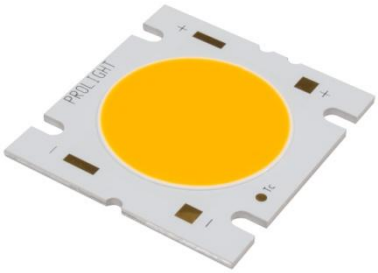
ProLight Opto
Technology Corporation



ProLight PABB-200FxL-xDDx
200W 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
- Engine 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

Main Applications

- High specification down lighting
- High profile architectural lighting
- Street lighting
- Stage lighting
- High-Bay lighting

Introduction

- The input power is 200 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 lighting, typical applications include commercial down lighting, stage lighting, outdoor street lighting and high profile architectural lighting.

2013/05

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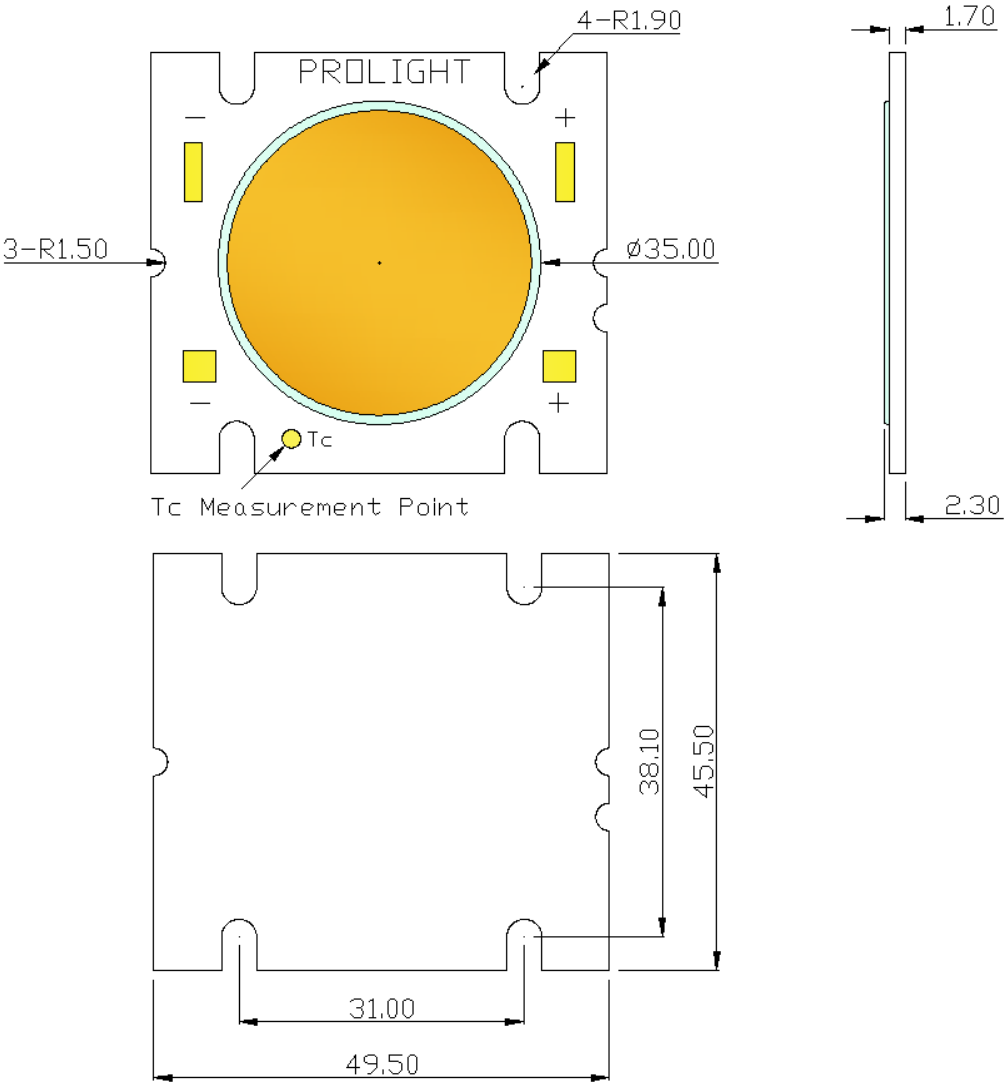
Emitter Mechanical Dimensions



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 ± 0.30mm.
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.

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Flux Characteristics, T_C = 25°C

Radiation Pattern	Color	Part Number COB	DC Forward Current (mA)	Luminous Flux Φ_V (lm) Minimum	Luminous Flux Φ_V (lm) Typical	CRI Typical
Lambertian	White	PABB-200FWL-NDDN	3500	14400	16000	72
			4000	16200	18000	
			4500*	18000	20000	
	Neutral White	PABB-200FNL-BDDP	3500	12400	13800	82
			4000	14000	15600	
			4500*	15500	17300	
	Warm White	PABB-200FVL-BDDP	3500	11900	13200	80
			4000	13300	14800	
			4500*	14800	16400	
		PABB-200FVL-DDDP	3500	8600	9600	95
			4000	9700	10800	
			4500*	10800	12000	

- The mark "*" indicated product is tested and binned at the specified drive current.
- ProLight maintains a tolerance of ± 10% on flux and power measurements.
- Please do not drive at rated current more than 1 second without proper heat sink.

Electrical Characteristics at 4500mA, T_C = 25°C

Color	Forward Voltage V_F (V) Min.	Typ.	Max.	Thermal Resistance Junction to Board (℃/W)
White	37.0	40.5	43.5	0.1
Neutral White	37.0	40.5	43.5	0.1
Warm White	37.0	40.5	43.5	0.1

- ProLight maintains a tolerance of ± 1V for Voltage measurements.

Optical Characteristics at 4500mA, T_C = 25°C

Radiation Pattern	Color	Color Temperature CCT Min.	Typ.	Max.	Total included Angle (degrees) $\theta_{0.90V}$	Viewing Angle (degrees) $2\theta_{1/2}$
Lambertian	White	5300 K	5700 K	6020 K	160	120
	Neutral White	3850 K	4000 K	4120 K	160	120
	Warm White	2660 K	2700 K	2790 K	160	120
		2970 K	3000 K	3120 K	160	120

- ProLight maintains a tolerance of ± 5% for CCT measurements.

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Absolute Maximum Ratings

Parameter	White/Neutral White/Warm White
Max DC Forward Current (mA)	4500
Peak Pulsed Forward Current (mA)	9000 (less than 1/10 duty cycle@1KHz)
Average Forward Current (mA)	4500
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

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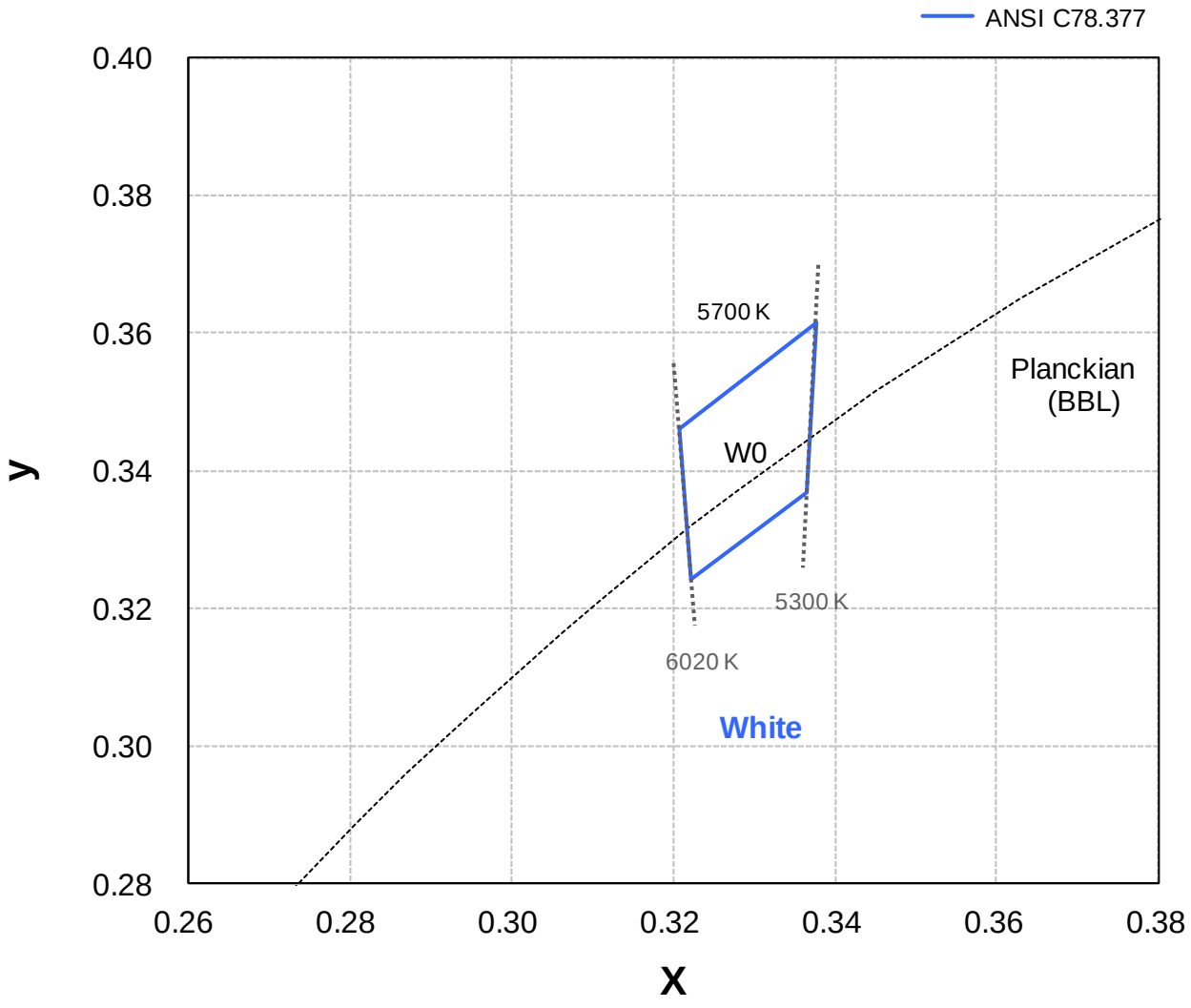
Color Bin

White Binning Structure Graphical Representation



White Bin Structure

Bin Code	x	y	Typ. CCT (K)
W0	0.3376 0.3207 0.3222 0.3366	0.3616 0.3462 0.3243 0.3369	5700

- Tolerance on each color bin (x , y) is ± 0.01

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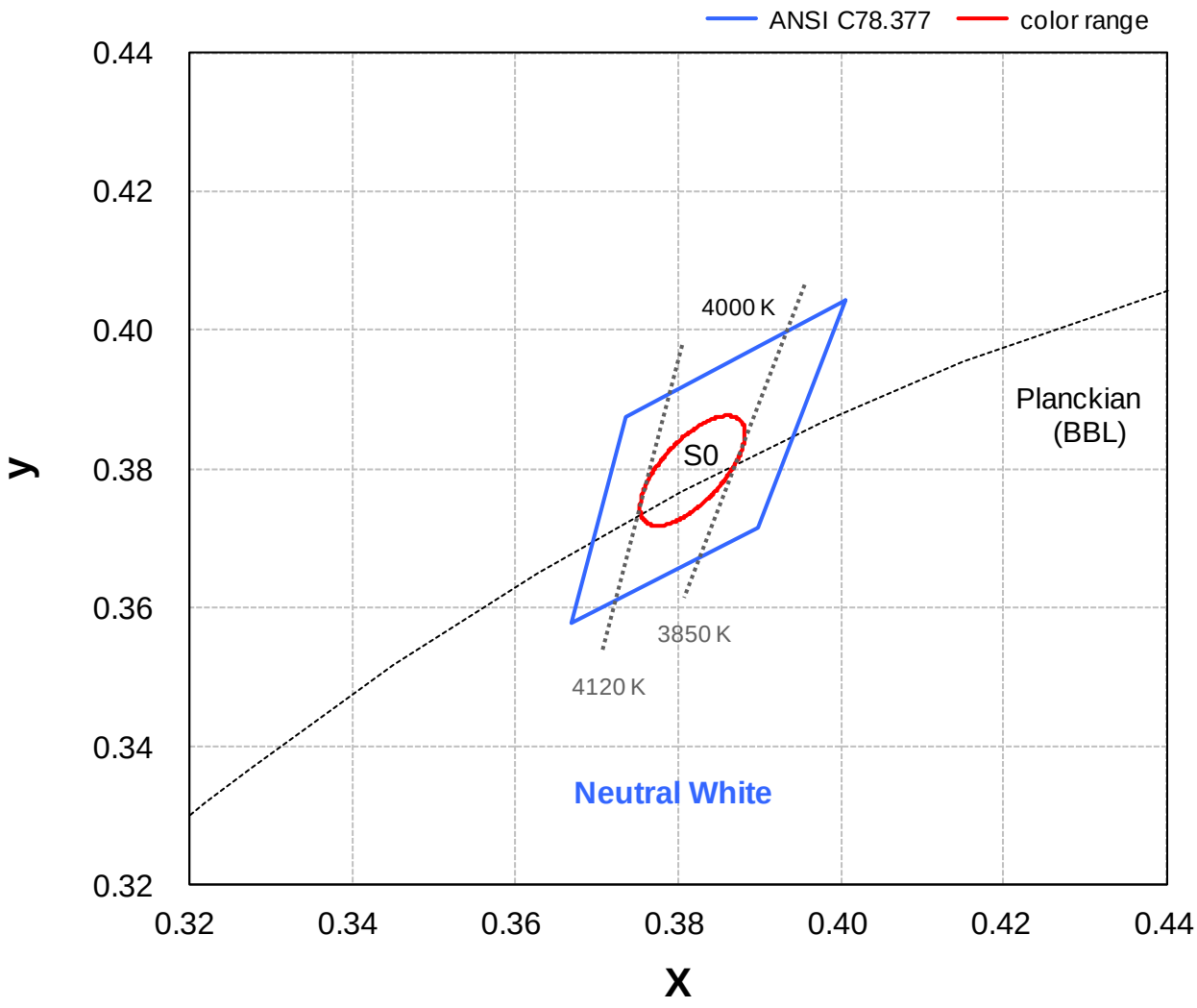
Color Bin

Neutral White Binning Structure Graphical Representation



Neutral White Bin Structure

Bin Code		Center	Oval parameter		Typ. CCT (K)
S0	x	0.3818	a	0.00939	4000
	y	0.3792	b	0.00402	
			θ°	54.00	

- 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 ± 0.01

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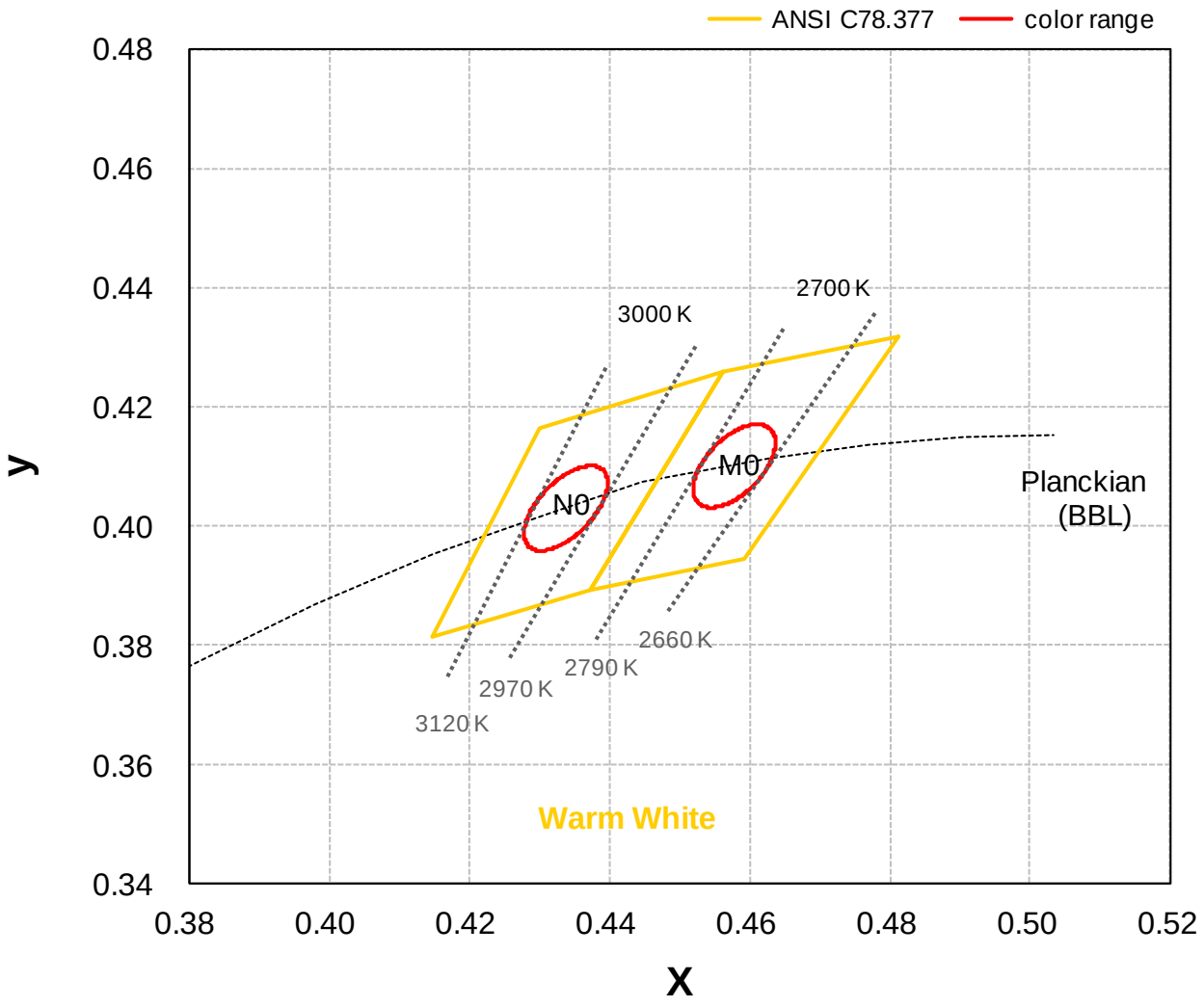
Color Bin

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	0.4578	a	0.00774	2700	N0	x	0.4338	a	0.00834	3000
	y	0.4101	b	0.00411			y	0.4030	b	0.00408	
			θ°	57.28					θ°	53.17	

- 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 ± 0.01

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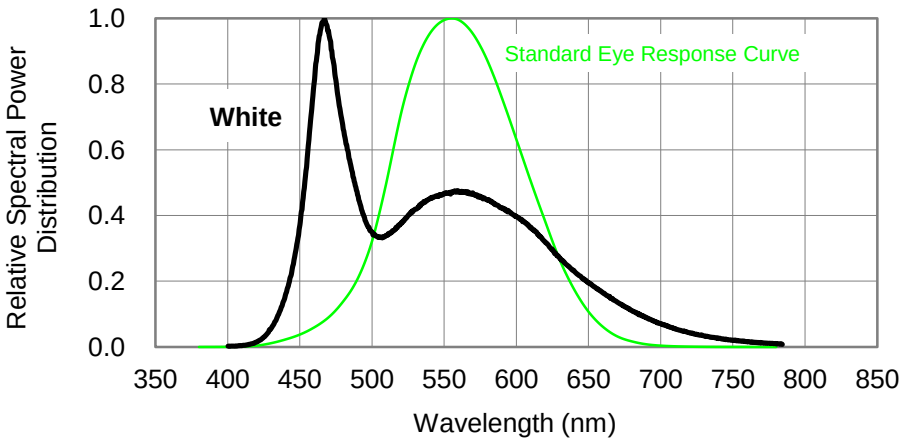
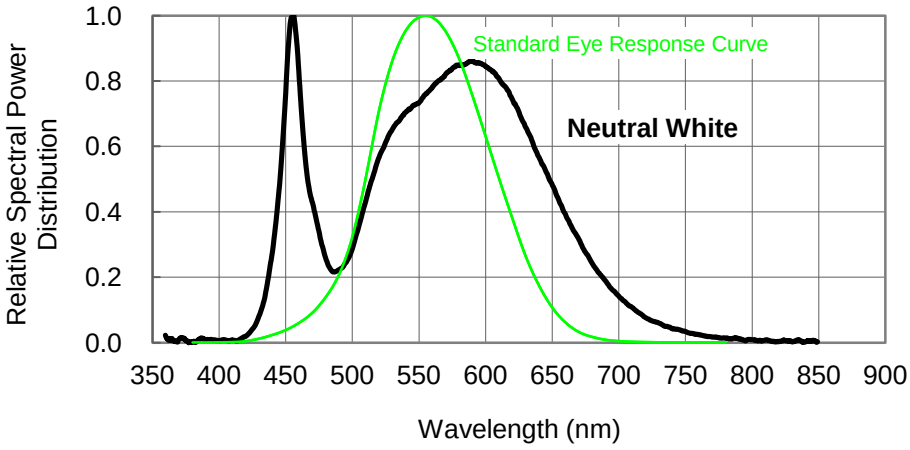
Color Spectrum, T_C = 25°C

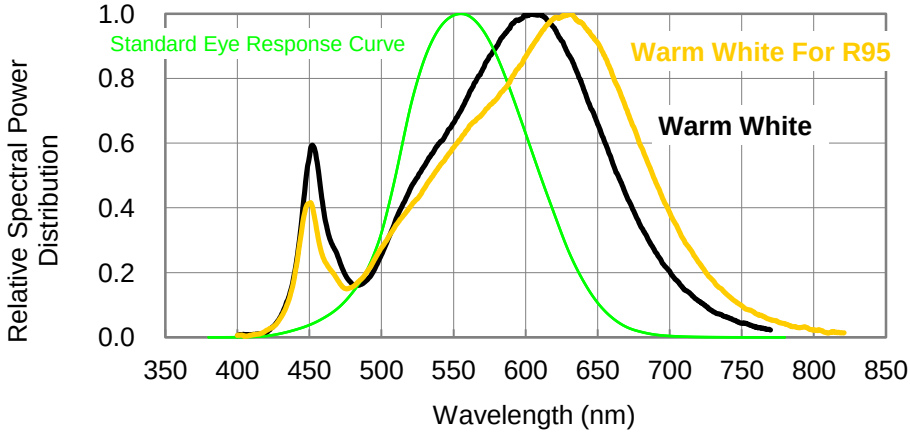
1. White



2. Neutral White



3. Warm White



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Case Temperature Relative Characteristics

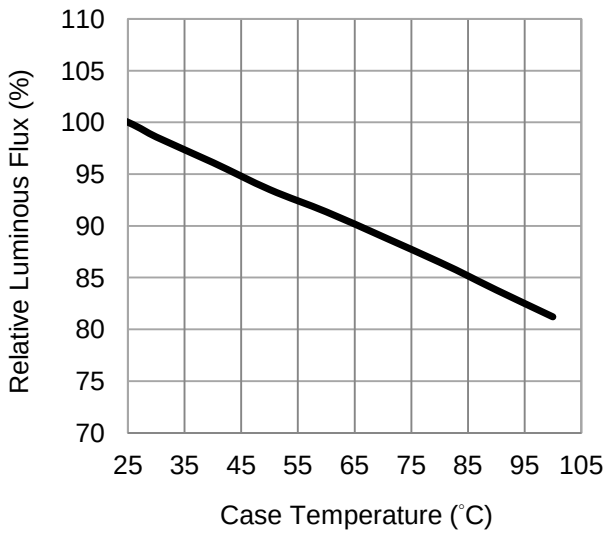

Fig 1. Case Temperature vs. Relative Luminous Flux at 4500mA.

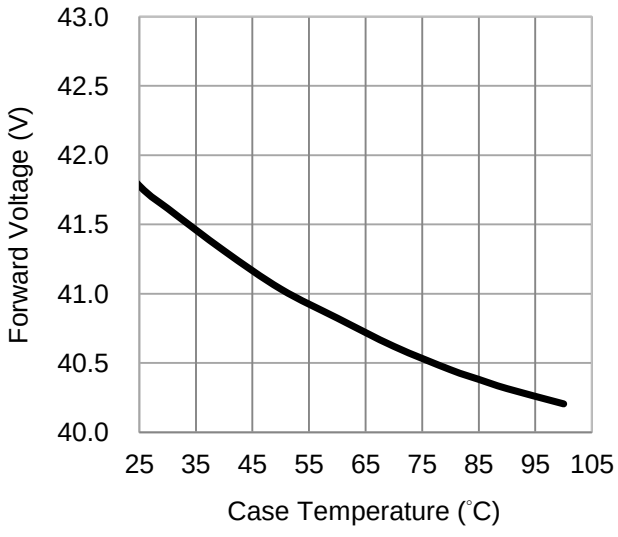

Fig 2. Case Temperature vs. Forward Voltage at 4500mA.

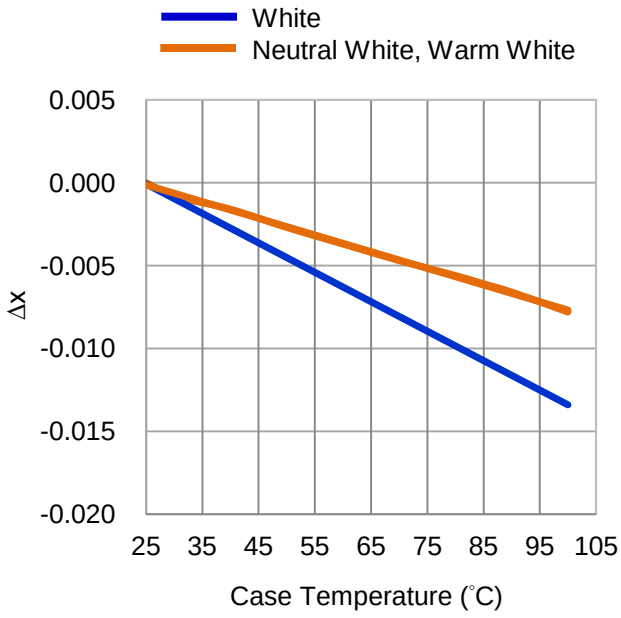

Fig 3. Case Temperature vs. Chromaticity Coordinate Δx at 4500mA.

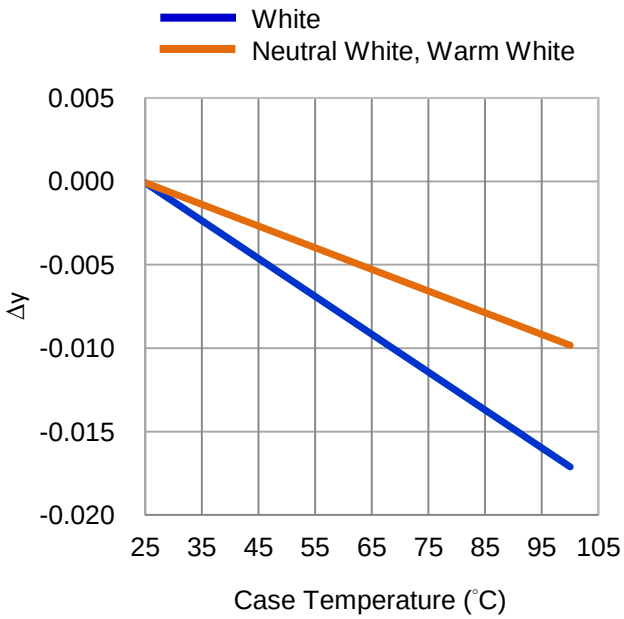

Fig 4. Case Temperature vs. Chromaticity Coordinate Δy at 4500mA.

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Forward Current Relative Characteristics

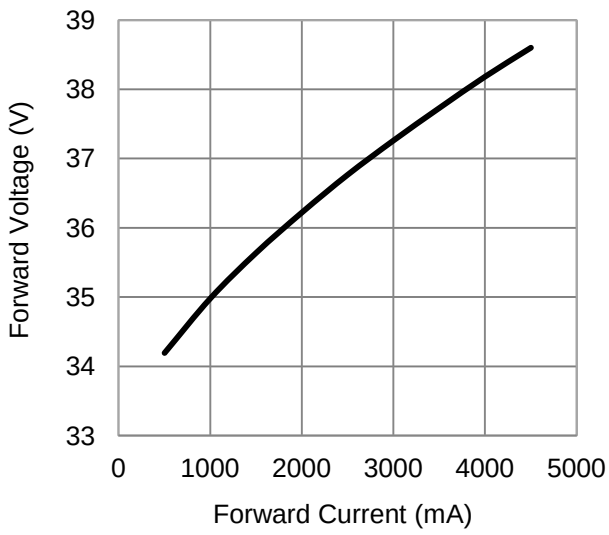

Fig 5. Forward Current vs. Forward Voltage at T_C=25°C.

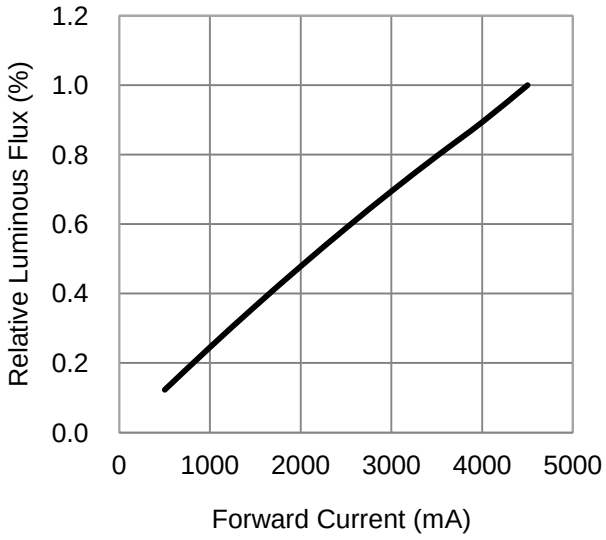

Fig 6. Forward Current vs. Relative Luminous Flux at T_C=25°C.

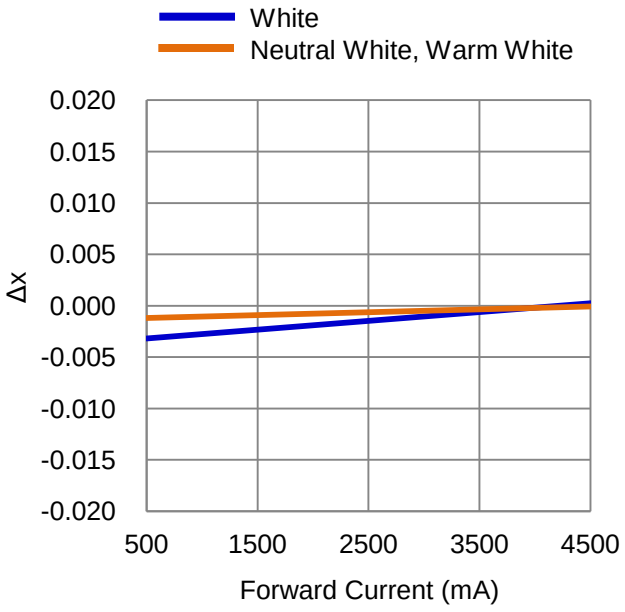

Fig 7. Forward Current vs. Chromaticity Coordinate Δx at 4500mA.

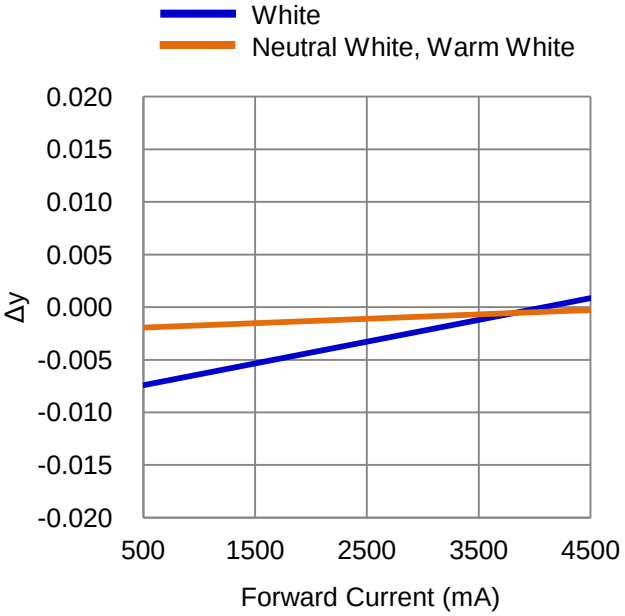

Fig 8. Forward Current vs. Chromaticity Coordinate Δy at 4500mA.

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Case Temperature vs. Junction Temperature Characteristics

T_C (°C)	T_J (°C)		
	3500 (mA)	4000 (mA)	4500 (mA)
0	14	16	18
5	19	21	23
10	24	26	28
15	29	31	33
20	34	36	38
25	39	41	43
30	44	46	48
35	49	51	53
40	54	56	58
45	59	61	63
50	64	66	68
55	69	71	73
60	74	76	78
65	79	81	83
70	84	86	88
75	89	91	93
80	94	96	98
85	99	101	103
90	104	106	108
95	109	111	113
100	114	116	118

Fig 9. Case Temperature vs. Junction Temperature at 3500、4000、4500mA.

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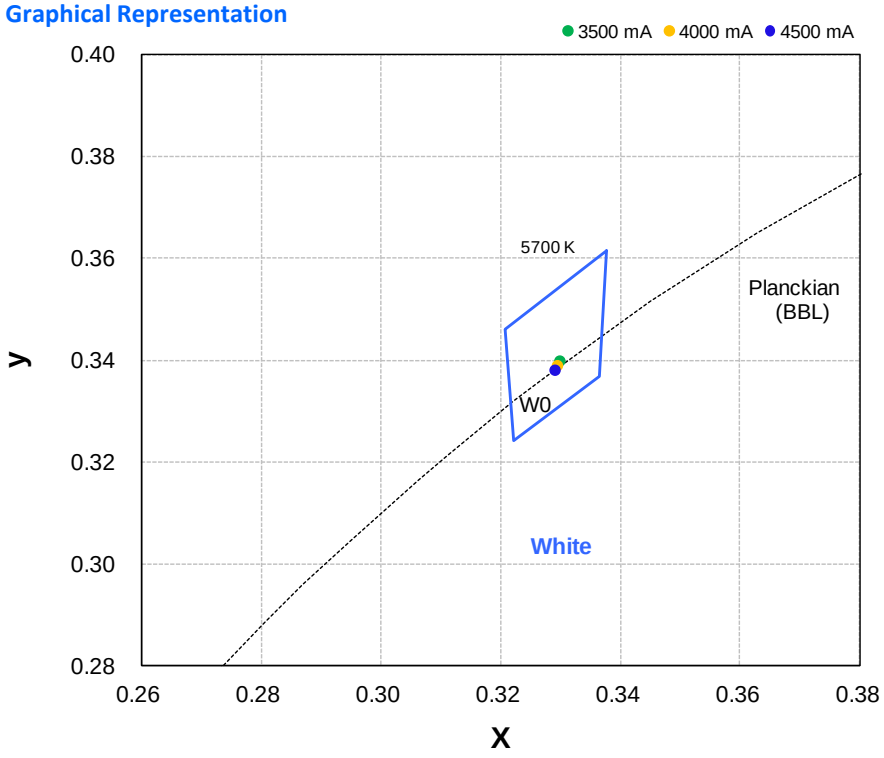
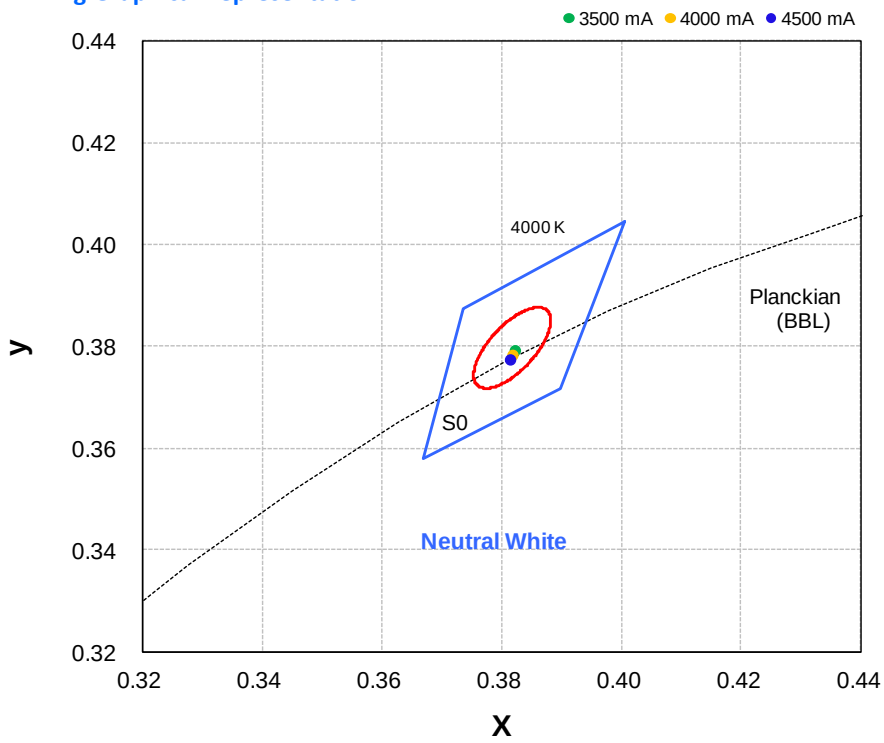
Color Coordinate vs. Forward Current, T_C = 25°C

White Binning Graphical Representation



Neutral White Binning Graphical Representation



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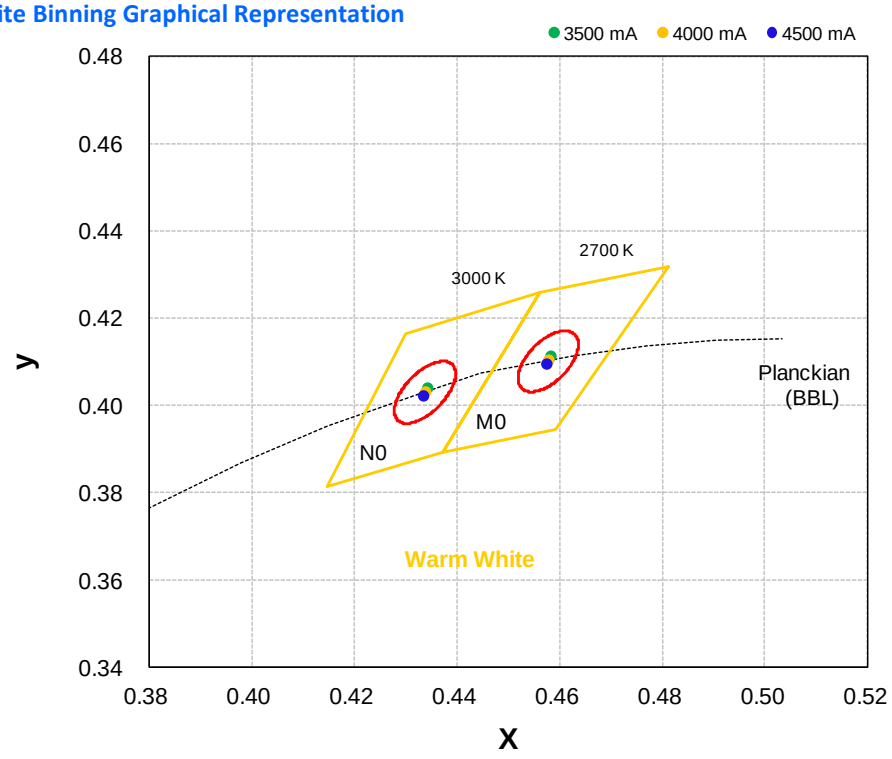
Color Coordinate vs. Forward Current, T_C = 25°C

Warm White Binning Graphical Representation



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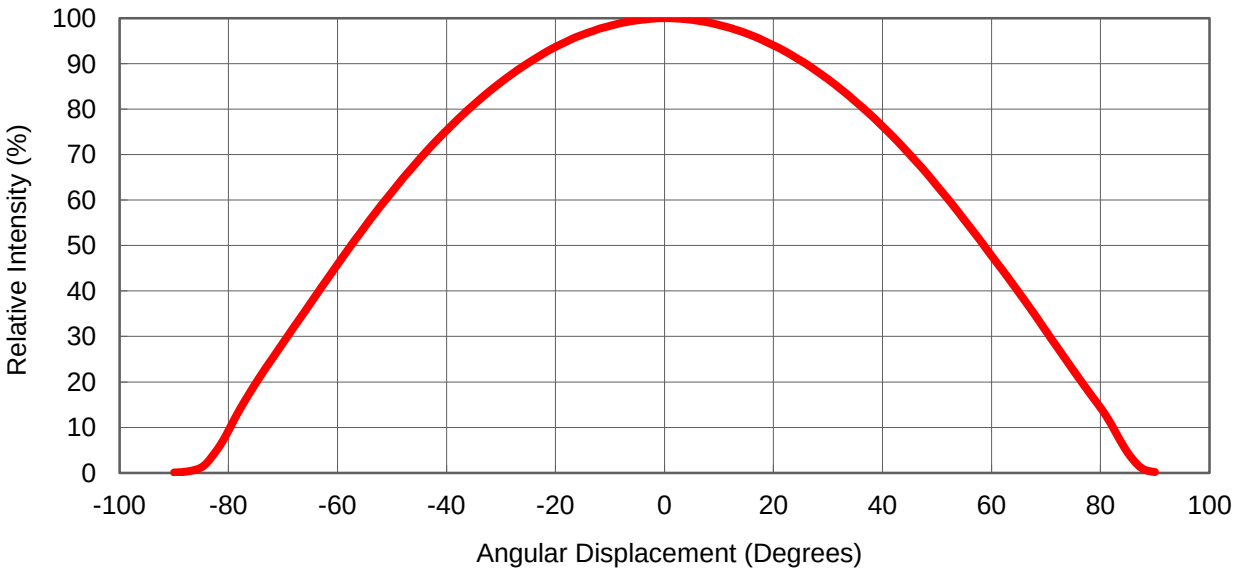
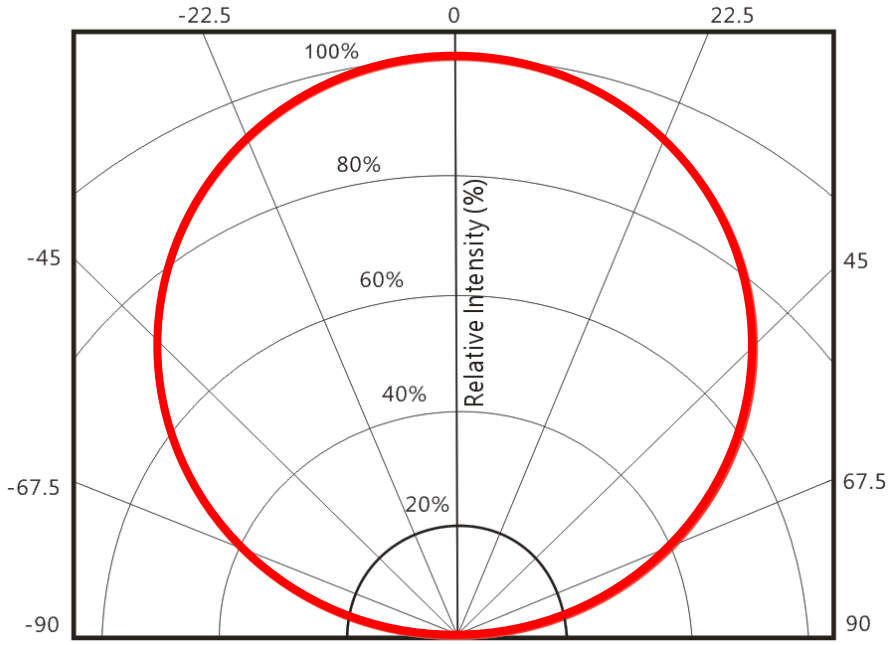
Typical Representative Spatial Radiation Pattern

Lambertian Radiation Pattern



Polar Radiation Pattern



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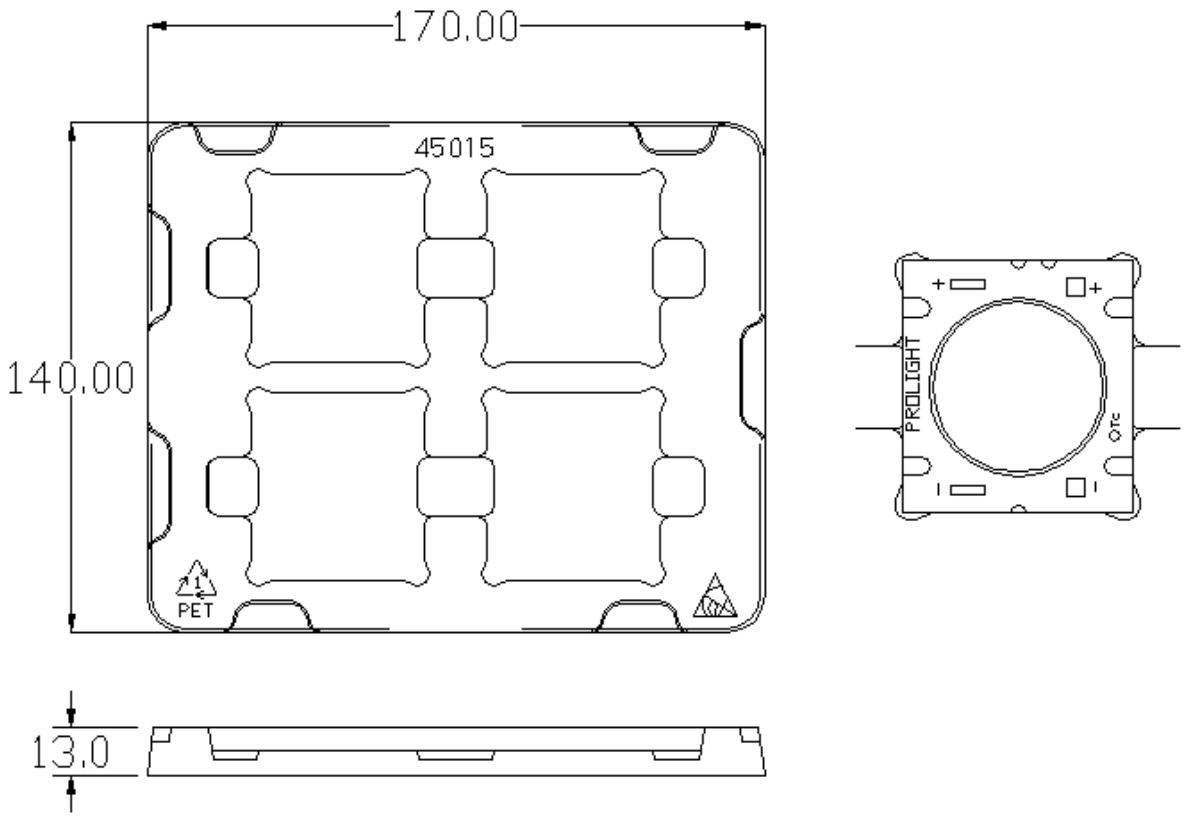
Packing Specifications



Product 4 pcs/tray

Notes:
1. Drawing not to scale.
2. All dimensions are in millimeters.
3. Unless otherwise indicated, tolerances are ± 0.20mm.

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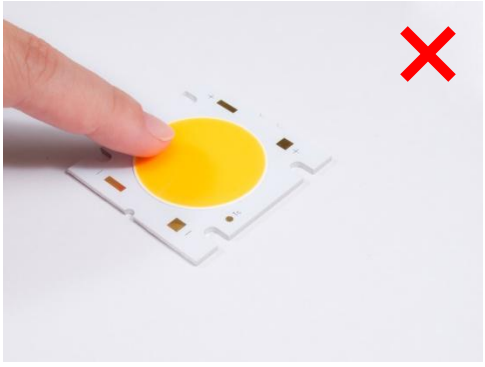
Precaution for Use

- 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 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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