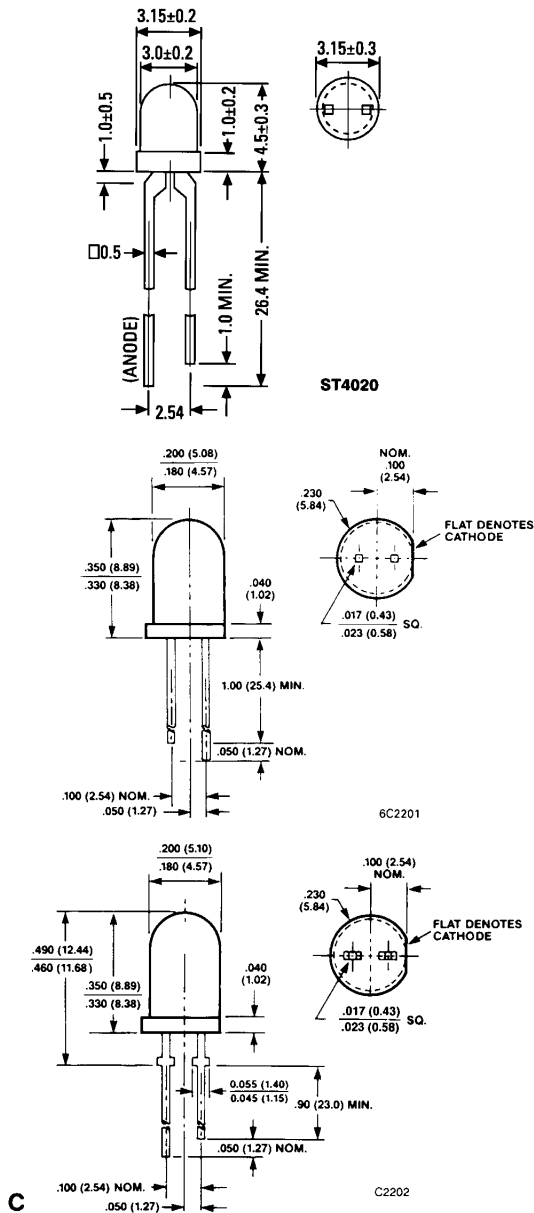


DOUBLE HETEROJUNCTION AlGaAs HIGH INTENSITY RED LED LAMPS

T-1 $\frac{3}{4}$ HLMP-D101A/D105A
T-1 HLMP-K101/K105

PACKAGE DIMENSIONS



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

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



DOUBLE HETEROJUNCTION AlGaAs HIGH INTENSITY RED LED LAMPS

PHYSICAL CHARACTERISTICS

SIZE	TYPE	LENS EFFECT	I _v (mcd) MIN	@ 20mA TYPE	VIEWING ANGLE 2Ø1/2 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-D101A	Red Tinted Diffused	35	70	65	B
T-1 3/4	HLMP-D105A	Clear	100	240	24	C

ELECTRO-OPTICAL CHARACTERISTICS (T_A = 25°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	λ _p		645		nm	I _F = 20 mA
Dominant wavelength	λ _d		637		nm	I _F = 20 mA
Spectral line half width	Δλ _{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 μA

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C Unless Otherwise Specified)

Power dissipation	87 mW
Operating temperature	-20°C to +100°C
Storage temperature	-55°C to +100°C
Lead soldering time at 260°C	5 seconds
Peak forward current (see Note 1)	300 mA
Reverse voltage (I _R = 100 μA)	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)

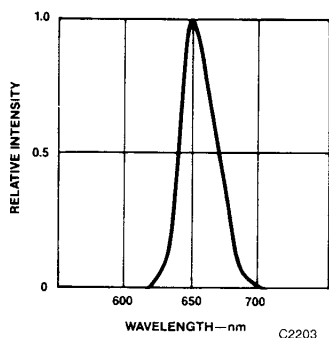


Fig. 1. Relative Intensity
vs. Wavelength

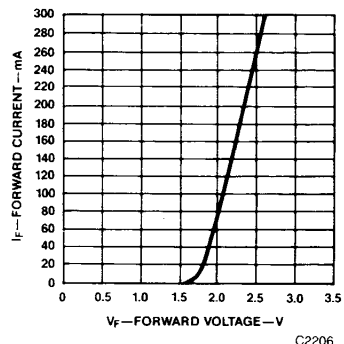


Fig. 2. Forward Current vs.
Forward Voltage

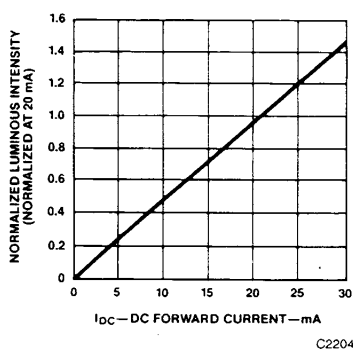


Fig. 3. Relative Luminous Intensity
vs. DC Forward Current

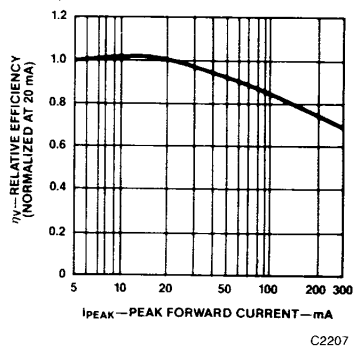


Fig. 4. Relative Efficiency
vs. Peak Forward Current

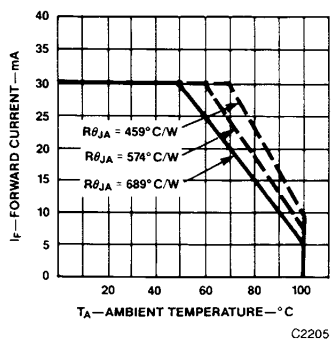


Fig. 5. Maximum Forward DC Current
vs. Ambient Temperature. Derating
Based on T_J MAX = 110°C.

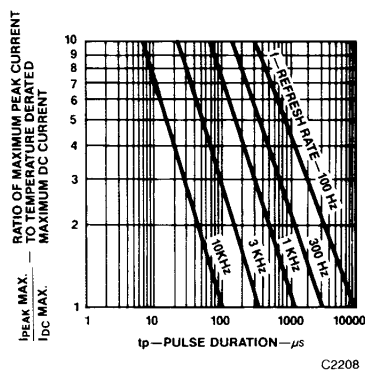


Fig. 6. Maximum Tolerable Peak Current
vs. Peak Duration (I_{PEAK} MAX Determined
from Temperature Derated I_{DC} MAX)

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

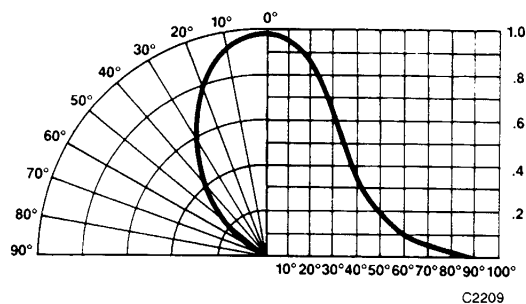


Fig. 7. Relative Luminous Intensity
vs. Angular Displacement, HLMP-D101A

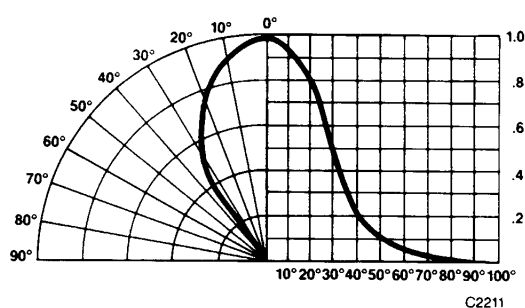


Fig. 8. Relative Luminous Intensity
vs. Angular Displacement, HLMP-K101

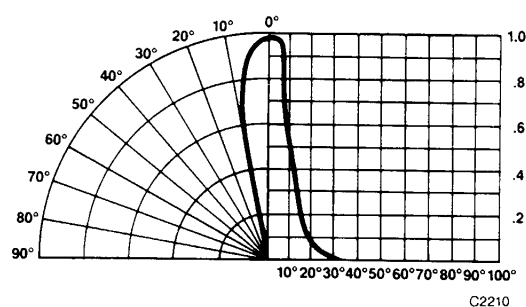


Fig. 9. Relative Luminous Intensity
vs. Angular Displacement, HLMP-D105A

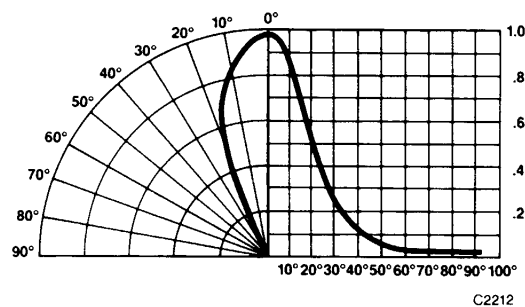


Fig. 10. Relative Luminous Intensity
vs. Angular Displacement, HLMP-K105