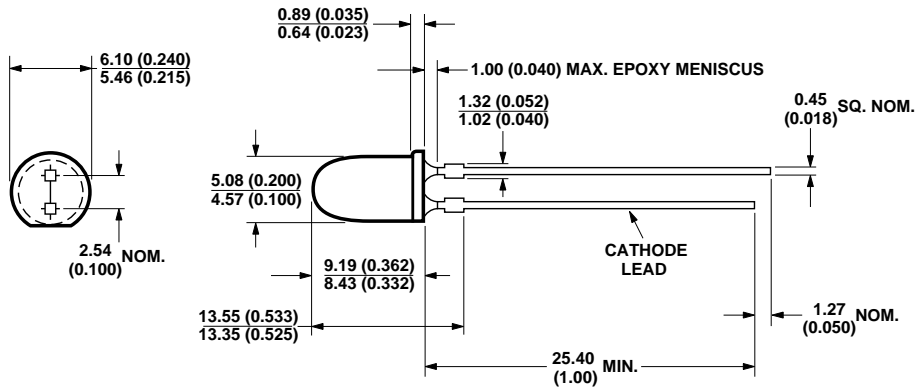
HLMP-Cx27



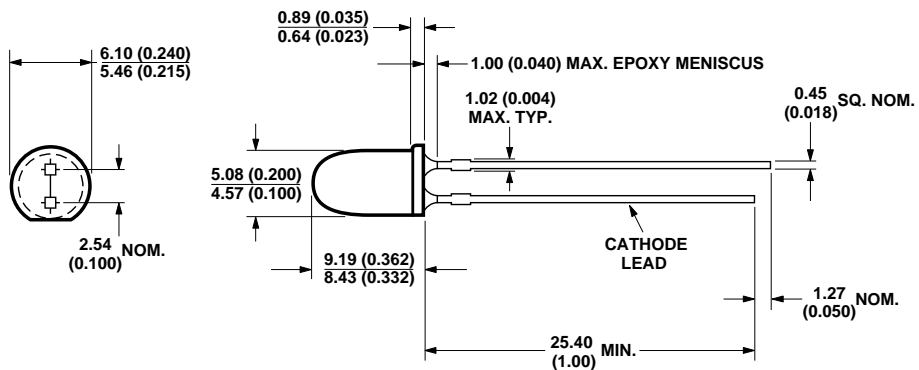
HLMP-Cx25



HLMP-C610

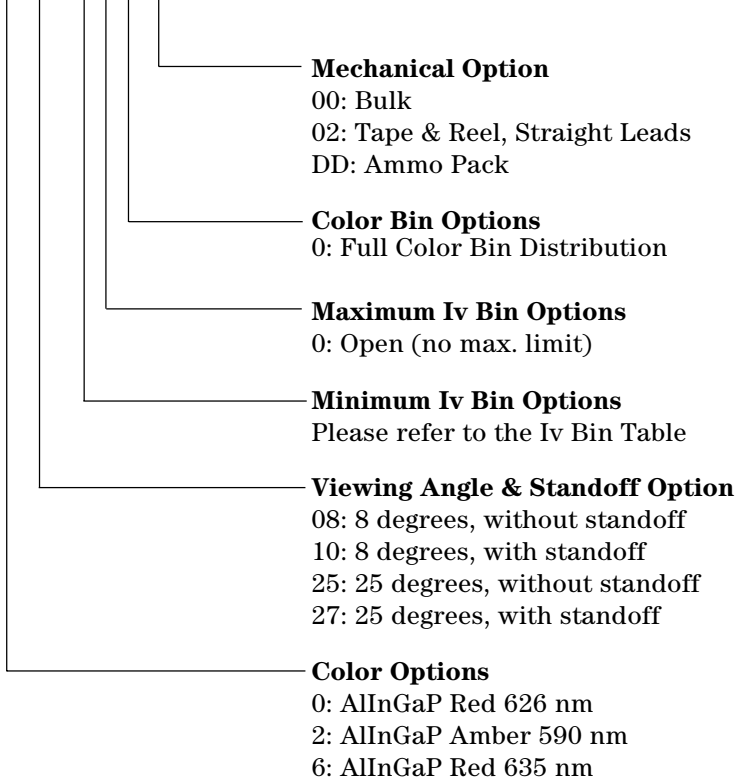


HLMP-Cx08



Part Numbering System

HLMP - C x xx - x x x xx



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

Parameter	Absolute Maximum	Units
Peak Forward Current	70	mA
Average Forward Current ^[1]	30	mA
DC Current ^[2]	50	mA
Reverse Voltage ($I_R = 100 \mu\text{A}$)	5	V
LED Junction Temperature	110	$^\circ\text{C}$
Operating Temperature	-40 to +100	$^\circ\text{C}$
Storage Temperature	-40 to +120	
Wave Soldering Temperature [1.59 mm (0.063 in.) from Body]	250 $^\circ\text{C}$ for 3 seconds	
Solder Dipping Temperature [1.59 mm (0.063 in.) from Body]	260 $^\circ\text{C}$ for 5 seconds	

Notes:

- See Figure 2 to establish pulsed operating conditions.
- Derate linearly from 50 $^\circ\text{C}$ at 0.5 mA/ $^\circ\text{C}$.
- 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	Min.	Typ.[3]	Max.	Units	Test Conditions
$2\theta^{1/2}$	Included Angle Between Half Luminous Intensity Points ^[1]	HLMP-C008		8		Deg.	I _F = 20 mA See Note 1
		HLMP-C208		8			
		HLMP-C608		8			
		HLMP-C025		25			
		HLMP-C225		25			
		HLMP-C625		25			
		HLMP-C610		8			
		HLMP-C027		25			
λ_d	Dominant Wavelength ^[2]	HLMP-C008		626		nm	See Note 2
		HLMP-C208		590			
		HLMP-C608		635			
		HLMP-C025		626			
		HLMP-C225		590			
		HLMP-C625		635			
		HLMP-C610		635			
		HLMP-C027		626			
λ_{PEAK}	Peak Wavelength	HLMP-C008		635		nm	Measurement at Peak
		HLMP-C208		594			
		HLMP-C608		650			
		HLMP-C025		635			
		HLMP-C225		594			
		HLMP-C625		650			
		HLMP-C610		650			
		HLMP-C027		635			
$\Delta\lambda^{1/2}$	Spectral Line Halfwidth			17		nm	
τ_s	Speed of Response			20		ns	
C	Capacitance			40		pF	V _F = 0; f = 1 MHz
R θ_{J-PIN}	Thermal Resistance			260		°C/W	Junction to Cathode Lead
V _F	Forward Voltage	HLMP-C008		1.9	2.4	V	I _F = 20 mA
		HLMP-C208		1.9	2.6		
		HLMP-C608		1.9	2.2		
		HLMP-C025		1.9	2.4		
		HLMP-C225		1.9	2.6		
		HLMP-C625		1.9	2.2		
		HLMP-C610		1.9	2.2		
		HLMP-C027		1.9	2.4		
V _R	Reverse Breakdown Voltage			5.0		V	I _R = 100 μ A

Notes:

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

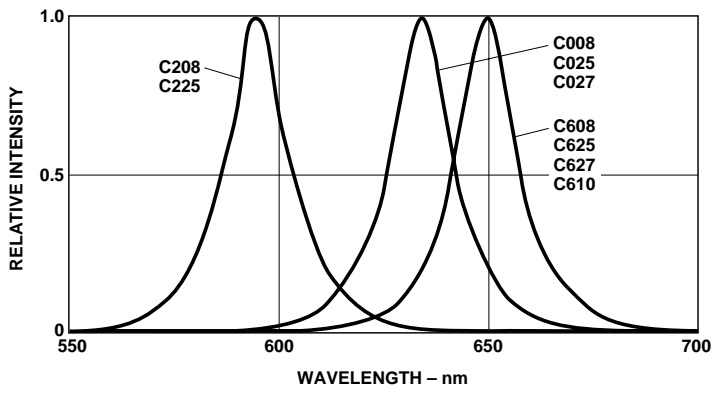


Figure 1. Relative intensity vs. wavelength.

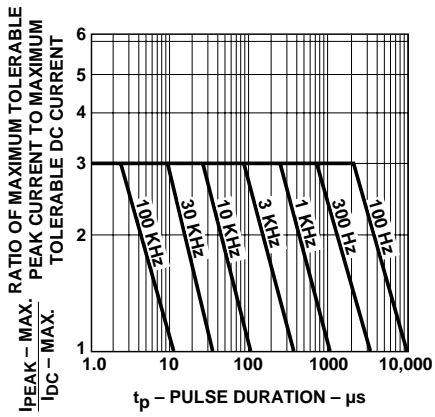


Figure 2. Maximum tolerable peak current vs. pulse duration.

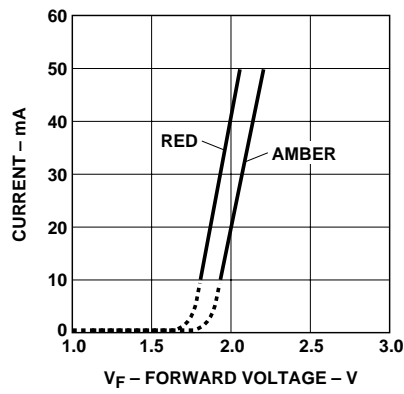


Figure 3. Forward current vs. forward voltage.

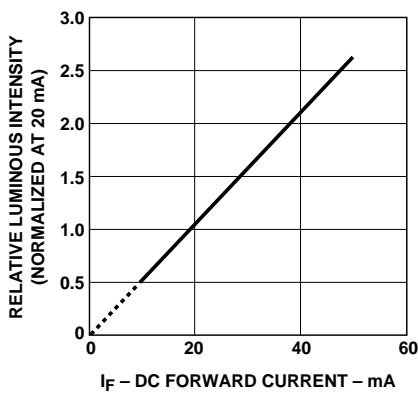


Figure 4. Relative luminous intensity vs. forward current.

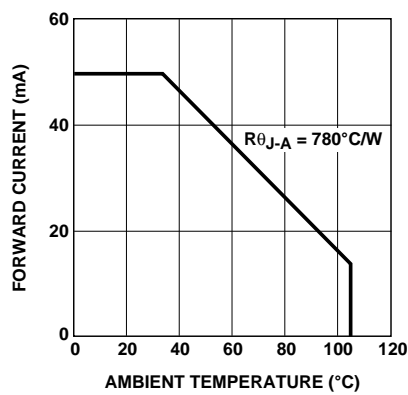


Figure 5. Maximum forward DC current vs. ambient temperature.

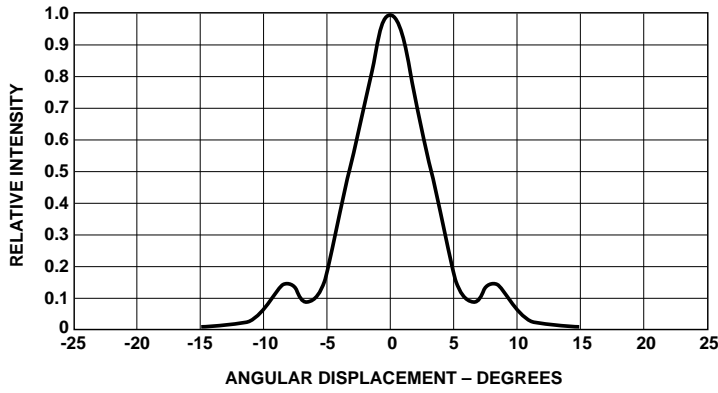


Figure 6. Relative luminous intensity vs. angular displacement for HLMP-Cx08 and HLMP-Cx10.

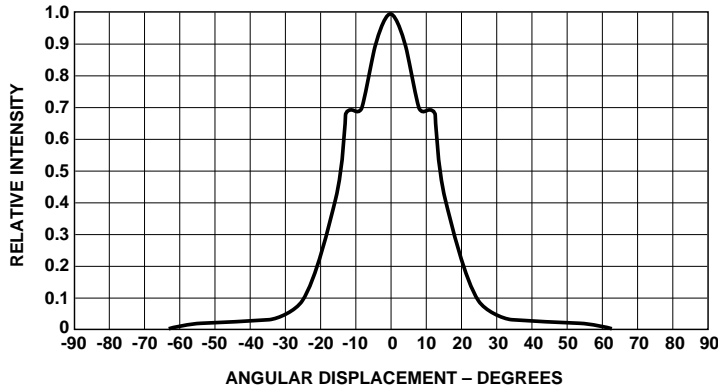


Figure 7. Relative luminous intensity vs. angular displacement for HLMP-Cx25 and HLMP-Cx27.

Soldering/Cleaning

Cleaning agents from the ketone family (acetone, methyl ethyl ketone, etc.) and from the chlorinated hydrocarbon family (methylene chloride, trichloroethylene, 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.

Intensity Bin Limits

Color	Bin	Intensity Range (mcd)	
		Min.	Max.
Red	P	540.0	850.0
	Q	850.0	1200.0
	R	1200.0	1700.0
	S	1700.0	2400.0
	T	2400.0	3400.0
	U	3400.0	4900.0
	V	4900.0	7100.0
	W	7100.0	10200.0
	X	10200.0	14800.0
	Y	14800.0	21400.0
	Z	21400.0	30900.0
Yellow	O	510.0	800.0
	P	800.0	1250.0
	Q	1250.0	1800.0
	R	1800.0	2900.0
	S	2900.0	4700.0
	T	4700.0	7200.0
	U	7200.0	11700.0
	V	11700.0	18000.0
W	18000.0	27000.0	

Maximum tolerance for each bin limit is $\pm 18\%$.

Color Categories

Color	Category #	Lambda (nm)	
		Min.	Max.
Amber	3	584.5	587.0
	2	587.0	589.5
	4	589.5	592.0
	6	592.0	594.5
	7	594.5	597.0

Tolerance for each bin limit is ± 0.5 nm.

Mechanical Option Matrix

Mechanical Option Code	Definition
00	Bulk Packaging, minimum increment 500 pcs/bag
02	Tape & Reel, straight leads, minimum increment 1300 pcs/bag
DD	Ammo Pack, straight leads with minimum increment 2K/pack

Note:

All categories are established for classification of products. Products may not be available in all categories. Please contact your local Agilent representative for further clarification/information.

www.agilent.com/semiconductors

For product information and a complete list of distributors, please go to our web site.

For technical assistance call:

Americas/Canada: +1 (800) 235-0312 or (916) 788-6763

Europe: +49 (0) 6441 92460

China: 10800 650 0017

Hong Kong: (+65) 6756 2394

India, Australia, New Zealand: (+65) 6755 1939

Japan: (+81 3) 3335-8152(Domestic/International), or 0120-61-1280(Domestic Only)

Korea: (+65) 6755 1989

Singapore, Malaysia, Vietnam, Thailand, Philippines, Indonesia: (+65) 6755 2044

Taiwan: (+65) 6755 1843

Data subject to change.

Copyright © 2003-2005 Agilent Technologies, Inc.

Obsoletes 5988-9482EN

June 6, 2005

5989-3262EN



Agilent Technologies