

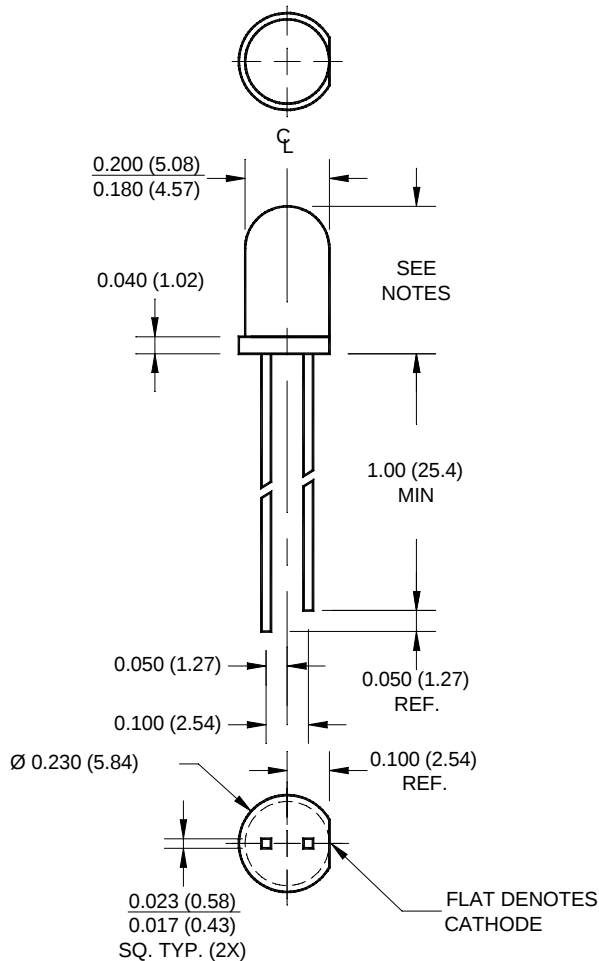
HIGH EFF. RED  
HIGH EFF. RED

HLMP-3300  
HLMP-3301

HIGH EFF. RED  
HIGH EFF. RED  
STANDARD RED

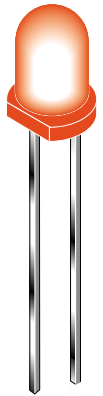
HLMP-3315  
HLMP-3316  
FLV110

## PACKAGE DIMENSIONS



## FEATURES

- Popular, general purpose lamps
- Wide and narrow viewing angle devices for direct view or backlighting
- Solid state reliability
- Sturdy leads for easy assembly



## DESCRIPTION

The HLMP-33XX series consists of high efficiency red T-1 3/4 lamps with a viewing angle of 35° or 65°. FLV110 is a low profile standard red T-1 3/4 lamp with a diffused lens, providing a viewing angle of 70°.

### NOTES:

1. ALL DIMENSIONS ARE IN INCHES (mm).
2. TOLERANCES ARE  $\pm 0.010$ " INCH UNLESS SPECIFIED.
3. AN EPOXY MENISCUS MAY EXTEND ABOUT .040" (1 mm) DOWN THE LEADS.
4. DIMENSIONS X.  
 PACKAGE HEIGHT HLMP = .330 (8.38)/.350 (8.89)  
 FLV = .275 (6.98)/.295 (7.49)
5. FLV FLANGE HEIGHT =  $0.040$  (1.02) /  $0.060$  (1.53)

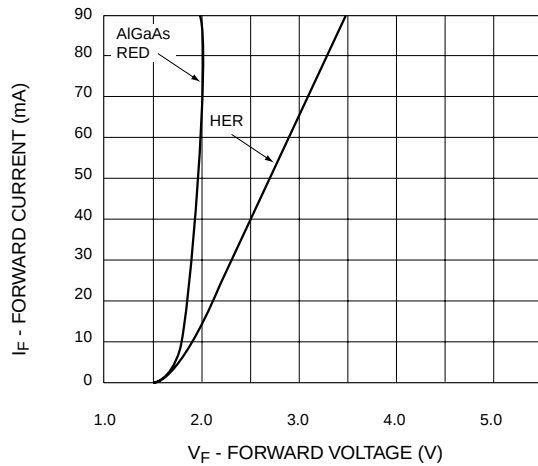
## ABSOLUTE MAXIMUM RATING ( $T_A = 25^\circ\text{C}$ )

| Parameter                                                                           | HLMP33XX    | FLV110      | UNITS |
|-------------------------------------------------------------------------------------|-------------|-------------|-------|
| Power Dissipation                                                                   | 135         | 135         | mW    |
| Average Forward Current                                                             | 30          | 30          | mA    |
| Peak Forward Current<br>(1 $\mu\text{S}$ pulsewidth, 0.3% duty cycle)(FLV110 1 amp) | 90          | 90          | mA    |
| Reverse Voltage                                                                     | 5           | 5           | V     |
| Lead Soldering Time at 260° C                                                       | 5           | 5           | sec   |
| Operating Temperature                                                               | -55 to +100 | -55 to +100 | °C    |
| Storage Temperature                                                                 | -55 to +100 | -55 to +100 | °C    |

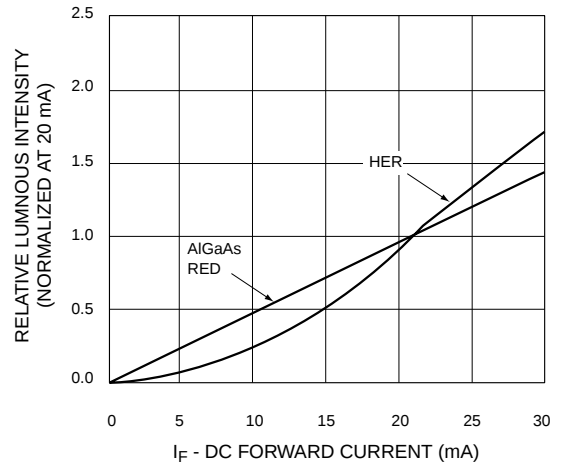
| ELECTRICAL / OPTICAL CHARACTERISTICS (T <sub>A</sub> = 25°C) |           |           |           |           |        |                        |
|--------------------------------------------------------------|-----------|-----------|-----------|-----------|--------|------------------------|
| Part Number                                                  | HLMP-3300 | HLMP-3301 | HLMP-3315 | HLMP-3316 | FLV110 | Condition              |
| Luminous Intensity (mcd)                                     |           |           |           |           |        | I <sub>F</sub> = 10mA  |
| Minimum                                                      | 2.0       | 4.0       | 12        | 20        | 0.8*   |                        |
| Typical                                                      | 3.5       | 7.0       | 18        | 35        | 3.0*   |                        |
| Forward Voltage (V)                                          |           |           |           |           |        | I <sub>F</sub> = 10mA  |
| Maximum                                                      | 3.0       | 3.0       | 3.0       | 3.0       | 2.0    |                        |
| Typical                                                      | 2.2       | 2.2       | 2.2       | 2.2       | 1.6    |                        |
| Peak Wavelength (nm)                                         | 635       | 635       | 635       | 635       | 660    | I <sub>F</sub> = 10mA  |
| Reverse Voltage (V)                                          | 5         | 5         | 5         | 5         | 5      | I <sub>R</sub> = 100μA |
| Viewing Angle (°)                                            | 65        | 65        | 35        | 35        | 70     | I <sub>F</sub> = 10mA  |

\* For FLV110 Test I<sub>F</sub> = 20mA

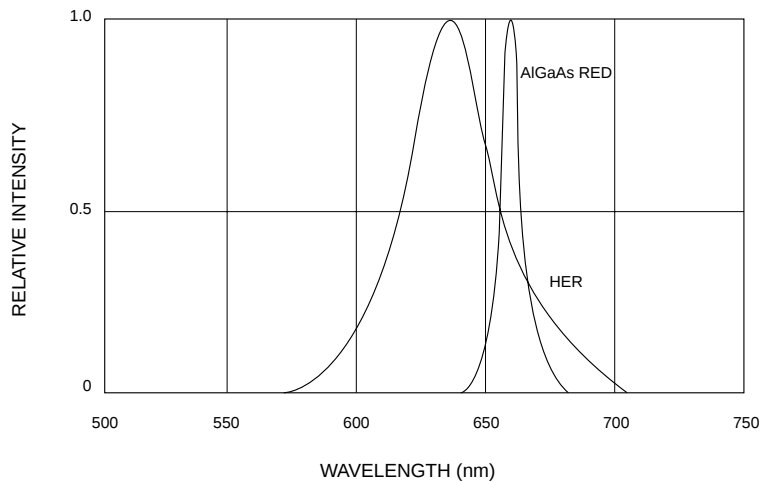
**TYPICAL PERFORMANCE CURVES ( $T_A = 25^\circ\text{C}$ )**



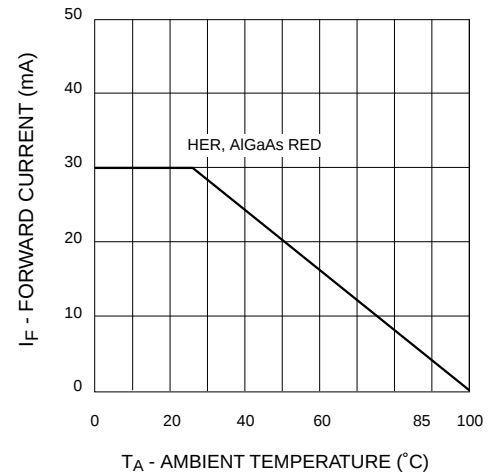
**Fig. 1 Forward Current vs. Forward Voltage**



**Fig. 2 Relative Luminous Intensity vs. DC Forward Current**



**Fig. 3 Relative Intensity vs. Peak Wavelength**



**Fig. 4 Current Derating Curve**

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.