Agilent HLMP-CW18, HLMP-CW19, HLMP-CW28, HLMP-CW29, HLMP-CW38, HLMP-CW39. T-1 3/4 Precision Optical Performance White LED

Data Sheet

Description

These Super Bright Precision Optical Performance LED lamps are based on flip chip InGaN material, which is the brightest and most efficient technology for LEDs. A blue LED die is coated with phosphor to produce white.

These T-1 3/4 lamps incorporate precise optics which produce well-defined spatial radiation patterns at specific viewing cone angle.

Benefit

- **Reduced Power Consumption, Higher Reliability, and Increased Optical/Mechanical Design Flexibility Compared to Incandescent Bulbs and Other Alternative White Light Sources**

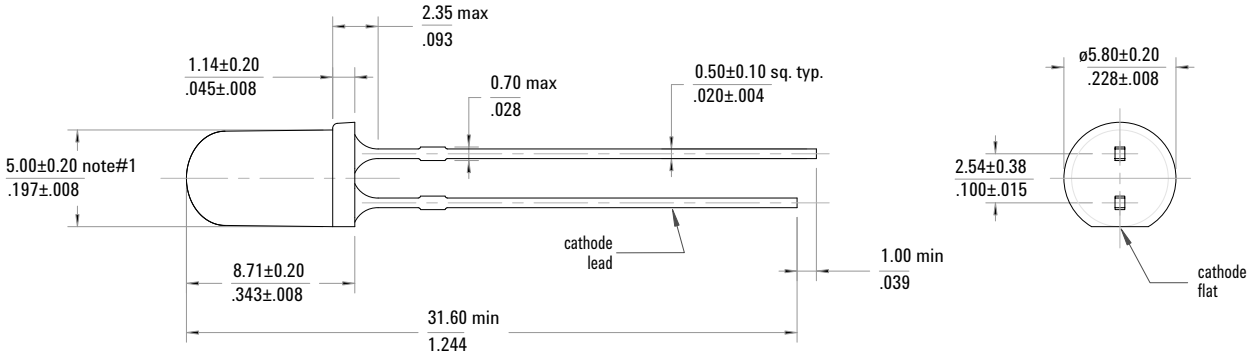
Features

- **Highly Luminous White Emission**
- **15 º, 23 º, and 30º viewing angle**
- **New InGaN flip chip die technology with protective diode.**
- **ESD class 3**

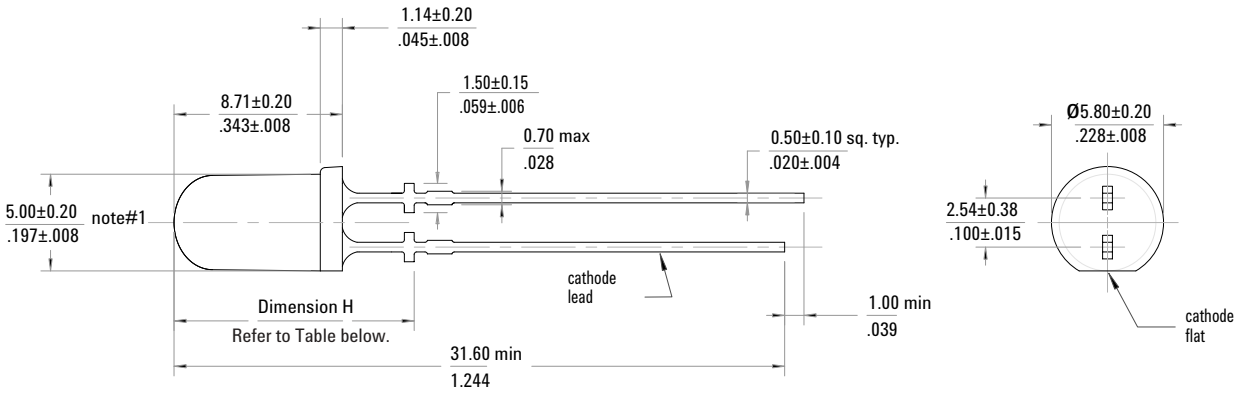
Applications

- **Electronic Signs and Signals**
- **Small Area Illumination**
- **Legend Backlighting**
- **General Purpose Indicators**

Package Dimension A



Package Dimension B



Dimension H:

23 & 30 Degree = 12.67 +/- 0.25 mm (0.499 +/- 0.01 inch)

15 Degree = 12.93 +/- 0.25 mm (0.509 +/- 0.01 inch)

Notes :

1. Measured just above flange.
2. All dimensions are in milimetres /inches.
3. Epoxy meniscus may extend about 1mm (0.040") down the leads.

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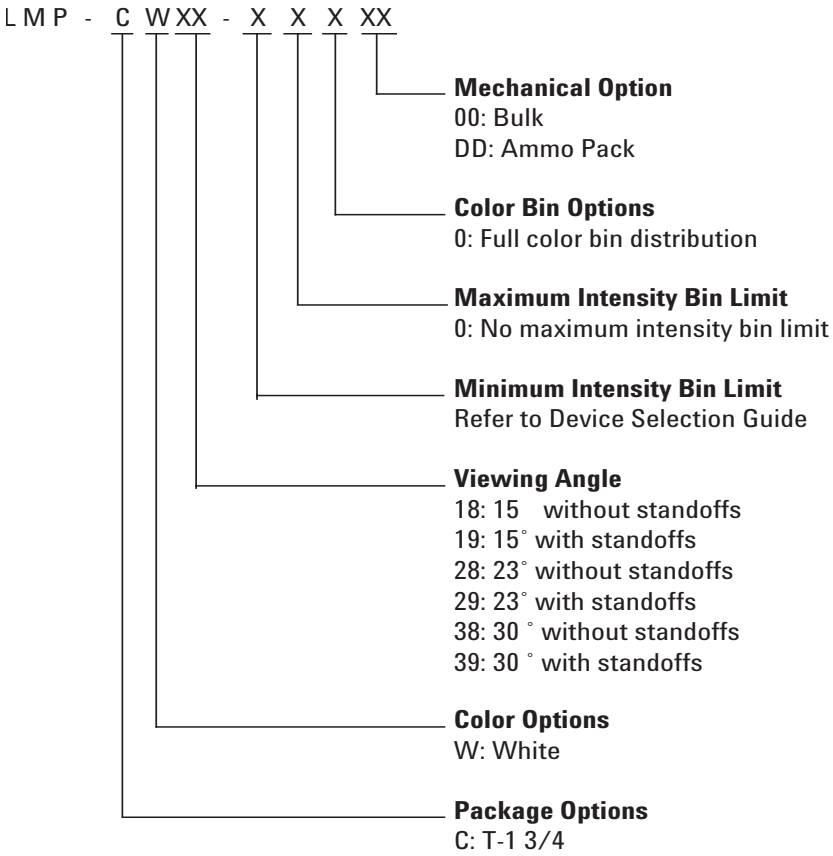
Device Selection Guide

Part Number	Typ. Viewing Angle	Iv (cd) @ 20mA		Standoff Leads	Package Dimension
		Min.	Typ.		
HLMP-CW18-VY0xx	15°	4.20	6.40	No	A
HLMP-CW19-VY0xx	15°	4.20	6.40	Yes	B
HLMP-CW28-TW0xx	23°	2.50	3.80	No	A
HLMP-CW29-TW0xx	23°	2.50	3.80	Yes	B
HLMP-CW38-SV0xx	30°	1.90	3.00	No	A
HLMP-CW39-SV0xx	30°	1.90	3.00	Yes	B

Notes:

1. Tolerance for luminous intensity measurement is +/- 15%
2. 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. LED light output is bright enough to cause injuries to the eyes. Precautions must be taken to prevent looking directly at the LED without proper safety equipment.

Part Numbering System



Absolute Maximum Ratings (T_A = 25°C)

Parameter	Value	Units
DC Forward Current [1]	30	mA
Peak Forward Current [2]	100	mA
Average Forward Current	30	mA
Power Dissipation	120	mW
LED Junction Temperature	130	°C
Operating Temperature Range	-40 to +85	°C
Storage Temperature Range	-40 to +100	°C
Wave Solder Temperature [3]	250 for 3 secs	°C
Solder Dipping Temperature [3]	260 for 5secs	°C

Notes:

1. Derate linearly as shown in Figure 4.
2. Duty Factor 30%, 1 KHz
3. 1.59 mm (0.060 inch) below body

Electrical/Optical Characteristics (T_A = 25°C)

Parameters	Symbol	Minimum	Typical	Maximum	Units	Test Condition
Forward voltage	V_F		3.4	4.0	V	I_F = 20 mA
Capacitance	C		53		pF	V_F=0, f=1 MHz
Reverse Voltage [1]	V_R		0.6		V	I_R = 10 μA
Thermal resistance	$R\theta_{J\text{-}PIN}$		240		°C/W	LED Junction to cathode lead
Viewing Angle [2]	$2\theta_{1/2}$				Degree	I_F = 20 mA
CW18/CW19			15			
CW28/CW29			23			
CW38/CW39			30			
Chromaticity Coordinate [3]	X		0.31			I_F = 20 mA
	Y		0.32			

Notes:

1. The reverse voltage of the product is equivalent to the forward voltage of the protective chip at I_R = 10 μA
2. $2\theta_{1/2}$ is the off-axis angle where the luminous intensity is ½ the on axis intensity
3. The chromaticity coordinates are derived from the CIE 1931 Chromaticity Diagram and represent the perceived color of the device.

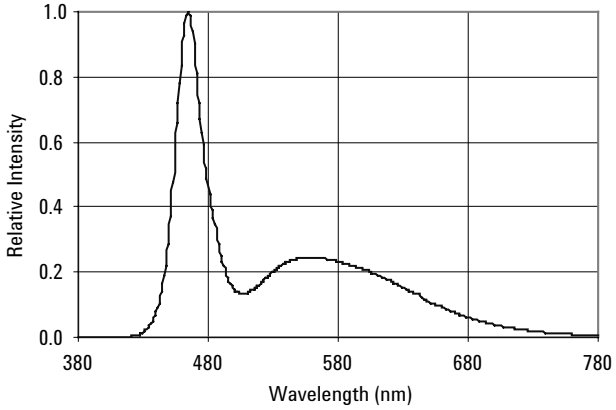


Figure 1. Relative Intensity vs Wavelength

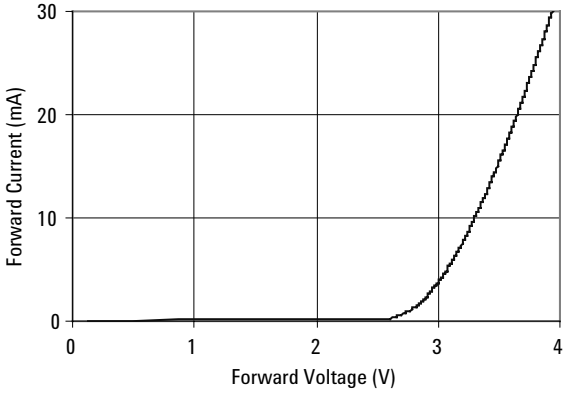


Figure 2. Forward Current vs Forward Voltage

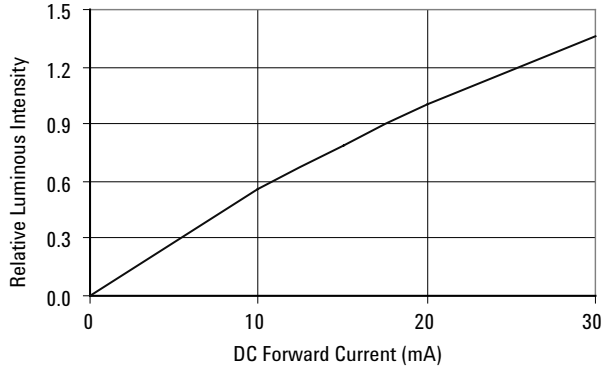


Figure 3. Relative Iv vs. Forward Current

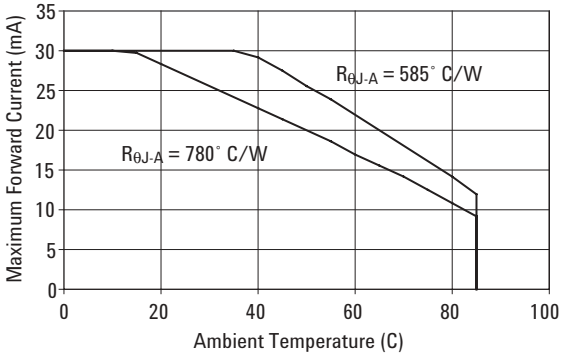


Figure 4. Maximum Fwd Current vs Temperature

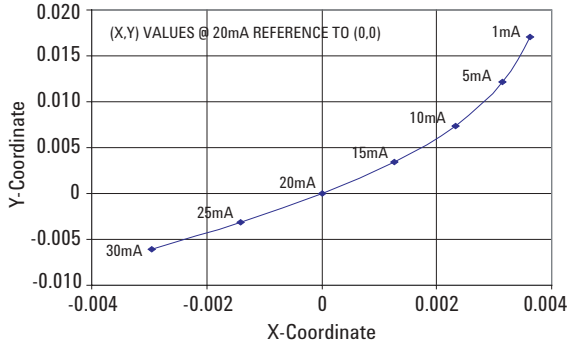


Figure 5. Chromaticity shift vs. current

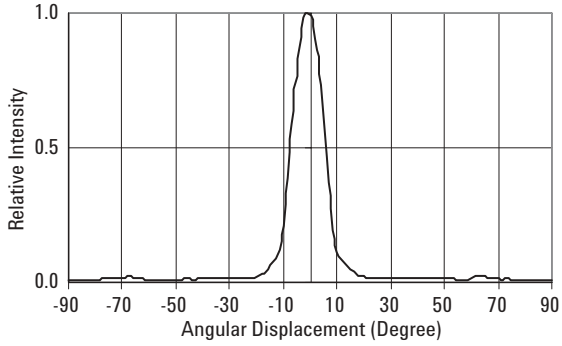


Figure 6a. CW1x Spatial Radiation Pattern

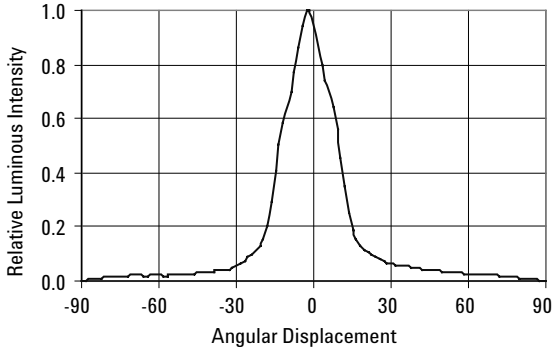


Figure 6b. CW2x Spatial Radiation Pattern

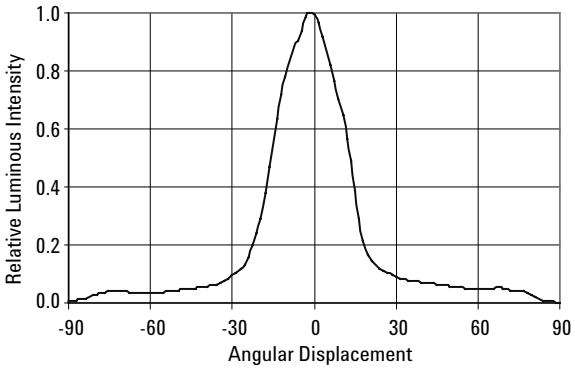


Figure 6c. CW3x Spatial Radiation Pattern

Intensity Bin Limit Table

Bin	Intensity (mcd) at 20 mA	
	Min	Max
S	1900	2500
T	2500	3200
U	3200	4200
V	4200	5500
W	5500	7200
X	7200	9300
Y	9300	12000

Tolerance for each bin limit is ± 15%

Color Bin Limit Tables

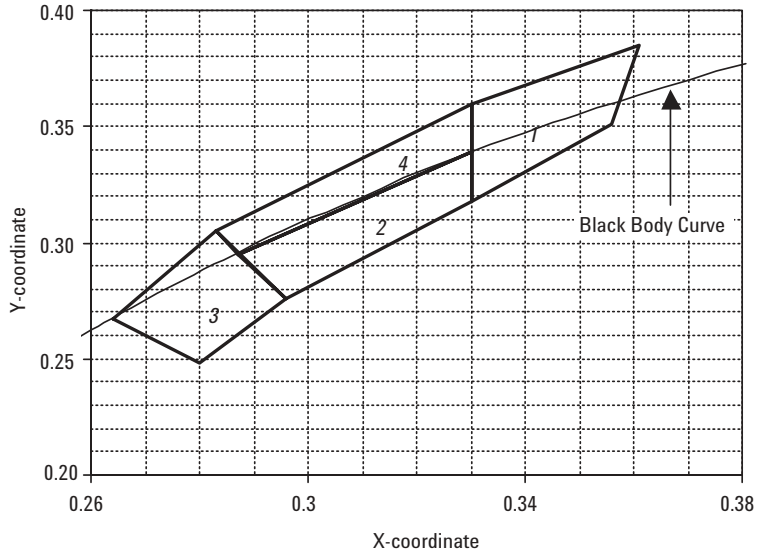
Rank	Limits (Chromaticity Coordinates)				
1	x y	0.330 0.360	0.330 0.318	0.356 0.351	0.361 0.385
2	x y	0.287 0. 295	0.296 0.276	0.330 0.318	0.330 0.339
3	x y	0.264 0.267	0.280 0.248	0.296 0.276	0.283 0.305
4	x y	0.283 0.305	0.287 0.295	0.330 0.339	0.330 0.360

Tolerance for each bin limit is ±0.01

Note:

1. Bin categories are established for classification of products. Products may not be available in all bin categories. Please contact your Agilent representative for information on currently available

Color Bin Limits with Respect to CIE 1931 Chromaticity Diagram



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April 21, 2005
5989-0461EN

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