



BIG(8mm) SOLID STATE LAMPS

LTL-327HR HIGH EFFICIENCY RED LTL-327A AMBER
 LTL-327G GREEN LTL-327EA ORANGE
 LTL-327Y YELLOW

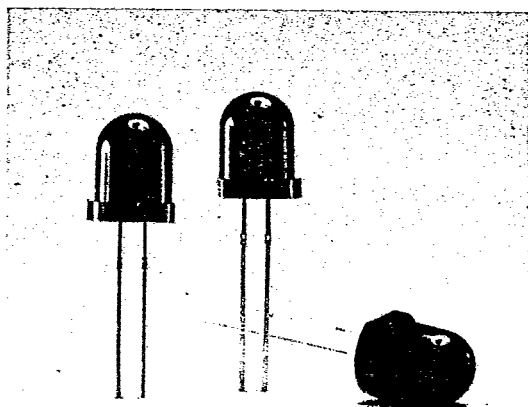
FEATURES

- 8mm DIAMETER BIG LAMP.
- WIDE VIEWING ANGLE.
- LOW POWER CONSUMPTION.
- I. C. COMPATIBLE/LOW CURRENT REQUIREMENTS.
- RELIABLE AND RUGGED.

DESCRIPTION

The High Efficiency Red and Orange source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode. The Green source color devices are made with Gallium Phosphide on Gallium Phosphide Green Light Emitting Diode.

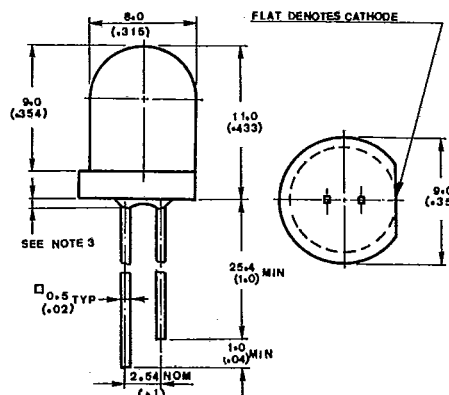
The Yellow and Amber source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Yellow Light Emitting Diode.



DEVICES

PART NO. LTL-	LENS		SOURCE COLOR
	COLOR	DIFFUSION	
327HR	Red	Diffused	Hi. Eff. Red
327G	Green	Diffused	Green
327Y	Yellow	Diffused	Yellow
327A	Amber	Diffused	Amber
327EA	Orange	Diffused	Orange

PACKAGE DIMENSIONS



NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25\text{mm}$ (.010") unless otherwise noted.
3. Protruded resin under flange is 1.5mm (.059") max.
4. Lead spacing is measured where the leads emerge from the package.
5. Specifications are subject to change without notice.

ABSOLUTE MAXIMUM RATINGS AT $T_A = 25^\circ\text{C}$

PARAMETER	GREEN	AMBER YELLOW	HI. EFF. RED ORANGE	UNIT
Power Dissipation	100	60	100	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	120	80	120	mA
Continuous Forward Current	30	20	30	mA
Derating Linear From 25°C	0.4	0.25	0.4	mA/ $^\circ\text{C}$
Reverse Voltage	5	5	5	V
Operating Temperature Range	-55°C to $+100^\circ\text{C}$			
Storage Temperature Range	-55°C to $+100^\circ\text{C}$			
Lead Soldering Temperature [1.6mm (0.063in) From Body]	260°C for 5 Seconds			

LED LAMPS

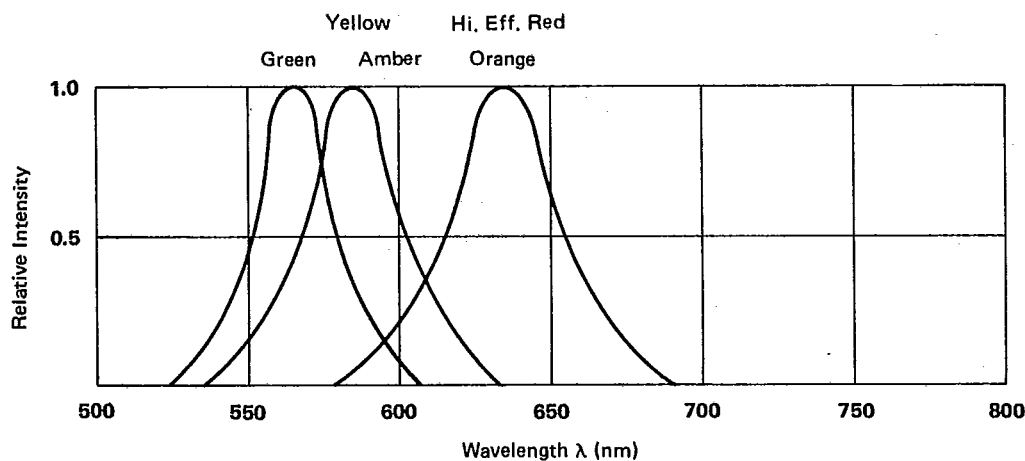


FIG. 1 RELATIVE INTENSITY VS. WAVELENGTH

ELECTRICAL/OPTICAL CHARACTERISTICS AND CURVES AT $T_A = 25^\circ\text{C}$

PARAMETER	SYMBOL	PART NO. LTL--	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Luminous Intensity	I_v	327HR	3.7	12.6		cd	$I_F = 10\text{ mA}$ Note 1
Viewing Angle	$2\theta_{1/2}$	327HR		46		deg.	Note 2 (Fig. 6)
Peak Emission Wavelength	λ_{PEAK}	327HR		635		nm	Measurement @ Peak (Fig. 1)
Spectral Line Half Width	$\Delta\lambda$	327HR		40		nm	
Forward Voltage	V_F	327HR		2.0	2.8	V	$I_F = 20\text{ mA}$
Reverse Current	I_R	327HR			100	μA	$V_R = 5\text{ V}$
Capacitance	C	327HR		20		PF	$V_F = 0$ $f = 1\text{ MHz}$

NOTES: 1. Luminous Intensity is measured with a light sensor and filter combination that approximates the CIE (Commission Internationale De L'Eclairage) eye-response curve.

2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

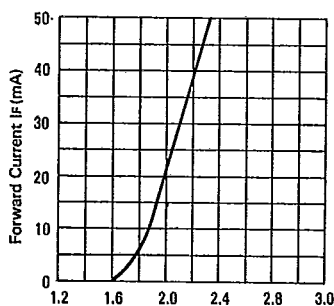


FIG. 2 FORWARD CURRENT VS. FORWARD VOLTAGE.

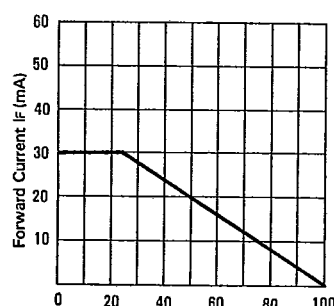


FIG. 3 FORWARD CURRENT DERATING CURVE

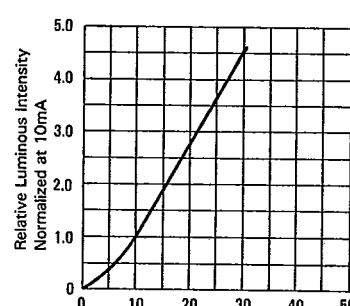


FIG. 4 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

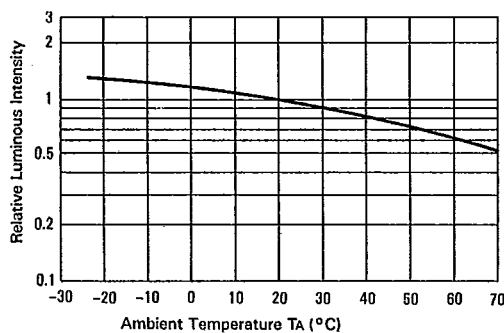


FIG. 5 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

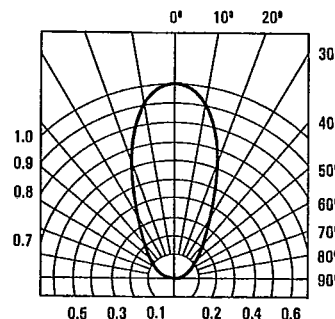


FIG. 6 SPATIAL DISTRIBUTION

ELECTRICAL/OPTICAL CHARACTERISTICS AND CURVES AT $T_A = 25^\circ\text{C}$

PARAMETER	SYMBOL	PART NO. LTL-	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Luminous Intensity	I_v	327G 327Y	3.7 3.7	12.6 12.6		mcd	$I_F = 10\text{ mA}$ Note 1
Viewing Angle	$2\theta_{1/2}$	327G 327Y		46		deg.	Note 2 (Fig. 11)
Peak Emission Wavelength	λ_{PEAK}	327G 327Y		565 585		nm	Measurement @ Peak (Fig. 1)
Spectral Line Half Width	$\Delta\lambda$	327G 327Y		30 35		nm	
Forward Voltage	V_F	327G 327Y		2.1	2.8	V	$I_F = 20\text{ mA}$
Reverse Current	I_R	327G 327Y			100	μA	$V_R = 5\text{ V}$
Capacitance	C	327G 327Y		35 15		PF	$V_F = 0$ $f = 1\text{ MHz}$

LED LAMPS

NOTES: 1. Luminous Intensity is measured with a light sensor and filter combination that approximates the CIE (Commission Internationale De L'Eclairage) eye-response curve.

2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

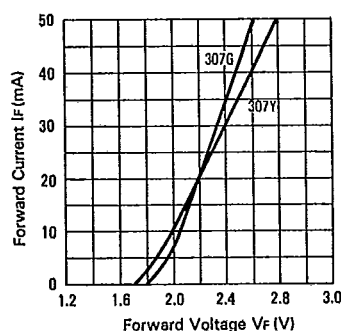


FIG. 7 FORWARD CURRENT VS. FORWARD VOLTAGE

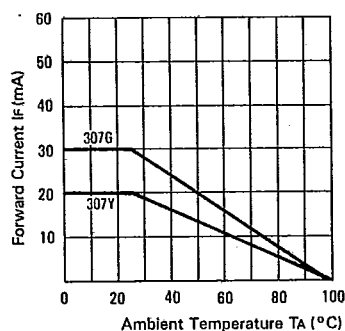


FIG. 8 FORWARD CURRENT DERATING CURVE

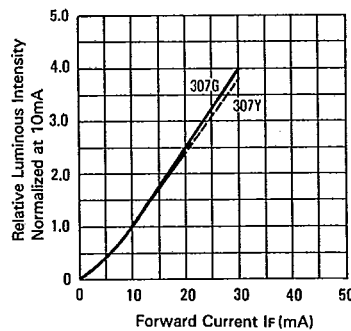


FIG. 9 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

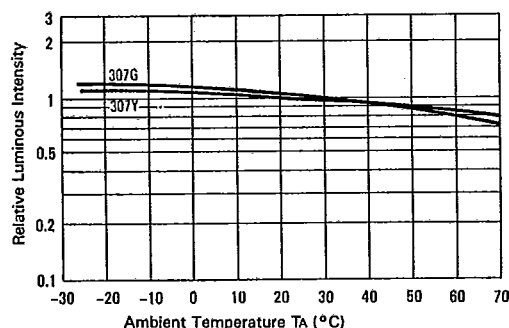


FIG. 10 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

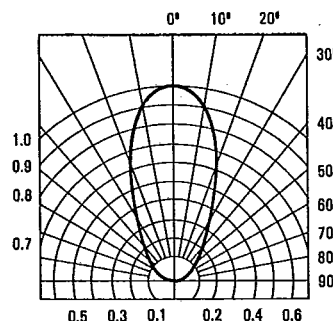


FIG. 11 SPATIAL DISTRIBUTION

ELECTRICAL/OPTICAL CHARACTERISTICS AND CURVES AT $T_A = 25^\circ\text{C}$

PARAMETER	SYMBOL	PART NO. LTL-	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Luminous Intensity	I_V	327A 327EA	3.7 3.7	12.6 12.6		mcd	$I_F = 10\text{mA}$ Note 1
Viewing Angle	$2\theta_{1/2}$	327A 327EA		46		deg.	Note 2 (Fig. 16)
Peak Emission Wavelength	λ_{PEAK}	327A 327EA		600 630		nm	Measurement @Peak (Fig. 1)
Spectral Line Half Width	$\Delta\lambda$	327A 327EA		35 40		nm	
Forward Voltage	V_F	327A 327EA		2.1 2.0	2.8	V	$I_F = 20\text{mA}$
Reverse Current	I_R	327A 327EA			100	μA	$V_R = 5\text{V}$
Capacitance	C	327A 327EA		15 20		PF	$V_F = 0$ $f = 1\text{MHz}$

NOTES: 1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE (Commission Internationale De L'Eclairage) eye-response curve.

2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

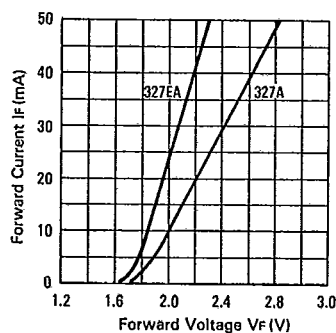


FIG. 12 FORWARD CURRENT VS. FORWARD VOLTAGE

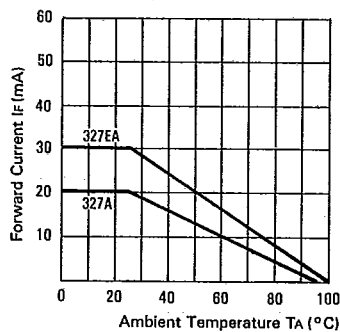


FIG. 13 FORWARD CURRENT DERATING CURVE

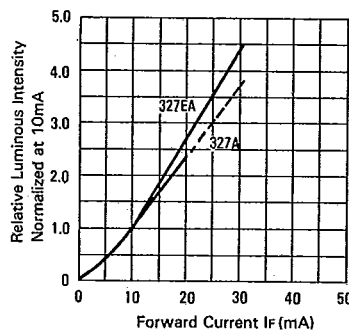


FIG. 14 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

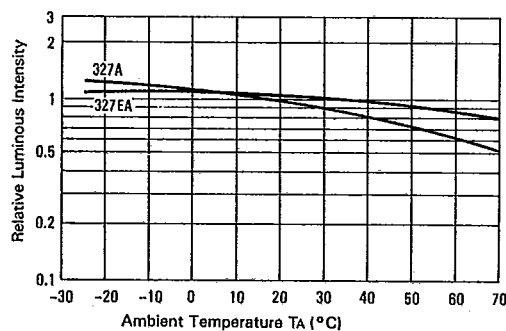


FIG. 15 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

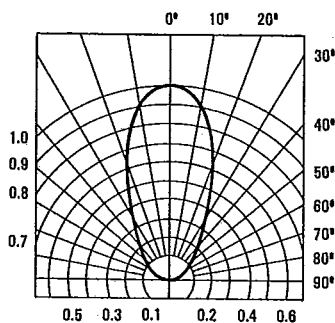


FIG. 16 SPATIAL DISTRIBUTION