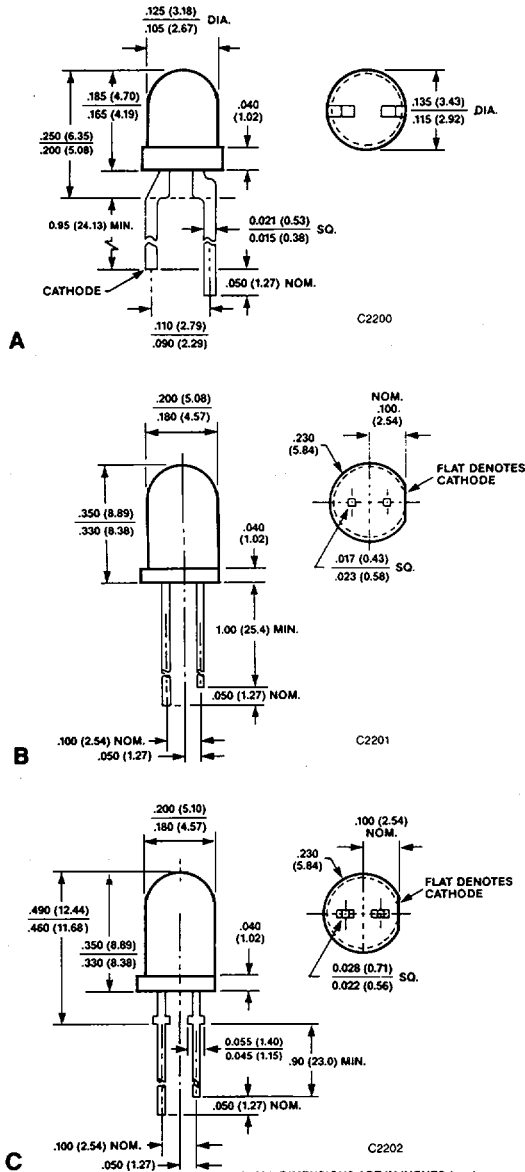


**T-1<sup>3/4</sup> HLMP-D101/D105  
T-1 HLMP-K101/K105**

**PACKAGE DIMENSIONS**



1. ALL DIMENSIONS ARE IN INCHES (mm)  
2. TOLERANCES ARE ±.010" UNLESS OTHERWISE SPECIFIED  
3. AN EPOXY MENISCUS MAY EXTEND ABOUT .040" (1 mm) DOWN THE LEADS

**DESCRIPTION**

Exceptional light output typifies these devices and provides for their use over a broad range of drive currents. The LED material is based on recently developed double heterojunction (DH) AlGaAs/GaAs technology. The light emitted is perceived as a deep red color, characterized by a dominant wavelength of 637 nanometers.

**FEATURES**

- Exceptional Brightness
- Wide Viewing Angle
- Outstanding Material Efficiency
- Low Forward Voltage
- CMOS/MOS Compatible
- TTL Compatible
- Deep Red Color

**APPLICATIONS**

- Bright Ambient Lighting Conditions
- Moving Message Panels
- Portable Equipment
- General Use

**5**

**HLMP-D101/D105 HLMP-K101/K105**

**PHYSICAL CHARACTERISTICS**

SIZE	TYPE	LENS EFFECT	$I_v$ (mcd) MIN	@ 20mA TYPE	VIEWING ANGLE 2 $\phi$ 1/2 DEGREES	PKG.
T-1	HLMP-K101	Red Tinted Diffused	22	45	60	A
T-1	HLMP-K105	Clear	35	65	45	A
T-1 3/4	HLMP-D101	Red Tinted Diffused	35	70	65	B
T-1 3/4	HLMP-D105	Clear	100	240	24	C

**ELECTRO-OPTICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  Unless Otherwise Specified)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Forward voltage	$V_F$		1.8	2.2	V	$I_F = 20$ mA
Peak wavelength	$\lambda_p$		645		nm	$I_F = 20$ mA
Dominant wavelength	$\lambda_d$		637		nm	$I_F = 20$ mA
Spectral line half width	$\Delta\lambda_{1/2}$		20		nm	$I_F = 20$ mA
Capacitance	C		30		pF	$V_F = 0$ , $f = 1$ MHz
Reverse breakdown voltage	$V_R$	5.0	15.0		V	$I_R = 100$ $\mu$ A

**ABSOLUTE MAXIMUM RATINGS** ( $T_A = 25^\circ\text{C}$  Unless Otherwise Specified)

Power dissipation	87 mW
Operating temperature	$-20^\circ\text{C}$ to $+100^\circ\text{C}$
Storage temperature	$-55^\circ\text{C}$ to $+100^\circ\text{C}$
Lead soldering time at $260^\circ\text{C}$	5 seconds
Peak forward current (see Note 1)	300 mA
Reverse voltage ( $I_R = 100$ $\mu$ A)	5V
Average forward current (see Note 2)	20 mA
D.C. current (see Note 3)	30 mA

**NOTES**

1. Maximum  $I_{peak}$  at  $f = 1$  kHz,  $DF = 6.7\%$
2. Refer to Figure 6 to establish pulsed operating conditions.
3. Derate linearly as shown in Figure 5.

**TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES**

(25°C Free Air Temperature)

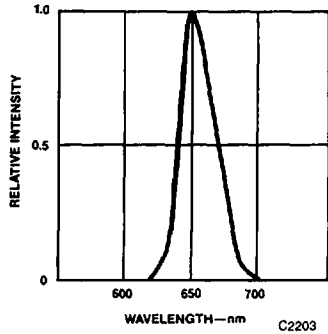


Fig. 1. Relative Intensity vs. Wavelength

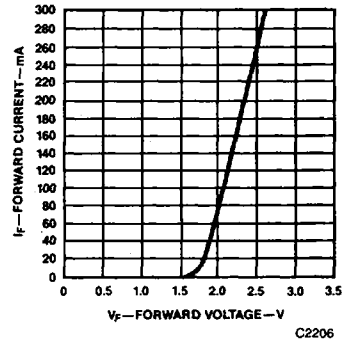


Fig. 2. Forward Current vs. Forward Voltage

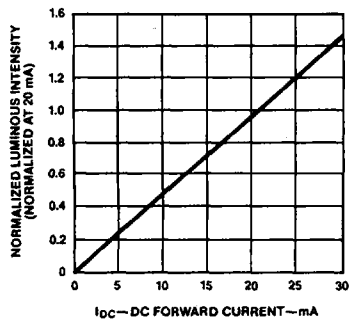


Fig. 3. Relative Luminous Intensity vs. DC Forward Current

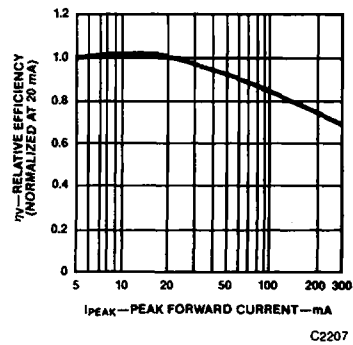


Fig. 4. Relative Efficiency vs. Peak Forward Current

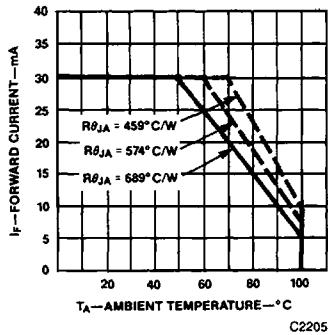


Fig. 5. Maximum Forward DC Current vs. Ambient Temperature. Derating Based on  $T_j$  MAX = 110°C.

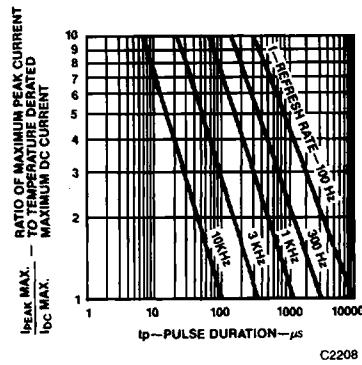


Fig. 6. Maximum Tolerable Peak Current vs. Peak Duration ( $I_{PEAK}$  MAX Determined from Temperature Derated  $I_{DC}$  MAX)

**TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES**  
(25°C Free Air Temperature) (Cont'd)

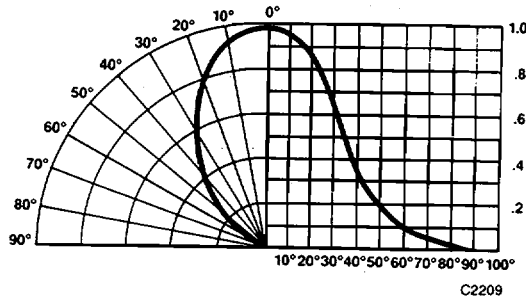


Fig. 7. Relative Luminous Intensity vs. Angular Displacement, HLMP-D101

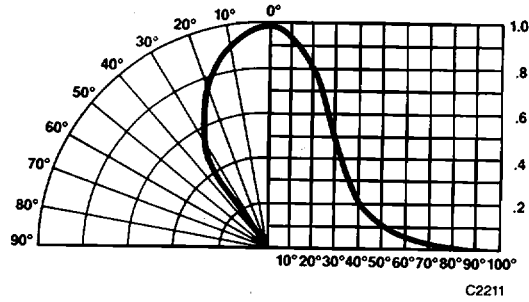


Fig. 8. Relative Luminous Intensity vs. Angular Displacement, HLMP-K101

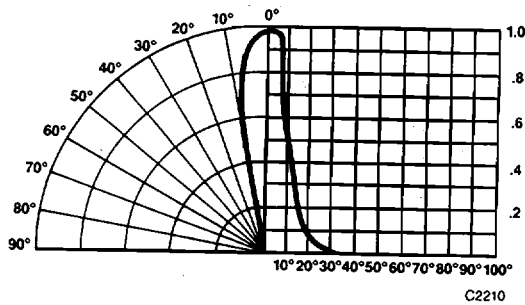


Fig. 9. Relative Luminous Intensity vs. Angular Displacement, HLMP-D105

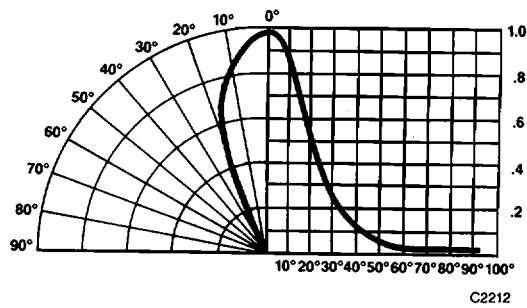


Fig. 10. Relative Luminous Intensity vs. Angular Displacement, HLMP-K105

HLMP-D101/D105 HLMP-K101/K105