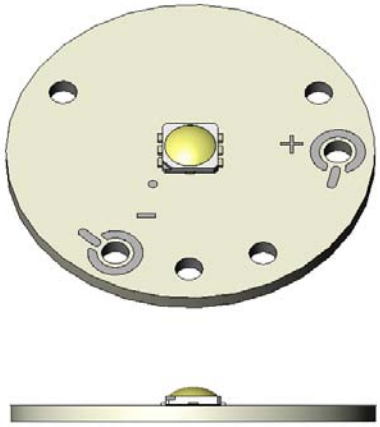
ProLight Opto
Technology Corporation



ProLight PF6M-12LXP-4SC
12W White/ Warm White Power LED
Technical Datasheet
Version: 2.6

For JFT Only

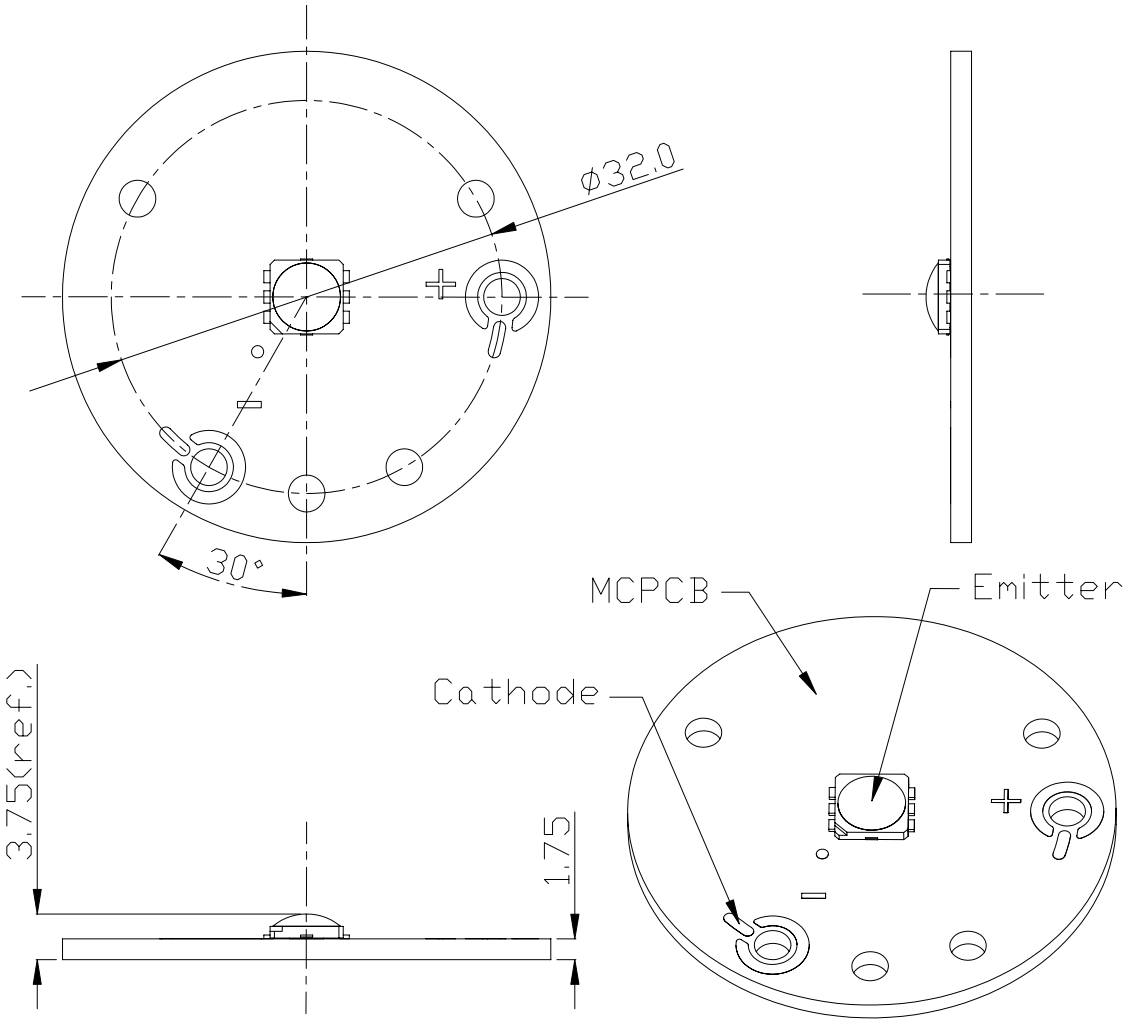
Features

- High Flux per LED
- Very long operating life(up to 100k hours)
- Lambertian or Collimated Radiation Pattern
- More Energy Efficient than Incandescent and most Halogen lamps
- Low Voltage DC operated
- Cool beam, safe to the touch
- Instant light (less than 100ns)
- No UV

Typical Applications

- Reading lights (car, bus, aircraft)
- Portable (flashlight, bicycle)
- Decorative
- Appliance
- Sign and Channel Letter
- Architectural Detail
- Cove Lighting
- Automotive Exterior (Stop-Tail-Turn, CHMSL, Mirror Side Repeat)

Star Mechanical Dimensions



Notes:

1. Electrical interconnection pads labeled on the aluminum-core PCB with "+" and "-" to denote positive and negative, respectively. All positive pads are interconnected, as are all negative pads, allowing for flexibility in array interconnection.
2. Drawing not to scale.
3. All dimensions are in millimeters.
4. All dimendions without tolerances are for reference only.

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

Part Number

Color	Module	Beam Pattern
White	PF6M-12LWP-4SC	Lambertian
Warm-White	PF6M-12LVP-4SC	

Flux Characteristics at 800mA, Junction Temperature, Tj=25℃

Color	Minimum Luminous Flux (lm)	Typical Luminous Flux (lm)	Beam Pattern
White	-	500	Lambertian
Warm White	-	450	

Optical Characteristics at 800mA, Junction Temperature, Tj=25℃

	Dominant Wavelength λD Peak Wavelength λp Color Temperature(CCT)			Spectral Half-width (nm)	Temperature Coefficient or Dominant Wavelength
Color	Min.	Typ.	Max.	Δλ1/2	ΔλD/ΔTj (nm/℃)
White	4100K	5500K	10000K	-	-
Warm White	2700K	3300K	4100K	-	-

Optical Characteristics at 800mA, Junction Temperature, Tj=25℃ (Continued)

Color	Beam Pattern	Total Included Angle θ0.9v (degree)	Viewing Angle 2θ1/2 (degree)	Typical Candela on Axis (cd)
White	Lambertian	160	120	
Warm White		160	120	

Electrical Characteristics at 800mA, Junction Temperature, Tj=25℃

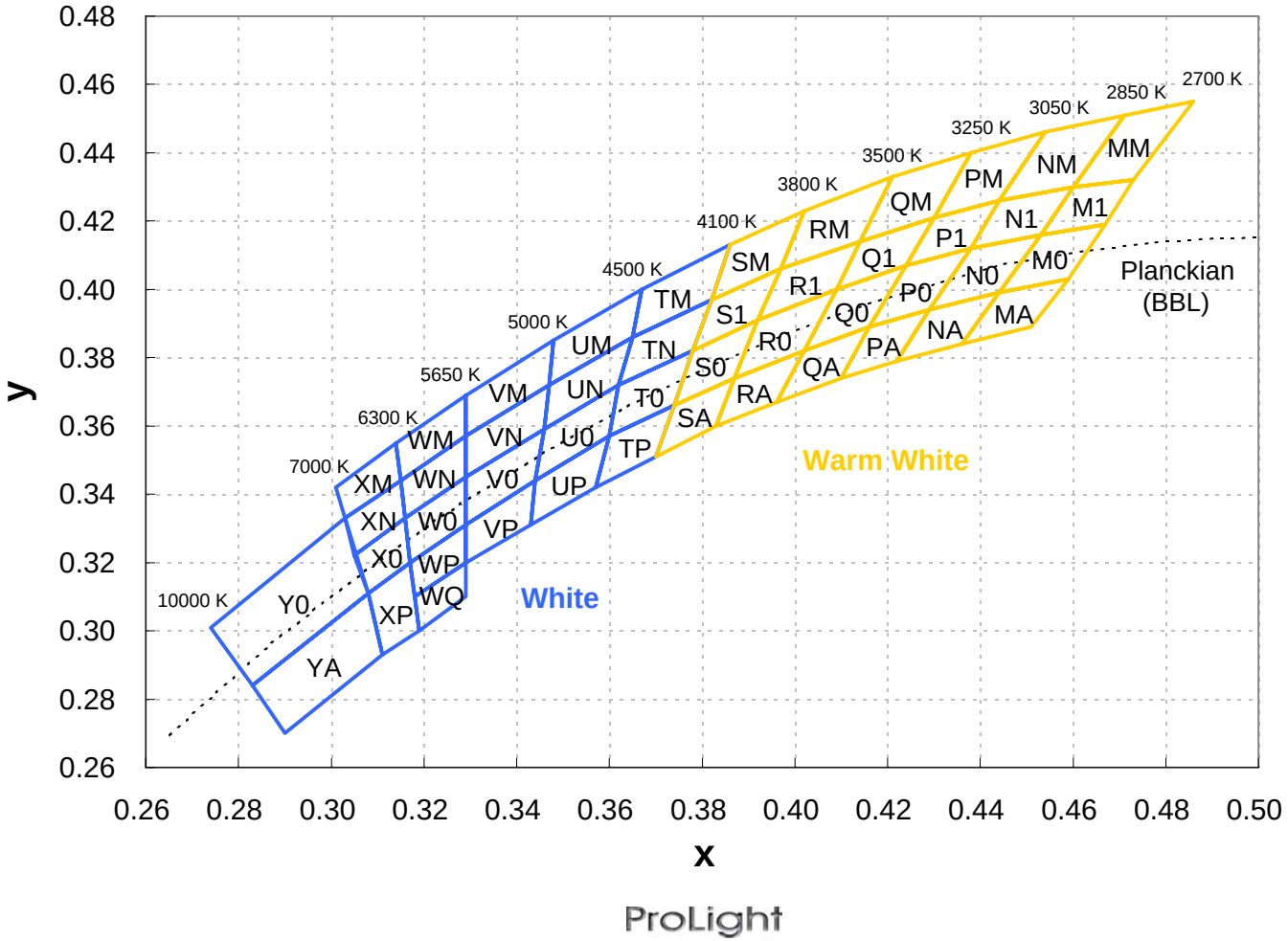
	Forward Voltage Vf(V)			Dynamic Resistance(Ω)	Temperature Coefficient of Vf(mV/℃)	Thermal Resistance Junction to
Color	Min.	Typ.	Max.		ΔVf/ΔTj	Board(℃/W)
White	12.0	15.0	16.8	1.0	-2	1.8
Warm-White	12.0	15.0	16.8	1.0	-2	1.8

Absolute Maximum Ratings

Parameter	
DC Forward Current (mA)	800
Peak Pulsed Forward Current (mA)	1000
Average Forward Current (mA)	800
LED Junction Temperature (℃)	135
Aluminum-core PCB Temperature(℃)	105
Storage & Operating Temperature(℃)	-40 to +105
Soldering Temperature(℃)	260 for 5 seconds Max.

Color Bin

White and Warm White Binning Structure Graphical Representation



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Color Bins

White Bin Structure

Bin Code	x	y	Typ. CCT (K)	Bin Code	x	y	Typ. CCT (K)
T0	0.378	0.382	4300	W0	0.329	0.345	5970
	0.374	0.366			0.329	0.331	
	0.360	0.357			0.317	0.320	
	0.362	0.372			0.316	0.333	
TN	0.382	0.397	4300	WN	0.329	0.345	5970
	0.378	0.382			0.316	0.333	
	0.362	0.372			0.315	0.344	
	0.365	0.386			0.329	0.357	
TP	0.374	0.366	4300	WP	0.329	0.331	5970
	0.370	0.351			0.329	0.320	
	0.357	0.342			0.318	0.310	
	0.360	0.357			0.317	0.320	
TM	0.386	0.413	4300	WQ	0.329	0.320	5970
	0.382	0.397			0.329	0.310	
	0.365	0.386			0.319	0.300	
	0.367	0.400			0.318	0.310	
U0	0.362	0.372	4750	WM	0.329	0.369	5970
	0.360	0.357			0.329	0.357	
	0.344	0.344			0.315	0.344	
	0.346	0.359			0.314	0.355	
UN	0.365	0.386	4750	X0	0.308	0.311	6650
	0.362	0.372			0.305	0.322	
	0.346	0.359			0.316	0.333	
	0.347	0.372			0.317	0.320	
UP	0.360	0.357	4750	XN	0.305	0.322	6650
	0.357	0.342			0.303	0.333	
	0.343	0.331			0.315	0.344	
	0.344	0.344			0.316	0.333	
UM	0.365	0.386	4750	XP	0.308	0.311	6650
	0.367	0.400			0.317	0.320	
	0.348	0.385			0.319	0.300	
	0.347	0.372			0.311	0.293	
V0	0.329	0.331	5320	XM	0.301	0.342	6650
	0.329	0.345			0.314	0.355	
	0.346	0.359			0.315	0.344	
	0.344	0.344			0.303	0.333	
VN	0.329	0.345	5320	Y0	0.308	0.311	8000
	0.329	0.357			0.283	0.284	
	0.347	0.372			0.274	0.301	
	0.346	0.359			0.303	0.333	
VP	0.329	0.331	5320	YA	0.308	0.311	8000
	0.344	0.344			0.311	0.293	
	0.343	0.331			0.290	0.270	
	0.329	0.320			0.283	0.284	
VM	0.329	0.357	5320				
	0.329	0.369					
	0.348	0.385					
	0.347	0.372					

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

Note: Although several bins are outlined, product availability in a particular bin varies by production run and by product performance. Not all bins are available in all colors.

Color Bins

Warm White Bin Structure

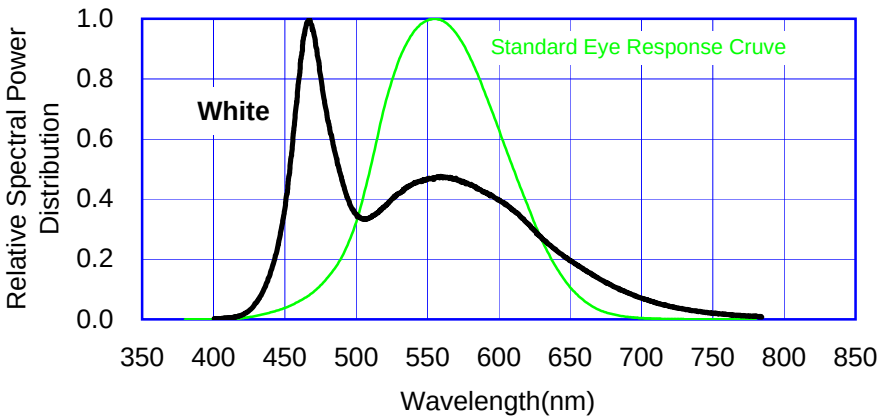
Bin Code	x	y	Typ. CCT (K)	Bin Code	x	y	Typ. CCT (K)
M0	0.453	0.416	2770	Q0	0.409	0.400	3370
	0.444	0.399			0.402	0.382	
	0.459	0.403			0.416	0.389	
	0.467	0.419			0.424	0.407	
M1	0.460	0.430	2770	Q1	0.414	0.414	3370
	0.453	0.416			0.409	0.400	
	0.467	0.419			0.424	0.407	
	0.473	0.432			0.430	0.421	
MA	0.459	0.403	2770	QA	0.416	0.389	3370
	0.444	0.399			0.402	0.382	
	0.436	0.384			0.396	0.367	
	0.451	0.389			0.410	0.374	
MM	0.471	0.451	2770	QM	0.421	0.433	3370
	0.460	0.430			0.414	0.414	
	0.473	0.432			0.430	0.421	
	0.486	0.455			0.438	0.440	
N0	0.438	0.412	2950	R0	0.392	0.391	3650
	0.429	0.394			0.387	0.374	
	0.444	0.399			0.402	0.382	
	0.453	0.416			0.409	0.400	
N1	0.444	0.426	2950	R1	0.414	0.414	3650
	0.438	0.412			0.409	0.400	
	0.453	0.416			0.392	0.391	
	0.460	0.430			0.397	0.406	
NA	0.444	0.399	2950	RA	0.387	0.374	3650
	0.429	0.394			0.383	0.360	
	0.422	0.379			0.396	0.367	
	0.436	0.384			0.402	0.382	
NM	0.454	0.446	2950	RM	0.421	0.433	3650
	0.444	0.426			0.414	0.414	
	0.460	0.430			0.397	0.406	
	0.471	0.451			0.402	0.423	
P0	0.424	0.407	3150	S0	0.392	0.391	3950
	0.416	0.389			0.387	0.374	
	0.429	0.394			0.374	0.366	
	0.438	0.412			0.378	0.382	
P1	0.430	0.421	3150	S1	0.397	0.406	3950
	0.424	0.407			0.392	0.391	
	0.438	0.412			0.378	0.382	
	0.444	0.426			0.382	0.397	
PA	0.429	0.394	3150	SA	0.387	0.374	3950
	0.416	0.389			0.383	0.360	
	0.410	0.374			0.370	0.351	
	0.422	0.379			0.374	0.366	
PM	0.438	0.440	3150	SM	0.402	0.423	3950
	0.430	0.421			0.397	0.406	
	0.444	0.426			0.382	0.397	
	0.454	0.446			0.386	0.413	

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

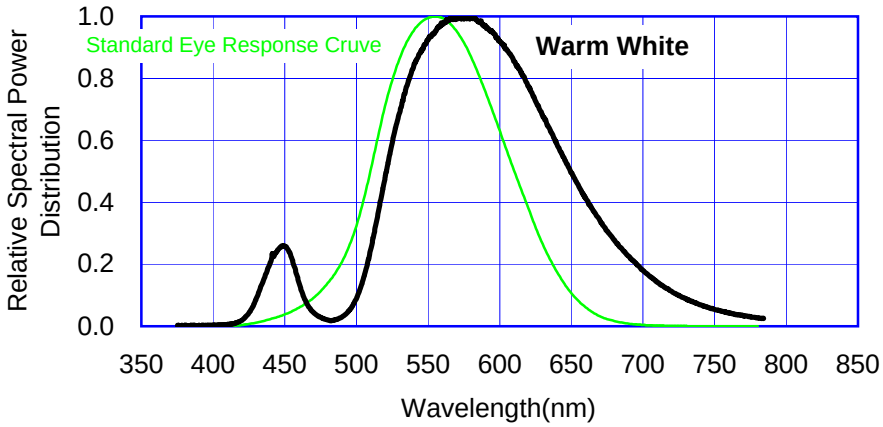
Note: Although several bins are outlined, product availability in a particular bin varies by production run and by product performance. Not all bins are available in all colors.

Color Spectrum, T_J = 25°C

1. White

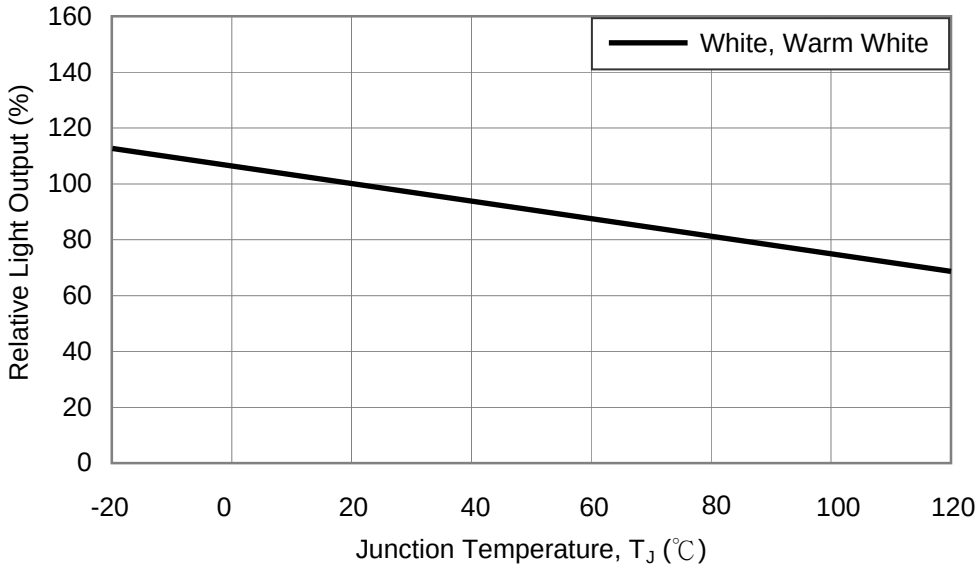


2. Warm White



Light Output Characteristics

Relative Light Output vs. Junction Temperature at 800mA



Forward Current Characteristics, T_J = 25°C

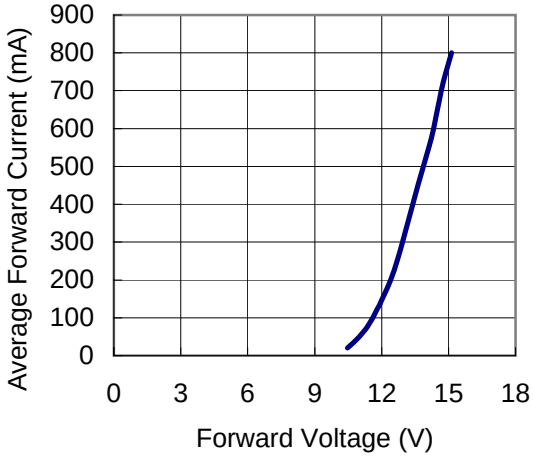


Fig 1. Forward Current vs. Forward Voltage

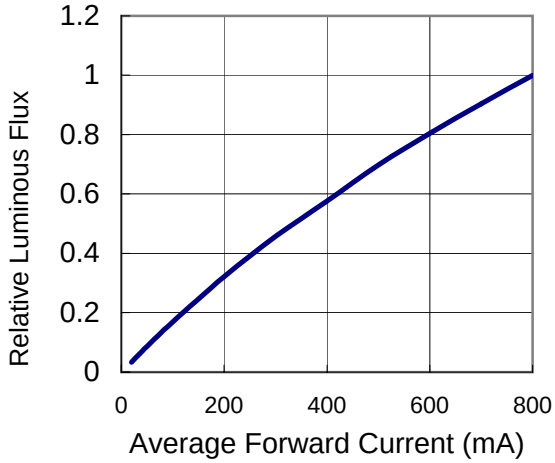


Fig 2. Relative Luminous Flux vs. Forward Current at Tj=25℃ maintained.

Typical Representative Spatial Radiation Pattern

Lambertian Radiation Pattern