

LITEON

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 Arsenide Red Light Emitting Diode.

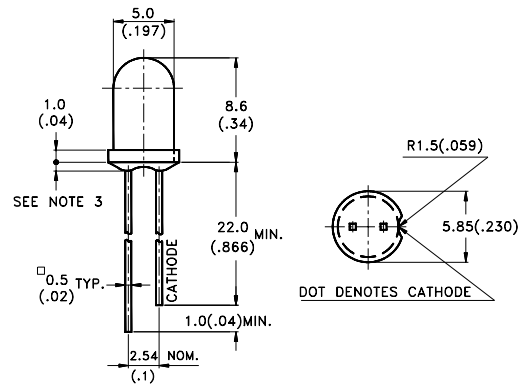
The Bright Red source color devices are made with Gallium Phosphide on Gallium Phosphide Red Light Emitting Diode.

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 Green Light 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 $\pm 0.25\text{mm}$ (.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.

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 | Yellow Transparent | |

Absolute Maximum Ratings at Ta=25°C

| 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°C | 0.5 | 0.2 | 0.4 | 0.25 | 0.4 | mA/°C |
| Reverse Voltage | 5 | 5 | 5 | 5 | 5 | V |
| Operating Temperature Range | -55°C to +100°C | | | | | |
| Storage Temperature Range | -55°C to +100°C | | | | | |
| Lead Soldering Temperature [1.6mm (.063 in.) from body] | 260°C for 5 Seconds | | | | | |

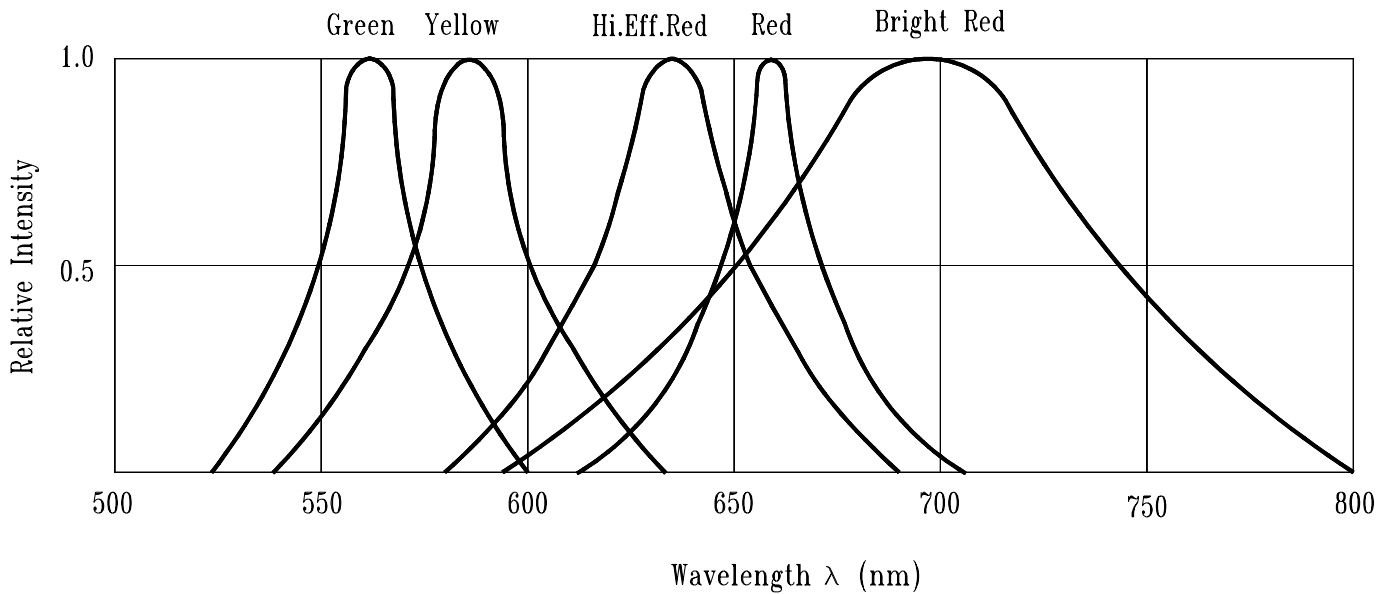


Fig.1 Relative Intensity vs. Wavelength

Electrical/Optical Characteristics at Ta=25°C

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

Notes:1.Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.

2. θ^{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 ± 15% additionalary for guaranteed limits.

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

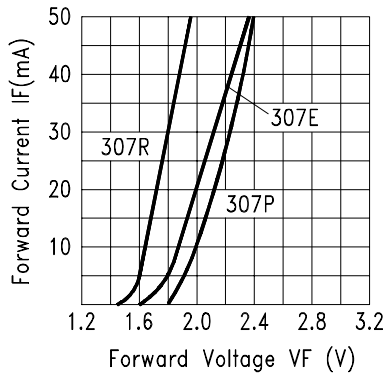


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

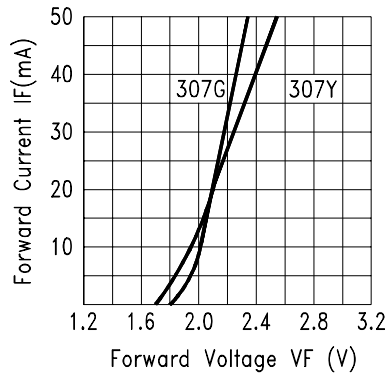


Fig.3 FORWARD CURRENT VS. FORWARD VOLTAGE

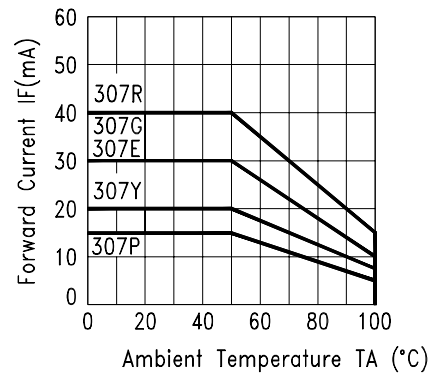


Fig.4 FORWARD CURRENT DERATING CURVE

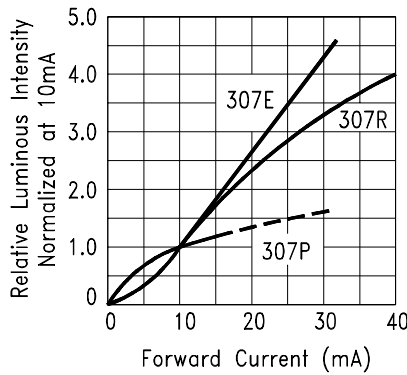


Fig.5 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

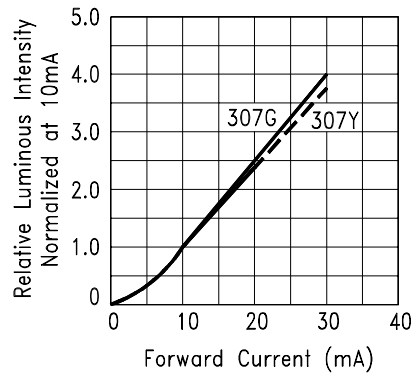


Fig.6 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

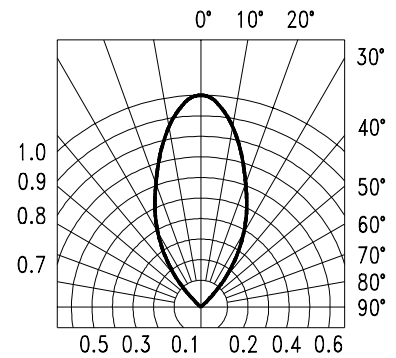


Fig.7 SPATIAL DISTRIBUTION

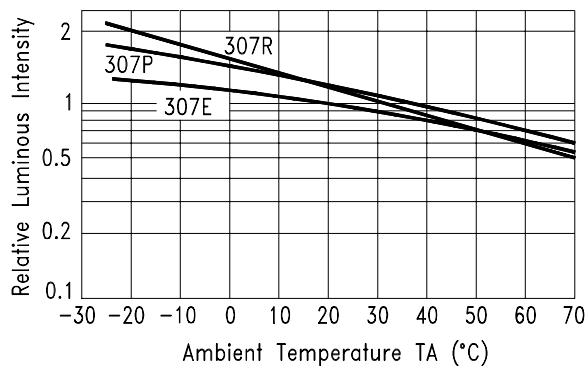


Fig.8 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

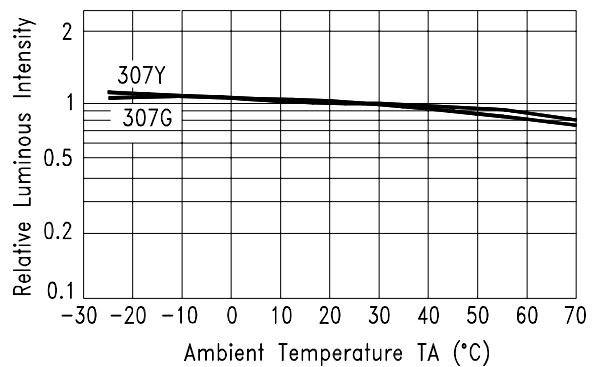


Fig.9 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

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

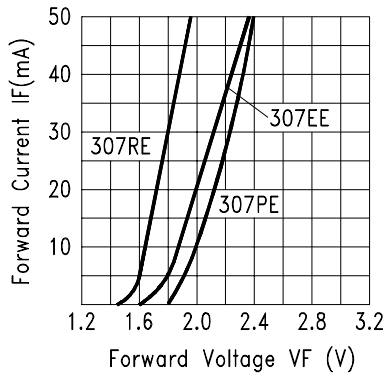


Fig.10 FORWARD CURRENT VS. FORWARD VOLTAGE

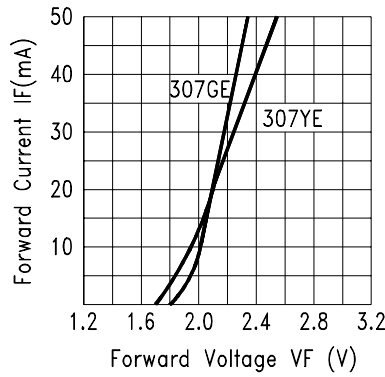


Fig.11 FORWARD CURRENT VS. FORWARD VOLTAGE

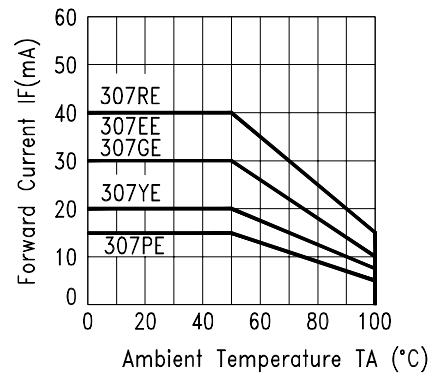


Fig.12 FORWARD CURRENT DERATING CURVE

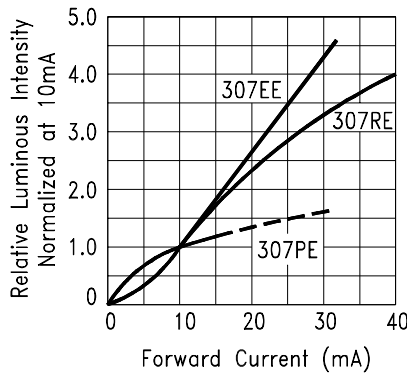


Fig.13 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

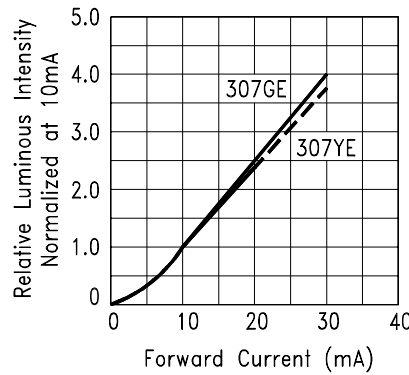


Fig.14 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

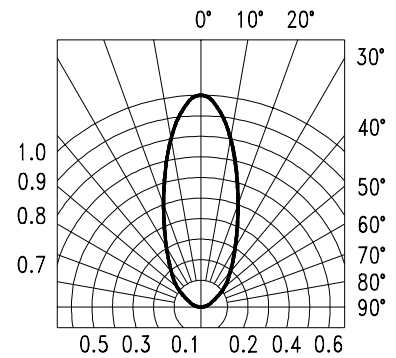


Fig.15 SPATIAL DISTRIBUTION

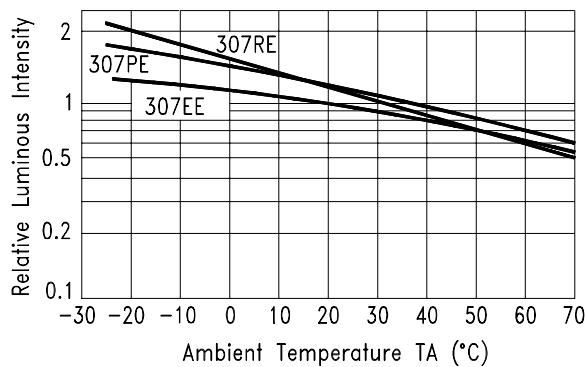


Fig.16 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

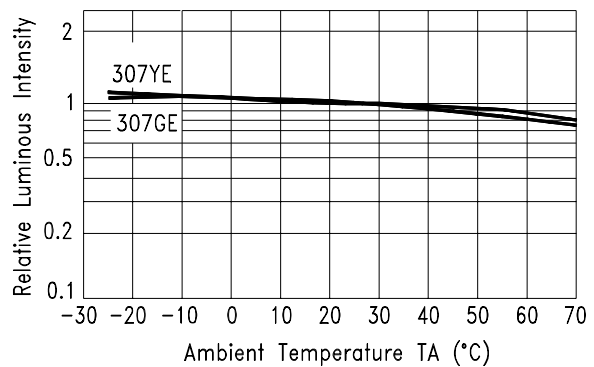


Fig.17 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE