

T-1^{3/4} (5 mm), T-1 (3 mm) Blue LED Lamps

Technical Data

Features

- Popular T-1^{3/4} and T-1 Diameter Packages
- General Purpose Leads
- Reliable and Rugged
- Available on Tape and Reel
- Binned for Color and Intensity

Applications

- Status Indicators
- Small Message Panel
- Running and Decorative Lights for Commercial Use

Description

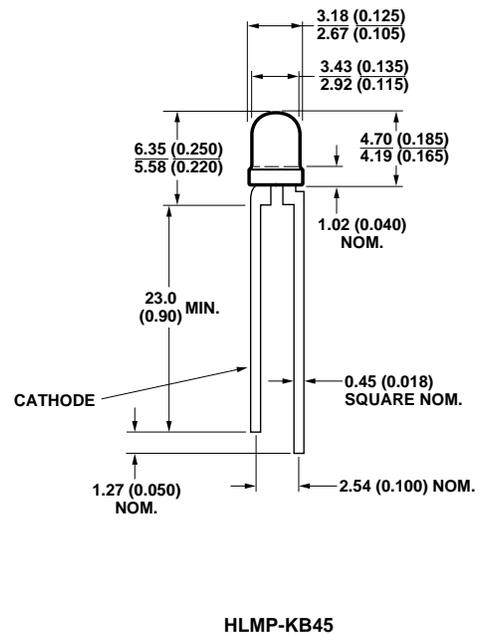
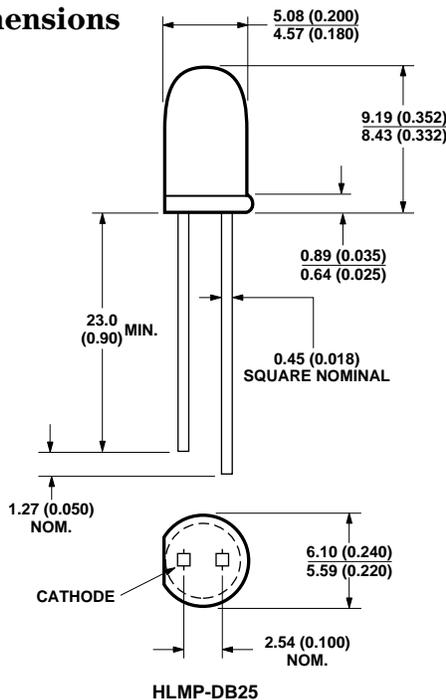
These blue LEDs are designed in industry standard T-1 and T-1^{3/4} package with clear and non diffused optics. They are also available in tape and reel, and ammo-pack option for ease of handling and use.

These blue lamps are ideal for use as indicators and for general purpose lighting. Blue lamps offer color differentiation as blue is attractive and not widely available.

HLMP-DB25-P0000
HLMP-KB45-N0000



Package Dimensions



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

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

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

| Parameter | Blue | Units |
|--|------------------------------------|------------------|
| Peak Forward Current | 70 | mA |
| DC Current ^[1] | 30 | mA |
| Reverse Voltage ($I_R = 100\ \mu\text{A}$) | 5 | V |
| Transient Forward Current ^[2] (10 μsec Pulse) | 350 | mA |
| LED Junction Temperature | 115 | $^\circ\text{C}$ |
| Operating Temperature | -20 to +80 | $^\circ\text{C}$ |
| Storage Temperature | -30 to +100 | $^\circ\text{C}$ |
| Lead Soldering Temperature [1.6 mm (0.063 in.) from body] | 260 $^\circ\text{C}$ for 5 seconds | |

Notes:

- Derate linearly from 50 $^\circ\text{C}$ as shown in Figure 6.
- 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 Characteristics at $T_A = 25^\circ\text{C}$

| Part Number | Luminous Intensity I_V (mcd) @ $I_F = 20\ \text{mA}$ | | Color, Dominant Wavelength λ_d ^[1] (nm) Typ. | Peak Wavelength λ_{PEAK} (nm) Typ. | Viewing Angle $2\theta_{1/2}$ ^[2] Degrees Typ. |
|-----------------|--|------|---|---|--|
| | Min. | Typ. | | | |
| HLMP-DB25-P0000 | 40 | 100 | 462 | 426 | 25 |
| HLMP-KB45-N0000 | 25 | 45 | 462 | 426 | 40 |

Notes:

- The dominant wavelength, λ_d , is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.
- $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half of the axial luminous 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) @ $I_R = 100\ \mu\text{A}$ | | Speed Response τ_s (ns) Typ. | Capacitance C (pF), $V_F = 0$, $f = 1\ \text{MHz}$ Typ. | Thermal Resistance $R\theta_{J-PIN}$ ($^\circ\text{C}/\text{W}$) Junction to Cathode Lead Typ. |
|-----------------|---|------|--|------|---|---|---|
| | Typ. | Max. | Min. | Typ. | | | |
| HLMP-DB25-P0000 | 4.0 | 5.0 | 5.0 | 30 | 500 | 97 | 260 |
| HLMP-KB45-N0000 | 4.0 | 5.0 | 5.0 | 30 | 500 | 97 | 290 |

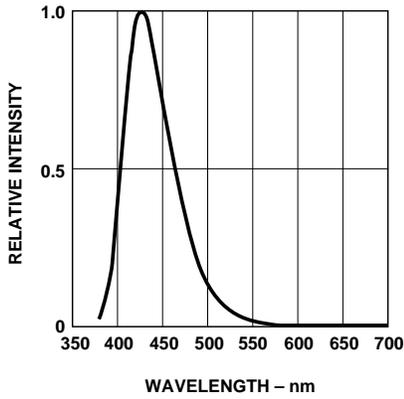


Figure 1. Relative Intensity vs. Wavelength.

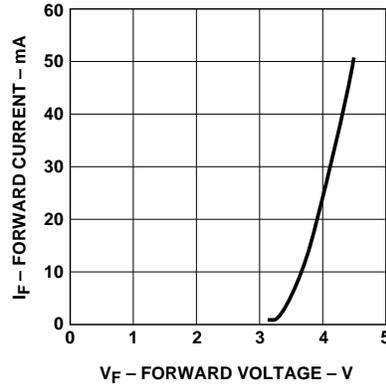


Figure 2. Forward Current vs. Forward Voltage.

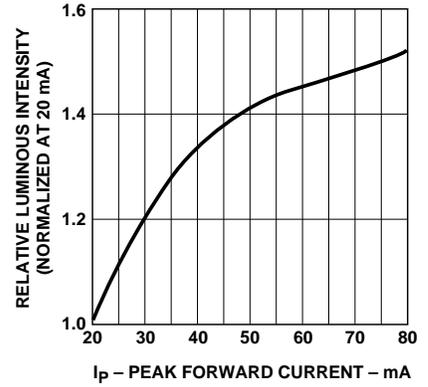


Figure 3. Relative Intensity vs. Peak Forward Current (300 μ s pulse width, 10 ms period).

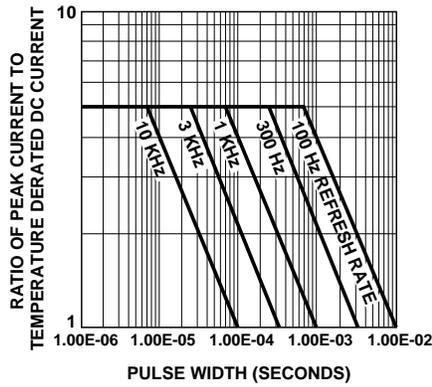


Figure 4. Forward Current vs. Forward Voltage.

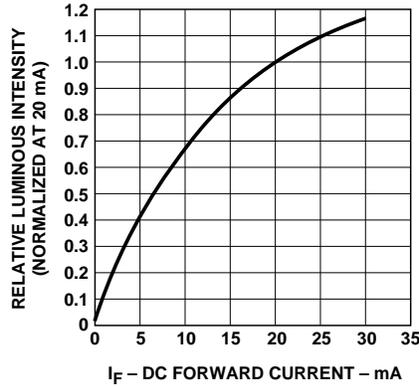


Figure 5. Relative Luminous Intensity vs. Forward Current.

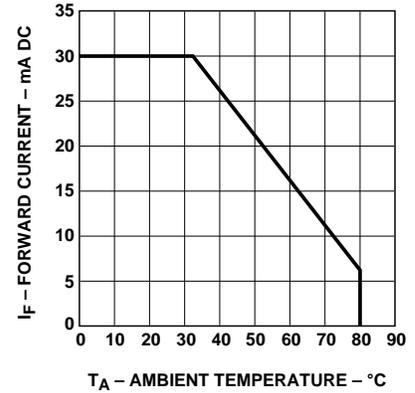


Figure 6. Maximum DC Forward Current vs. Ambient Temperature. Derating Based on T_j Max. = 115 $^{\circ}$ C.

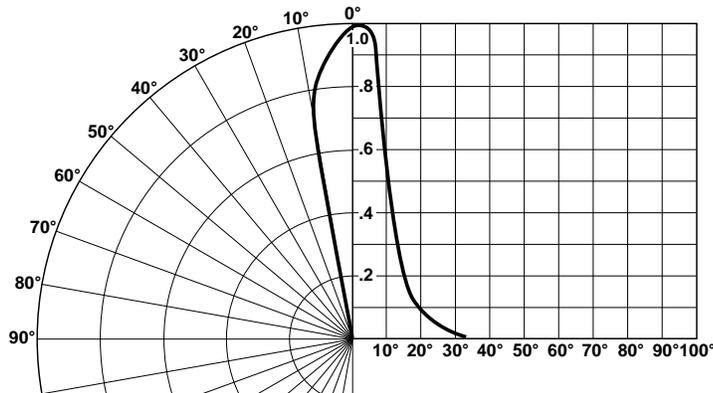
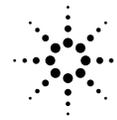


Figure 7. Relative Luminous Intensity vs. Angular Displacement for HLMP-DB25.

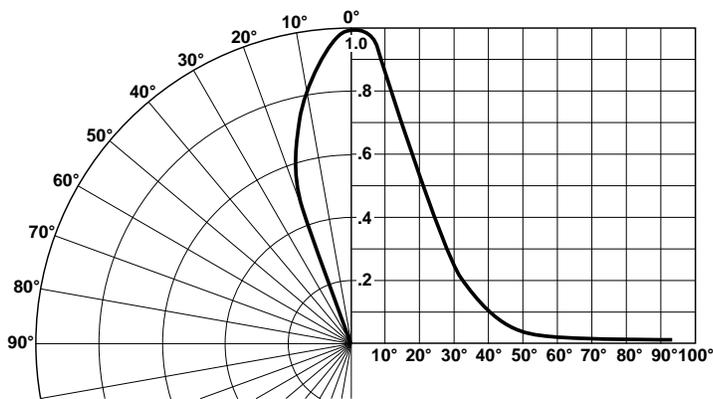


Figure 8. Relative Luminous Intensity vs. Angular Displacement for HLMP-KB45.

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.

www.semiconductor.agilent.com

Data subject to change.
Copyright © 1999 Agilent Technologies

Obsoletes 5968-7925E (11/99)
5968-9084E (12/99)