



**ProLight PU88-230FWL-N00N  
230W COB Light-Engine LEDs  
Technical Datasheet  
Version: 1.6**

# ProLight Opto ® ProEngine Series

## Features

- High flux density of lighting source
- Good color uniformity
- RoHS compliant
- More energy efficient than incandescent and most halogen lamps
- No UV
- Long lifetime

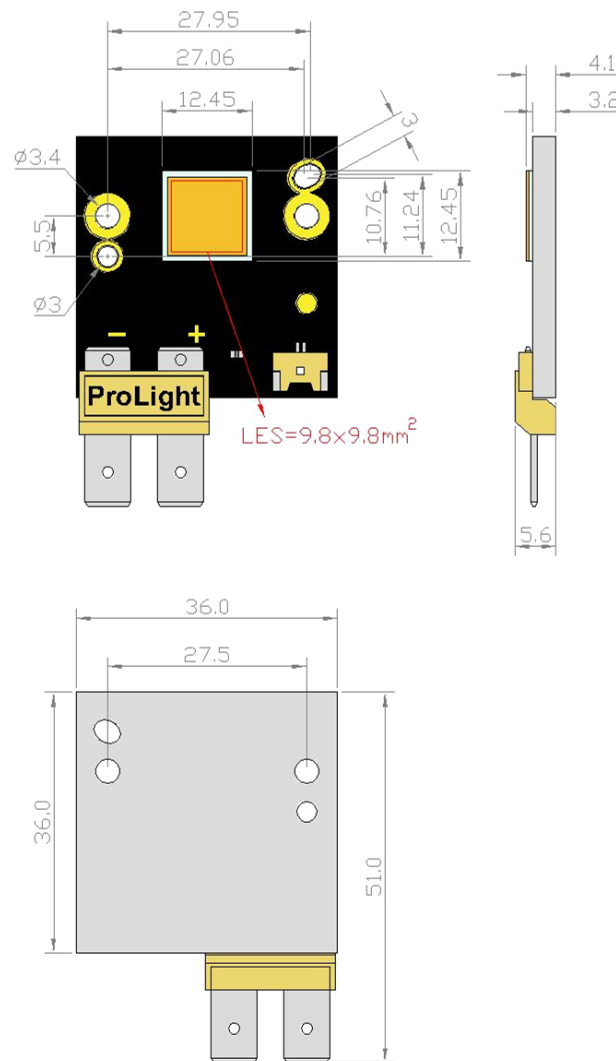
## Main Applications

- Architectural and Entertainment Lighting
- Medical Lighting
- Transportation
- Spot Lighting
- Emergency Vehicle Lighting
- Machine Vision

## Introduction

- The input power is 230 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



### Notes:

1. The cathode side of the device is denoted by the “ + / - ” mark on the part body.
  2. Drawing not to scale.
  3. All dimensions are in millimeters.
  4. Unless otherwise indicated, tolerances are  $\pm 0.30$ mm.
  5. **Please do not use a force of over 0.3kgf impact or pressure on the lens of the LED, otherwise it will cause a catastrophic failure.**
  6. NCP15XH103J03RC. Please see <http://www.murata.com/> for details on calculating thermistor temperature.
  7. Recommended connector for Anode and Cathode: Panduit Disco Lok™ Series P/N: DNG14-250FL-C.
  8. Recommended connector for Thermistor: MOLEX P/N 51146-0200.
- \*The appearance and specifications of the product may be modified for improvement without notice.

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

Radiation Pattern	Color	Part Number COB	DC Forward Current (mA)	Luminous Flux $\Phi_v$ (lm)		CRI Typical
				Minimum	Typical	
Lambertian	White	PU88-230FWL-N00N	2800*	5900	6700	72
			5600	10400	11800	
			8000	13600	15400	

- The mark "\*" indicated product is tested and binned at the specified drive current.
- 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, $T_c = 25^\circ\text{C}$

Color	Forward Voltage $V_F$ (V) @2800mA			Forward Voltage $V_F$ (V) Refer @8000mA	Thermal Resistance Junction to Board ( $^\circ\text{C}/\text{W}$ )
	Min.	Typ.	Max.	Typ.	
White	23.0	24.5	26.0	29.5	0.16

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

## Optical Characteristics at 2800mA, $T_c = 25^\circ\text{C}$

Radiation Pattern	Color	Color Temperature CCT			Total included Angle (degrees)	Viewing Angle (degrees)
		Min.	Typ.	Max.	$\theta_{0.90V}$	$2\theta_{1/2}$
Lambertian	White	6300 K	6500 K	6700 K	160	120
		6700 K	6900 K	7100 K	160	120
		7100 K	7400 K	7700 K	160	120
		7700 K	8100 K	8550 K	160	120

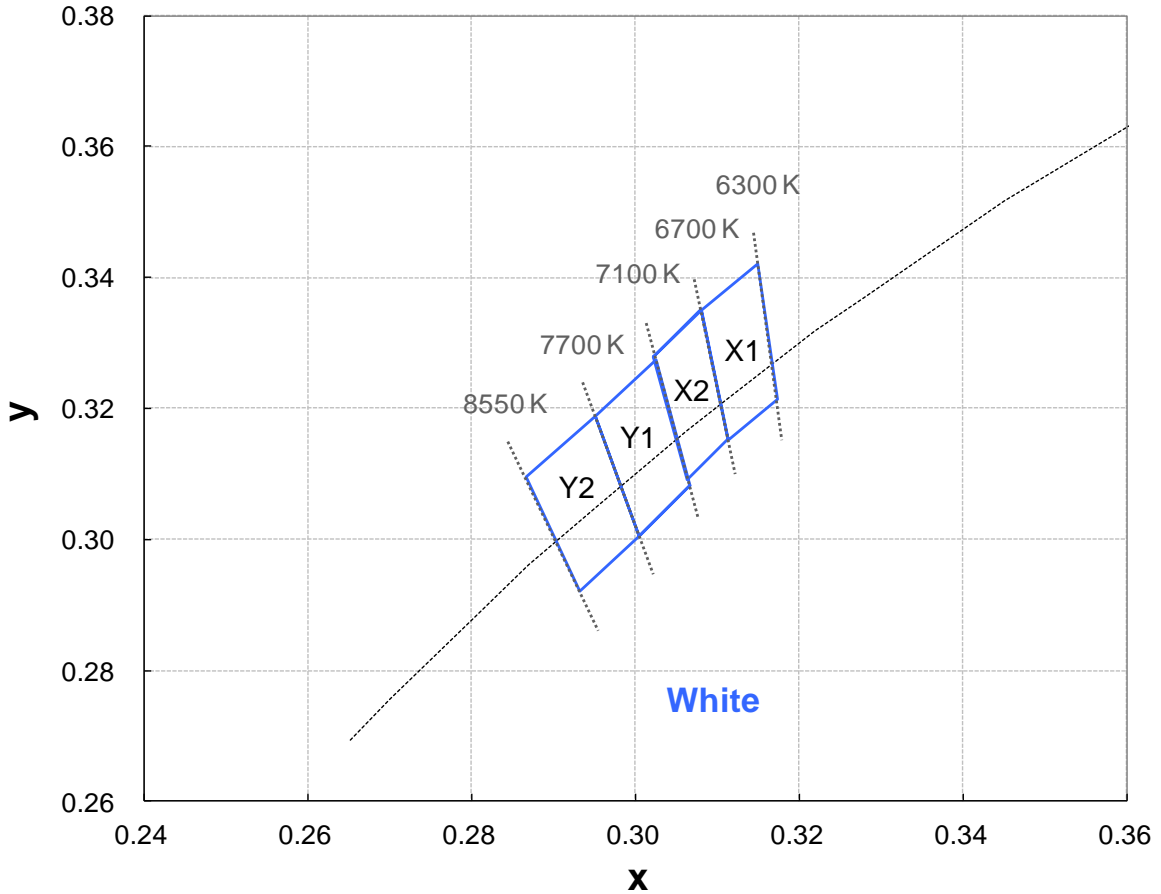
- ProLight maintains a tolerance of  $\pm 5\%$  for CCT measurements.

## Absolute Maximum Ratings

Parameter	White
Max DC Forward Current (mA)	8000
Peak Pulsed Forward Current (mA)	8800 (less than 1/10 duty cycle@1KHz)
ESD Sensitivity (HBM per MIL-STD-883E Method 3015.7)	±2000V
LED Junction Temperature	130°C
Operating Board Temperature at Maximum DC Forward Current	-40°C - 85°C
Storage Temperature	-40°C - 120°C
Reverse Voltage	Not designed to be driven in reverse bias

## Color Bin

### White Binning Structure Graphical Representation



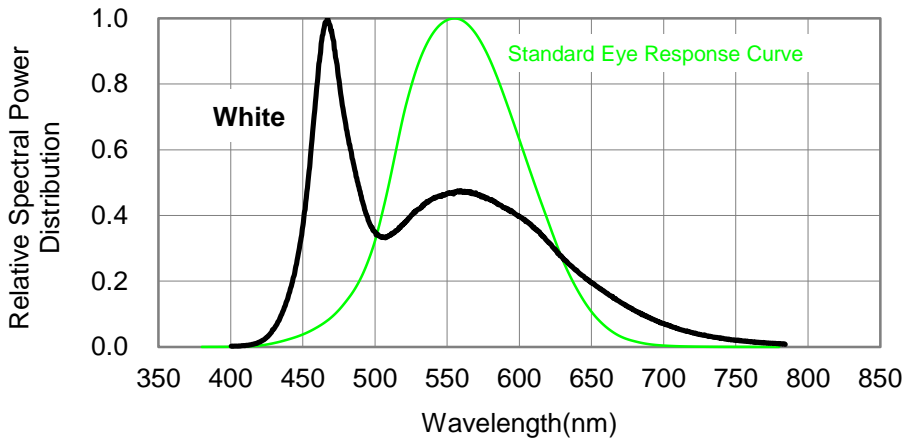
### White Bin Structure

Bin Code	x	y	Typ. CCT (K)	Bin Code	x	y	Typ. CCT (K)
X1	0.3080	0.3350	6500	Y1	0.3066	0.3083	7400
	0.3150	0.3420			0.3004	0.3005	
	0.3173	0.3214			0.2952	0.3188	
	0.3113	0.3152			0.3026	0.3274	
X2	0.3022	0.3279	6900	Y2	0.3004	0.3005	8100
	0.3081	0.3351			0.2932	0.2920	
	0.3114	0.3153			0.2866	0.3095	
	0.3063	0.3091			0.2952	0.3188	

- Tolerance on each color bin (x , y) is  $\pm 0.005$

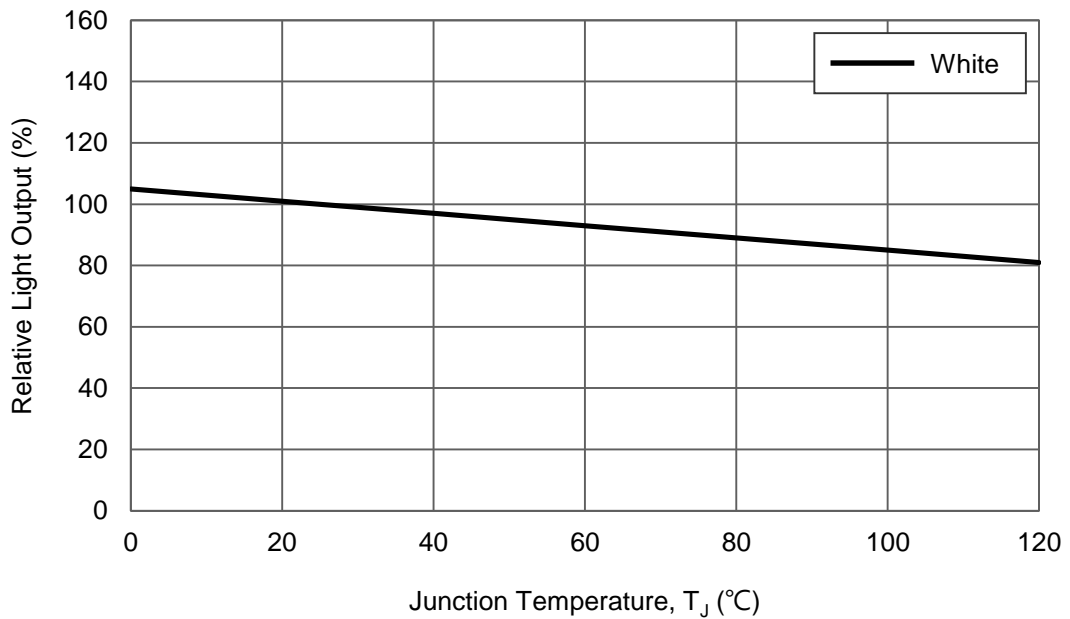
## Color Spectrum, $T_c = 25^\circ\text{C}$

### 1. White



## Light Output Characteristics

### Relative Light Output vs. Junction Temperature at 2800mA



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

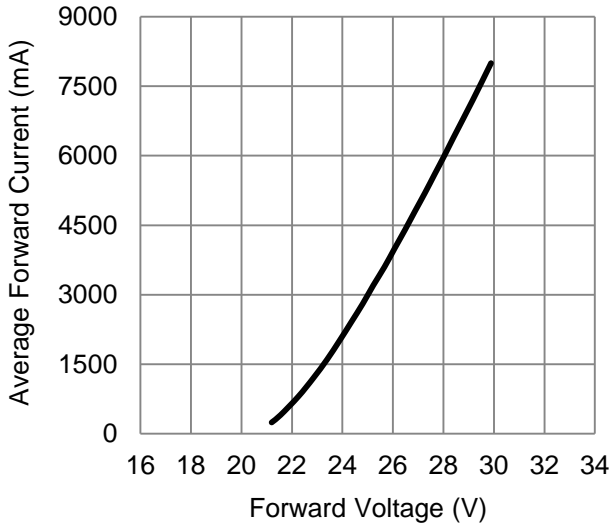


Fig 1. Forward Current vs. Forward Voltage for White.

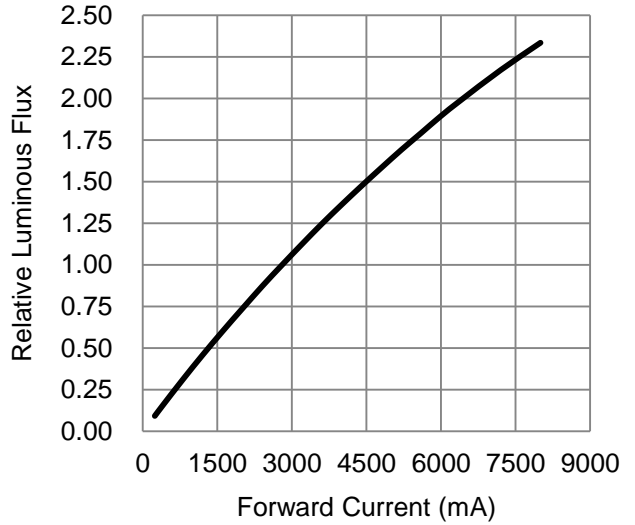
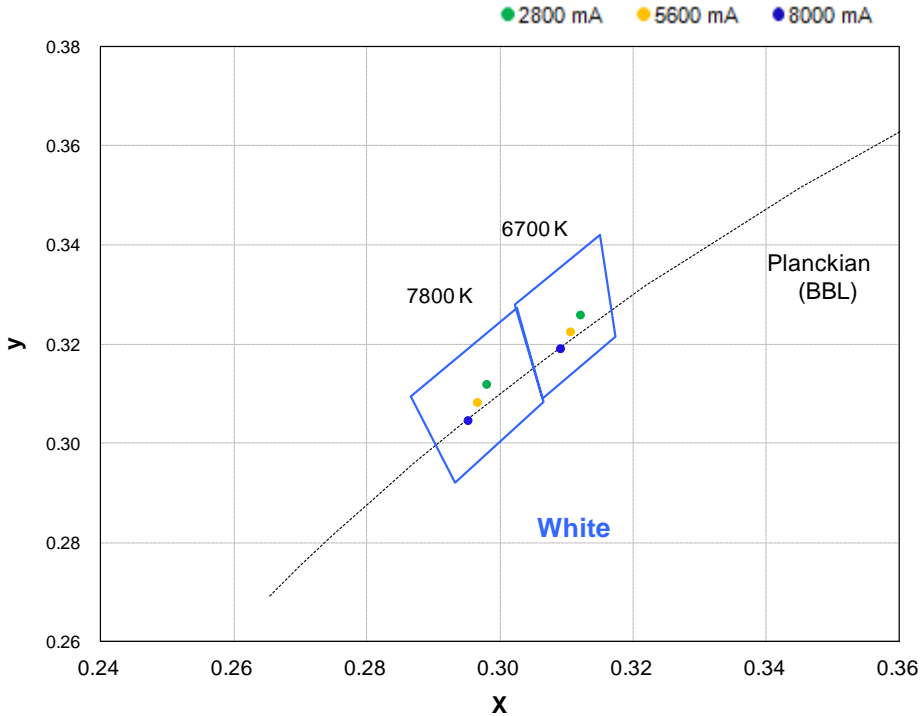


Fig 2. Relative Luminous Flux vs. Forward Current for White at  $T_c=25$  maintained.

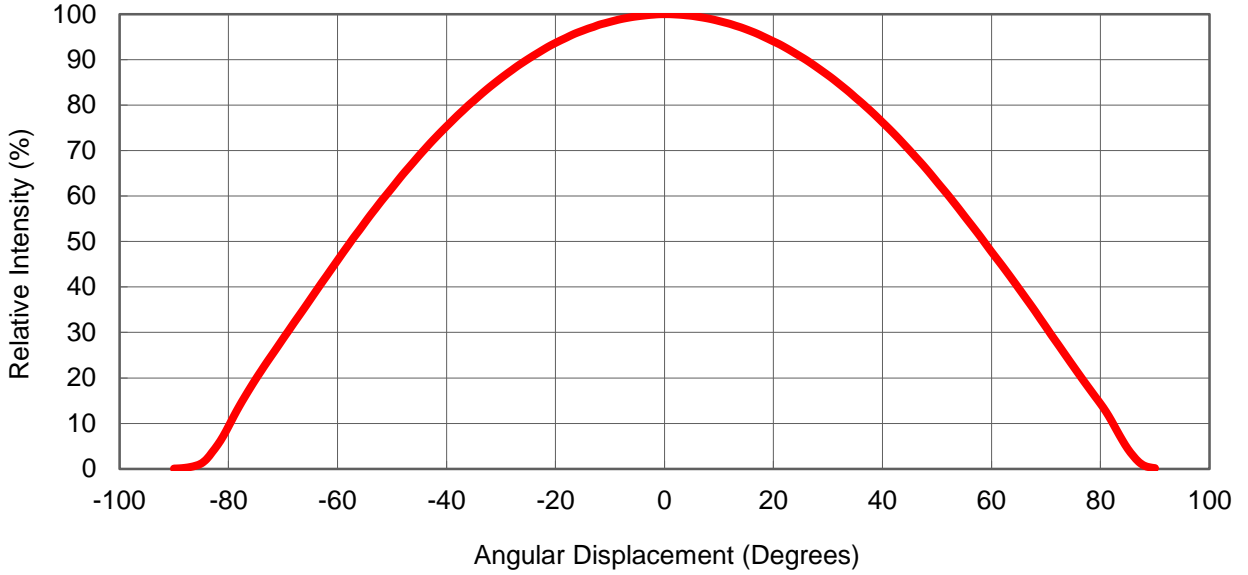
## Color Coordinate vs. Forward Current, $T_c = 25^\circ\text{C}$

### White Binning Graphical Representation

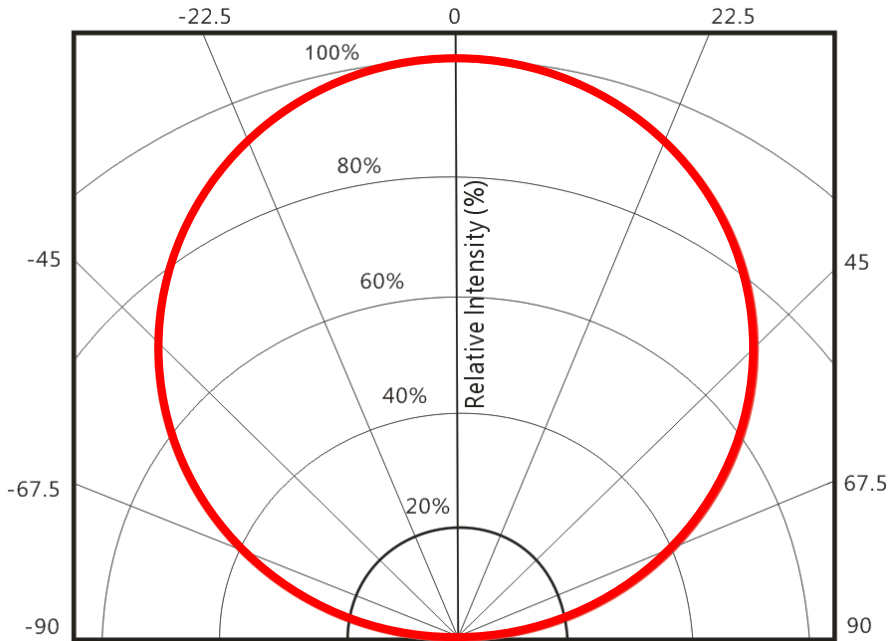


# Typical Representative Spatial Radiation Pattern

## Lambertian Radiation Pattern

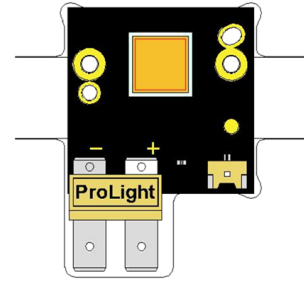
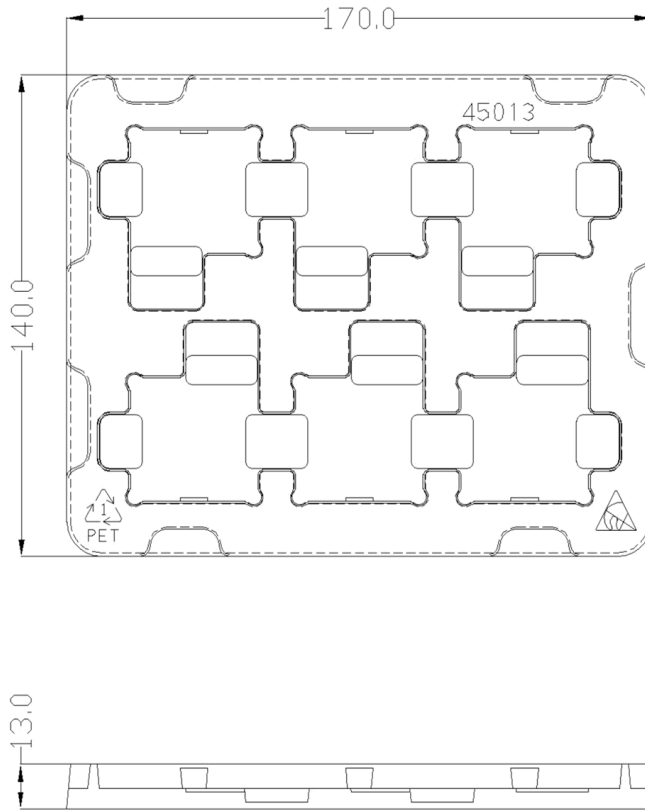


## Polar Radiation Pattern





## Packing Specifications



Product 6 pcs/tray

Notes:

1. Drawing not to scale.
2. All dimensions are in millimeters.

## 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 Silicone 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)

