

# Preliminary

## LL-309IGM2E-003

### DATA SHEET



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ENG: 鄭文斌

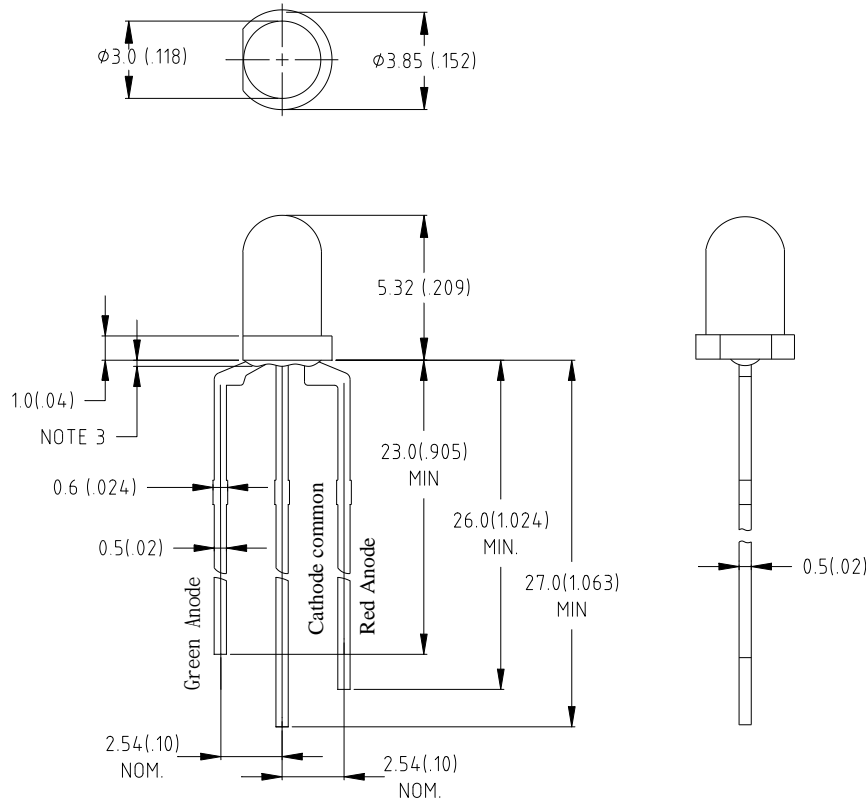
Prepared By: 賓娟

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### Features:

- ◆ Standard 3mm diameter package
- ◆ General purpose leads
- ◆ Pb-free

### Package Dimensions:



Part NO.	Chip Material		Lens Color	Emission Color
LL-309IGM2E-003	Red	Green	White Diffused	Red & Green
	GaAsP	GaP		

### 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 1.0mm (.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°C**

Parameter	MAX.		Unit
	Red	Green	
Power Dissipation	90	130	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	100	100	mA
Continuous Forward Current	35	50	mA
Derating Linear From 50°C	0.4	0.4	mA/°C
Reverse Voltage	5	5	V
Operating Temperature Range	-30°C to +80°C		
Storage Temperature Range	-40°C to +100°C		
Lead Soldering Temperature [4mm(.157") From Body]	280°C for 5 Seconds		



**Electrical Optical Characteristics at Ta=25°C**

Parameter	Symbol	Emitting Color	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	I <sub>v</sub>	Green	13	30		mcd	I <sub>F</sub> =20mA Note 1
		Red	10	24			
Viewing Angle	2θ <sub>1/2</sub>	Green	70	80	90	Deg	Note 2
		Red	90	100	110		
Peak Emission Wavelength	λ <sub>p</sub>	Green	563	568	573	nm	Measurement @Peak
		Red	635	640	645		
Dominant Wavelength	λ <sub>d</sub>	Green	565	570	575	nm	Note 3
		Red	625	630	635		
Spectral Line Half-Width	Δλ	Green	25	30	35	nm	
		Red	35	40	45		
Forward Voltage	V <sub>F</sub>	Green	1.7	2.2	2.6	V	I <sub>F</sub> =20mA
		Red	1.6	2.0	2.6		
Reverse Current	I <sub>R</sub>	Green			10	μA	V <sub>R</sub> =5V
		Red					

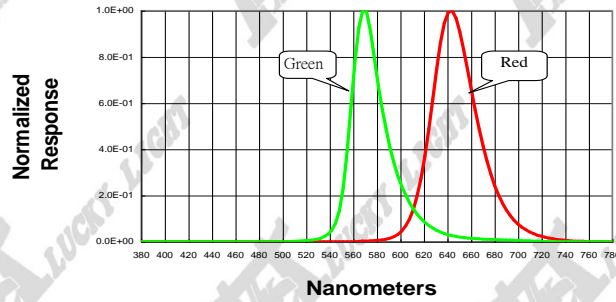
Note:

- Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
- θ<sub>1/2</sub> is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
- The dominant wavelength (λ<sub>d</sub>) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.
- Forward voltage measurement allowance is ±0.1V
- Luminous Intensity Measurement Allowance is ± 10%

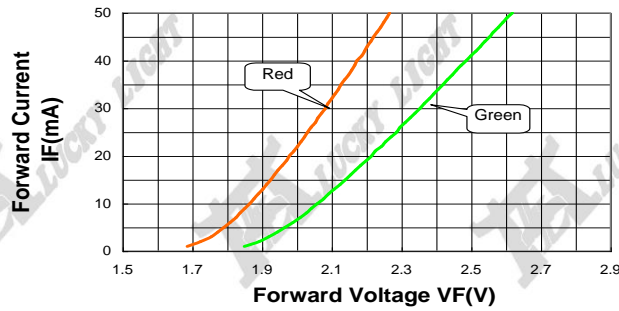


### Typical Electrical / Optical Characteristics Curves (25°C Ambient Temperature Unless Otherwise Noted)

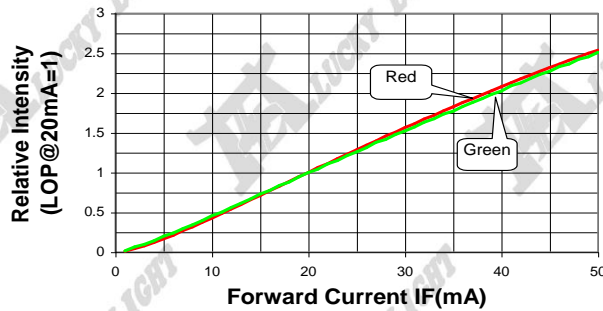
**Spectral Radiance** Green Peak @ 568nm  
Red Peak @ 640nm



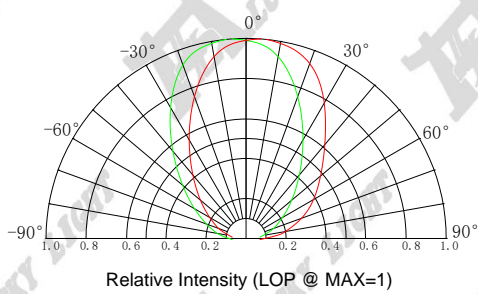
**Forward Current vs Forward Voltage**



**Relative Luminous Intensity vs Forward Current**



**Beam Pattern**



**Forward Current Derating Curve**

