



# M229RGW-A

Light Emitting Diode

## Description

- Size: 3mm (T-1) round package.
- Emitting color: Two-color (super red and green).
- Lens color: White diffused.
- Lead type: Radial leads.

## Main Features

- Instant light less than 100ns turn on time.
- Superior resistance to moisture.
- Low drive current, recommend forward current:  $I_F = 10\text{--}20\text{mA}$ .
- Cool beam, safe to touch.
- Pb-Free.
- Common anode type.
- Wide viewing angle.
- Reliable and rugged.

## Absolute Maximum Rating $T_A = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit	Notice	
Power Dissipation	Pd	RED	75	mW	IF = 20mA
		GREEN	75		
DC Forward Current	IF	RED	25	mA	----
		GREEN	25		
Pulse Forward Current	IF (PEAK)	RED	80	mA	Duty 1/10 @ 1KHz
		GREEN	80		
Derating Linear From $50^\circ\text{C}$	--	0.4	mA / $^\circ\text{C}$	----	
Reverse Voltage	VR	5	V	Under 100uA	
Operating Temperature Range	T OPR	-25 to +70	$^\circ\text{C}$	----	
Storage Temperature Range	T STG	-40 to +80	$^\circ\text{C}$	Humidity should be under 50%	
Lead Soldering Temperature	T SOL	260 +/-5	$^\circ\text{C}$	4mm (0.157") from mold body Less than 5 Second	



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## Part Selection Electrical / Optical Characteristics At TA=25°C

Characteristic	Symbol	Test Condition	Color	Min.	Typ.	Max.	Unit.
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =20mA	RED	1.80	2.00	2.70	V
			GREEN	1.80	2.00	2.70	
Reverse Current	I <sub>R</sub>	V <sub>R</sub> =5V	RED	—	—	10	uA
			GREEN	—	—	10	
Luminous Intensity ( Note 1 )	I <sub>v</sub>	I <sub>F</sub> =20mA	RED	2.70	5	10	mcd
			GREEN	2.70	5	10	
Peak Emission Wavelength	λ <sub>p</sub>	I <sub>F</sub> =20mA	RED	635	640	645	nm
			GREEN	560	565	570	
Spectral Line Half Width	Δλ	I <sub>F</sub> =20mA	RED	18	20	23	nm
			GREEN	20	22	25	
Dominant Wavelength ( Note 2 )	λ <sub>d</sub>	I <sub>F</sub> =20mA	RED	625	630	635	nm
			GREEN	565	570	575	

### NOTES:

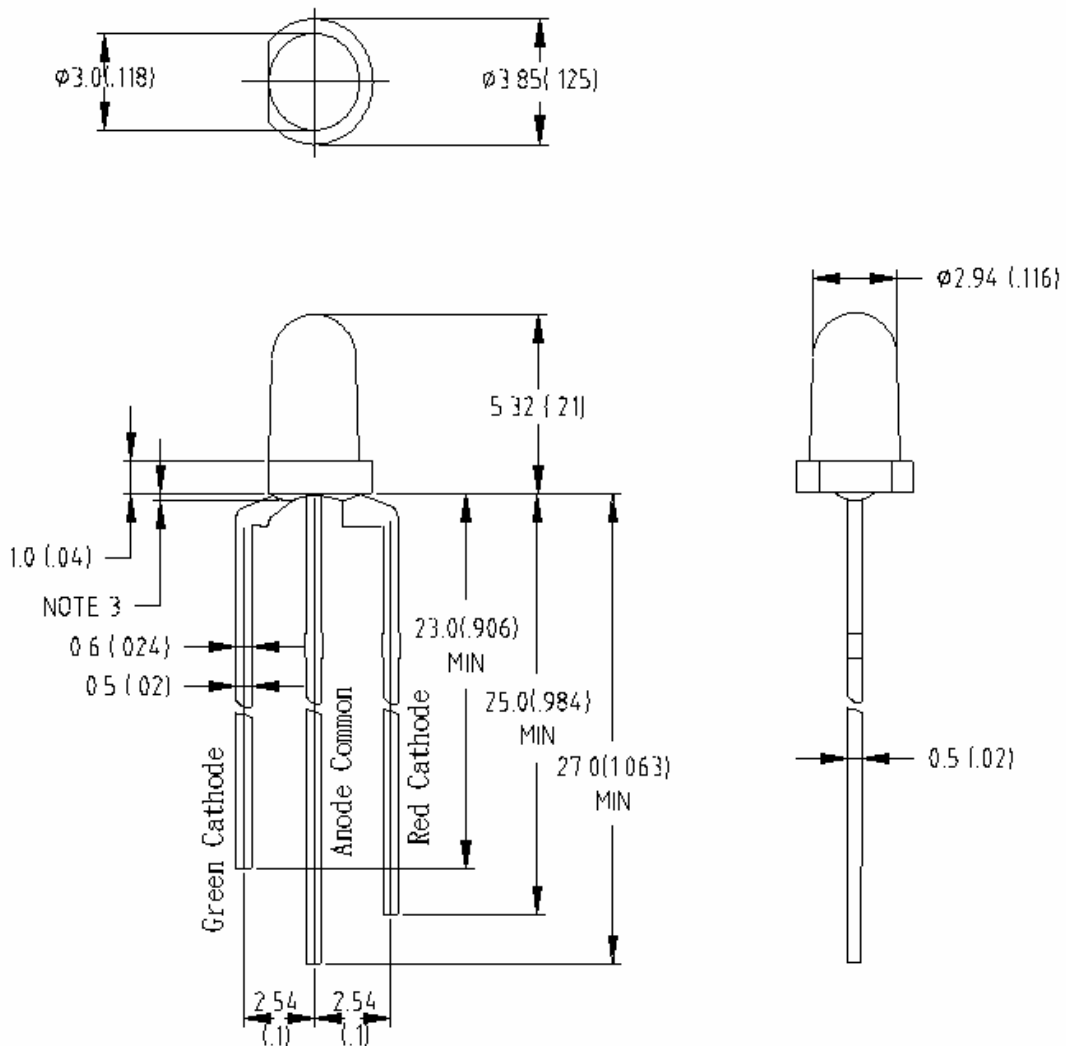
1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
2.  $\theta_{1/2}$  is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3. Luminous intensity is measured with all three chips simultaneously pulsed at 20mA drive current.
4. Forward voltage measurement allowance is +/-0.1V



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## Package Dimensions

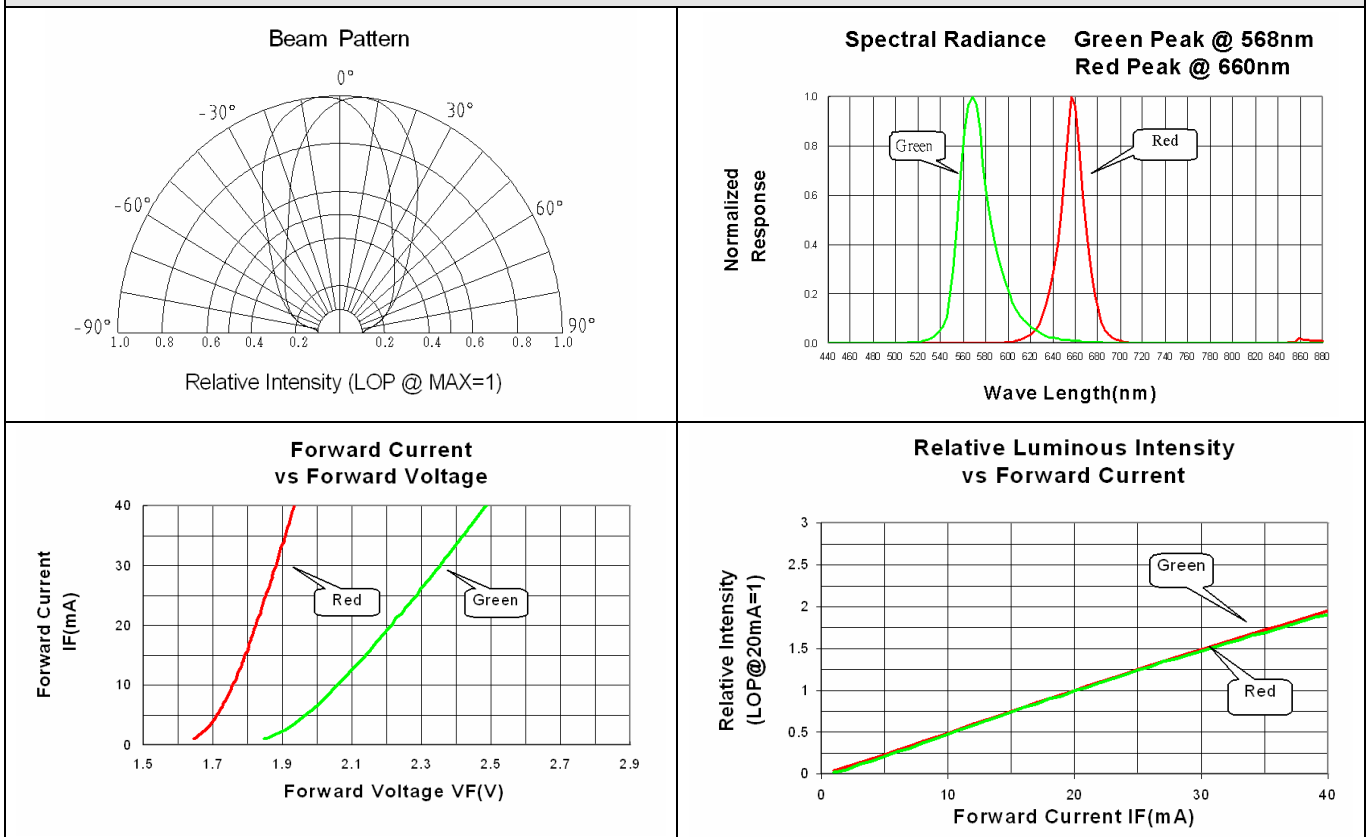


Lens Color	White Diffused		Viewing Angle	70 +/- 5 Deg.	
Chips Material	RED	AlGaAs	Emitting Color	Long lead	Red
	GREEN	GaP		Short lead	Green

### NOTES:

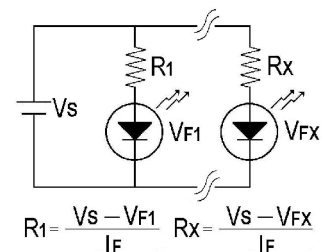
- I All dimensions are in millimeters (inches).
- I Tolerance is  $\pm 0.25$  mm (.010") unless otherwise noted.
- I Protruded resin under flange is 1.0mm(.04") max
- I Lead spacing is measured where the leads emerge from the package.
- I Specifications are subject to change without notice.

## Typical Electrical / Optical Characteristic Curves At 25°C Ambient Temperature



**NOTE:**

- I  $\theta_{1/2}$  is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
- I Clean only in isopropanol, ethanol, Freon TF (or equivalent).
- I When using this product, Please observe the absolute maximum rating and the instructions for use outlined from use of the product, which does not comply with the absolute maximum rating and the instructions included in these specification sheet.
- I Q.A Outgoing inspection standard:  
Major Defect 0.65 A.Q.L. Minor Defect 1.5 A.Q.L
- I Lead Forming:  
If forming is required, it must be done before soldering. Form pin leads by securing under 5mm from body and bedding with radio pliers or the equivalent to avoid pressure on resin. When the LED is mounted into a P.C.board, pitch spacing should be aligned to prevent cause any stress to the resin. Any unsuitable stress applied to resin may break bonding wire in LED, which will cause failure.
- I Check at a distance of 30cm from the LED to the eye defects.
- I Over-current-proof:  
Customer must apply resistor for protection; otherwise slight voltage shift will cause big current change (Burn out will happen).
- I Parallel connection:  
Customer must apply series resistor in EACH LED under parallel connection. Otherwise VF tolerance will cause LED array brightness uneven.
- I Specifications are subject to change without notice.



$$R_1 = \frac{V_s - V_{F1}}{I_F} \quad R_x = \frac{V_s - V_{FX}}{I_F}$$