

**ProLight PDSJ-40FQL-D2030**  
**40W Dual Color COB**  
**Light-Engine LEDs**  
**Technical Datasheet**  
**Version: 1.0**

# 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
- 5 year warranty

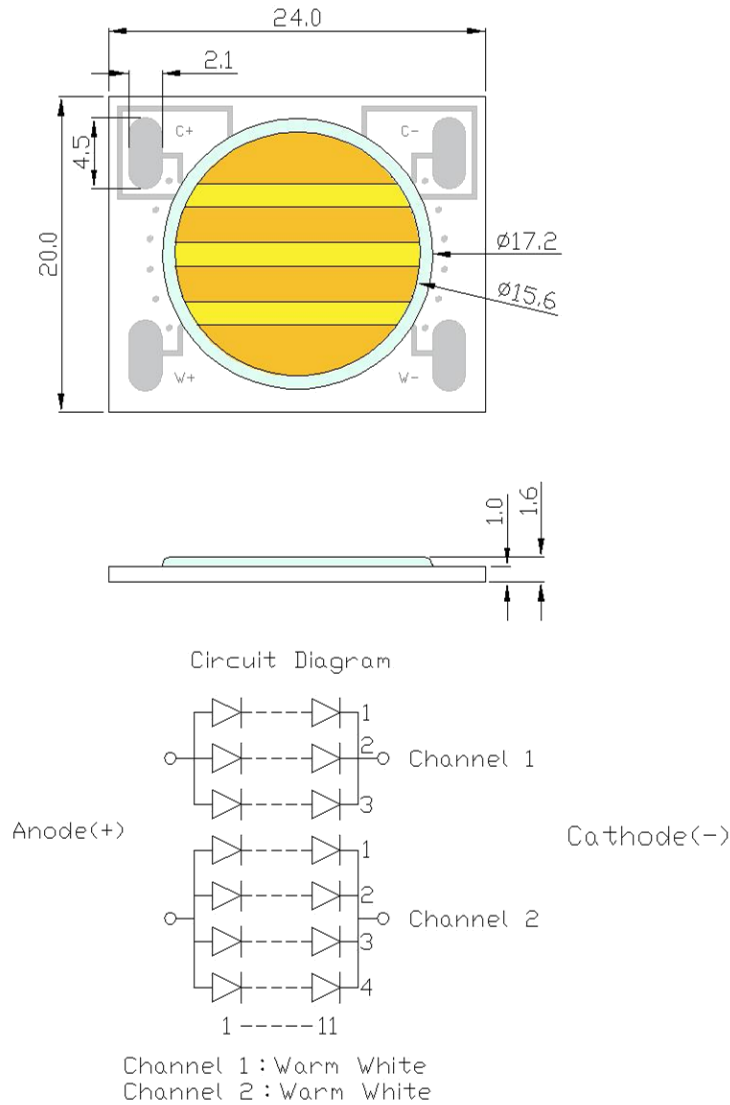
## Main Applications

- Spot lighting
- Down lighting

## Introduction

- The 40W multi-chip power ProEngine Series is designed with 2 channels, providing color temperature changes from 2000K to 3000K remaining similar flux.
- The superficial illuminating nature makes it the preference in applications including downlighting, spot lighting and accent lighting at restaurant, hotel, studio, historical spot and home.

## Mechanical Dimensions



### Notes:

1. Solder pads are labeled "+" and "-" to denote positive and negative, respectively.
2. Drawing not to scale.
3. All dimensions are in millimeters.
4. Unless otherwise indicated, tolerances are  $\pm 0.30\text{mm}$ .
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.**

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

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

Color	Part Number COB	DC Forward Current (mA)	Luminous Flux $\Phi_v$ (lm)		CRI Min.
			Min.	Typ.	
Channel 1	PDSJ-40FQL-D2030	180	570	620	90
Channel 2		940	3200	3400	

- ProLight maintains a tolerance of  $\pm 7\%$  on flux and power measurements.
- ProLight maintains a tolerance of  $\pm 2$  on CRI 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	DC Forward Current (mA)	Forward Voltage $V_F$ (V)			Thermal Resistance Junction to Board ( $^\circ\text{C}/\text{W}$ )
		Min.	Typ.	Max.	
Channel 1	180	32.0	34.0	36.0	0.8
Channel 2	940	36.0	38.0	40.0	

- ProLight maintains a tolerance of  $\pm 1\text{V}$  for Voltage measurements.

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

Color	Bin Code	Color Temperature CCT			Total included Angle (degrees) $\theta_{0.90v}$	Viewing Angle (degrees) $2\theta_{1/2}$
		Min.	Typ.	Max.		
Channel 1	K0	1950 K	2000 K	2070 K	160	120
Channel 2	N0	2910 K	3000 K	3070 K	160	120

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

## Electro-Optical Characteristics, $T_c = 25^\circ\text{C}$

$I_F$ (mA)	$V_F$ (V)	Power (W)	Channel 1	
			Flux (lm)	lm/W
100	33.06	3.31	352.9	106.7
180	34.00	6.12	620.0	101.3
200	34.20	6.84	684.3	100.0
500	36.85	18.42	1545.6	83.9
700	38.25	26.77	2023.1	75.6

$I_F$ (mA)	$V_F$ (V)	Power (W)	Channel 2	
			Flux (lm)	lm/W
200	33.43	6.69	872.4	130.5
500	35.61	17.81	2032.6	114.1
700	36.88	25.81	2715.7	105.2
900	37.89	34.10	3316.8	97.3
940	38.00	35.72	3400.0	95.2

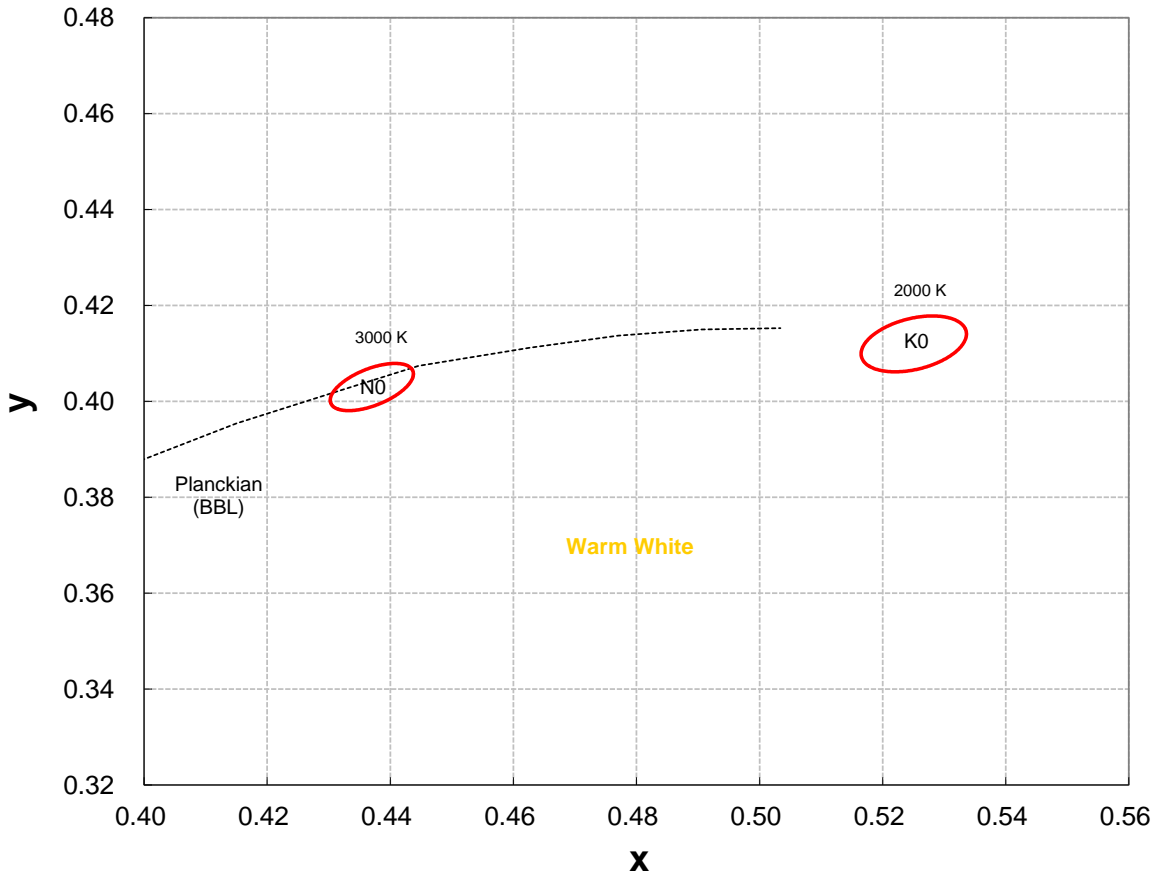
● All values are reference only.

## Absolute Maximum Ratings

Parameter	Channel 1	Channel 2
Max DC Forward Current (mA)	700	940
Peak Pulsed Forward Current (mA)	1200 (less than 1/10 duty cycle@1KHz)	
ESD Sensitivity (HBM per MIL-STD-883E Method 3015.7)	±2000V	
LED Junction Temperature	120°C	
Operating Board Temperature at Maximum DC Forward Current	-40°C - 90°C	
Storage Temperature	-40°C - 120°C	
Reverse Voltage	Not designed to be driven in reverse bias	

## Color Bin

### Channel 1 and Channel 2 Binning Structure Graphical Representation



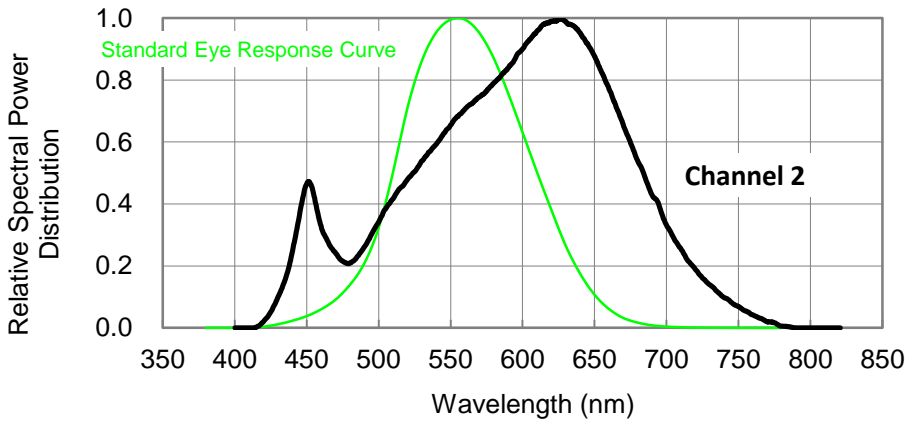
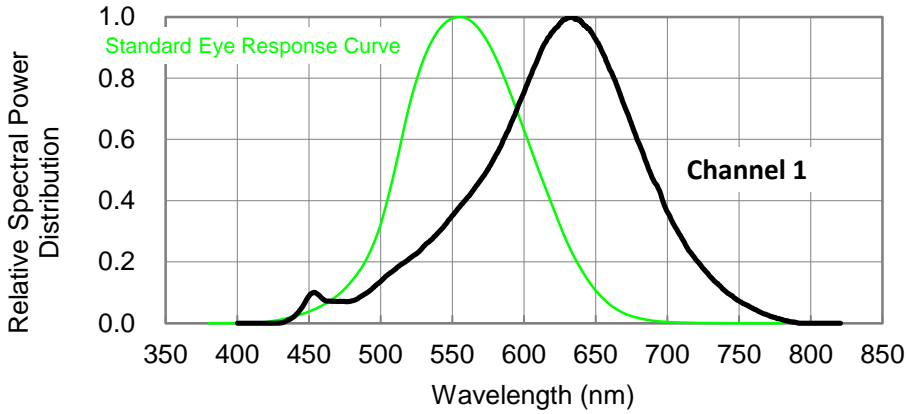
### Channel 1 and Channel 2 Bin Structure

Bin Code	Center	Oval parameter	Typ. CCT (K)	Bin Code	Center	Oval parameter	Typ. CCT (K)
K0	x	a	2000	NO	x	a	3000
	y	b			y	b	
		e°				e°	
		21			30		

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

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

## 1. Dual Color : 2000K~3000K



## Forward Current Relative Characteristics

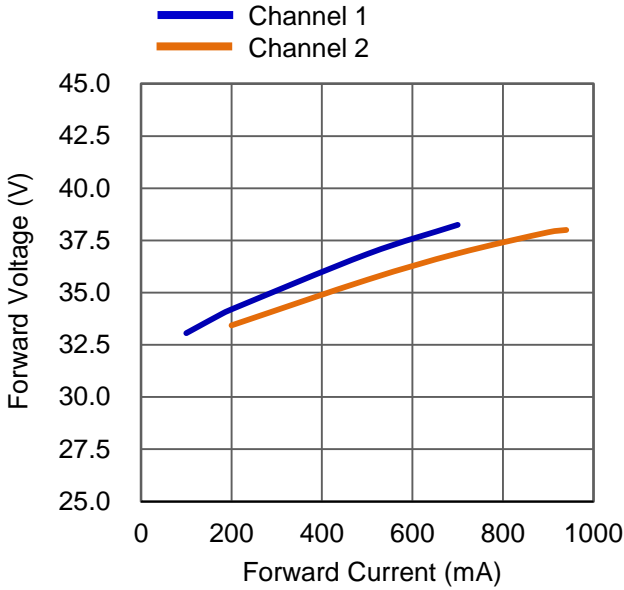


Fig 1. Forward Current vs. Forward Voltage at  $T_c=25^\circ\text{C}$ .

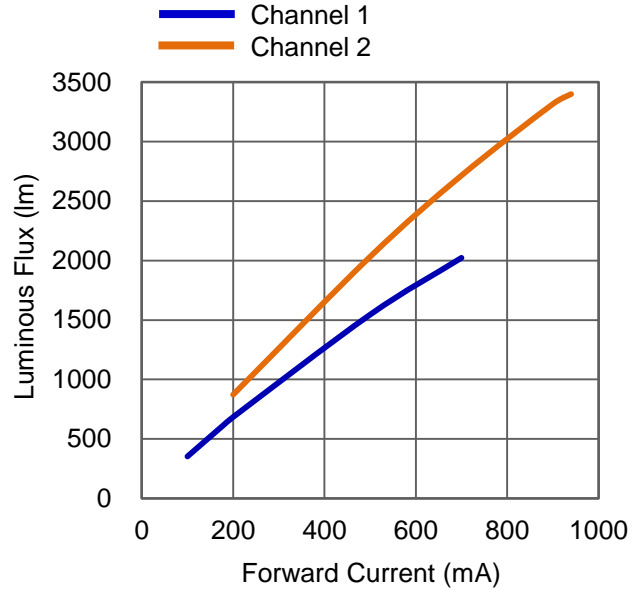


Fig 2. Forward Current vs. Relative Luminous Flux at  $T_c=25^\circ\text{C}$ .

## Case Temperature Relative Characteristics

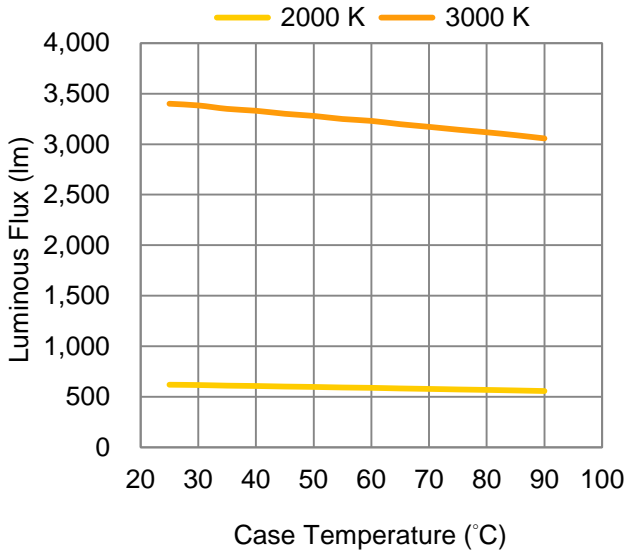


Fig 3. Case Temperature vs. Luminous Flux

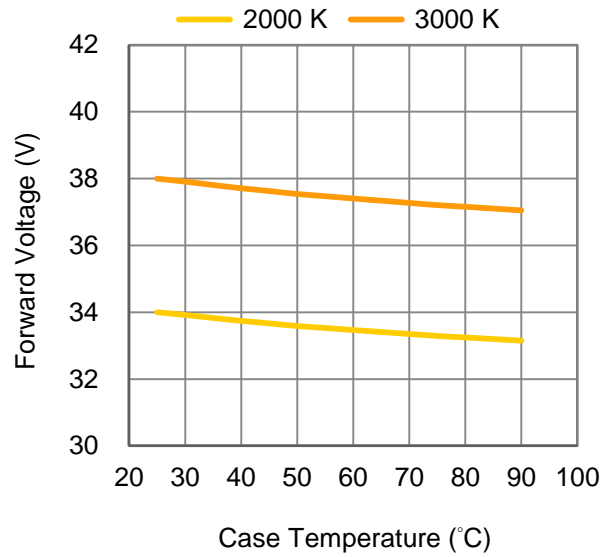


Fig 4. Case Temperature vs. Forward Voltage

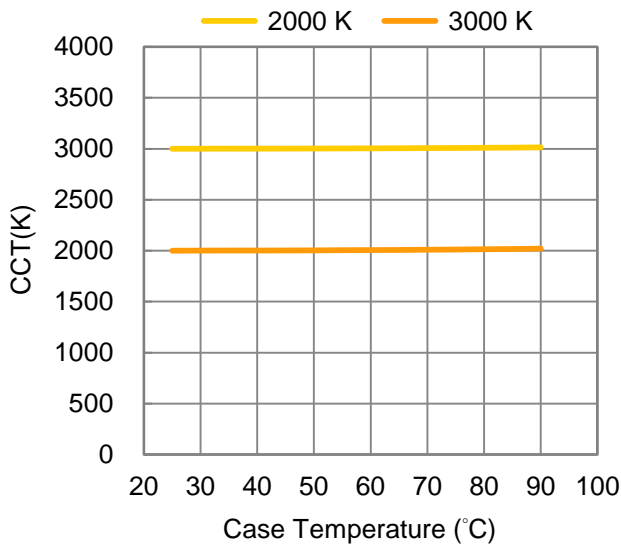
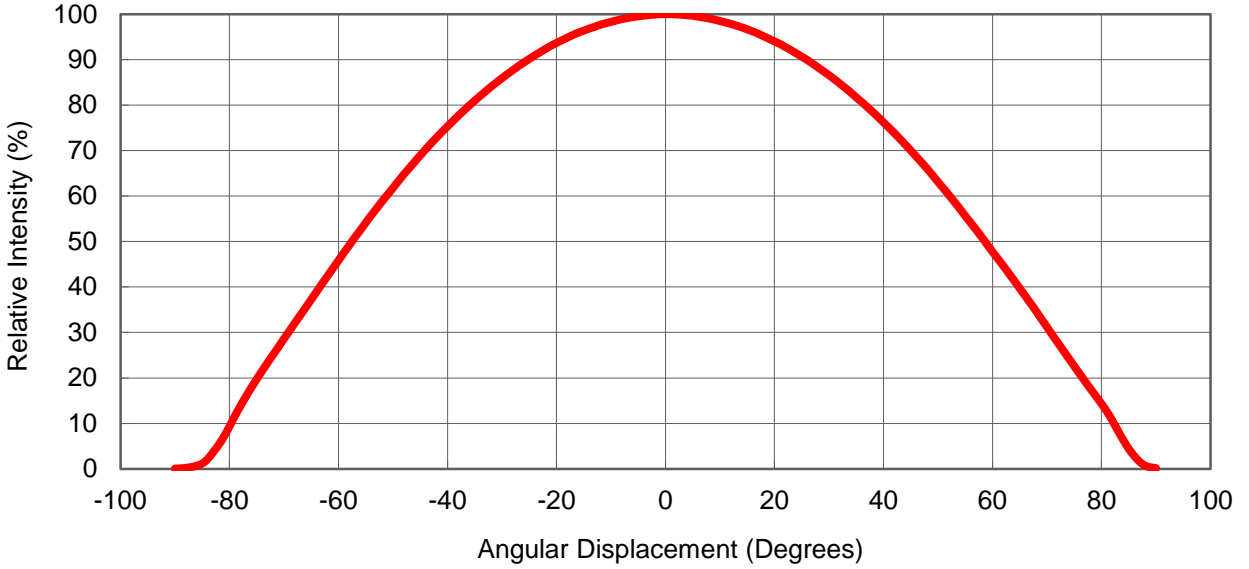


Fig 5. Case Temperature vs. Chromaticity Coordinate  $\Delta x$

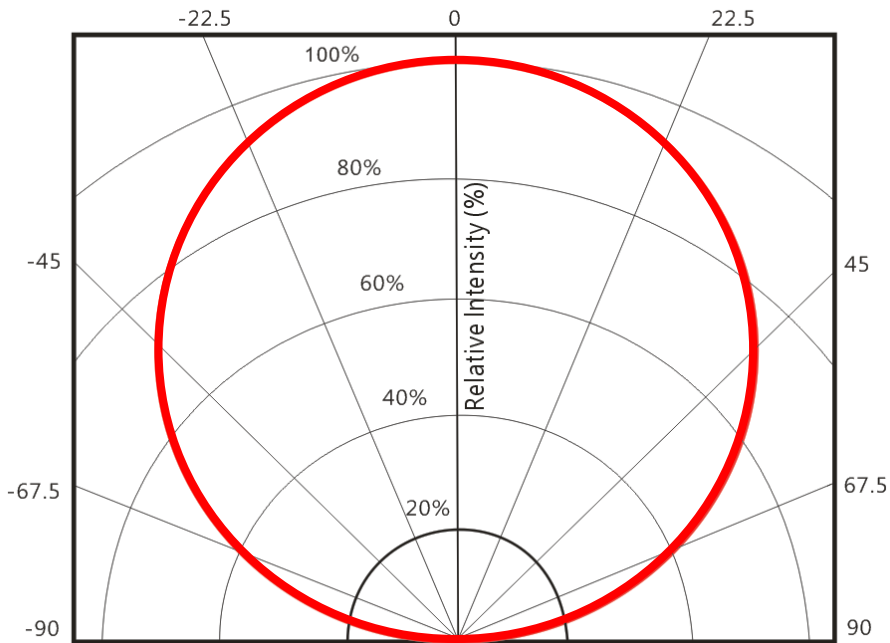


# Typical Representative Spatial Radiation Pattern

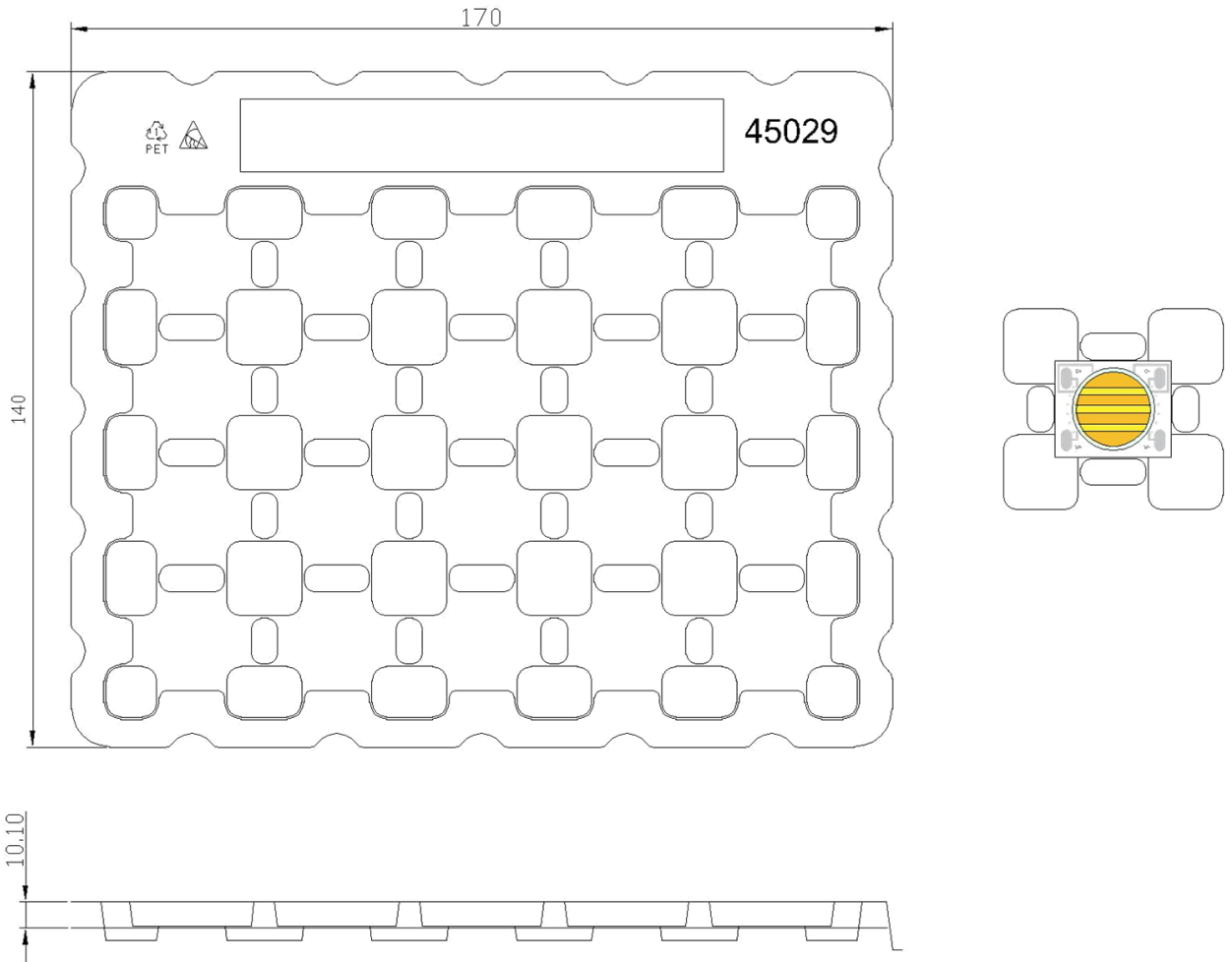
## Lambertian Radiation Pattern



## Polar Radiation Pattern



## Packing Specifications



Product 20 pcs/tray

Notes:

1. Drawing not to scale.
2. All dimensions are in millimeters.
3. Unless otherwise indicated, tolerances are  $\pm 0.20\text{mm}$ .

## Recommended Soldering Condition

- Please use lead free and “no clean ” solders.
- Soldering shall be implemented using a soldering tip at a temperature lower than 350 °C, and shall be finished within 3.5 seconds for each pad.
- During the soldering process, put the LEDs on materials whose conductivity is poor enough not to radiate heat of soldering.
- Properly solder tin wires before soldering them to LEDs.
- Avoid touching the silicone lens with the soldering iron.
- Please prevent flux from touching to the silicone lens.
- Please solder evenly on each pad.
- Contacts number of a soldering tip should be within twice for each pad.
- Next process of soldering should be carried out after the LEDs have return to ambient temperature.

\*ProLight cannot guarantee if usage exceeds these recommended conditions.

Please use it after sufficient verification is carried out on your own risk if absolutely necessary.

## 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 silicone lens LEDs

- Please do not use a force of over 0.3kgf impact or pressure on the silicone lens, otherwise it will cause a catastrophic failure.
- Avoid touching the silicone lens and the optical area of the COB Array especially by sharp tools such as Tweezers
- Avoid touching the silicone lens especially by sharp tools such as Tweezers.
- Avoid leaving fingerprints on the silicone lens.
- Please store the LEDs away from dusty areas or seal the product against dust.
- Please do not mold over the silicone lens with another resin. (epoxy, urethane, etc)

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