



**ProLight PACM-260FxL-xJQN
260W 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
- Energy Star binning structure, neutral white and warm white with 3 steps guarantee.
- More energy efficient than incandescent and most halogen lamps
- No UV
- Long lifetime
- 5 year warranty

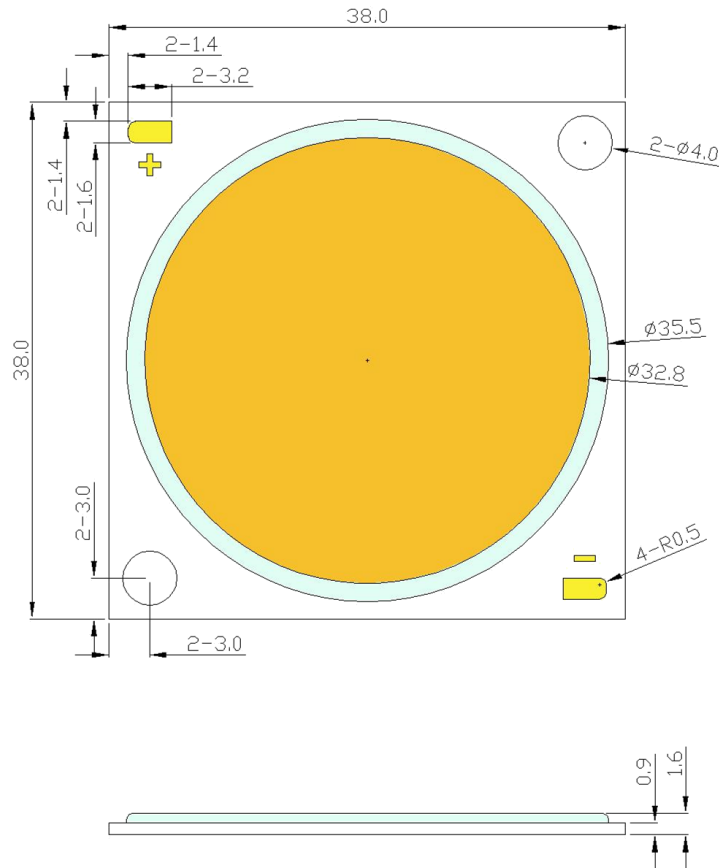
Main Applications

- Stadium light
- Street light
- High Bay
- Spot light
- Flood light

Introduction

·The input power is 260 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 High Bay, typical applications include, Flood light, Spot light, Stadium light, and Street light.

Emitter Mechanical Dimensions



Notes:

1. Slots in aluminum-core PCB for M3 mounting screw.
2. Solder pads are labeled "+" and "-" to denote positive and negative, respectively.
3. Drawing not to scale.
4. All dimensions are in millimeters.
5. Unless otherwise indicated, tolerances are ± 0.30 mm.
6. **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, $T_c = 25^\circ\text{C}$

Radiation Pattern	Color	Part Number COB	DC Forward Current (mA)		Luminous Flux Φ_v (lm)		CRI Min.	R9 Min.
			2250*	4500	Min.	Typ.		
Lambertian	White	PACM-260FWL-AJQN	2250*	4500	17292	19650	70	-
					30624	34800		
	Neutral White	PACM-260FNL-AJQN	2250*	4500	16962	19275	70	-
					30030	34125		
	Warm White	PACM-260FVL-AJQN	2250*	4500	16203	18413	70	-
					28679	32590		
	White	PACM-260FWL-BJQN	2250*	4500	16965	19278	80	0
					30027	34122		
	Neutral White	PACM-260FNL-BJQN	2250*	4500	16632	18900	80	0
					29439	33453		
	Warm White	PACM-260FVL-BJQN	2250*	4500	15906	18075	80	0
					28149	31988		
	White	PACM-260FWL-DJQN	2250*	4500	14916	16950	90	50
					26268	29850		
	Neutral White	PACM-260FNL-DJQN	2250*	4500	14619	16613	90	50
					25740	29250		
	Warm White	PACM-260FVL-DJQN	2250*	4500	13992	15900	90	50
					24618	27975		
Neutral White	PACM-260FNL-EJQN	2250*	4500	12738	14475	95	90	
				22440	25500			
Warm White	PACM-260FVL-EJQN	2250*	4500	12276	13950	95	90	
				21615	24563			

- 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.
- ProLight maintains a tolerance of ± 2 on CRI measurements.
- Please do not drive at rated current more than 1 second without proper heat sink.

Electrical Characteristics at 2250mA, $T_c = 25^\circ\text{C}$

Color	Forward Voltage V_F (V)			Thermal Resistance Junction to Board ($^\circ\text{C}/\text{W}$)
	Min.	Typ.	Max.	
White	45.0	52.2	60.0	0.14
Neutral White	45.0	52.2	60.0	0.14
Warm White	45.0	52.2	60.0	0.14

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

Optical Characteristics at 2250mA, $T_c = 25^\circ\text{C}$

Color	Bin Code	Color Temperature CCT			Total included Angle (degrees) $\theta_{0.90\text{V}}$	Viewing Angle (degrees) $2\theta_{1/2}$
		Min.	Typ.	Max.		
White	V0	4740 K	5000 K	5310 K	160	120
	W0	5310 K	5700 K	6010 K	160	120
	X0	6020 K	6500 K	7030 K	160	120
Neutral White	S0	3900 K	4000 K	4070 K	160	120
	M0	2670 K	2700 K	2770 K	160	120
Warm White	N0	2990 K	3000 K	3090 K	160	120
	Q0	3380 K	3500 K	3550 K	160	120

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

Supply Specifications

Part Number	CRI	Color Bin Code						
		V0	W0	X0	S0	M0	N0	Q0
PACM-260F _x L-AJQN	70	V			V	V		
PACM-260F _x L-BJQN	80	V	V	V	V	V	V	V
PACM-260F _x L-DJQN	90	V			V	V	V	V
PACM-260F _x L-EJQN	95				V	V	V	

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

I_F (mA)	V_F (V)	Power (W)	PACM-260FWL-AJQN		PACM-260FNL-AJQN		PACM-260FVL-AJQN	
			Flux (lm)	lm/W	Flux (lm)	lm/W	Flux (lm)	lm/W
750	47.00	35.25	9550	270.9	9375	266.0	8961	254.2
1500	49.60	74.40	14600	196.2	14325	192.5	13687	184.0
2250*	52.20	117.45	19650	167.3	19275	164.1	18413	156.8
3000	54.80	164.40	24700	150.2	24225	147.4	23138	140.7
3750	57.64	216.15	29750	137.6	29175	135.0	27864	128.9
4500	60.00	270.00	34800	128.9	34125	126.4	32590	120.7
I_F (mA)	V_F (V)	Power (W)	PACM-260FWL-BJQN		PACM-260FNL-BJQN		PACM-260FVL-BJQN	
			Flux (lm)	lm/W	Flux (lm)	lm/W	Flux (lm)	lm/W
750	47.00	35.25	9382	266.2	9198	260.9	8800	249.6
1500	49.60	74.40	14330	192.6	14049	188.8	13438	180.6
2250*	52.20	117.45	19278	164.1	18900	160.9	18075	153.9
3000	54.80	164.40	24226	147.4	23751	144.5	22713	138.2
3750	57.64	216.15	29174	135.0	28602	132.3	27350	126.5
4500	60.00	270.00	34122	126.4	33453	123.9	31988	118.5
I_F (mA)	V_F (V)	Power (W)	PACM-260FWL-DJQN		PACM-260FNL-DJQN		PACM-260FVL-DJQN	
			Flux (lm)	lm/W	Flux (lm)	lm/W	Flux (lm)	lm/W
750	47.00	35.25	8350	236.9	8188	232.3	7850	222.7
1500	49.60	74.40	12650	170.0	12400	166.7	11875	159.6
2250*	52.20	117.45	16950	144.3	16613	141.4	15900	135.4
3000	54.80	164.40	21250	129.3	20825	126.7	19925	121.2
3750	57.64	216.15	25550	118.2	25038	115.8	23950	110.8
4500	60.00	270.00	29850	110.6	29250	108.3	27975	103.6
I_F (mA)	V_F (V)	Power (W)	PACM-260FNL-EJQN		PACM-260FVL-EJQN			
			Flux (lm)	lm/W	Flux (lm)	lm/W		
750	47.00	35.25	7125	202.1	6875	195.0		
1500	49.60	74.40	10800	145.2	10413	140.0		
2250*	52.20	117.45	14475	123.2	13950	118.8		
3000	54.80	164.40	18150	110.4	17488	106.4		
3750	57.64	216.15	21825	101.0	21025	97.3		
4500	60.00	270.00	25500	94.4	24563	91.0		

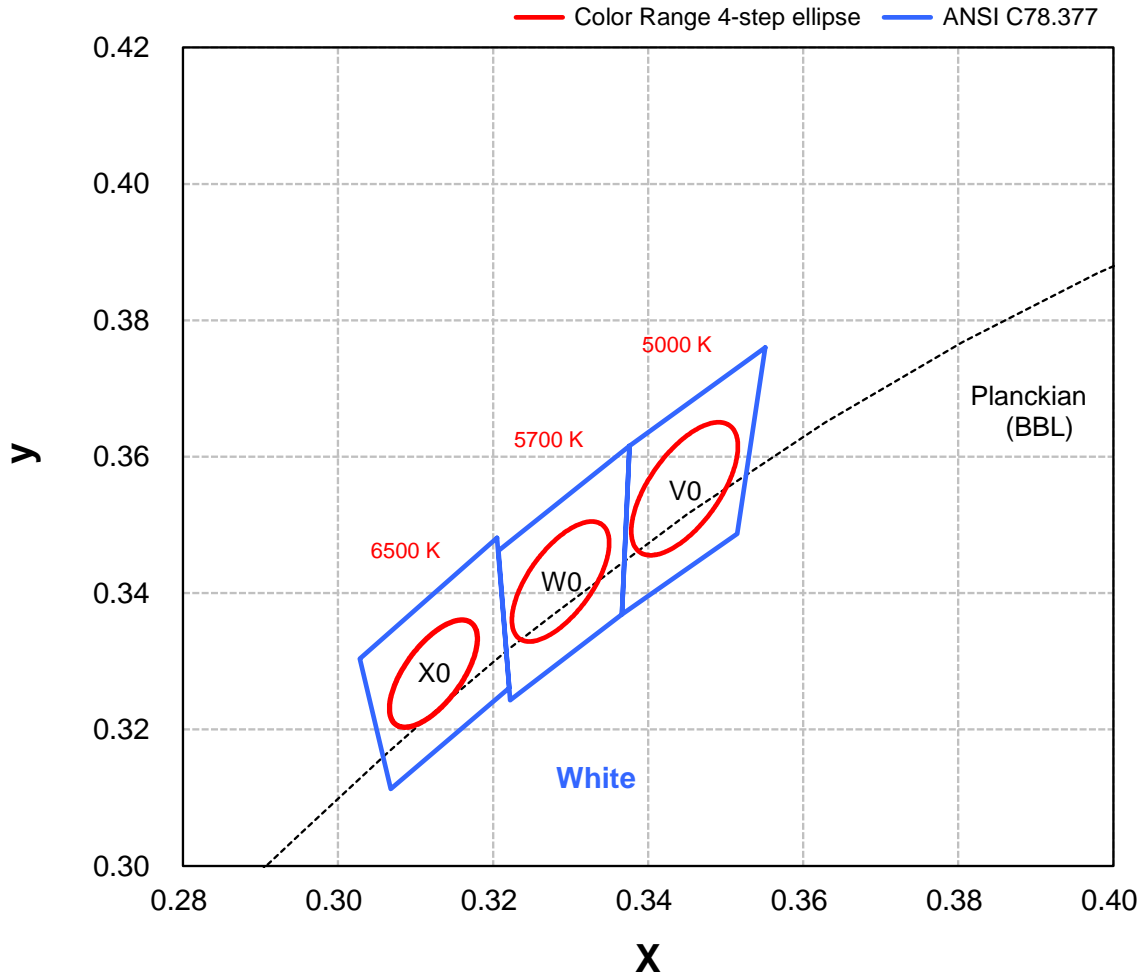
● All values are reference only.

Absolute Maximum Ratings

Parameter	White/Neutral White/Warm White
Max DC Forward Current (mA)	4500
Max Voltage at 4500mA	68
Peak Pulsed Forward Current (mA)	5400 (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

White Binning Structure Graphical Representation



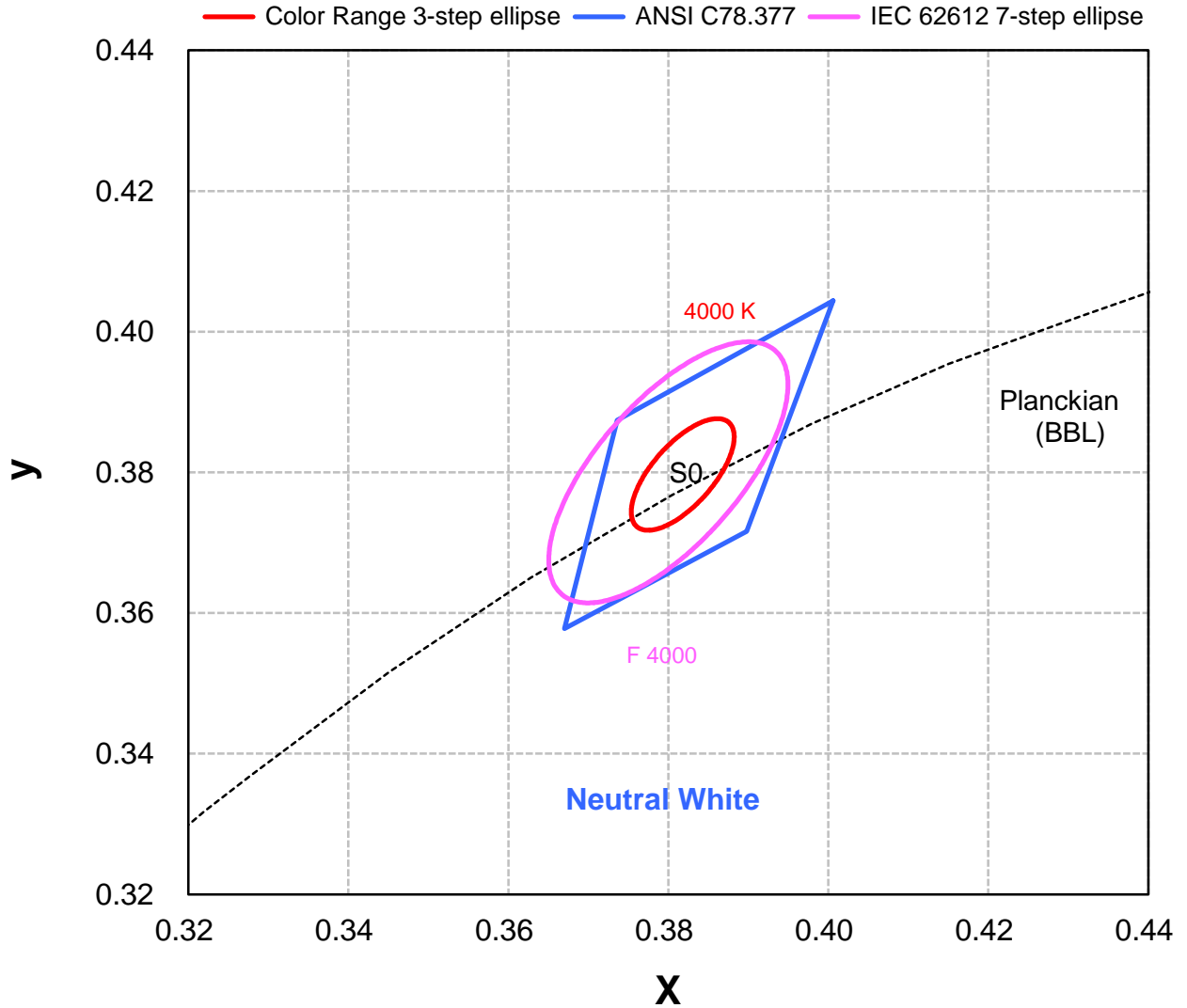
White Bin Structure

Bin Code	Center	Oval parameter	Typ. CCT (K)	Bin Code	Center	Oval parameter	Typ. CCT (K)
V0	x	a	5000	X0	x	a	6500
	y	b			y	B	
		e°				e°	
W0	x	a	5700	X0	x	a	6500
	y	B			y	B	
		e°				e°	

- Color range stay within MacAdam “4-step” ellipse from the chromaticity center.
- The chromaticity center refers to ANSI C78.377.
- Tolerance on each color bin (x , y) is ± 0.005

Color Bin

Neutral White Binning Structure Graphical Representation



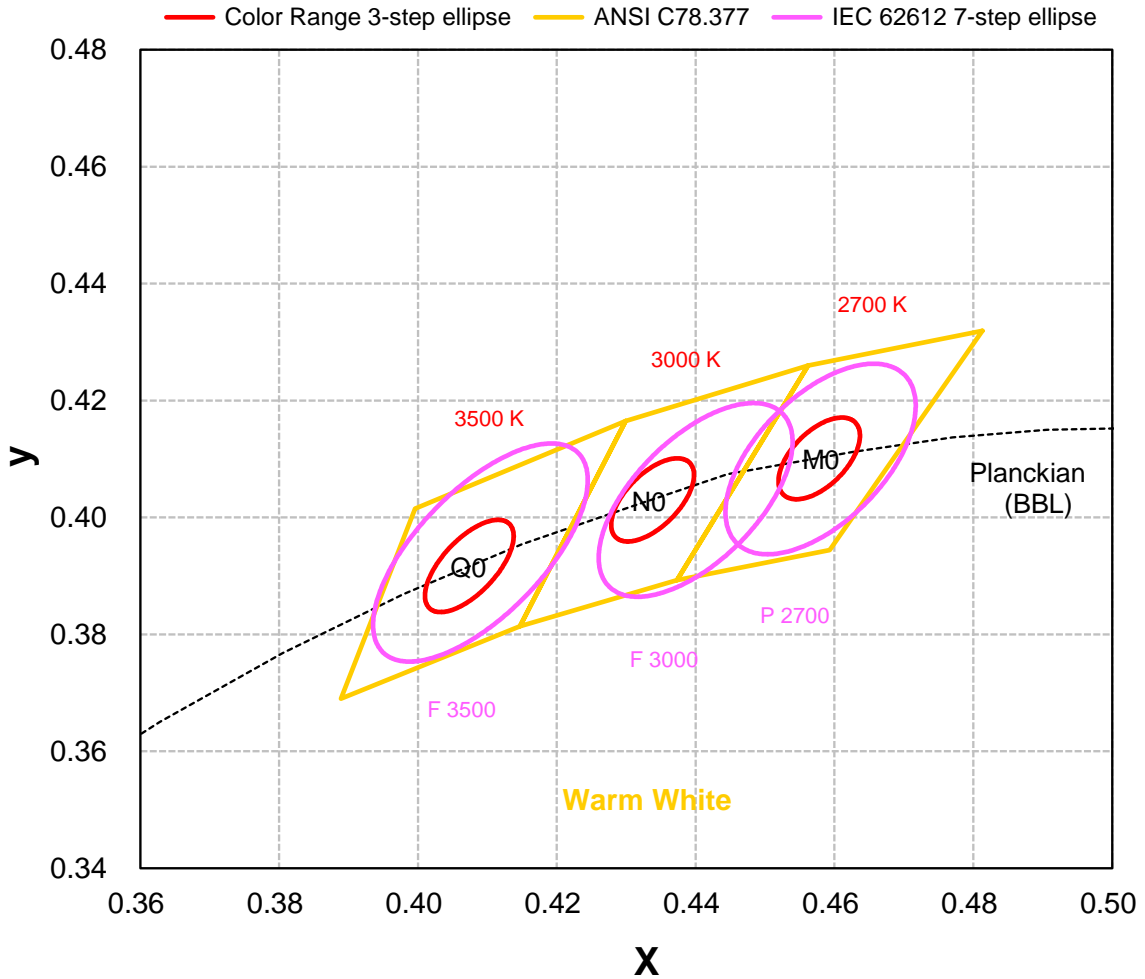
Neutral White Bin Structure

Bin Code	Center	Oval parameter	Typ. CCT (K)
S0	x	0.3818	4000
	y	0.3797	
	a	0.00939	
	b	0.00402	
		e°	53.72

- Color range stay within MacAdam “3-step” ellipse from the chromaticity center.
- The chromaticity center refers to ANSI C78.377.
- Tolerance on each color bin (x , y) is ± 0.005

Color Bin

Warm White Binning Structure Graphical Representation



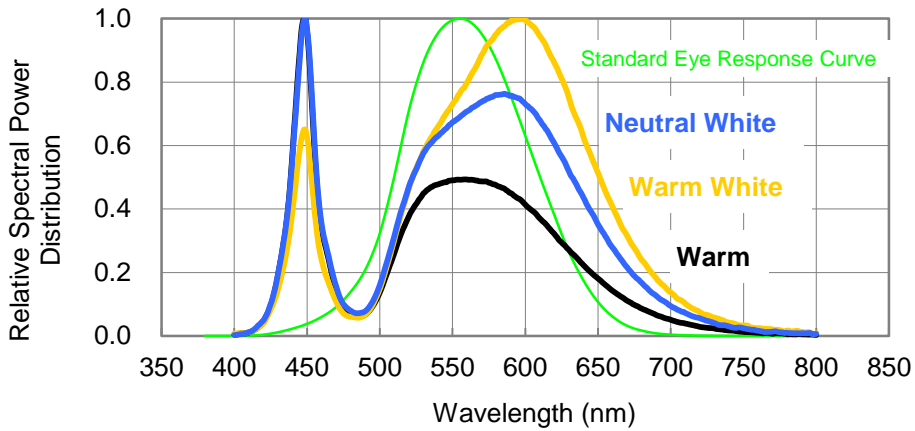
Warm White Bin Structure

Bin Code	Center	Oval parameter	Typ. CCT (K)	Bin Code	Center	Oval parameter	Typ. CCT (K)
M0	x	a	2700	Q0	x	a	3500
	y	b			y	b	
		e°				e°	
N0	x	a	3000				
	y	b					
		e°					

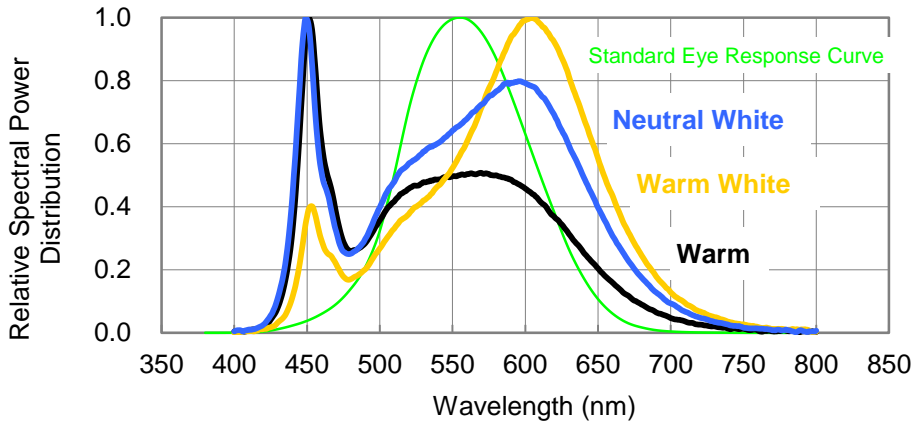
- Color range stay within MacAdam “3-step” ellipse from the chromaticity center.
- The chromaticity center refers to ANSI C78.377.
- Tolerance on each color bin (x , y) is ± 0.005

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

1. PACM-260FWL-AJQN、PACM-260FNL-AJQN、PACM-260FVL-AJQN

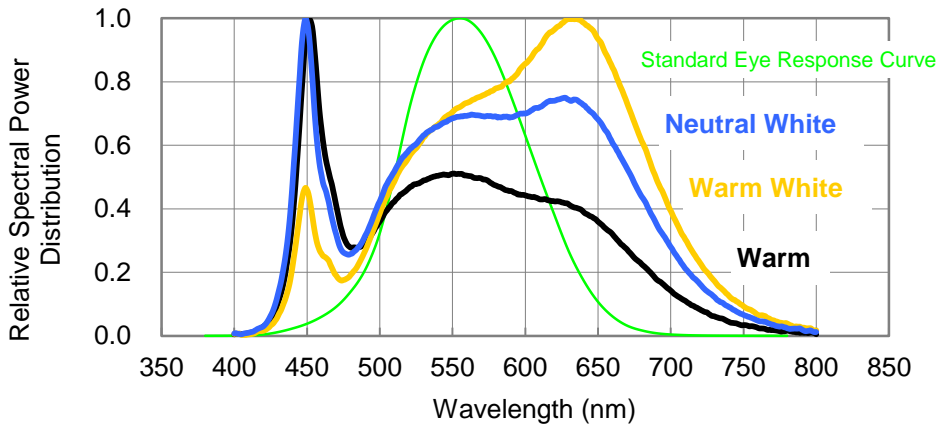


2. PACM-260FWL-BJQN、PACM-260FNL-BJQN、PACM-260FVL-BJQN

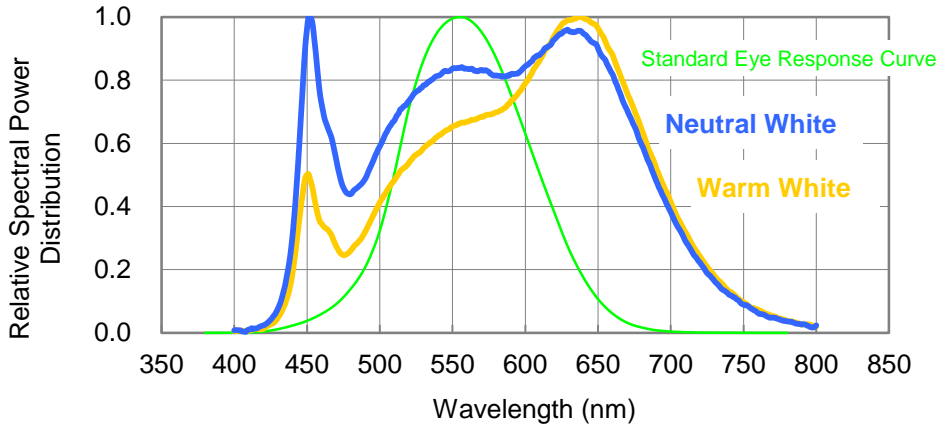


Color Spectrum, $T_c = 25^\circ\text{C}$

3. PACM-260FWL-DJQN、PACM-260FNL-DJQN、PACM-260FVL-DJQN



4. PACM-260FNL-EJQN、PACM-260FVL-EJQN



Case Temperature Relative Characteristics

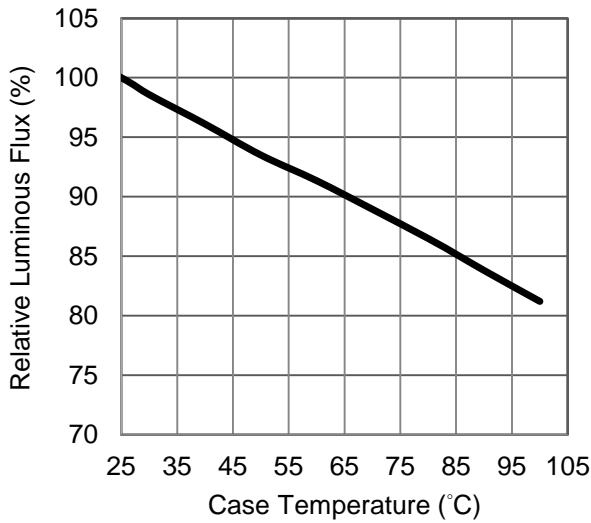


Fig 1. Case Temperature vs. Relative Luminous Flux at 2250mA.

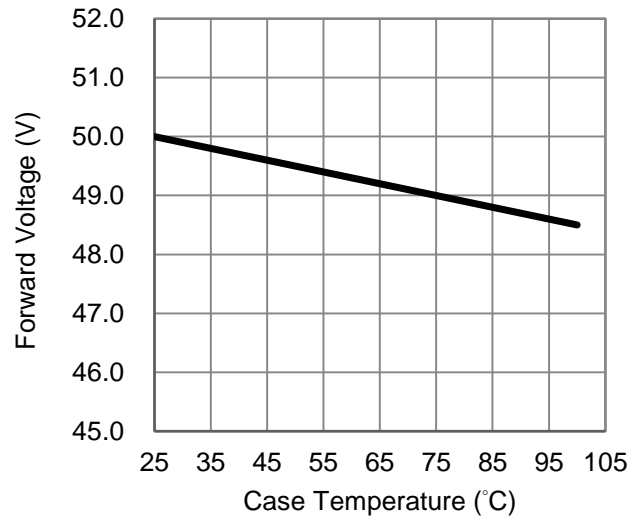


Fig 2. Case Temperature vs. Forward Voltage at 2250mA.

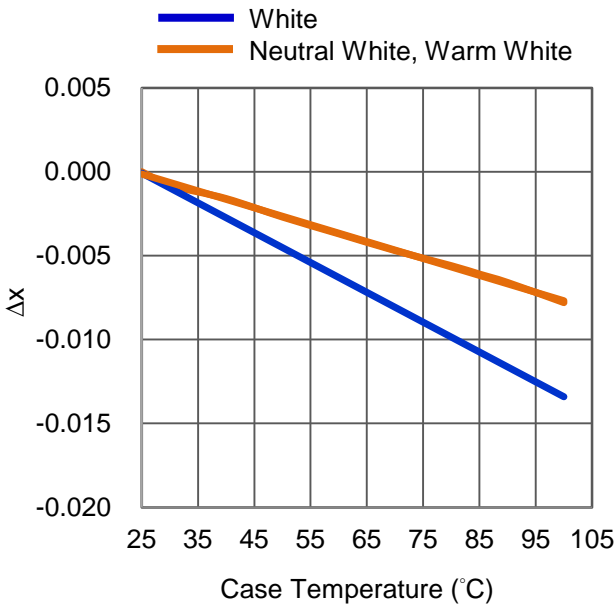


Fig 3. Case Temperature vs. Chromaticity Coordinate Δx at 2250mA.

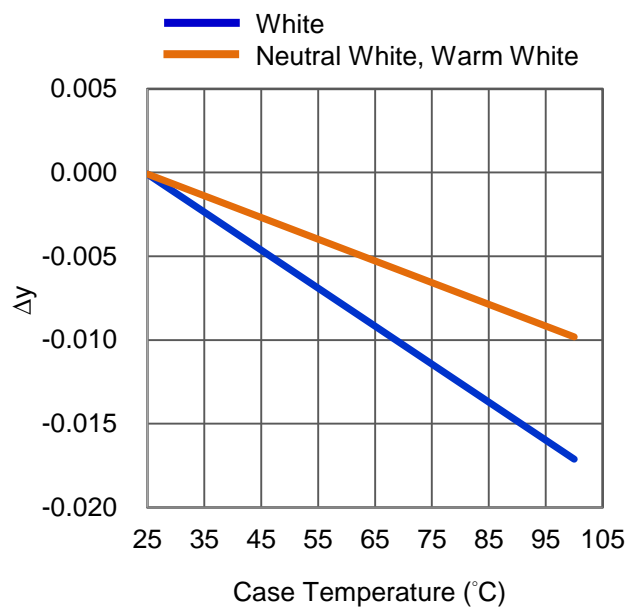


Fig 4. Case Temperature vs. Chromaticity Coordinate Δy at 2250mA.

Forward Current Relative Characteristics

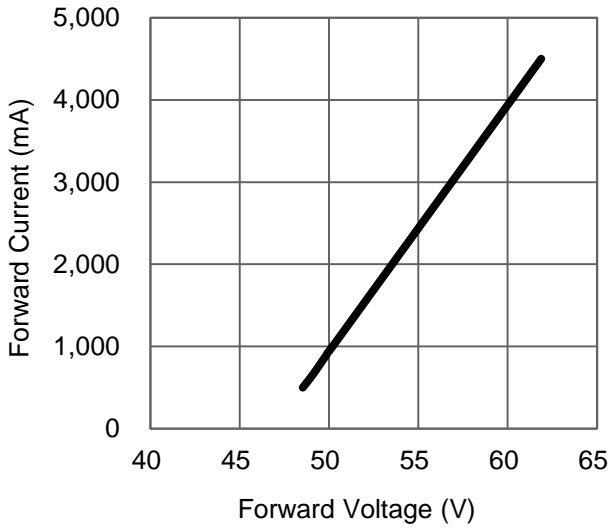


Fig 5. Forward Current vs. Forward Voltage at $T_C=25^\circ\text{C}$.

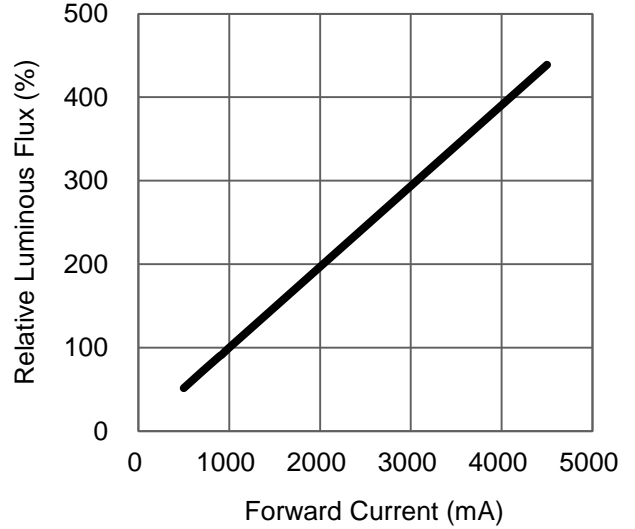


Fig 6. Forward Current vs. Relative Luminous Flux at $T_C=25^\circ\text{C}$.

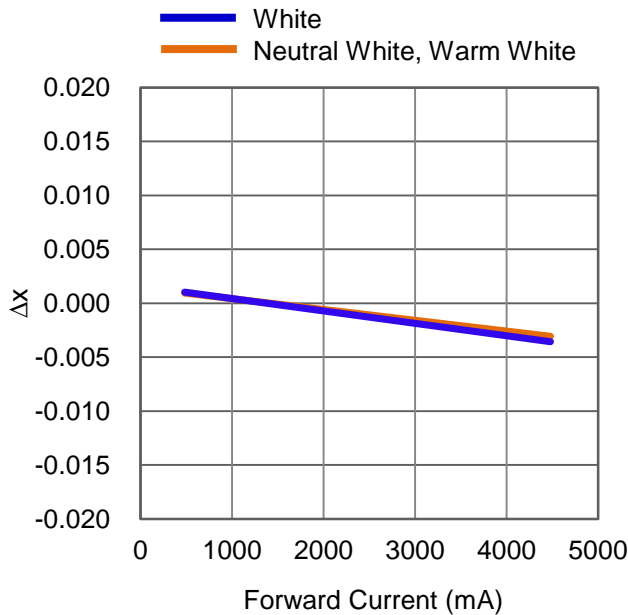


Fig 7. Forward Current vs. Chromaticity Coordinate Δx at $T_C=25^\circ\text{C}$.

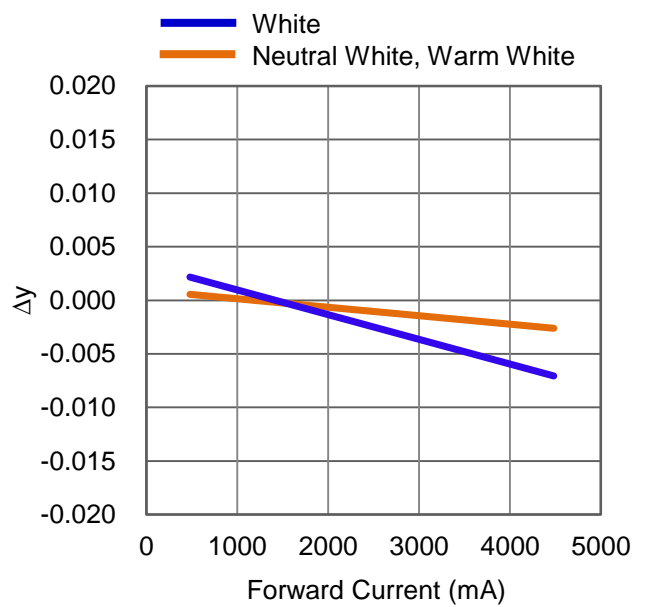


Fig 8. Forward Current vs. Chromaticity Coordinate Δy at $T_C=25^\circ\text{C}$.

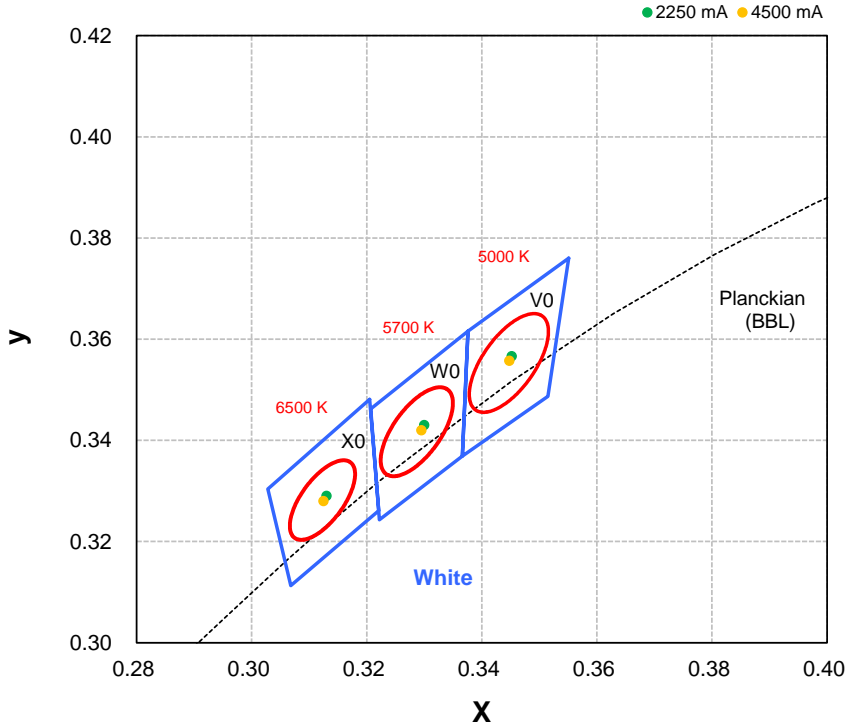
Case Temperature vs. Junction Temperature Characteristics

T _c (°C)	T _j (°C)	
	2250 (mA)	4500 (mA)
0	19	38
10	29	48
20	39	58
30	49	68
40	59	78
50	69	88
60	79	98
70	89	108
80	99	118
90	109	128

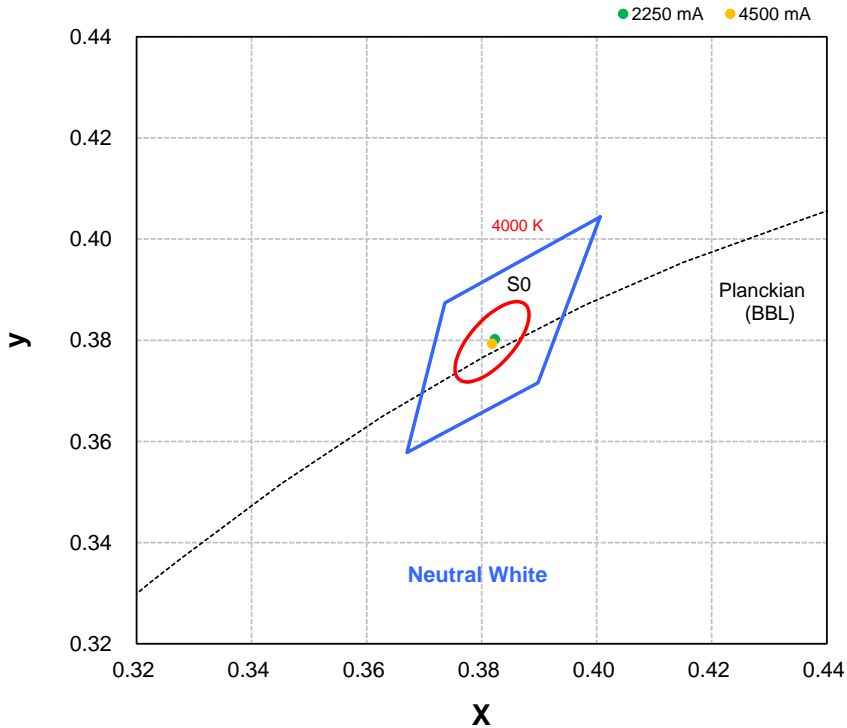
Fig 9. Case Temperature vs. Junction Temperature at 2250 · 4500mA.

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

White Binning Graphical Representation

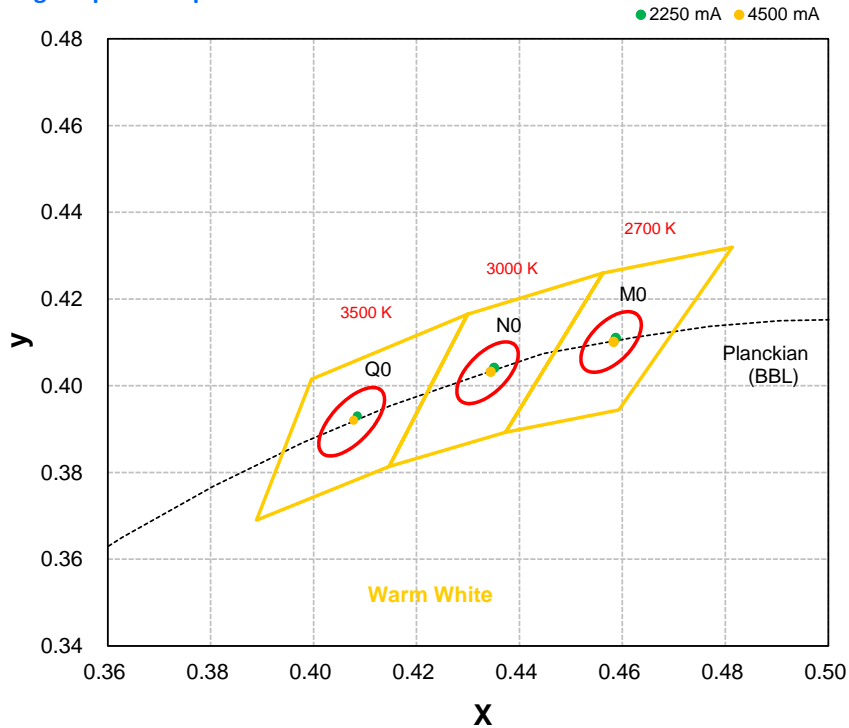


Neutral White Binning Graphical Representation



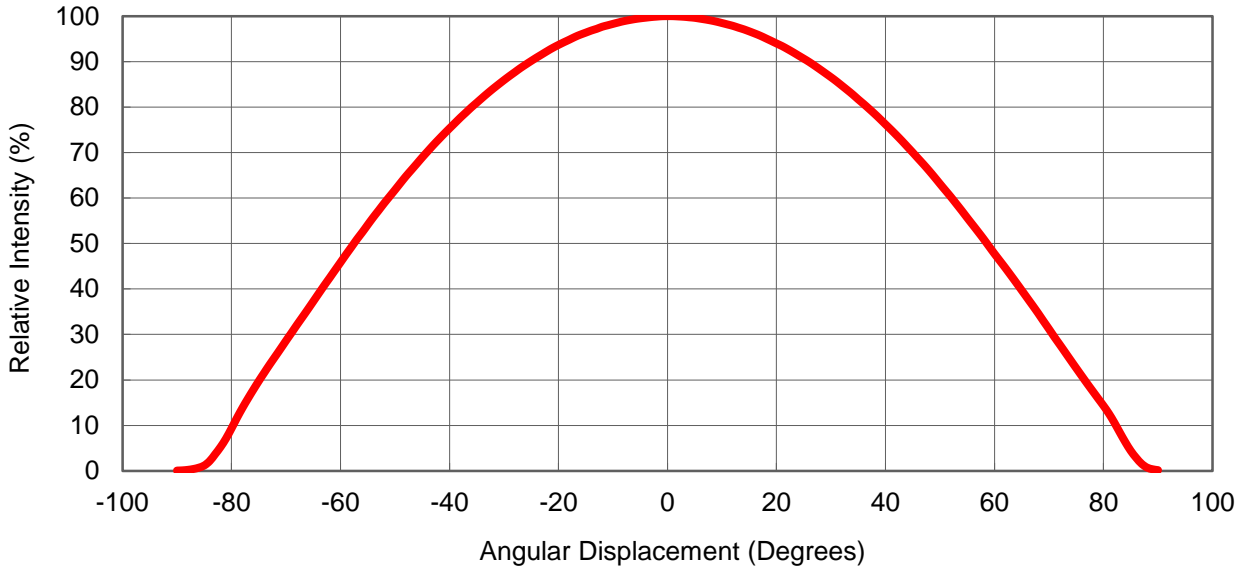
Color Coordinate vs. Forward Current, $T_c = 25^\circ\text{C}$

Warm White Binning Graphical Representation

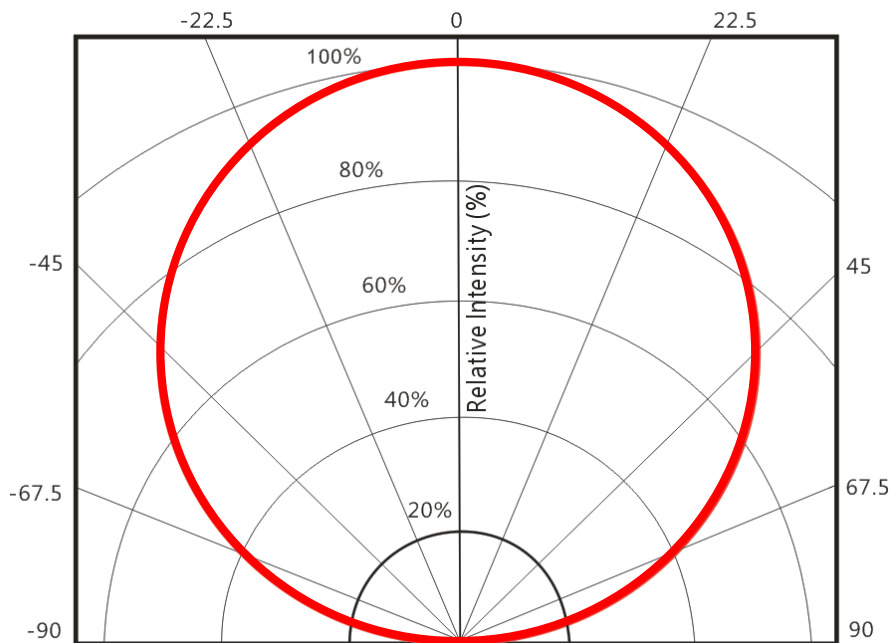


Typical Representative Spatial Radiation Pattern

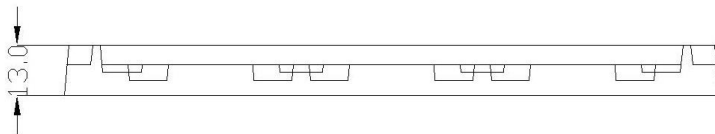
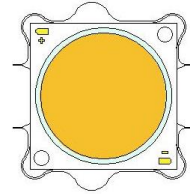
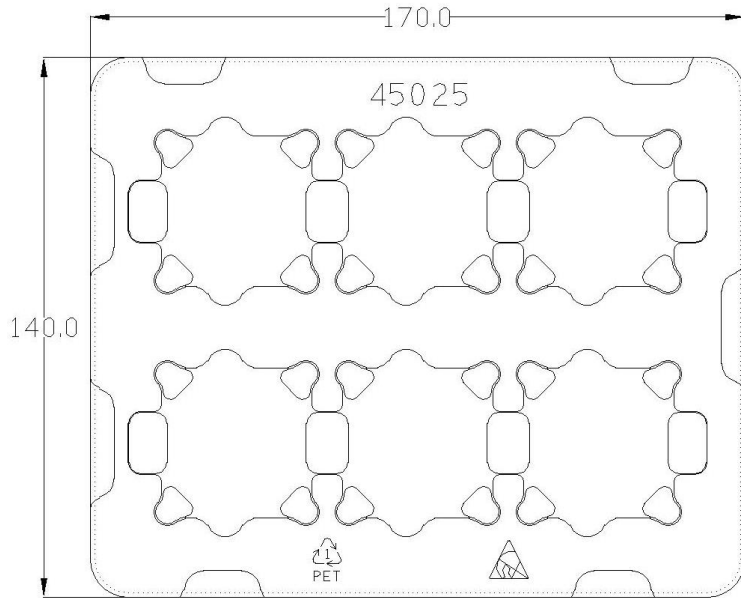
Lambertian Radiation Pattern



Polar Radiation Pattern



Packing Specifications



Product 6 pcs/tray

Notes:

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

Assembly note

Regarding the high power density of LED Array, it is strongly recommend to use thermal grease and screws.

In order to reduce thermal resistance at assembly, it is necessary to use TIM (thermal interface Material) uniformly and tighten screws on heatsink, otherwise the bad thermal resistance may cause the packages **burned out**.

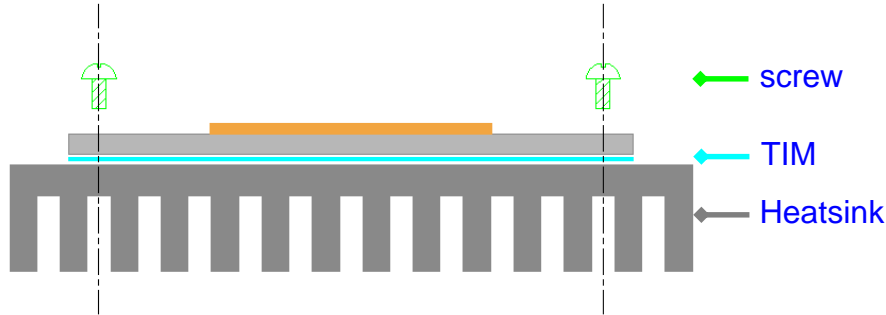


Fig 10. Reference assembly as fixing with screws

Limited Warranty : COB Light Engine Series

This limited warranty is provided by ProLight Opto described below (“Seller”) to you as the original purchaser of the LED lighting product that is identified on Seller’s invoice reflecting its original purchase (the “Product”). We warrant the identification as such on the invoice, will be free of defects in material and workmanship for a period of five (5) YEARS from the date of original purchase. This limited warranty excludes field labor and service charges related to the repair or replacement of the Product. Seller’s aggregate liability with respect to a defective product shall in any event be limited to the monies paid to seller for that defective product. The determination of whether the Product is defective shall be made by Seller in its sole discretion with consideration given to the overall performance of the Product. This limited warranty cannot be transferred to subsequent purchasers of the Product, provided that such Product is resold in new condition and in its original packaging. This limited warranty is void if the product is not used for the purpose for which it is designed.

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)

