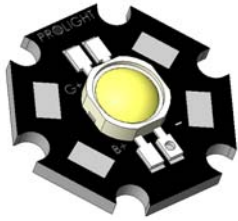
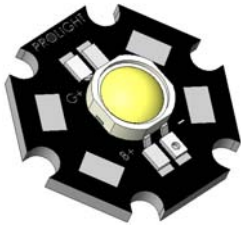
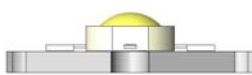
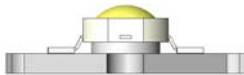




*ProLight Opto*  
Technology Corporation



**ProLight PG1X-1LFS  
1W RGB Power LED  
Technical Datasheet  
Version: 2.7**



## Features

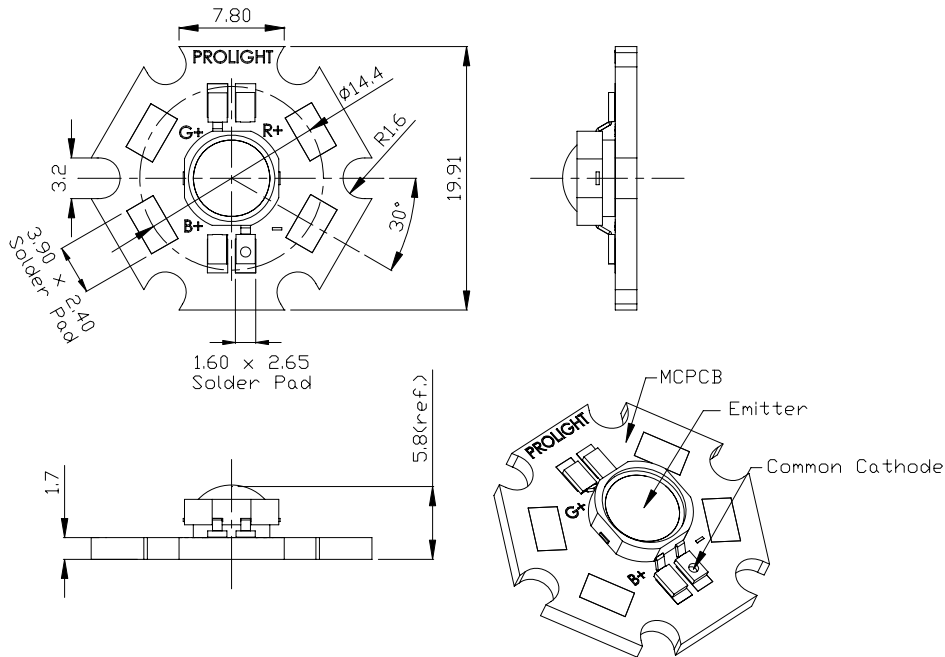
- R, G, B three color in one Package
- High flux per LED
- Very long operating life(up to 100k hours)
- Good color uniformity
- More energy efficient than incandescent and most halogen lamps
- Low Voltage DC operated
- Instant light (less than 100ns)
- No UV

## Typical Applications

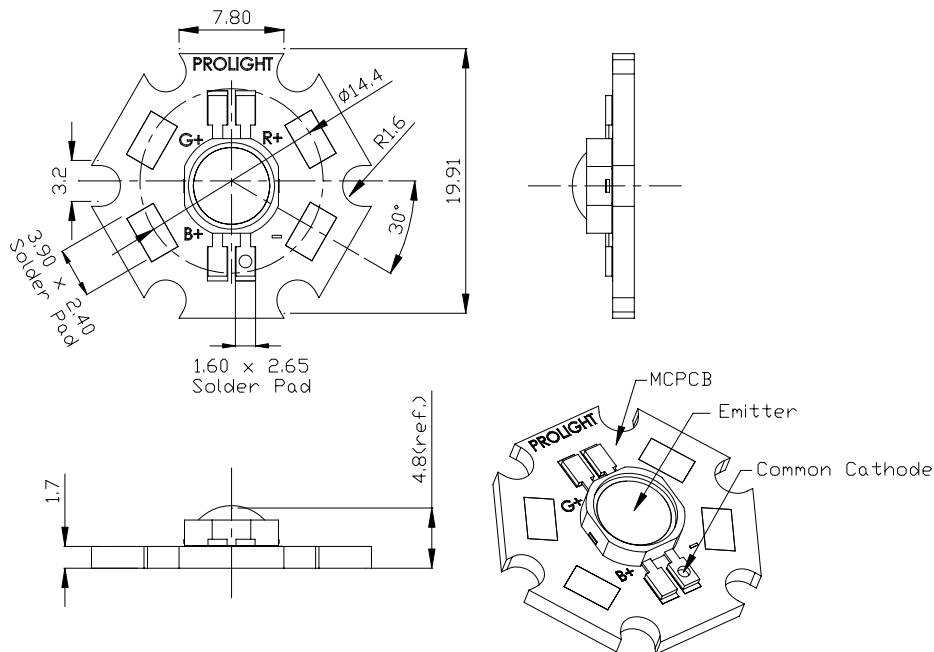
- Reading lights (car, bus, aircraft)
- Portable (flashlight, bicycle)
- Uplighters/Downlighters
- Decorative/Entertainment
- Bollards/Security/Garden
- Cove/Undershelf/Task
- Indoor/Outdoor Commercial and Residential Architectural
- Automotive Ext (Stop-Tail-Turn, CHMSL, Mirror Side Repeat)
- LCD backlights

# Mechanical Dimensions

## Lambertian - Standard Star



## Lambertian - Low Profile Star



**Notes:**

1. Slots in aluminum-core PCB for M3 or #4 mounting screw.
2. Electrical interconnection pads labeled on the aluminum-core PCB with "+" and "-" to denote positive and negative, respectively.
3. Drawing not to scale.
4. All dimensions are in millimeters.
5. All dimensions without tolerances are for reference only.
6. Please do not use a force of over 3kgf impact or pressure on the lens of the LED, otherwise it will cause a catastrophic failure.

\*The appearance and specifications of the product may be modified for improvement without notice.

**ProLight**

## Flux Characteristics at 150mA, T<sub>J</sub> = 25°C

Radiation Pattern	Color	Part Number		Lumious Flux $\Phi_V$ (lm)	
		Standard Star	Low Profile Star	Minimum	Typical
Lambertian	Green			-	17
	Blue	PG1A-1LFS	PG1N-1LFS	-	4
	Red			-	12

- ProLight maintains a tolerance of  $\pm 10\%$  on flux and power measurements.
- Please do not drive at rated current more than 1 second without proper heat sink.

## Electrical Characteristics at 150mA, T<sub>J</sub> = 25°C

Color	Forward Voltage V <sub>F</sub> (V)			Dynamic Resistance ( $\Omega$ )	Temperature Coefficient of V <sub>F</sub> (mV/°C) $\Delta V_F / \Delta T_J$	Thermal Resistance Junction to Board (°C/W)
	Min.	Typ.	Max.			
Green	2.8	3.5	4.3	1.0	-2.0	15
Blue	2.8	3.5	4.3	1.0	-2.0	15
Red	1.9	2.2	3.1	2.4	-2.0	15

## Optical Characteristics at 150mA, T<sub>J</sub> = 25°C

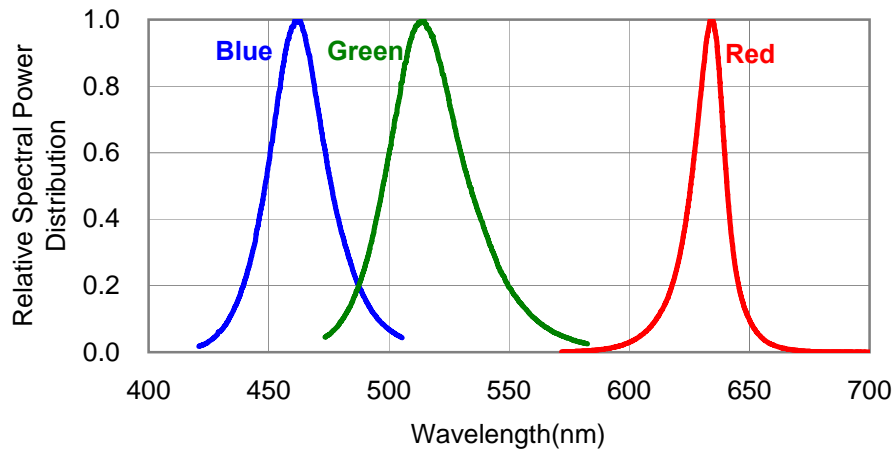
Radiation Pattern	Color	Dominant Wavelength $\lambda_D$ , or Color Temperature CCT			Spectral Half-width (nm) $\Delta\lambda_{1/2}$	Temperature Coefficient of Dominant Wavelength (nm/°C) $\Delta\lambda_D / \Delta T_J$	Total included Angle (degrees) $\theta_{0.90V}$	Viewing Angle (degrees) $2\theta_{1/2}$
		Min.	Typ.	Max.				
Lambertian	Green	515 nm	525 nm	535 nm	35	0.04	160	140
	Blue	455 nm	465 nm	475 nm	25	0.04	160	140
	Red	613.5 nm	623 nm	631 nm	20	0.05	160	140

- ProLight maintains a tolerance of  $\pm 1$  nm for dominant wavelength measurements.

## Absolute Maximum Ratings

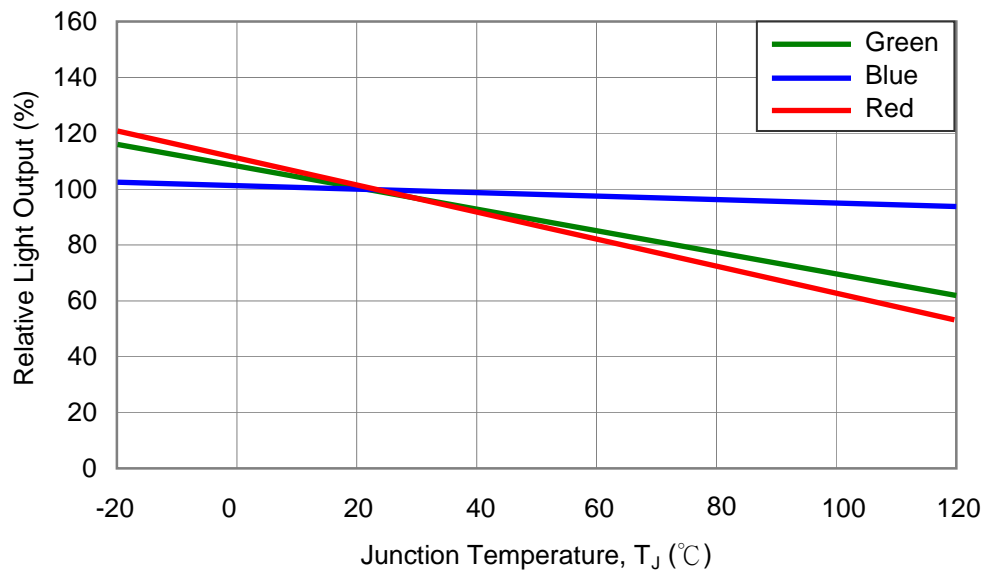
Parameter	Green/Blue	Red
DC Forward Current (mA)	150	150
Peak Pulsed Forward Current (mA)	250	250
Average Forward Current (mA)	150	150
LED Junction Temperature (°C)	135	120
Aluminum-core PCB Temperature (°C)	105	105
Storage & Operating Temperature (°C)	-40 to +105	-40 to +105
Soldering Temperature(°C)	260 for 5 seconds Max.	

## Color Spectrum, $T_J = 25^\circ\text{C}$



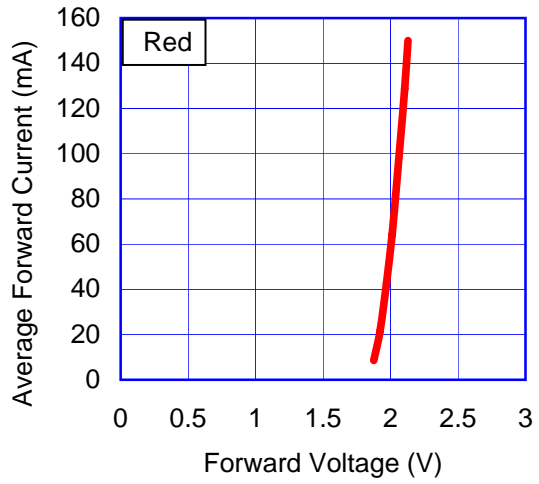
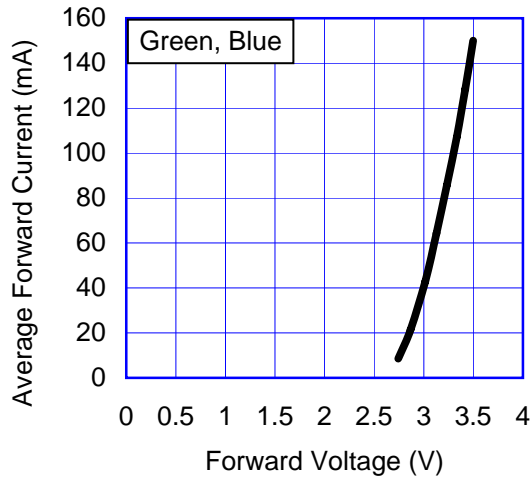
## Light Output Characteristics

### Relative Light Output vs. Junction Temperature at 150mA

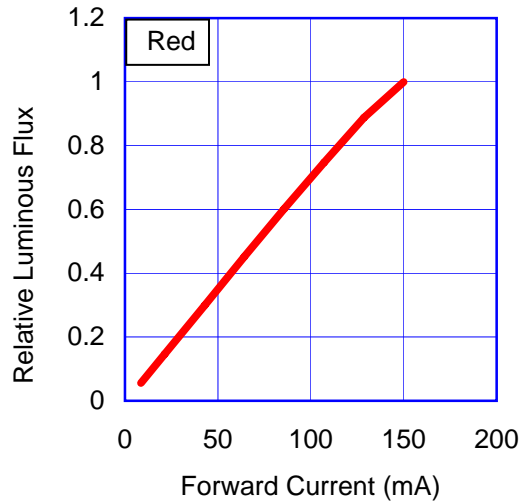
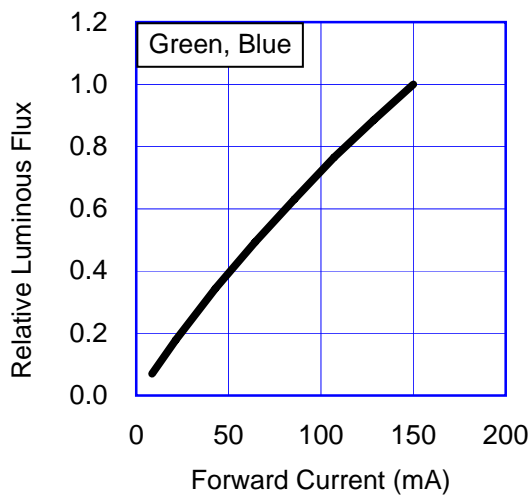


# Forward Current Characteristics, $T_J = 25^\circ\text{C}$

## 1. Forward Voltage vs. Forward Current

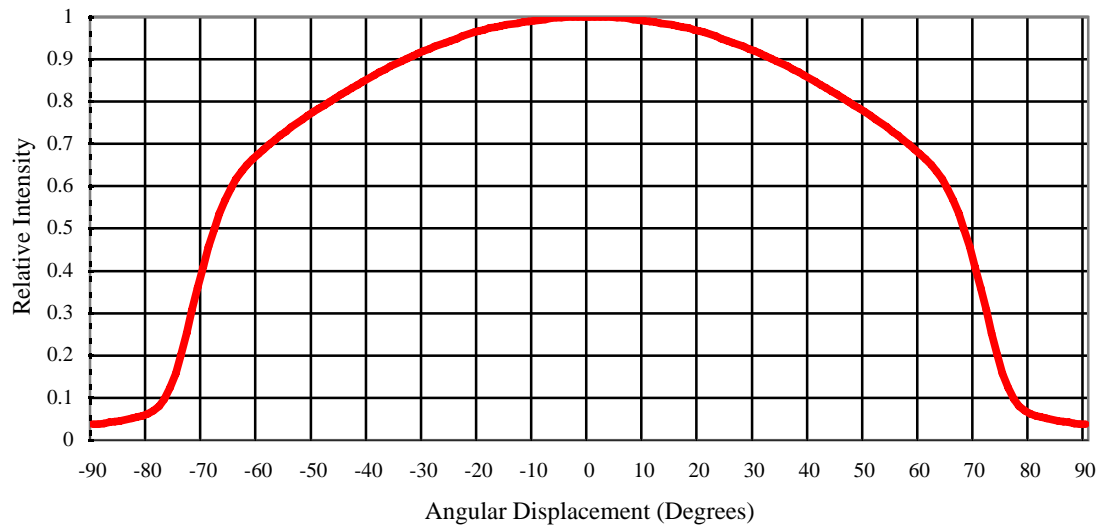


## 2. Forward Current vs. Normalized Relative Luminous Flux

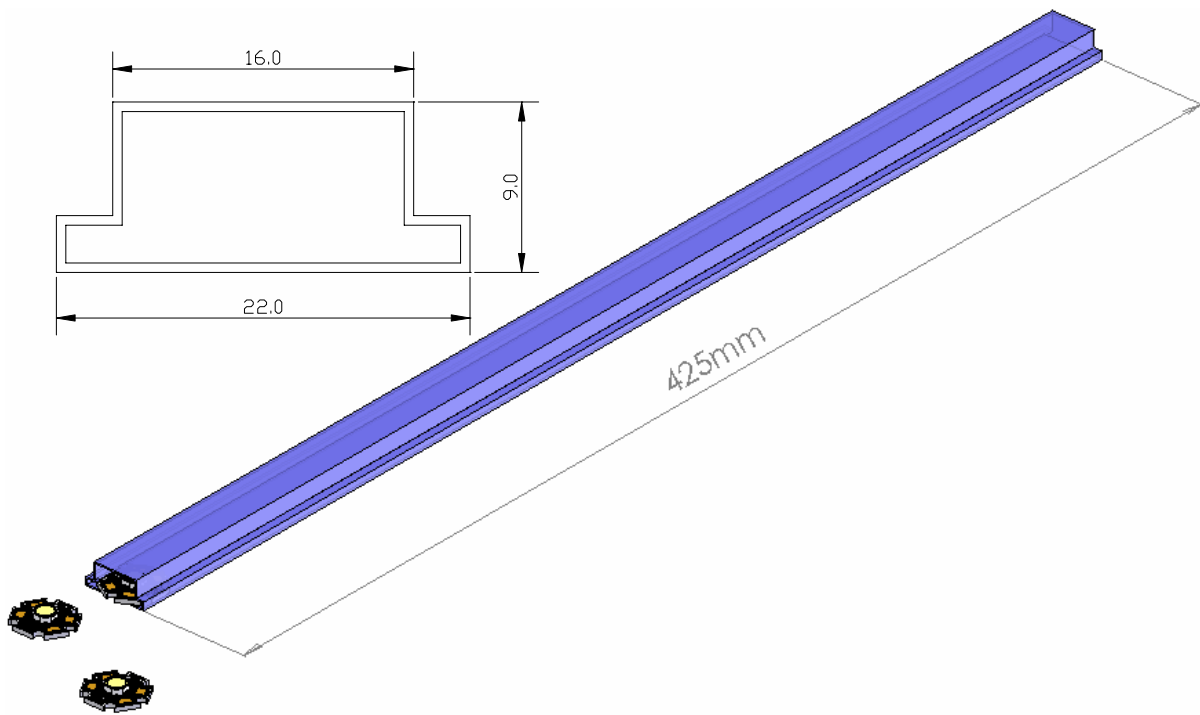


# Typical Representative Spatial Radiation Pattern

## Lambertian Radiation Pattern



## Emitter Tube Packaging



### Notes:

1. 20 pieces per tube.
2. Drawing not to scale.
3. All dimensions are in millimeters.
4. All dimensions without tolerances are for reference only.

\*\*Please do not open the moisture barrier bag (MBB) more than one week. This may cause the leads of LED discoloration. We recommend storing ProLight's LEDs in a dry box after opening the MBB. The recommended storage conditions are temperature 5 to 30°C and humidity less than 40% RH.

## Precaution for Use

- Storage

Please do not open the moisture barrier bag (MBB) more than one week. This may cause the leads of LED discoloration. We recommend storing ProLight's LEDs in a dry box after opening the MBB. The recommended storage conditions are temperature 5 to 30°C and humidity less than 40% RH. It is also recommended to return the LEDs to the MBB and to reseal the MBB.

- The slug is not electrically neutral. Therefore, we recommend to isolate the heat sink.
- The slug is to be soldered. If not, please use the heat conductive adhesive.
- Any mechanical force or any excess vibration shall not be accepted to apply during cooling process to normal temperature after soldering.
- Please avoid rapid cooling after soldering.
- Components should not be mounted on warped direction of PCB.
- Repairing should not be done after the LEDs have been soldered. When repairing is unavoidable, a heat plate should be used. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.
- This device should not be used in any type of fluid such as water, oil, organic solvent and etc. When cleaning is required, isopropyl alcohol should be used.
- When the LEDs are illuminating, operating current should be decided after considering the package maximum temperature.
- The appearance and specifications of the product may be modified for improvement without notice.