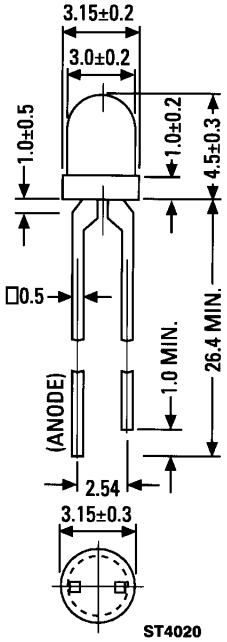
QT OPTOELECTRONICS

T-1 (3 mm)
SOLID STATE LAMPS

PURE GREEN **HLMP-K600** TINTED
PURE GREEN **HLMP-K640** CLEAR
SOFT ORANGE **HLMP-K400** TINTED
SOFT ORANGE **HLMP-K401** TINTED
SOFT ORANGE **HLMP-K402** TINTED

PACKAGE DIMENSIONS



NOTES:
1. ALL DIMENSIONS ARE IN MM.
2. LEAD SPACING IS MEASURED WHERE THE LEADS EMERGE FROM THE PACKAGE.
3. PROTRUDED RESIN UNDER THE FLANGE IS 1.5 mm (0.059") MAX.

DESCRIPTION

These T-1 LEDs are widely used as general purpose indicators. The pure green lamps are made with a GaP LEDs on a GaP substrate. The soft orange are made with GaAsP LEDs on a GaP substrate. They are encapsulated in epoxy packages and are designed to provide superior light output and a wide viewing angle.

FEATURES

- Popular T-1¾ package.
- Low drive current.
- Solid state reliability.
- Wide viewing angle.
- Choice of pure green or soft orange colors.

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

DC forward current (I_f)	40 mA
Operating temperature range	−40°C to +85°C
Storage temperature range	−40°C to +100°C
Lead soldering time	5 seconds @ 260°C
(at 1/16 inch from the bottom of lamp)	
Peak forward current (I_f)	200 mA
(at f=1.0 KHz, Duty factor= 1/10)	
Power dissipation (P_d)	110 mW
Recommended operating current (I_f Rec)	20 mA

ELECTRO-OPTICAL CHARACTERISTICS (T_A = 25°C Unless Otherwise Specified)

PART NUMBER HLMP-	K600	K640*	K400	K401	K402	TEST CONDITIONS
Luminous intensity (mcd)						I_F=10 mA
minimum	1.0	4.2	1.0	2.0	3.0	
typical	4.5	30	4.0	5.0	6.5	
Forward voltage (V_F)						I_F=10 mA
minimum			1.5	1.5	1.5	
typical	2.1	2.2	1.9	1.9	1.9	
maximum	2.7	3.0	2.4	2.4	2.4	
Peak wavelength (nm)	560	560	612	612	612	I_F=10 mA
Spectral line half width (nm)	24	24	40	40	40	I_F=10 mA
Reverse breakdown voltage (V_R)	5	5	5	5	5	I_F=100 μA
Viewing angle (°)	90	45	90	90	90	I_F=10 mA

*NOTE: HLMP-K640 test conditon is I_F=20 mA

TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES (T_A=25°C)

Pure (Emerald) Green

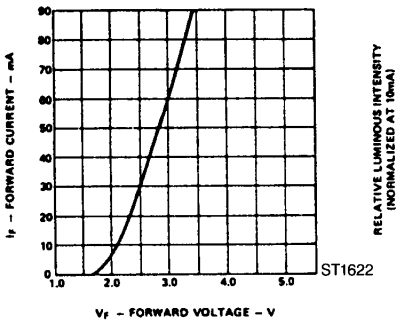


Figure 1. Forward Current vs. Forward Voltage

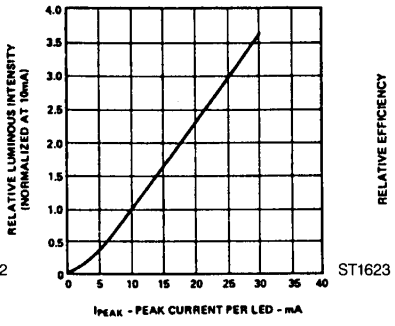


Figure 2. Relative Luminous Intensity vs. Forward Current

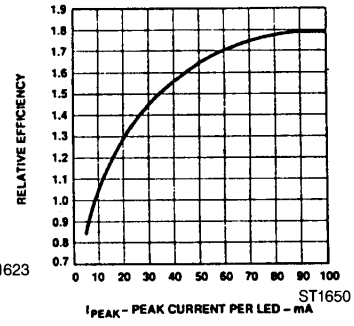


Figure 3. Relative Efficiency vs. Peak LED Current

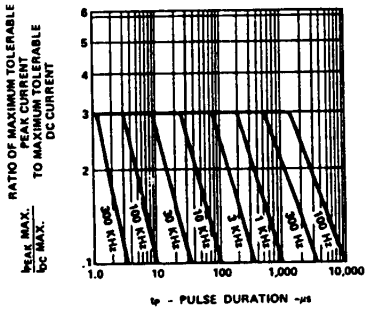


Figure 4. Maximum Peak Current vs. Pulse Duration

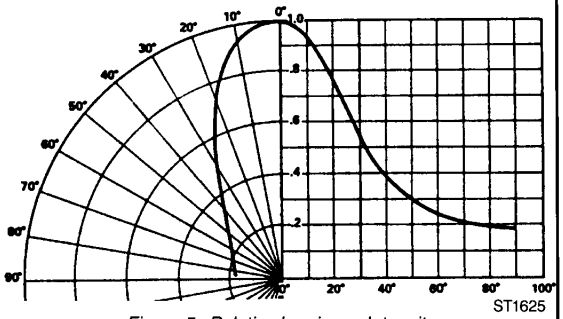
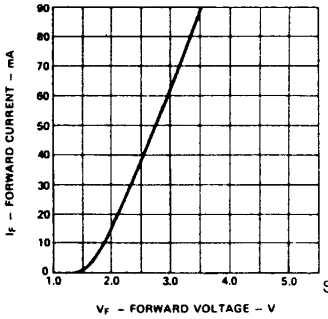


Figure 5. Relative Luminous Intensity vs. Angular Displacement

TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES (T_A=25°C)

Soft Orange



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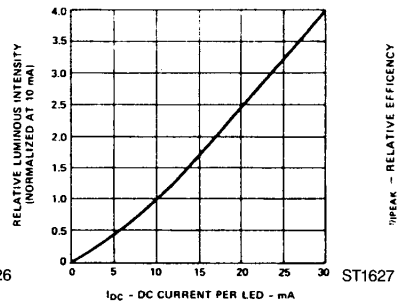

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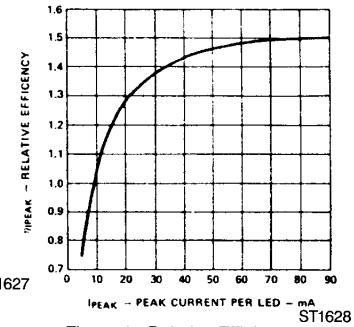

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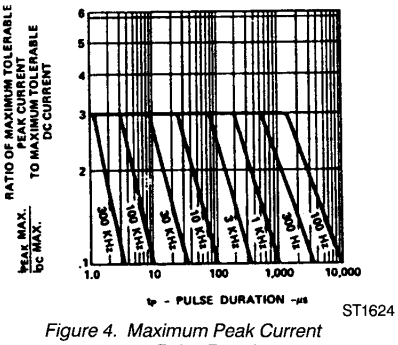

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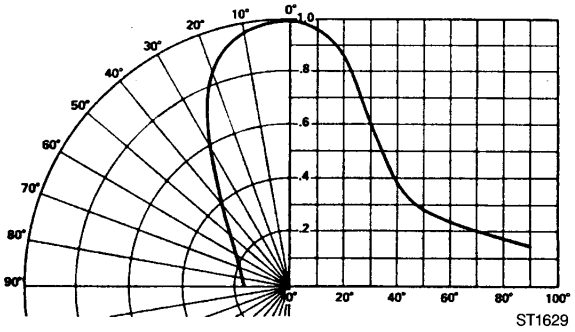

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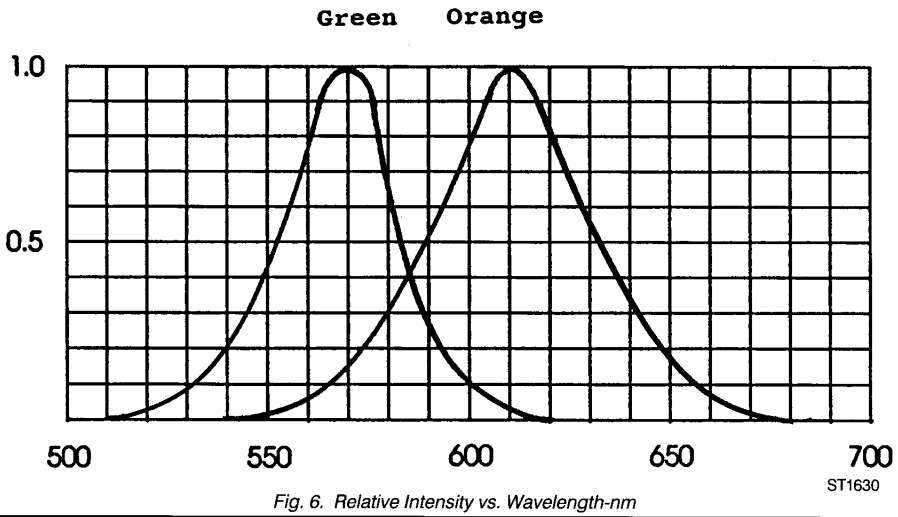

Fig. 6. Relative Intensity vs. Wavelength-nm

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