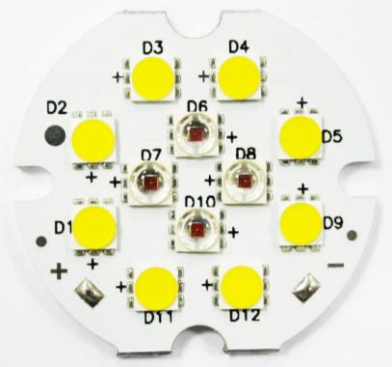
ProLight Opto
Technology Corporation



ProLight PP2M-1LYP-012BN
12W Warm White LED Module
Technical Datasheet
Version: 1.0

Preliminary

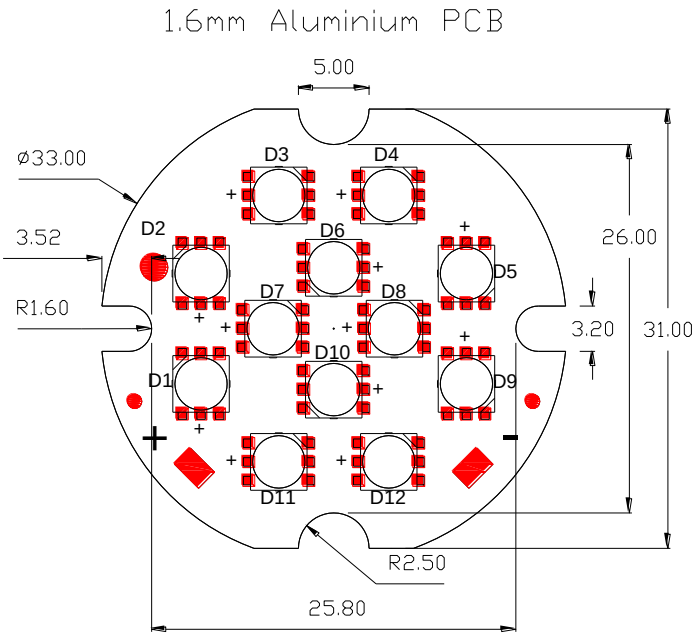
Features

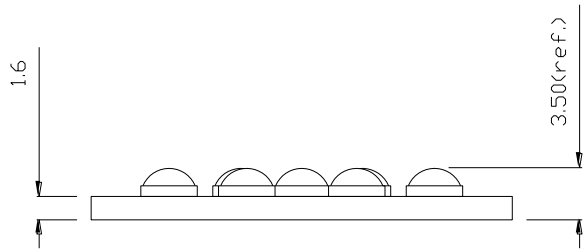
- Flux typical 1000 lm
- CRI typical 92
- Efficiency typical 85 lm/W
- Can replace a 80 Watt incandescent
- Very long operating life
- RoHS compliant
- Instant light (less than 100ns)
- No UV

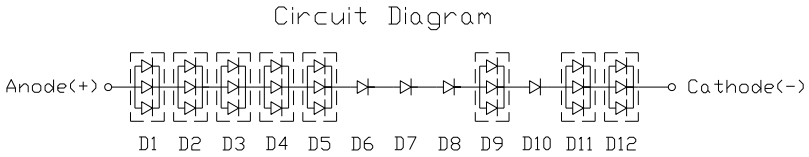
Typical Applications

- LED bulb
- Indoor/Outdoor Commercial and Residential Architectural

Module Mechanical Dimensions







Notes:
1. Slots in aluminum-core PCB for M3 or #4 mounting screw.
2. Electrical interconnection pads labeled on the aluminum-core PCB with "+" and "-" to denote positive and negative, respectively.
3. Drawing not to scale.
4. All dimensions are in millimeters.
5. All dimendions without tolerances are for reference only.
6. **Please do not use a force of over 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 at 350mA, T_B = 25°C

Radiation Pattern	Color	Part Number Module	Lumious Flux Φ_V (lm) Minimum	Lumious Flux Φ_V (lm) Typical	CRI Typical
Lambertian	Warm White	PP2M-1LYP-012BN	860	1000	92

- ProLight maintains a tolerance of ± 10% on flux and power measurements.

Optical Characteristics at 350mA, T_B = 25°C

Color	Color Temperature CCT Minimum	Color Temperature CCT Typical	Color Temperature CCT Maximum	Total included Angle (degrees) $\theta_{0.90V}$	Viewing Angle (degrees) $2\,\theta_{1/2}$
Warm White	2450 K	2600 K	2780 K	160	140

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

Flux and Optical Characteristics at 350mA, T_B = 75°C

Color	Lumious Flux Φ_V (lm) Typical	CRI Typical	Color Temperature CCT Typical
Warm White	800	88	3050 K

Electrical Characteristics at 350mA, T_B = 25°C

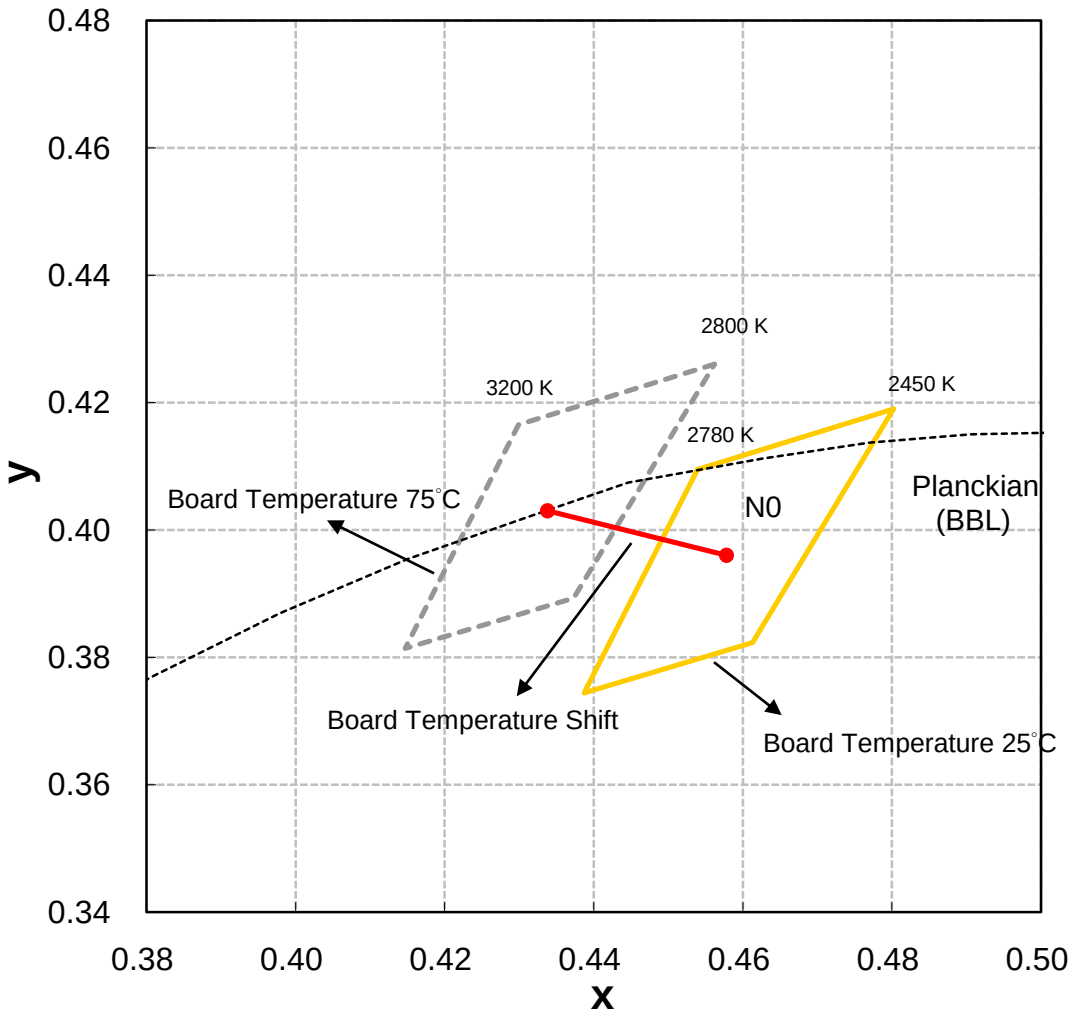
Forward Voltage V_F (V) Min.	Forward Voltage V_F (V) Typ.	Forward Voltage V_F (V) Max.	Power Consumption (W) Min.	Power Consumption (W) Typ.	Power Consumption (W) Max.
30.0	33.0	37.6	10.5	11.6	13.2

Absolute Maximum Ratings

Parameter	Warm White
DC Forward Current (mA)	350
Peak Pulsed Forward Current (mA)	450
Average Forward Current (mA)	350
ESD Sensitivity (HBM per MIL-STD-883E Method 3015.7)	> ±500V
LED Junction Temperature (˚C)	120
Aluminum-core PCB Temperature (˚C)	75
Storage Temperature (˚C)	-40 to +80
Operating Temperature (˚C)	-25 to +45

Color Bins

Warm White Binning Structure Graphical Representation



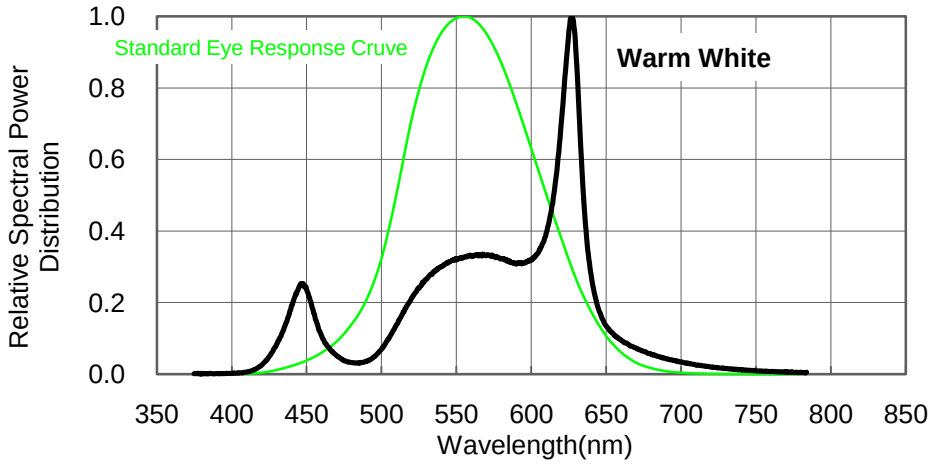
Warm White Bin Structure

Bin Code	x	y	Typ. CCT (K)
N0	0.479	0.418	2600
	0.453	0.408	
	0.438	0.373	
	0.460	0.381	

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

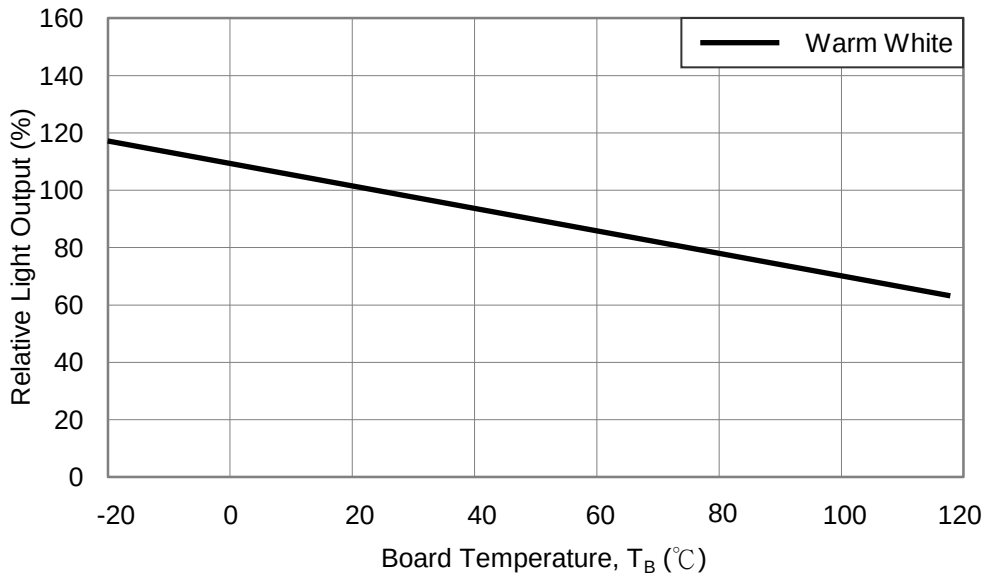
Color Spectrum, T_J = 25°C

1. Warm White



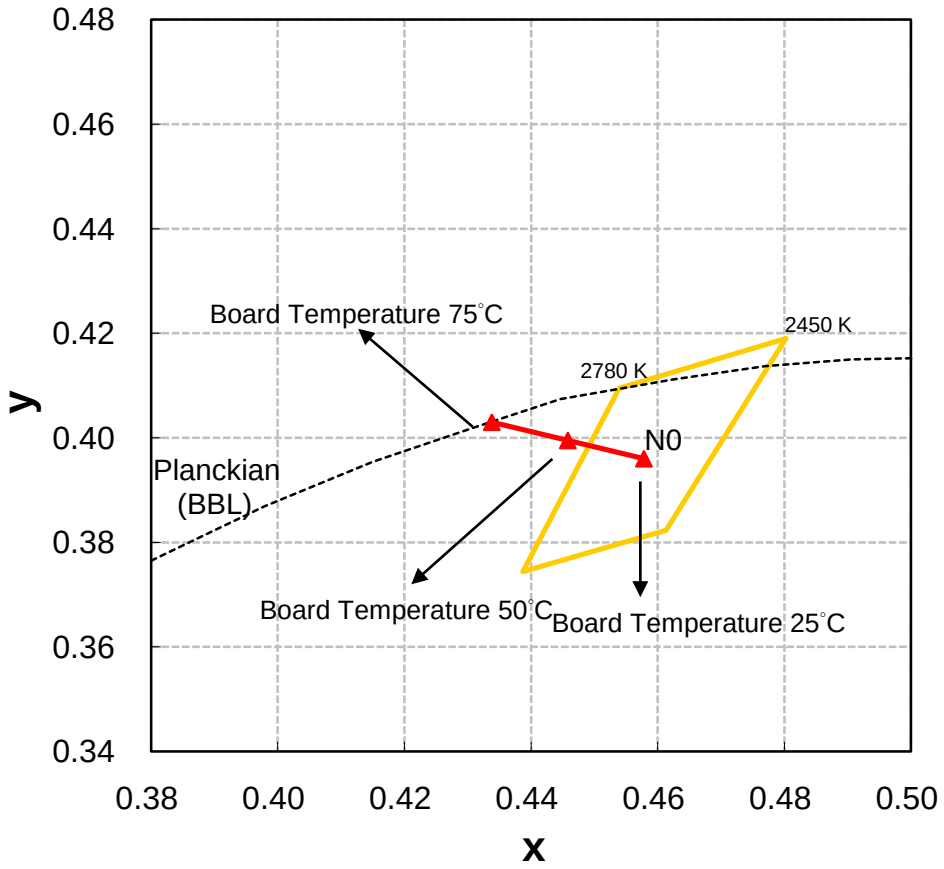
Light Output Characteristics

Board Temperature vs. Relative Light Output at 350mA



Light Output Characteristics

Board Temperature vs. Chromaticity



Forward Current Characteristics, T_B = 25°C

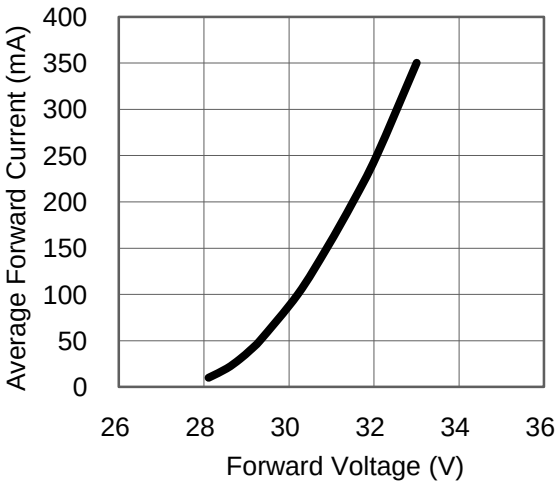


Fig 1. Forward Current vs. Forward Voltage for Warm White.

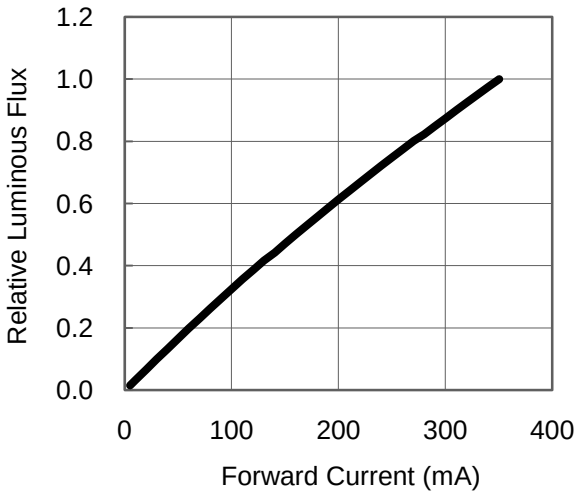
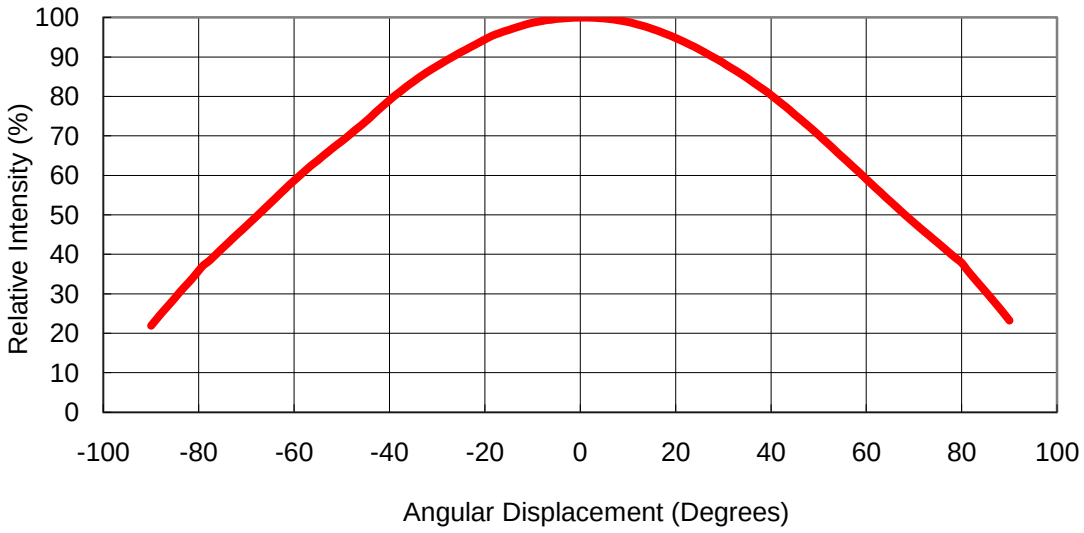


Fig 2. Relative Luminous Flux vs. Forward Current for Warm White at Tj=25℃ maintained.

Typical Representative Spatial Radiation Pattern

Lambertian Radiation Pattern



Qualification Reliability Testing

Stress Test	Stress Conditions	Stress Duration	Failure Criteria
Room Temperature Operating Life (RTOL)	25°C, I_F = max DC (Note 1)	1000 hours	Note 2
Wet High Temperature Operating Life (WHTOL)	85°C/60%RH, I_F = max DC (Note 1)	1000 hours	Note 2
Wet High Temperature Storage Life (WHTSL)	85°C/85%RH, non-operating	1000 hours	Note 2
High Temperature Storage Life (HTSL)	110°C, non-operating	1000 hours	Note 2
Low Temperature Storage Life (LTSL)	-40°C, non-operating	1000 hours	Note 2
Non-operating Temperature Cycle (TMCL)	-40°C to 120°C, 30 min. dwell, <5 min. transfer	200 cycles	Note 2
Non-operating Thermal Shock (TMSK)	-40°C to 120°C, 20 min. dwell, <20 sec. transfer	200 cycles	Note 2

Notes:

1. Depending on the maximum derating curve.

2. Criteria for judging failure

Item	Test Condition	Criteria for Judgement	
		Min.	Max.
Forward Voltage (V_F)	I_F = max DC	-	Initial Level x 1.1
Luminous Flux or Radiometric Power (Φ_V)	I_F = max DC	Initial Level x 0.7	-

* The test is performed after the LED is cooled down to the room temperature.

3. A failure is an LED that is open or shorted.

Precaution in Handling

- 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 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)