

**ProLight PBMM-700F6L-N01BN**  
**700W Power LED**  
**Technical Datasheet**  
**Version: 1.6**

# ProLight Opto ProEngine Series

## Features

- 6-COLOR LED SOURCE:  
R-G-B + AMBER + CYAN + LIME
- Wider Color Gamut
- The CRI values are consistently above 97  
from CCT 2500K to 8000
- High power density of lighting source
- Good color uniformity
- Compact light source
- RoHS compliant

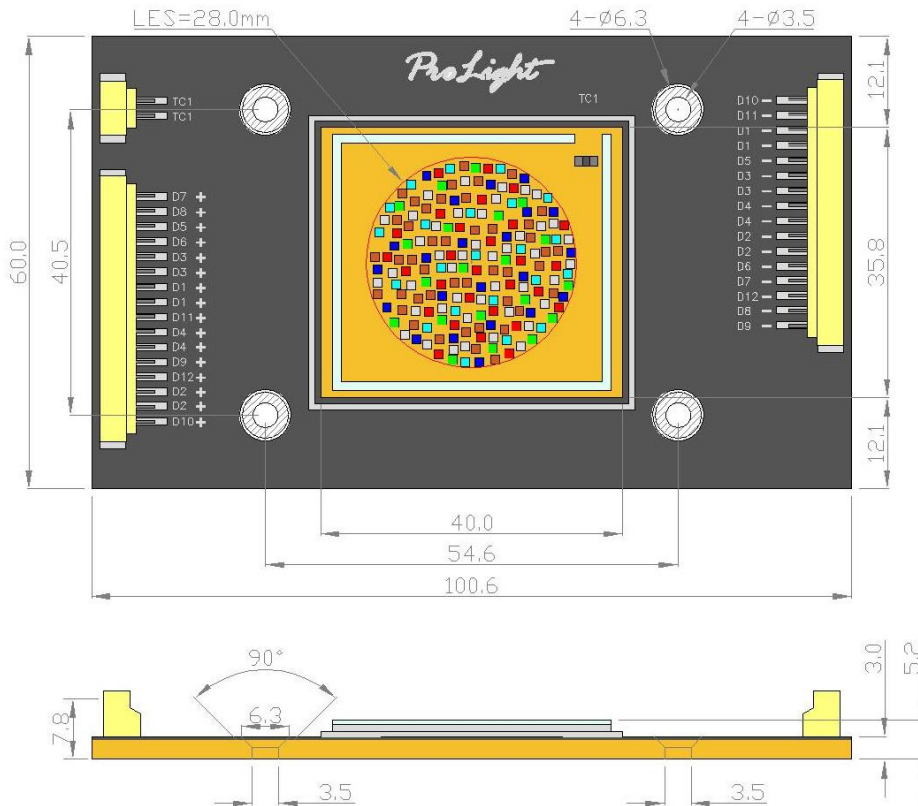
## Main Applications

- Entertainment lighting (Stage lighting)
- Architectural lighting
- Mood lighting
- Outdoor lighting
- Indoor lighting

## Introduction

- The input power is 700 Watt, the multi-chip ultra high power ProEngine Series delivers never before seen luminous flux output from a single emitter. The superficial illuminating nature of ProEngine makes them the preference in spot lighting, typical applications include architectural and entertainment lighting, medical lighting, transportation, emergency vehicle lighting and machine vision.

## Mechanical Dimensions



### Color

D1,D2 : PC Amber  
 D3,D4 : PC Green  
 D5,D6 : Red  
 D7,D8 : Green  
 D9,D10 : Cyan  
 D11,D12 : Blue

### Notes:

1. Drawing not to scale.
2. All dimensions are in millimeters.
3. Unless otherwise indicated, tolerances are  $\pm 0.3\text{mm}$ .
4. Please do not solder the emitter by manual hand soldering, otherwise it will damage the emitter.
5. **Please do not use a force of over 1kgf impact or pressure on the lens of the LED, otherwise it will cause a catastrophic failure.**
6. NCP18XH103E03RB. Please see <http://www.murata.com/> for details on calculating thermistor temperature.
7. Selected JST Connector P/N. PHR-2 and Alex Connector P/N. 2018-16SM. To match 2 pin and 16 pin PH connector, Please refer to [https://www.jst-mfg.com/product/detail\\_e.php?series=199](https://www.jst-mfg.com/product/detail_e.php?series=199) or <https://www.jst-mfg.com/product/pdf/eng/ePH.pdf?6164f36e521d3> for details.

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

## Flux Characteristics, $T_j = 25^\circ\text{C}$

Color	Part Number	Test Current	Total Luminous Flux $\Phi_v$ (lm) / Color	
			Min.	Typ.
D1	PC Amber	3000	11000	13000
D2		3000		
D3	PC Green	3000	18800	22200
D4		3000		
D5	Red	1500	4600	5400
D6		1500		
D7	Green	1500	6000	7100
D8		1500		
D9	Cyan	1500	3400	4000
D10		1500		
D11	Blue	1500	1100	1300
D12		1500		

- **D1 – D4 : Do not use below 100mA ; D5 – D12 : Do not use below 50mA**
- ProLight maintains a tolerance of  $\pm 7\%$  on flux and power measurements.
- Please do not drive at rated current more than 1 second without proper heat sink.

## Electrical Characteristics, $T_j = 25^\circ\text{C}$

Color	Test Current	Each Channel Forward Voltage $V_F$ (V)			
		Min.	Typ.	Max.	
D1	PC Amber	3000	33.0	35.5	39.0
D2					
D3	PC Green	3000	33.0	35.5	39.0
D4					
D5	Red	1500	36.0	42.0	48.5
D6					
D7	Green	1500	29.0	32.0	38.0
D8					
D9	Cyan	1500	36.0	42.0	46.0
D10					
D11	Blue	1500	33.0	35.5	39.0
D12					

- ProLight maintains a tolerance of  $\pm 0.5\text{V}$  for Voltage measurements.

## Optical Characteristics, $T_j = 25^\circ\text{C}$

Color	Test Current	Dominant Wavelength $\lambda_D$			Total included Angle (degrees) $\theta_{0.90V}$	Viewing Angle (degrees) $2\theta_{1/2}$
		Min.	Typ.	Max.		
PC Amber	3000	588 nm	590 nm	592 nm	160	120
PC Green	3000	566 nm	568 nm	570 nm		
Red	1500	620 nm	625 nm	630 nm		
Green	1500	522 nm	525 nm	528 nm		
Cyan	1500	482 nm	488 nm	492 nm		
Blue	1500	449 nm	451 nm	453 nm		

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

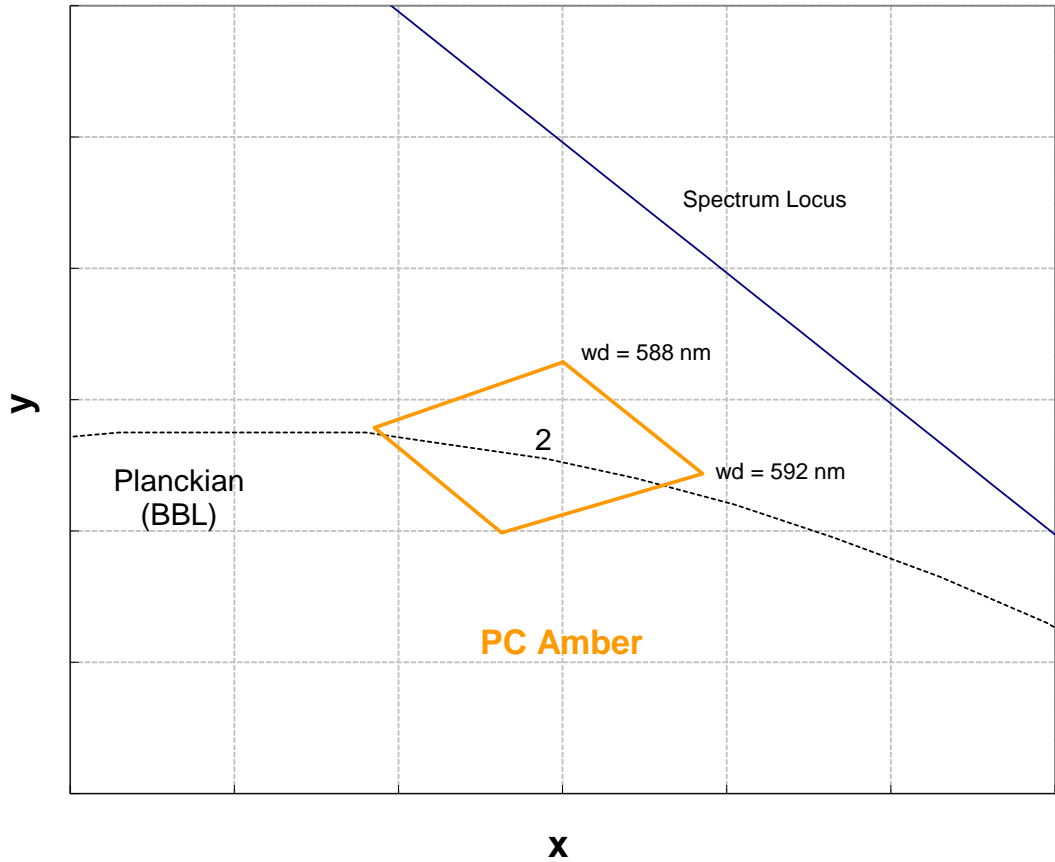
## Absolute Maximum Ratings

Parameter	PC Amber	PC Green	Red	Green	Cyan	Blue
DC Forward Current (mA)	100-3000	100-3000	50-1500	50-1500	50-1500	50-1500
Peak Pulsed Forward Current (mA)	3300	3300	1650	1650	1650	1650
	(less than 1/10 duty cycle@1KHz)					
ESD Sensitivity (HBM per MIL-STD-883E Method 3015.7)	$\pm 2000\text{V}$					
LED Junction Temperature	$135^\circ\text{C}$					
Operating Board Temperature at Maximum DC Forward Current	$-40^\circ\text{C} - 80^\circ\text{C}$					
Storage Temperature	$-40^\circ\text{C} - 80^\circ\text{C}$					
Reverse Voltage	Not designed to be driven in reverse bias					

- Maximum operating power up to 800W at proper board temperature.

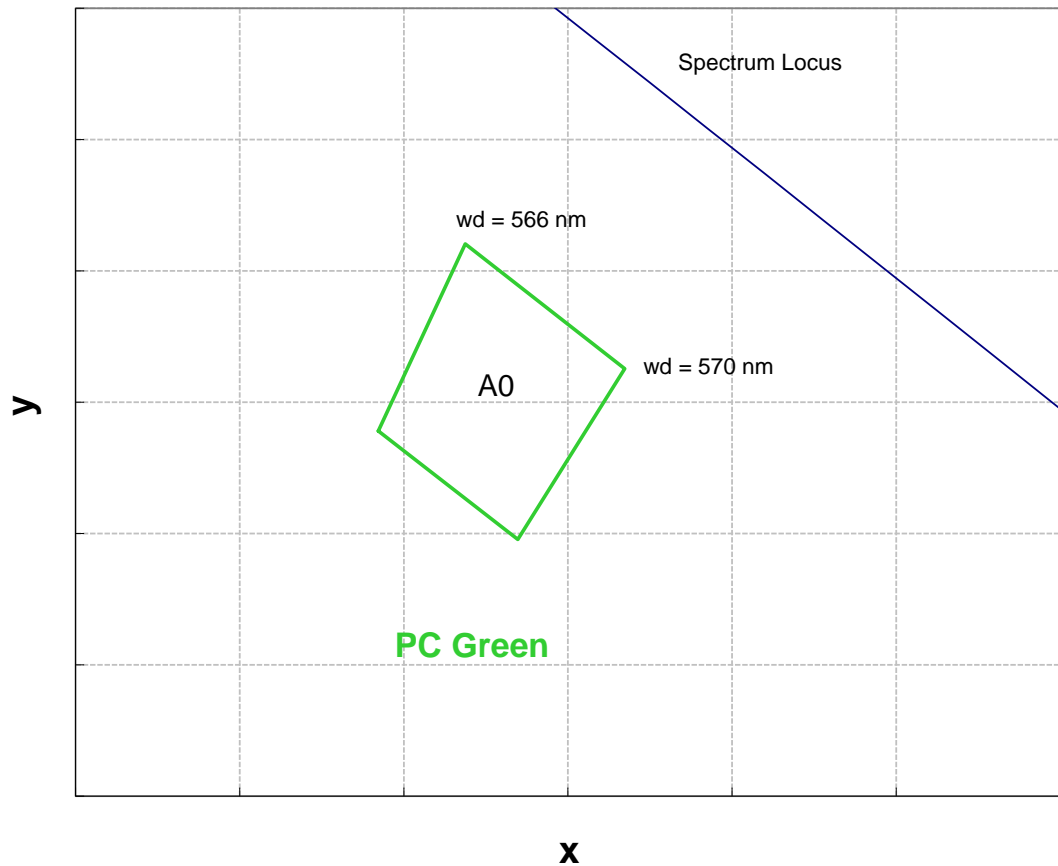
# PC Amber Color Bin

PC Amber Binning Structure Graphical Representation



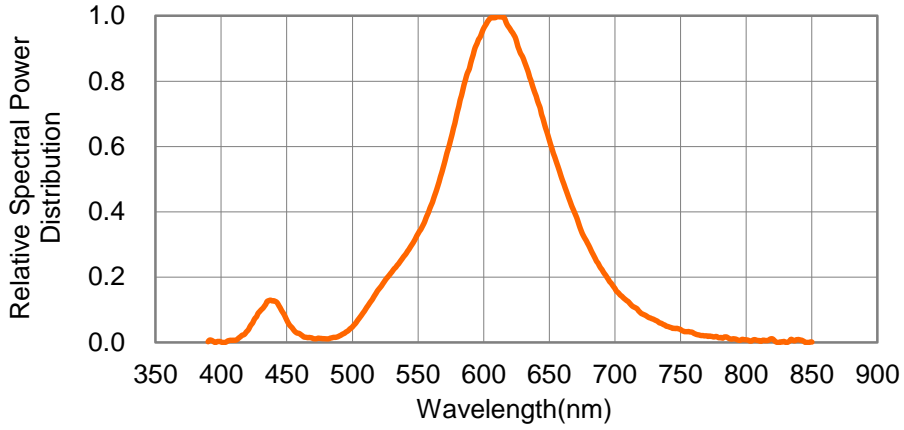
# PC Green Color Bin

PC Green Binning Structure Graphical Representation

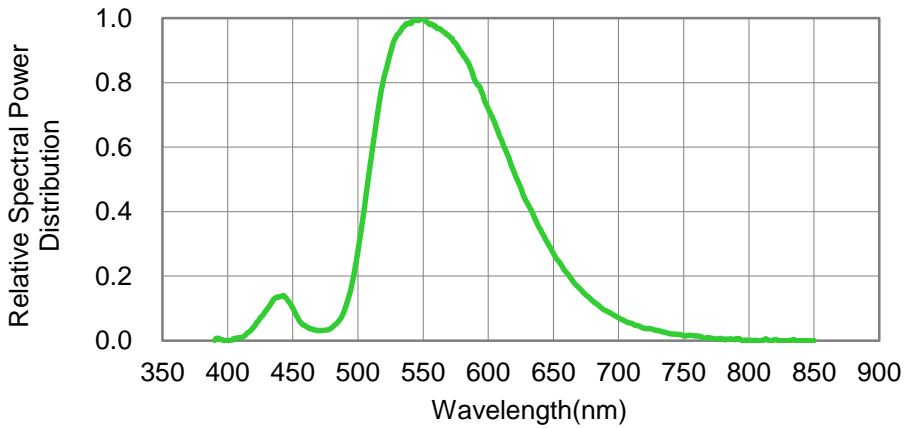


# Color Spectrum, $T_j = 25^\circ\text{C}$

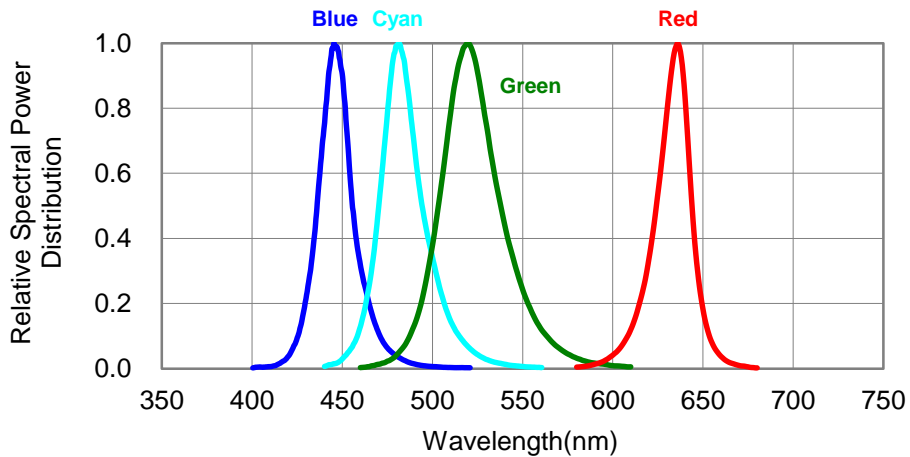
## 1. PC Amber



## 2. PC Green

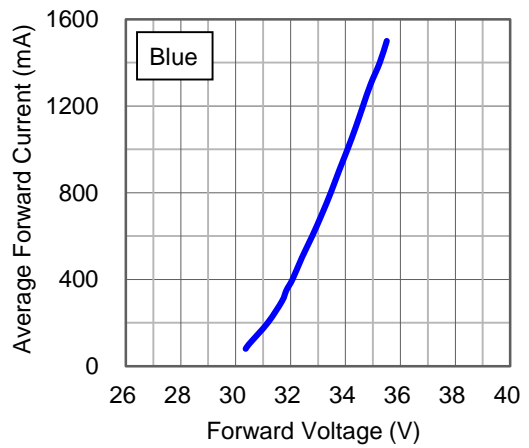
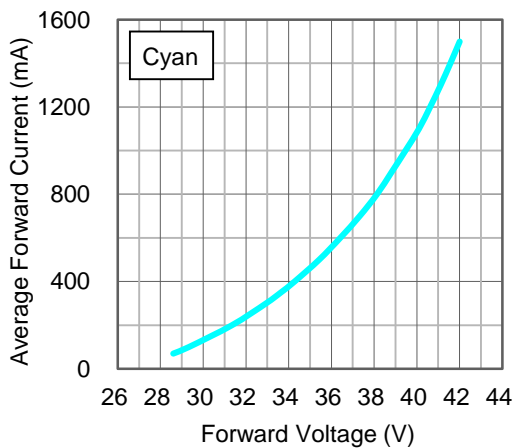
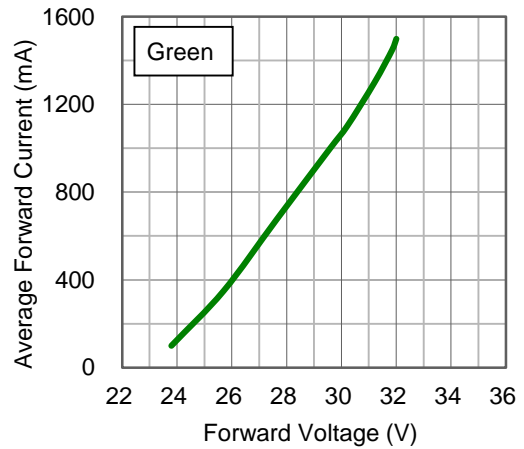
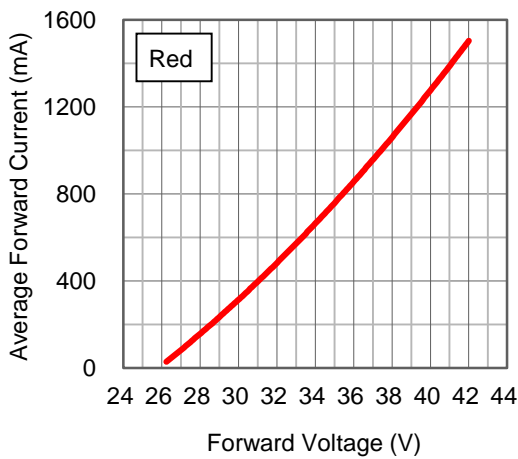
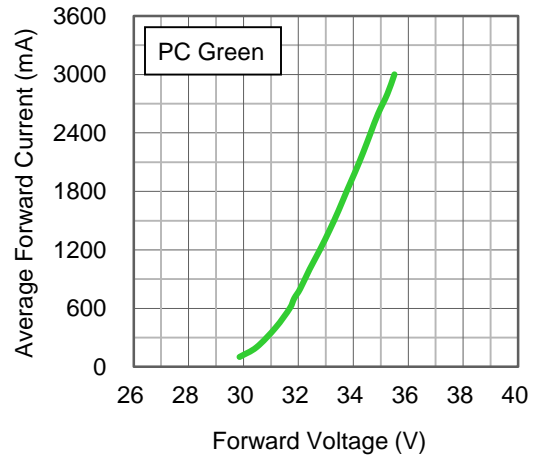
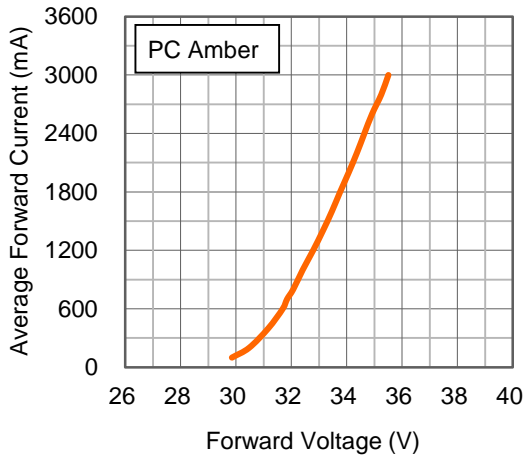


## 3. Blue 、 Cyan 、 Green 、 Red



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

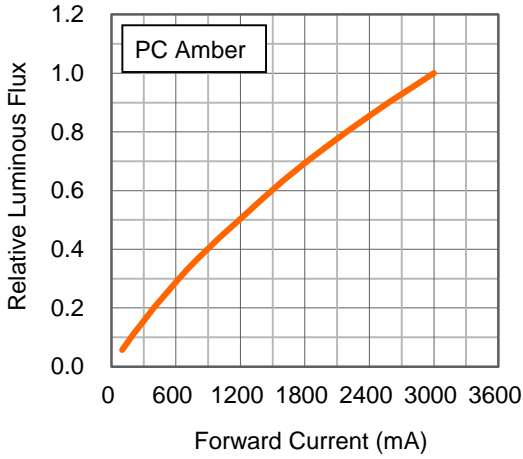
## 1. Forward Voltage vs. Forward Current



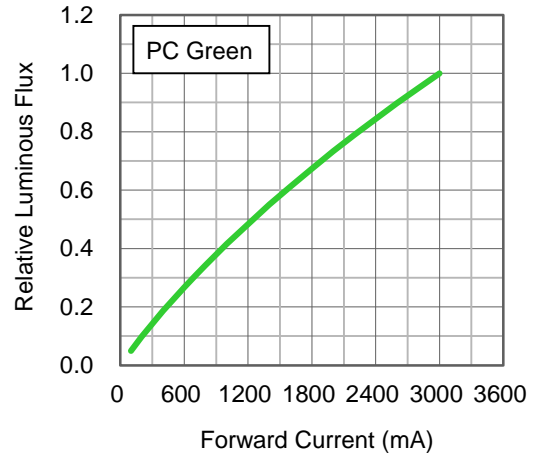


# Forward Current Characteristics, $T_j = 25^\circ\text{C}$

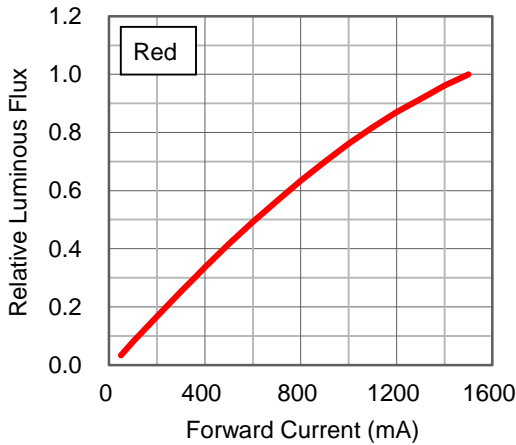
## 2. Forward Current vs. Normalized Relative Luminous Flux



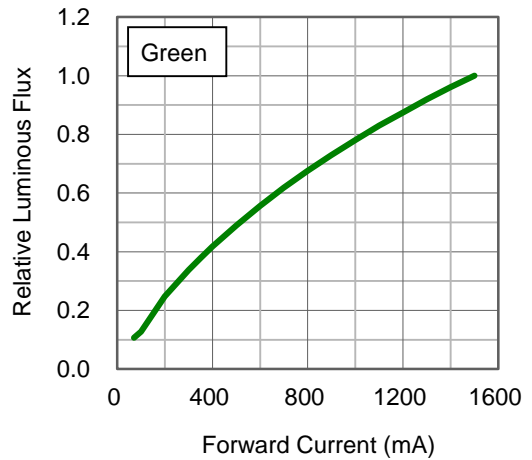
**Do not use below 100mA.**



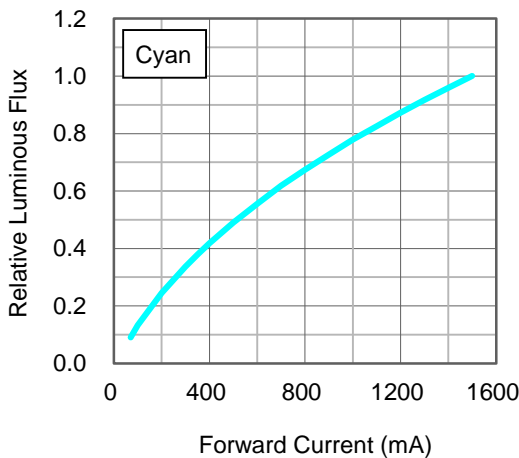
**Do not use below 100mA.**



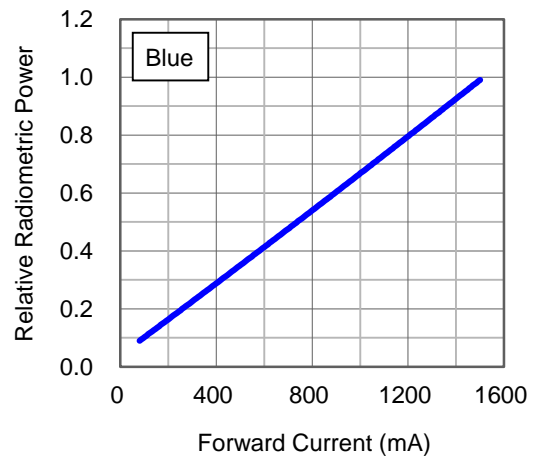
**Do not use below 50mA.**



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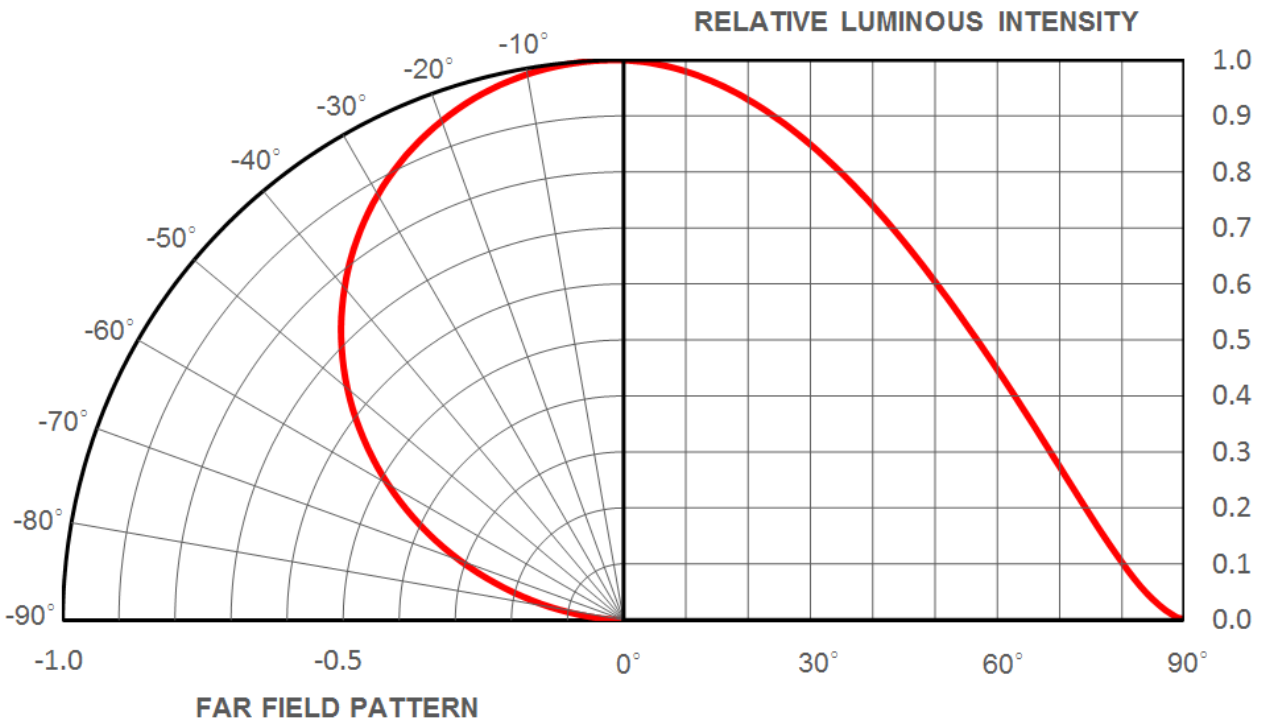


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## Typical Representative Spatial Radiation Pattern



## Precaution for Use

- The modules light output are intense enough to cause injury to human eyes if viewed directly. Precautions must be taken to avoid looking directly at the modules with unprotected eyes.
- The modules are sensitive to electrostatic discharge. Appropriate ESD protection measures must be taken when working with the modules. Non-compliance with ESD protection measures may lead to damage or destruction of the product.
- Chemical solvents or cleaning agents must not be used to clean the modules. Mechanical stress on the Emitters must be avoided. It is best to use a soft brush, damp cloth or low-pressure compressed air.
- The products should be stored away from direct light in dry location.
- The appearance, specifications and flux bin of the product may be modified for improvement without notice. Please refer to the below website for the latest datasheets.  
<http://www.prolightopto.com/>

## Handling of Glass Lens LEDs

Notes for handling of glass lens LEDs

- Please do not use a force of over 3kgf impact or pressure on the glass lens, otherwise it will cause a catastrophic failure.
- The LEDs should only be picked up by making contact with the sides of the LED body.
- Avoid touching the glass lens especially by sharp tools such as Tweezers.
- Avoid leaving fingerprints on the glass lens.
- Please store the LEDs away from dusty areas or seal the product against dust.
- Please do not mold over the glass lens with another resin. (epoxy, urethane, etc)