T-1 3/4 (5mm) Solid State LED Lamps

LTL-307R/307RE Red
LTL-307P/307PE Bright Red
LTL-307E/307EE High Efficiency Red
LTL-307G/307GE Green
LTL-307Y/307YE Yellow

Features

- High intensity.
- Popular T-1 3/4 Diameter package.
- Selected minimum intensities.
- Wide viewing angle.
- General purpose leads.
- Reliable and rugged.

Description

The Red source color devices are made with Gallium Arsenide Phosphide on Gallium Aresnide Red Light Emitting Diode.

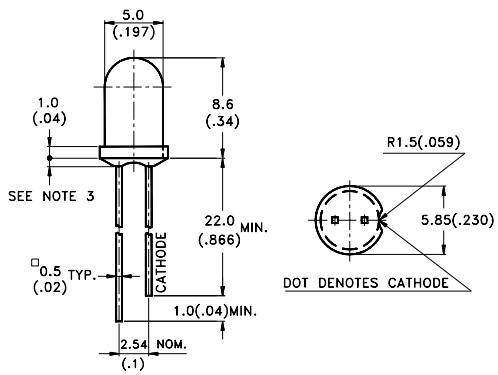
The Bright Red source color devices are made with Gallium Phosphide on Gallium Phosphide Red Light Emitting Diode.

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 GreenLight Emitting Diode.

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

Package Dimensions



Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25mm (.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.

Devices

Part No. LTL-	Lens	Source Color
307R	Red Diffused	Red
307RE	Red Transparent	
307P	Red Diffused	Bright Red
307PE	Red Transparent	
307E	Red Diffused	Hi. Eff. Red
307EE	Red Transparent	
307G	Green Diffused	Green
307GE	Green Transparent	
307Y	Yellow Diffused	Yellow
307YE	YellowTransparent	

Absolute Maximum Ratings at Ta=25℃

Parameter	Red	Bright Red	Green	Yellow	Hi. Eff. Red	Unit
Power Dissipation	80	40	100	60	100	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	200	60	120	80	120	mA
Continuous Forward Current	40	15	30	20	30	mA
Derating Linear From 50℃	0.5	0.2	0.4	0.25	0.4	mA/℃
Reverse Voltage	5	5	5	5	5	V
Operating Temperature Range	-55℃ to +100℃					
Storage Temperature Range	-55℃ to +100℃					
Lead Soldering Temperature [1.6mm (.063 in.) from body]	260℃ for 5 Seconds					

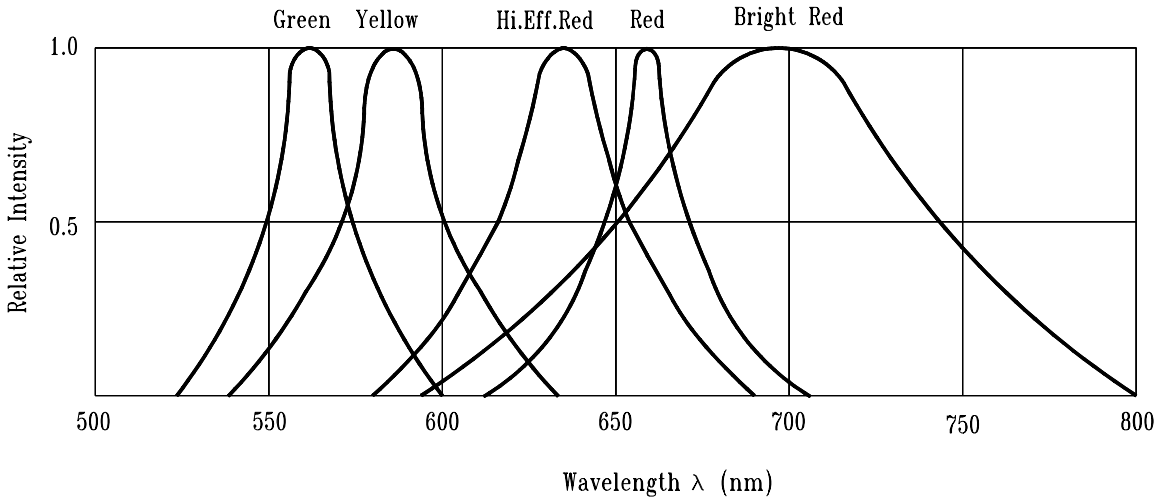


Fig.1 Relative Intensity vs. Wavelength

Electrical/Optical Characteristics at Ta=25℃

Parameter	Symbol	Part No. LTL-	Min.	Typ.	Max.	Unit.	Test Condition.
Luminous Intensity	I_V	307R 307P 307E 307G 307Y	0.5 1.7 5.6 5.6 8.7	1.7 5.6 19 19 29		mcd	I_F=10 mA Note 1,4
Viewing Angle	$2\theta_{1/2}$	307x		50		deg	Note 2 (Fig.7)
Peak Emission Wavelength	λ P	307R 307P 307E 307G 307Y		655 697 635 565 585		nm	Measurement @Peak (Fig.1)
Dominant Wavelength	λ d	307R 307P 307E 307G 307Y		651 657 623 569 588		nm	Note 3
Spectral Line Half Width	$\triangle\lambda$	307R 307P 307E 307G 307Y		24 90 40 30 35		nm	
Forward Voltage	V_F	307R 307P 307E 307G 307Y		1.7 2.1 2.0 2.1 2.1	2.0 2.6 2.6 2.6 2.6	V	I_F=20mA
Reverse Current	I_R	307x			100	μ A	V_R=5V
Capacitance	C	307R 307P 307E 307G 307Y		30 55 20 35 15		pF	V_F=0 , f=1MHz

Notes:1.Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3.The dominant wavelength, λ d is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.
4.I_V needs $\pm$15% additionary for guaranteed limits.

Electrical/Optical Characteristics at Ta=25℃

Parameter	Symbol	Part No. LTL-	Min.	Typ.	Max.	Unit.	Test Condition.
Luminous Intensity	I_V	307RE 307PE 307EE 307GE 307YE	1.1 2.5 29 19 12.6	3.7 8.7 90 60 40		mcd	I_F=10 mA Note 1,4
Viewing Angle	$2\theta_{1/2}$	307xE		40		deg	Note 2 (Fig.15)
Peak Emission Wavelength	λP	307RE 307PE 307EE 307GE 307YE		655 697 635 565 585		nm	Measurement @Peak (Fig.1)
Dominant Wavelength	λd	307RE 307PE 307EE 307GE 307YE		651 657 623 569 588		nm	Note 3
Spectral Line Half Width	$\triangle\lambda$	307RE 307PE 307EE 307GE 307YE		24 90 40 30 35		nm	
Forward Voltage	V_F	307RE 307PE 307EE 307GE 307YE		1.7 2.1 2.0 2.1 2.1	2.0 2.6 2.6 2.6 2.6	V	I_F=20mA
Reverse Current	I_R	307xE			100	μ A	V_R=5V
Capacitance	C	307RE 307PE 307EE 307GE 307YE		30 55 20 35 15		pF	V_F=0 , f=1MHz

Notes:1.Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3.The dominant wavelength, λ d is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.
4.I_V needs $\pm$ 15% additionary for guaranteed limits.

Typical Electrical/Optical Characteristic Curves (25℃ Ambient Temperature Unless Otherwise Noted)

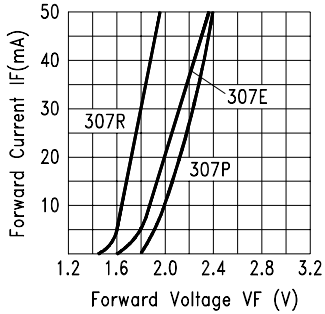


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

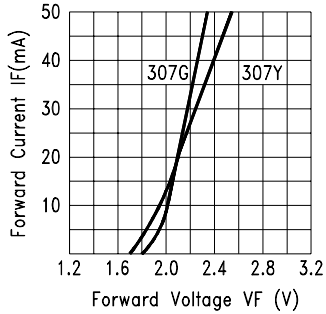


Fig.3 FORWARD CURRENT VS. FORWARD VOLTAGE

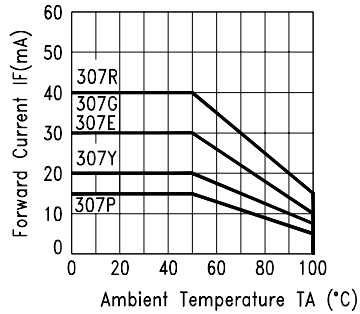


Fig.4 FORWARD CURRENT DERATING CURVE

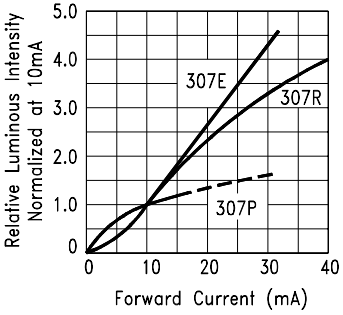


Fig.5 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

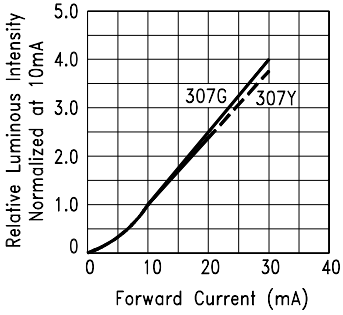


Fig.6 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

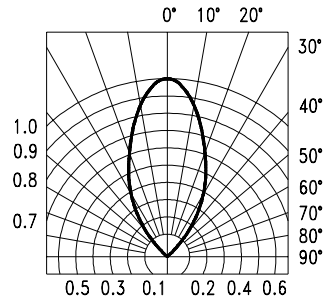


Fig.7 SPATIAL DISTRIBUTION

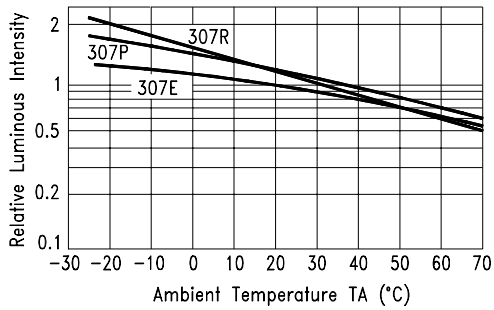


Fig.8 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

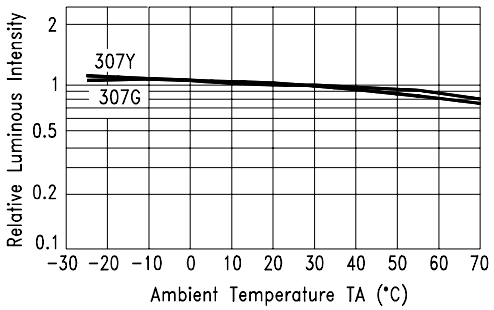


Fig.9 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

Typical Electrical/Optical Characteristic Curves (25℃ Ambient Temperature Unless Otherwise Noted)

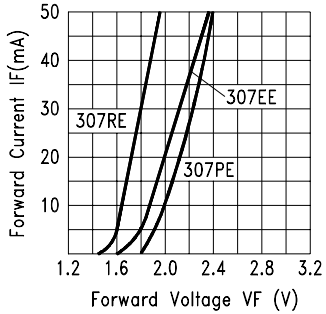


Fig.10 FORWARD CURRENT VS. FORWARD VOLTAGE

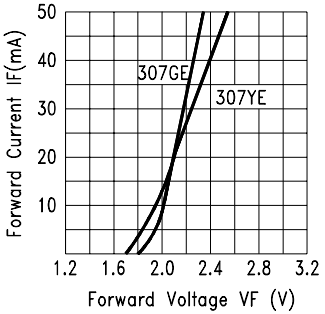


Fig.11 FORWARD CURRENT VS. FORWARD VOLTAGE

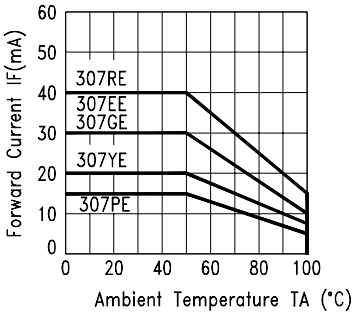


Fig.12 FORWARD CURRENT DERATING CURVE

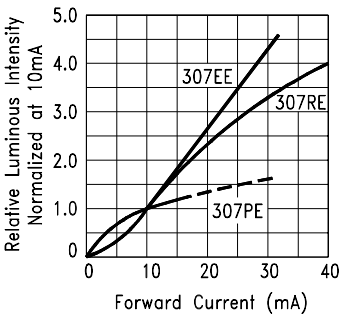


Fig.13 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

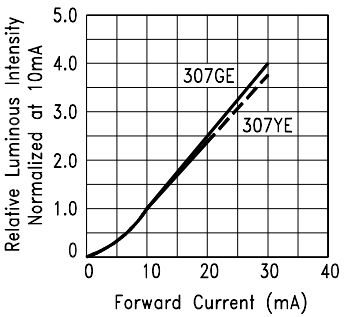


Fig.14 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

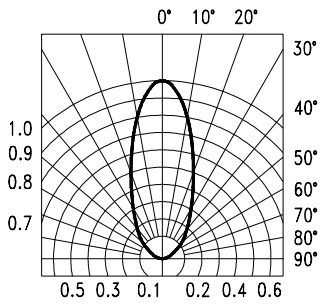


Fig.15 SPATIAL DISTRIBUTION

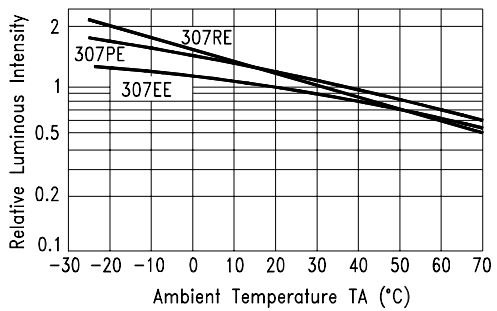


Fig.16 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

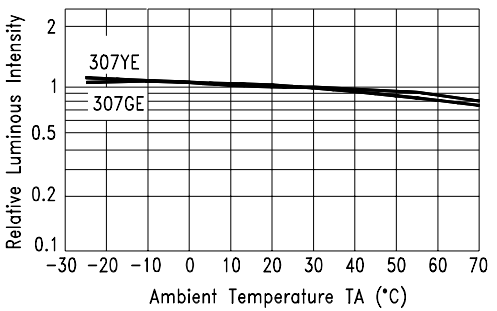


Fig.17 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE