



ProLight PBCD-200JLK-xDA72A1x
200W UV Power LED COB
Technical Datasheet
Version: 1.3

ProLight Opto ProEngine Series

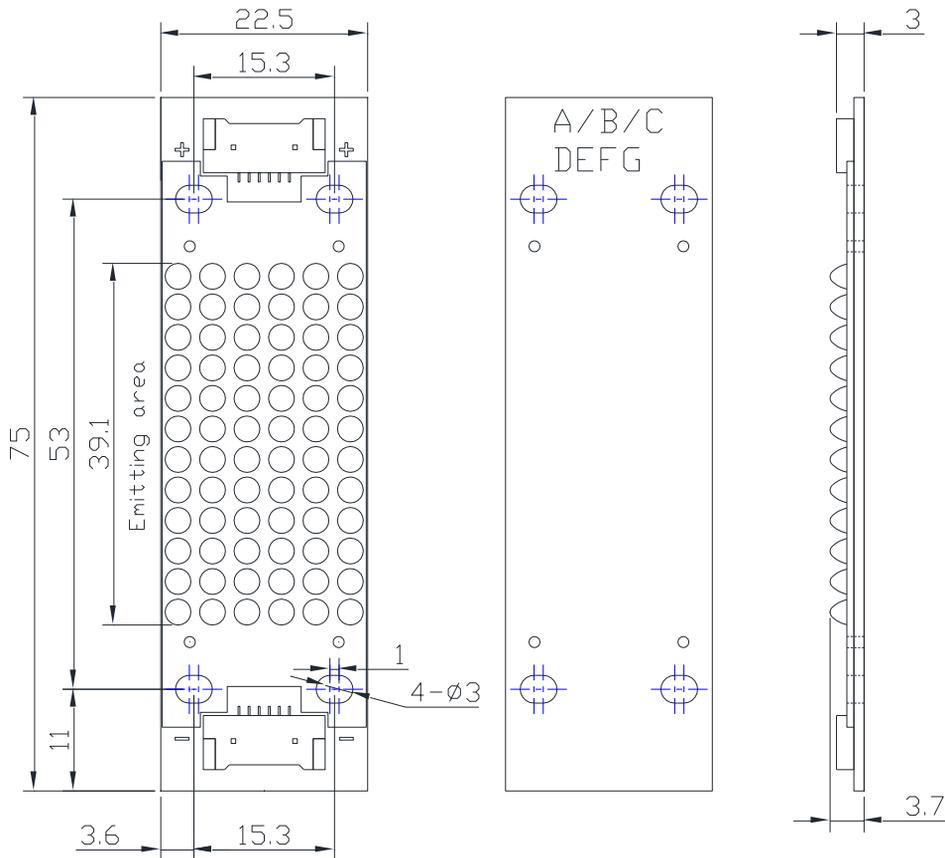
Features

- AlN ceramic substrate, extremely low CTE and excellent thermal dissipation
- Even Light Uniformity
- Extremely High Irradiance (W/m²)
- Seamless Array with Any Length
- Quartz Glass Lens
- Narrow View Angle 35°
- RoHS compliant

Main Applications

- UV gluing, UV curing, UV marking
- UV drying of printing inks and lacquers
- Currency inspection
- Forensic analysis - urine, protein stains
- Leak detection using fluorescent dyes
- Detects fluorescing minerals and gems

Mechanical Dimensions



BIN Code = A/B/C
 A = Radiometric Power (mW)
 B = Peak Wavelength
 C = Voltage
 Date Code = DEFG

Notes:

1. The cathode side of the device is denoted by the chamfer on the part body.
2. Electrical insulation between the case and the board is required. Do not electrically connect either the anode or cathode to the slug.
3. Drawing not to scale.
4. All dimensions are in millimeters.
5. Unless otherwise indicated, tolerances are $\pm 0.15\text{mm}$.
6. Please do not solder the emitter by manual hand soldering, otherwise it will damage the emitter.
7. **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.**
8. Recommended connector TENGUAM housing P/N WFN-09XX1-1L and terminal P/N JCN-WH06200-1805-01

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

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

Color	Part Number Emitter	Radiometric Power (W)		
		Minimum	Typical	Refer @3000mA Typical
UV-S	PBCD-200JLK-GDA72A1S	54.4	66.9	48.2
UV-M	PBCD-200JLK-GDA72A1M	65.5	74.2	53.3
UV	PBCD-200JLK-GDA72A1	65.5	74.2	53.3
UV-L	PBCD-200JLK-GDA72A1L	65.5	74.2	53.3

- ProLight maintains a tolerance of $\pm 7\%$ on flux and power measurements.
- Please do not drive at rated current more than 1 second without proper heat sink.

Electrical Characteristics, $T_j = 25^\circ\text{C}$

Color	Min.	Forward Voltage V_F (V)		Refer @3000mA Typ.
		@4200mA Typ.	Max.	
UV-S	40.8	44.4	48.0	43.2
UV-M	38.4	42.0	48.0	40.8
UV	38.4	42.0	48.0	40.8
UV-L	38.4	42.0	48.0	40.8

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

Optical Characteristics at 4200mA, $T_j = 25^\circ\text{C}$

Color	Peak Wavelength λ_P			Total included Angle (degrees)	Viewing Angle (degrees)
	Min.	Typ.	Max.	$\theta_{0.90V}$	$2\theta_{1/2}$
UV-S	365 nm	367.5 nm	370 nm	60	35
UV-M	380 nm	385 nm	390 nm	60	35
UV	390 nm	395 nm	400 nm	60	35
UV-L	400 nm	405 nm	410 nm	60	35

- ProLight maintains a tolerance of $\pm 1\text{nm}$ for dominant wavelength measurements.

Absolute Maximum Ratings

Parameter	UV-S/UV-M/UV/UV-L
DC Forward Current (mA)	4200
Peak Pulsed Forward Current (mA)	5000 (less than 1/10 duty cycle@1KHz)
ESD Sensitivity (HBM per MIL-STD-883E Method 3015.7)	±1000V
LED Junction Temperature	125°C
Operating Board Temperature at Maximum DC Forward Current	-40°C - 85°C
Storage Temperature	-40°C - 100°C
Reverse Voltage	Not designed to be driven in reverse bias

Radiometric Power Bin Structure at 4200mA

Color	Bin Code	Minimum Radiometric Power (W)	Maximum Radiometric Power (W)	Available Color Bins
UV-S	T2	54.4	59.8	All
	U1	59.8	65.5	All
	U2	65.5	72	[1]
	V1	72	79.2	[1]
UV-M	U2	65.5	72	All
	V1	72	79.2	All
	V2	79.2	87.1	[1]
	W1	87.1	95.8	[1]
UV	U2	65.5	72	All
	V1	72	79.2	All
	V2	79.2	87.1	[1]
	W1	87.1	95.8	[1]
UV-L	U2	65.5	72	All
	V1	72	79.2	[1]
	V2	79.2	87.1	[1]
	W1	87.1	95.8	[1]

- ProLight maintains a tolerance of $\pm 7\%$ on flux and power measurements.
- The flux bin of the product may be modified for improvement without notice.
- ^[1] The rest of color bins are not 100% ready for order currently. Please ask for quote and order possibility.

Peak Wavelength Bin Structure

Color	Bin Code	Minimum Peak Wavelength (nm)	Maximum Peak Wavelength (nm)
UV-S	2	365	370
UV-M	B	380	385
	A	385	390
UV	1	390	395
	2	395	400
UV-L	3	400	405
	4	405	410

- ProLight maintains a tolerance of ± 1 nm for peak wavelength measurements.

Forward Voltage Bin Structure

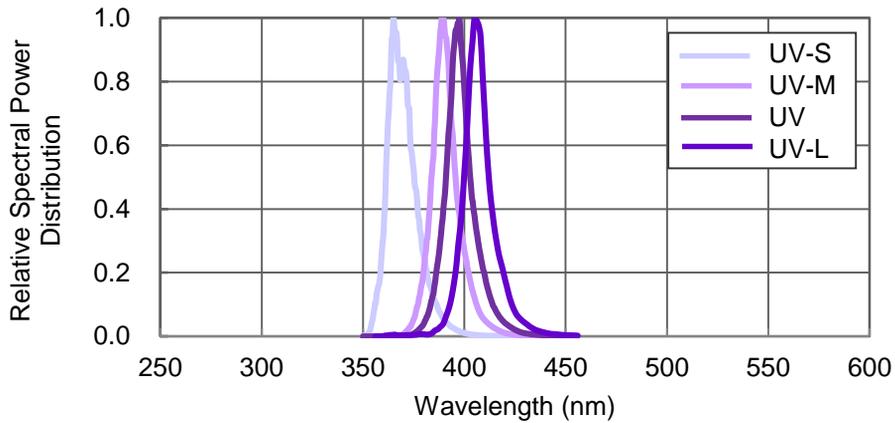
Color	Bin Code	Minimum Voltage (V)	Maximum Voltage (V)
UV-S	E	40.8	43.2
	F	43.2	45.6
	G	45.6	48.0
UV-M	D	38.4	40.8
	E	40.8	43.2
	F	43.2	45.6
	G	45.6	48.0
UV	D	38.4	40.8
	E	40.8	43.2
	F	43.2	45.6
	G	45.6	48.0
UV-L	D	38.4	40.8
	E	40.8	43.2
	F	43.2	45.6
	G	45.6	48.0

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

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.

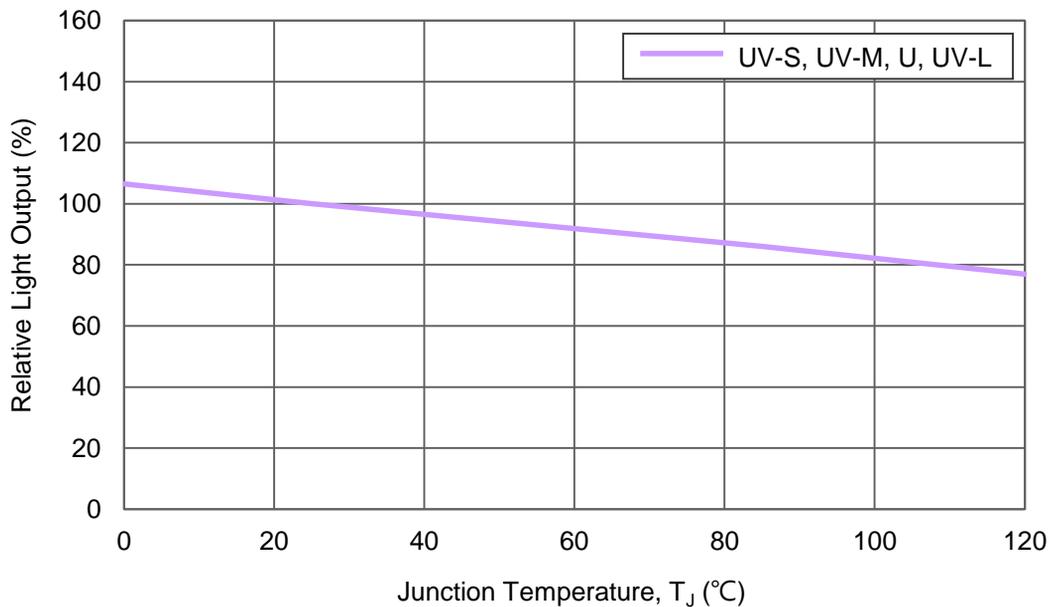
Color Spectrum, $T_j = 25^\circ\text{C}$

1. UV-S, UV-M, UV, UV-L



Light Output Characteristics

Relative Light Output vs. Junction Temperature at 4200mA



Forward Current Characteristics, $T_j = 25^\circ\text{C}$

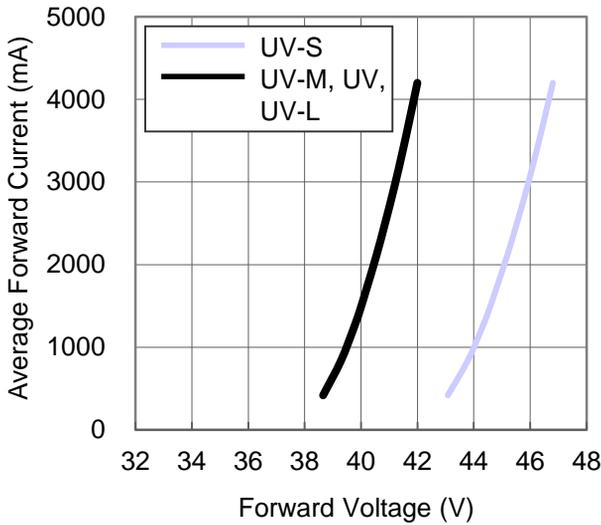


Fig 1. Forward Current vs. Forward Voltage for UV-S, UV-M.

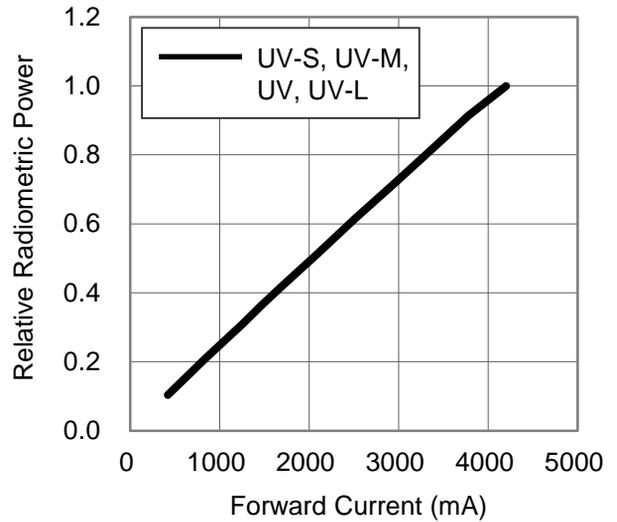
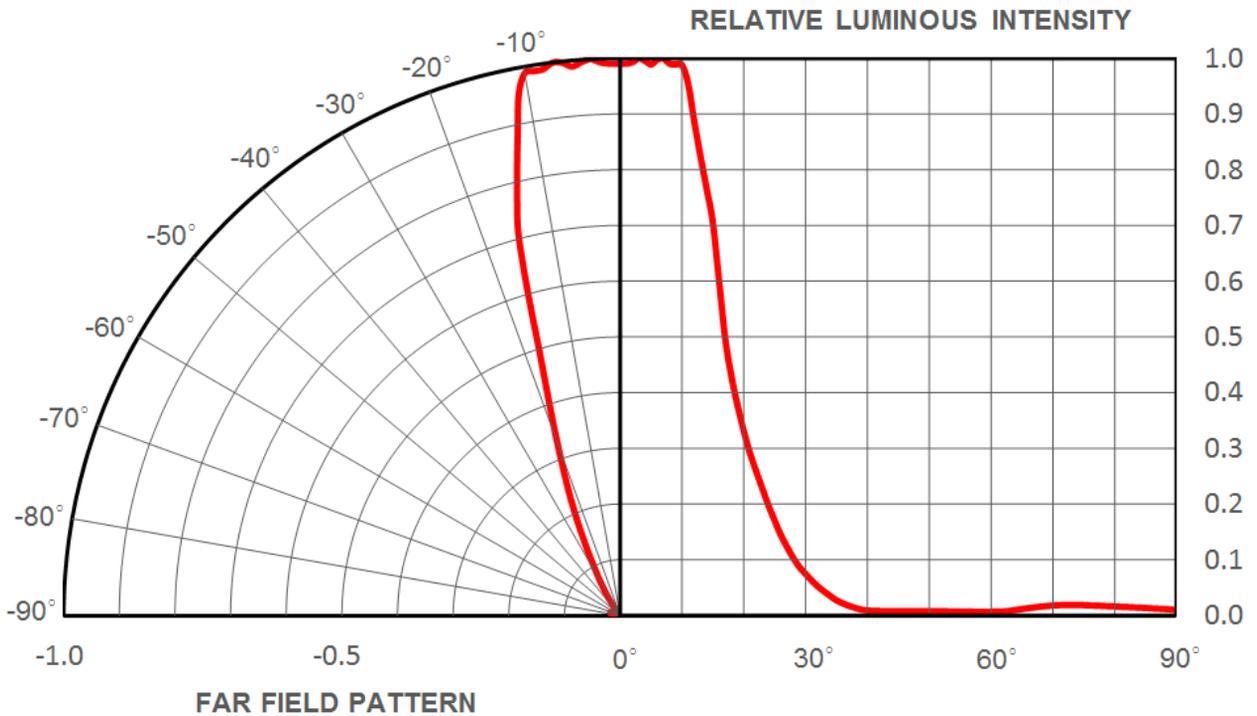


Fig 2. Relative Radiometric Power vs. Forward Current for UV-S, UV-M at $T_j=25$ maintained.

Typical Representative Spatial Radiation Pattern



Precaution for Use

- The module light output are intense enough to cause injury to human eyes if view directly. Precaution must be taken to avoid looking directly at the modules with unprotected eyes.
- When Chemical solvents or cleaning agents must 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/>

Use Handling of Quartz Lens LEDs

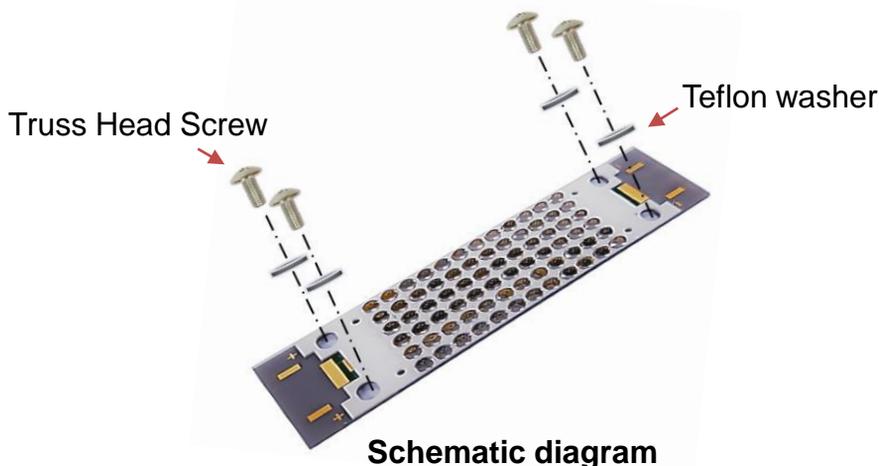
Notes for handling of quartz lens LEDs

- Please do not use a force of over 3.0kgf impact or pressure on the quartz lens, otherwise it will cause a catastrophic failure.
- The LEDs should only be picked up by making contact with the sides of the LED body.
- Avoid touching the quartz lens especially by sharp tools such as Tweezers.
- Avoid leaving fingerprints on the quartz lens.
- Please store the LEDs away from dusty areas or seal the product against dust.
- When populating boards in SMT production, there are basically no restrictions regarding the form of the pick and place nozzle, except that mechanical pressure on the quartz lens must be prevented.
- Please do not mold over the quartz lens with another resin. (epoxy, urethane, etc)

Screw and Washer Assembly Instructions

Notes for locking the light board

- A washer must be added before the lamp board lock screw, and the washer must be made of Teflon.
 - Experiments have proved that only "Teflon" can be used. ProLight Opto tests found that "silicone washers", "metal washers", "nylon washers", "bakelite washers", etc. are not good washer options.
- ! If you do not choose Teflon washer, it is best to evaluate clearly, otherwise ProLight Opto will not be responsible.



Precaution for Screw Use

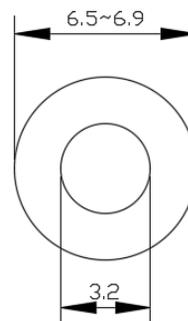
- Use **M3 size** screws, and the selected screw head type is a Truss Head Screw, the head diameter is about 6.5 mm ~ 6.9 mm.
- It is recommended not to use Round Head Screw and Countersunk Flat Head Screws, may cause the ceramic frame to crack.
- The recommended torque is 0.5 (kgf.cm), and the maximum torque cannot exceed 0.7 (kgf.cm).
- When using an electric screwdriver, you can stop when you hear a click. Do not turn the electric screwdriver excessively to prevent the ceramic frame from cracking.

Screw name	Screw head/shape	Picture
Truss Head Screw		
Round head screw		
Countersunk Flat Head Screws		

Teflon Washer Characteristics

Notes for handling of PTFE Teflon

- Because of its strong carbon-fluorine bond and high molecular weight, it has the following advantages:
 1. Wide temperature range: -200°C~250°C.
 2. Anti-corrosion chemicals \ Anti-stick properties \ Anti-moisture and UV.
 3. Very low coefficient of friction.
 4. Nonflammable \ No aging problem \ Non-toxic.
 5. Excellent electrical characteristics. (does not change with frequency and temperature changes)
 6. Excellent mechanical properties, shockproof and rich \ Excellent steam resistance.
 7. No need for higher flange pressure requirements.
- Teflon Washer specifications: 6.5~6.9 mm × 3.2 mm × 0.5 mm (thickness).



Teflon Washer