# LL-509VGM2E-005

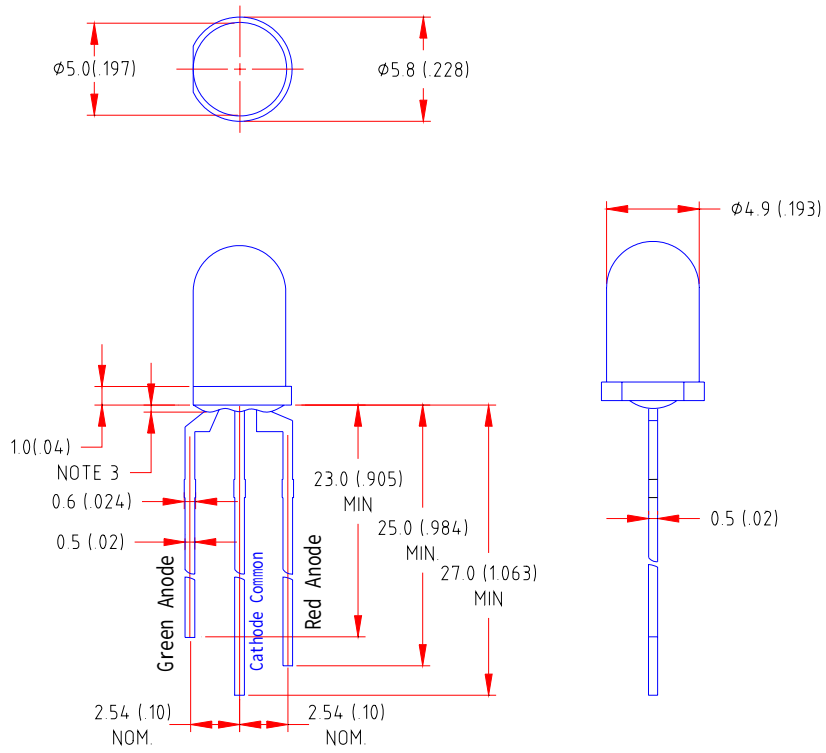
## DATA SHEET

QC: ENG: Prepared By:

## Features

- ♦ High intensity
- ♦ Standard T-1 3/4 diameter package
- ♦ Wide viewing angle
- ♦ General purpose leads
- ♦ Reliable and rugged

## Package Dimension:




| Part NO. | Chip Material | | Lens Color | Source Color |
|---|---|---|---|---|
| LL-509VGM2E-005 | Red | Green | White Diffused | Red & Green |
| | AlGaInP | GaP | | |

**Notes:**

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25(.010")mm unless otherwise noted.
3. Protruded resin under flange is 1.0mm(.04") 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 Ta=25℃

| Parameter | MAX. | Unit |
|---|---|---|
| Power Dissipation | 100 | mW |
| Peak Forward Current<br>(1/10 Duty Cycle, 0.1ms Pulse Width) | 100 | mA |
| Continuous Forward Current | 35 | mA |
| Derating Linear From 50℃ | 0.4 | mA/℃ |
| Reverse Voltage | 5 | V |
| Operating Temperature Range | -40℃ to +80℃ | |
| Storage Temperature Range | -40℃ to +80℃ | |
| Lead Soldering Temperature<br>[4mm(.157") From Body] | 260℃ for 5 Seconds | |

## Electrical Optical Characteristics at Ta=25℃

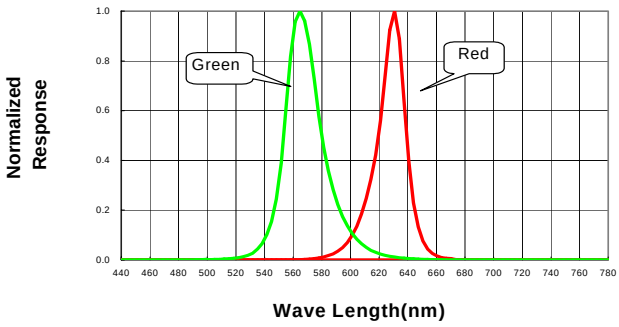
| Parameter | Symbol | Emitting Color | Min. | Typ. | Max. | Unit | Test Condition |
|---|---|---|---|---|---|---|---|
| Luminous Intensity | Iv | Green | 20 | 44 | 90 | mcd | $I_f$=20mA Note 1 |
| | | Red | 100 | 200 | 420 | | |
| Viewing Angle | $2\theta_{1/2}$ | Green | 70 | 80 | 90 | Deg | Note 2 |
| | | Red | 70 | 80 | 90 | | |
| Peak Emission Wavelength | $\lambda p$ | Green | 563 | 568 | 573 | nm | Measurement @Peak |
| | | Red | 627 | 632 | 637 | | |
| Dominant Wavelength | $\lambda d$ | Green | 565 | 572 | 576 | nm | Note 3 |
| | | Red | 625 | 630 | 635 | | |
| Spectral Line Half-Width | $\triangle\lambda$ | Green | 24 | 29 | 35 | nm | |
| | | Red | 15 | 20 | 25 | | |
| Forward Voltage | $V_F$ | Green | 1.7 | 2.2 | 2.6 | V | $I_F$=20mA |
| | | Red | 1.6 | 2.0 | 2.5 | | |
| Reverse Current | $I_R$ | Green | --- | --- | 100 | μA | $V_R$=5V |
| | | Red | | | | | |

Note:

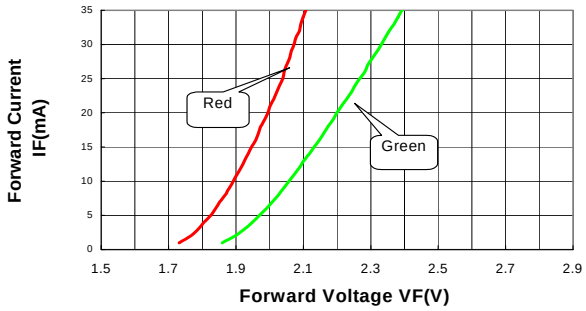
1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3. The dominant wavelength ($\lambda d$) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

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

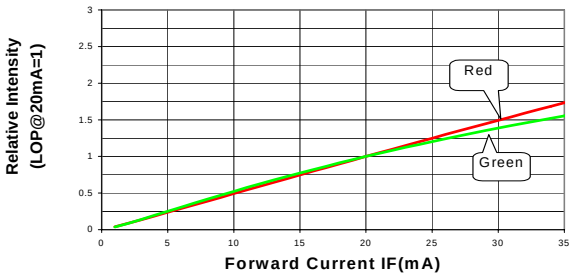
**Spectral Radiance** **Green Peak @ 568nm**
**Red Peak @ 632nm**



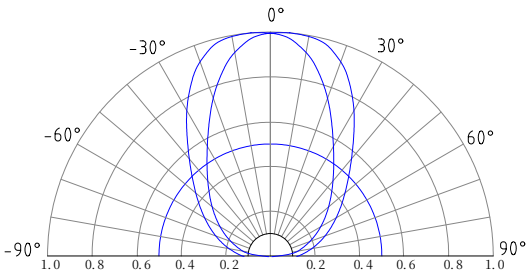

**Forward Current vs Forward Voltage**




**Relative Luminous Intensity vs Forward Current**




Beam Pattern




Relative Intensity (LOP @ MAX=1)