

HLMP-KA45

T-1 (3 mm) High Intensity InGaN Lamp



Data Sheet



Description

This blue LED is designed in an industry standard T-1 package with clear and non-diffused optics. This lamp is ideal for use as indicators and for general purpose lighting.

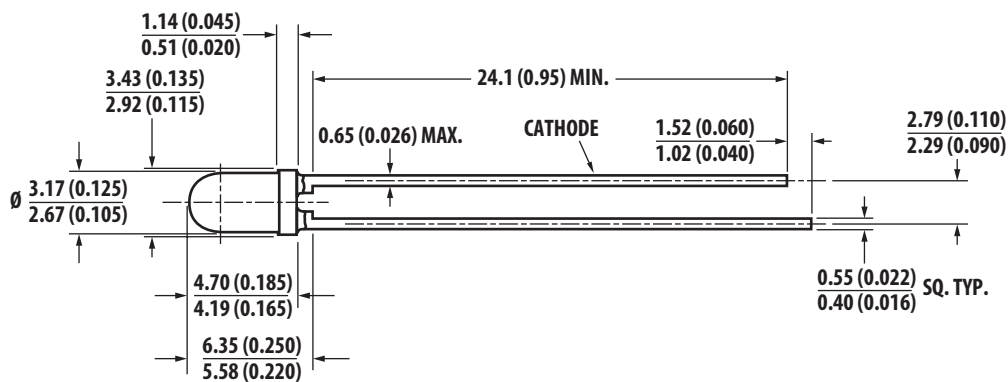
Features

- Popular T1 diameter package
- General purpose leads
- Reliable and rugged
- Binned for color and intensity
- InGaN blue dice

Applications

- Status indicators
- Small message panel
- Running and decorative lights for commercial use
- Back-lighting
- Consumer audio

Package Dimensions

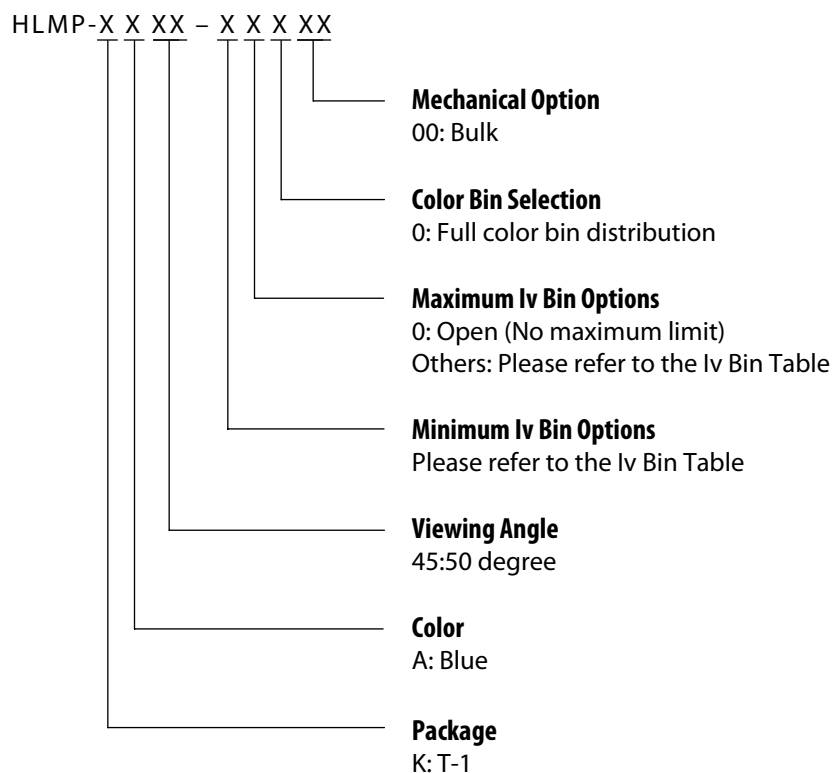


Notes:

1. All dimensions are in millimeters (inches).
2. An epoxy meniscus may extend about 1 mm (0.040") down the leads.

CAUTION: Device are Class I ESD sensitive. Please observe appropriate precautions during handling and processing. Refer to Application Note AN-1142 for additional details.

Ordering Information



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

Parameter	HLMP-KA45 (Blue)	Unit
DC Forward Current ^[1]	30	mA
Peak Pulsed Forward Current	100	mA
Average Forward Current	30	mA
Power Dissipation	116	mW
LED Junction Temperature	115	°C
Operating Temperature Range	-35 to +85	°C
Storage Temperature Range	-35 to +85	°C

Note:

1. Derate linearly as shown in Figure 2.

Device Selection Guide

Part Number	Color and Dominant Wavelength λ_d (nm) Typ	Luminous Intensity I_v (mcd) at 20 mA Min.	Luminous Intensity I_v (mcd) at 20 mA Max.
HLMP-KA45-E00xx	Blue 470	85	–
HLMP-KA45-J00xx	Blue 470	240	

Notes:

1. The luminous intensity is measured on the mechanical axis of the lamp package.
2. The optical axis is closely aligned with the package mechanical axis.
3. The dominant wavelength, λ_d is derived from the CIE Chromaticity Diagram and represents the color of the lamp.

Electrical /Optical Characteristics Table at $T_A = 25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Forward Voltage	V _F	2.8		3.8	V	IF = 20 mA
Capacitance	C		40		pF	V _F = 0, f = 1 MHz
Thermal Resistance	R _{θJ-PIN}		465		°C/W	LED Junction-to-Cathode Lead
Viewing Angle	2θ _{1/2}		50		deg	
Dominant Wavelength	λ_d		470		nm	IF = 20 mA
Peak Wavelength	λ_P		464		nm	Peak of Wavelength of Spectral Distribution at IF = 20 mA
Spectral Halfwidth	$\Delta\lambda_{1/2}$		24		nm	Wavelength Width at Spectral Distribution ½ Power Point at IF = 20 mA

Notes:

1. 2 θ_{1/2} is the off-axis angle where the luminous intensity is 1/2 the on axis intensity.
2. The dominant wavelength, λ_d , is derived from the Chromaticity Diagram and represents the color of the lamp.

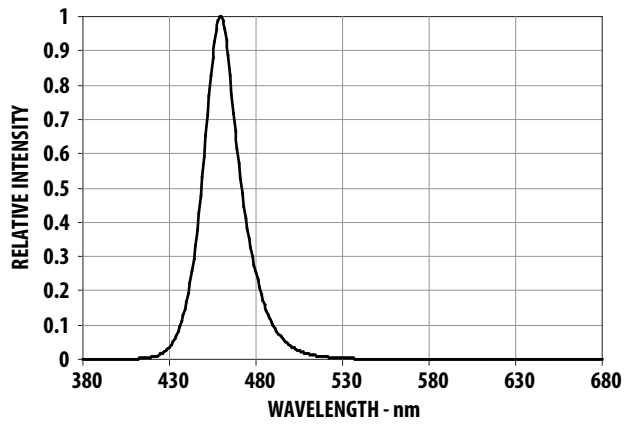


Figure 1. Relative Intensity vs Wavelength

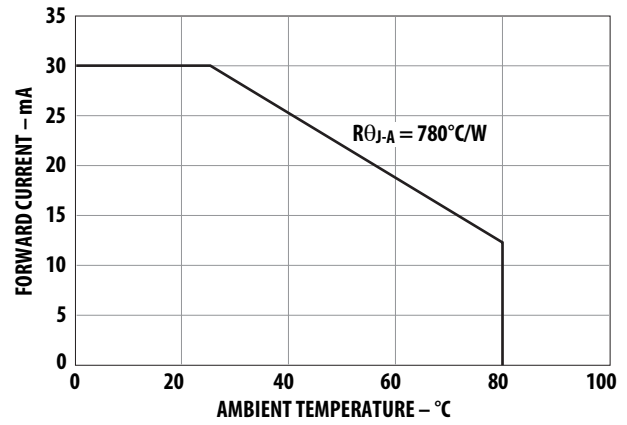


Figure 2. Maximum forward current vs. ambient temperature based on $R\theta_{JA} = 780^{\circ}\text{C/W}$ and $T_{jmax} = 115^{\circ}\text{C}$

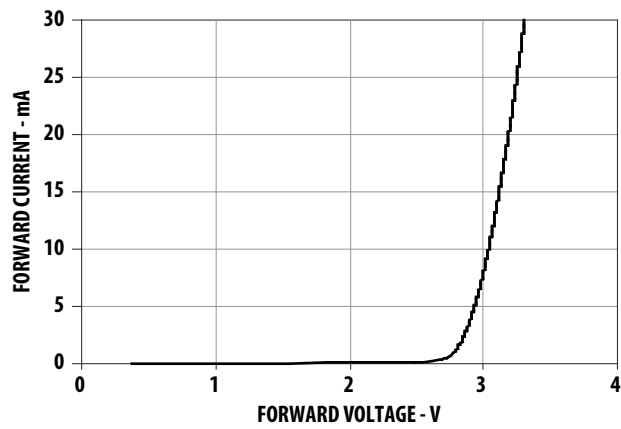


Figure 3. Forward Current vs Forward Voltage

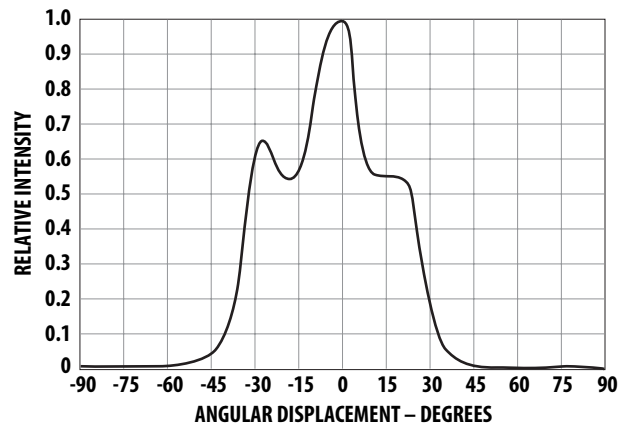


Figure 4. Radiation pattern

Intensity Bin Limit

Bin	Intensity Range (mcd)	
	Min.	Max.
C	50.0	65.0
D	65.0	85.0
E	85.0	110.0
F	110.0	140.0
G	140.0	180.0
H	180.0	240.0
J	240.0	310.0
K	310.0	400.0
L	400.0	520.0
M	520.0	680.0
N	680.0	880.0
P	880.0	1150.0
Q	1150.0	1500.0

Maximum tolerance for each bin limit is $\pm 15\%$.

Color Categories

Color	Cat #	Lambda (nm)	
		Min.	Max.
Blue	1	460.0	464.0
	2	464.0	468.0
	3	468.0	472.0
	4	472.0	476.0
	5	476.0	480.0

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

Mechanical Option Matrix

Mechanical Option Code	Definition
00	Bulk Packaging, minimum increment 500 pcs/bag

Note:

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

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

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