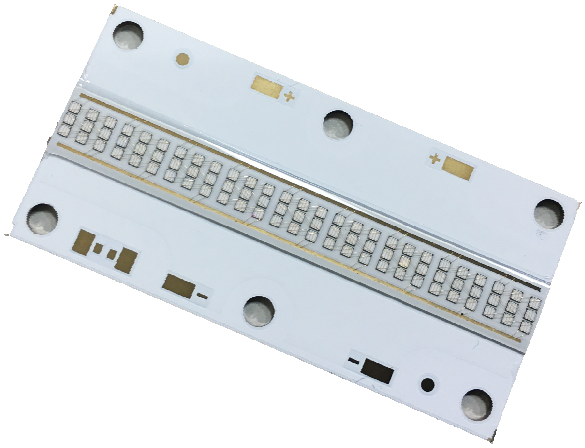
lead-free RoHS Compliant Water cooling

UC-081D-xxxVH



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Features:

- **Supply wide UV-A wavelength from 365nm to 430nm**
- **Up 8W/cm2 of Optical power from 390nm to 430nm**
- **High thermal conductivity package:**
  > Junction to heat sink thermal resistance of < 0.3℃/W
- **High radiometric efficiency**
- **Environmentally friendly: RoHS compliant, mercury-free**
- **Easy use for Linear UV light source**

Applications:

- **Curing:**
  > Inks > Coatings > Adhesives
- **Inspection**
- **Machine Vision**
- **Fiber-coupled illumination**
- **Specialty Projection Systems for Maskless Lithography**
- **Rapid Prototyping and 3D printing**
- **Medical and Scientific Instrumentation**

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Technology of Overviews

FLEDA COB Multi-chips LED package benefit from innovations in device technology, chip package and thermal management. This suite of technologies give engineers and system designers the freedom to develop solutions both high in power and efficiency.

FLEDA Technology

FLEDA's technology enables to emit large area photons uniformly over the entire COB UV LED surface. The intense optical power density produced by these multi-chips facilitate designs which replace mercury lamps where arrays of traditional power LEDs cannot.

For UV devices, FLEDA's side-less structure to let the engineers easy to design the linear UV LED light source and instead of the linear mercury lamps with power density 80W/cm -120W/cm.

Reliability Technology

Designed from the ground up, FLEDA COB Multi-chips LEDs are one of the most reliable light sources in the world today. COB Multi-chips LEDs have passed a rigorous suite of environmental and mechanical stress tests, including mechanical shock, vibration, temperature cycling and humidity, and high current applications. With very low failure rates and median lifetimes that typically exceed 10,000 hours, FLEDA COB Multi-chips LEDs are ready for the most demanding applications.

Packaging Technology

Thermal management is critical in high power LED applications. FLEDA UC-Series UV LEDs have the lowest thermal resistance of any LED on the market with a thermal resistance from junction to heat sink of 0.3℃/W or 0.35℃/W. This allows the LED to be driven at higher current densities while maintaining a low junction temperature, thereby resulting in brighter solutions and longer lifetimes.

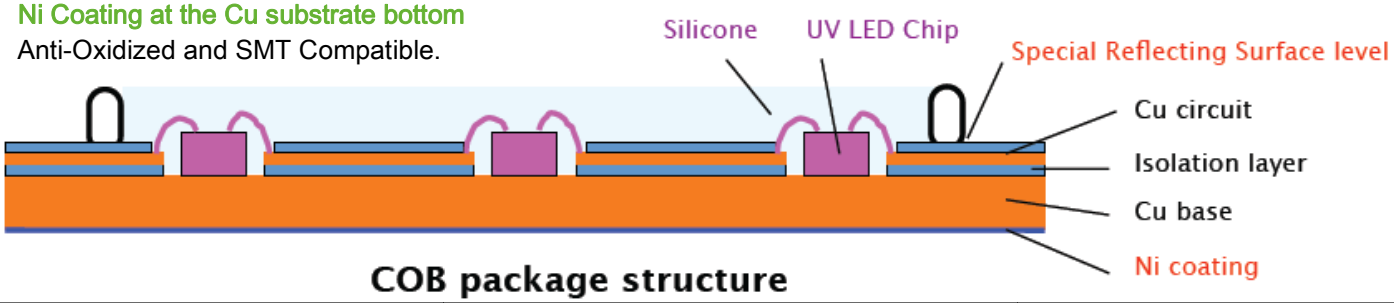
Environmental Benefits

FLEDA LEDs help reduce power consumption and the amount of hazardous waste entering the environment. All COB Multi-chips LED products manufactured by FLEDA are RoHS compliant and free for hazardous materials, including lead and mercury.

The Advantages of COB Multi-chips LEDs

Every FLEDA LED is fully designed to ensure that it meets the high quality standards expected from FLEDA's products.

- Low Thermal Resistance <0.16℃/W / High thermal conductivity 401W/(m.K)
  Copper Substrate and LED Chip Direct Bonding on Cu Base
- Special Reflecting Surface
  No Ag Plating, Anti-Sulfide, and Low Light Decay.
- Ni Coating at the Cu substrate bottom
  Anti-Oxidized and SMT Compatible.



COB package structure

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Optical & Electric Characteristics

Optical Characteristics (Ta=25℃)

Parameter	Symbol	Wavelength	Conditions	Min.	Typ.	Max.	Unit
Irradiance Note[1]	Ee	365-370 nm	IF=5400mA	2	3	-	W/cm2
		370-380 nm		3	4	-	
		380-390 nm		4	5	-	
		390-410 nm		5	6	-	
View Angle	$2\Theta_{1/2}$	X-Axis	IF=5400mA	120	130	140	Degree
		Y-Axis		110	120	130	

Note: [1] Irradiance measured by DYMAX ACCU-CAL 50-LED Meter, and the distance of test is 7 mm from the MCPCB bottom.

[2] Recommended water cooling system, with board temperature controlled around 30°C.

Electric Characteristics (Ta=25℃)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	VF	IF=5400mA	26	31	36	V
Reverse Current Note[1]	Ir	VR=5V			10	uA
Thermal Resistance Junction to Board	RthJ-B	IF=5400mA		0.1		℃/W
Temperature Coefficient fo Forward Voltage	$\Delta V_F/\Delta T$	IF=5400mA	-	-64	-	mV/℃

Note: [1] Singe chip VR

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Absolute Maximum Rating (Ta=25℃)

Parameter	Symbol	Ratings	Unit
Power Dissipation	PD	227	W
Continuous Forward Current Note[1]	IF	6300	mA
LED Junction Temperature	Tj	120	℃
Operating Temperature Range	Topr	-30℃ To +80℃	
Storage Temperature Range	Tstg	-40℃ To +100℃	
Manual Soldering Temperature	Tsol	260℃±20℃ For 3-5 Seconds	
ESD Sensitivity Note[2]	ESD	500V HBM	
Life time Note[3]	Lt	20,000 hrs	

Note: [1] Recommended water cooling system, with board temperature controlled around 35°C.

[2] Singe chip ESD.

[3] operated current is under 2.7A, and board temperatures under 60°C.

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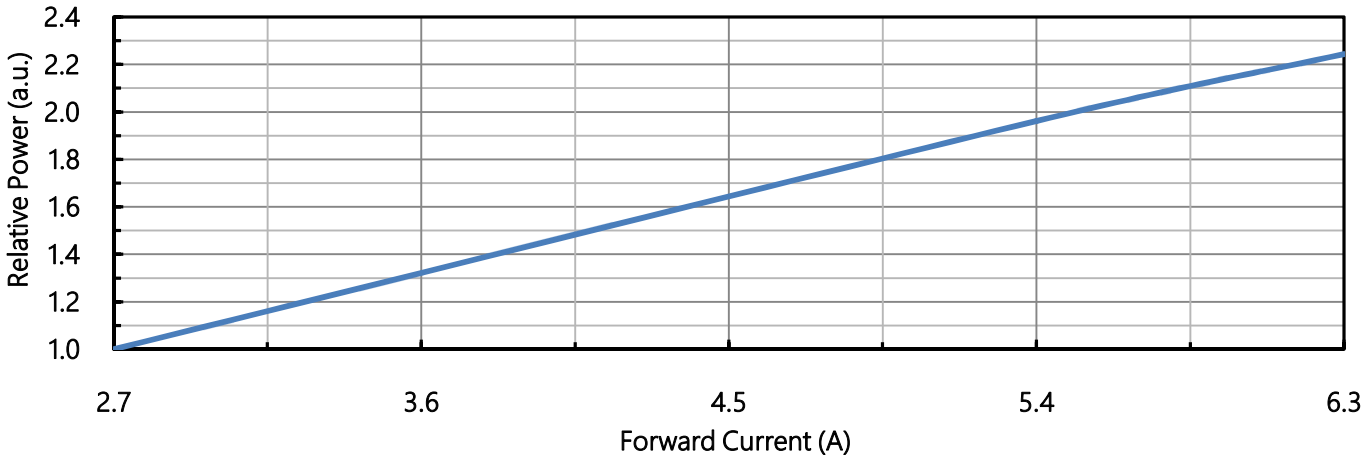
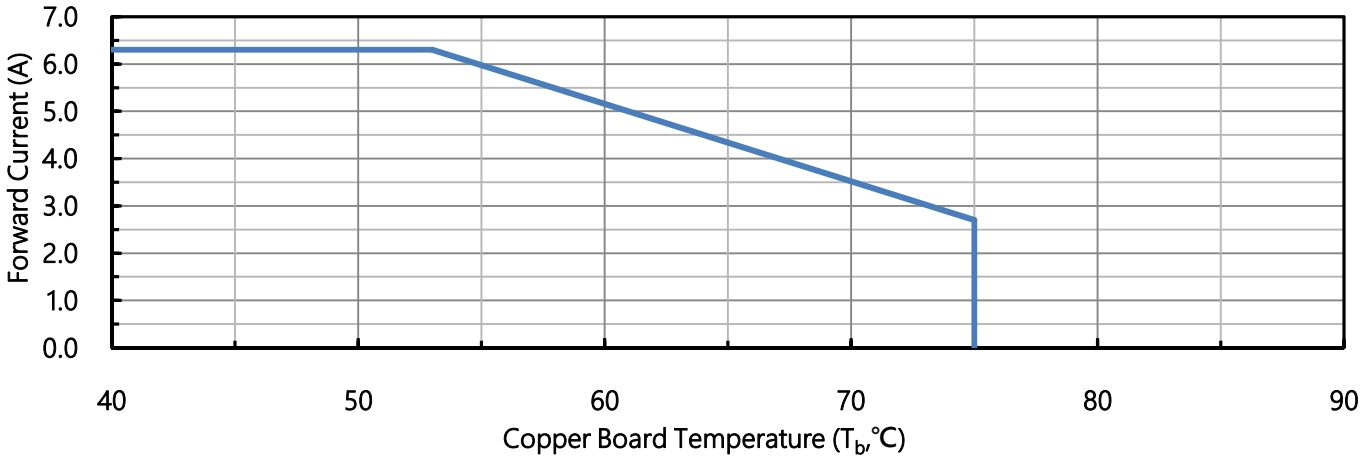
Optical & Electric Characteristics

Relative Power vs Forward Current (IF)



Forward Current Derating Curve vs Board Temperature (T_b)



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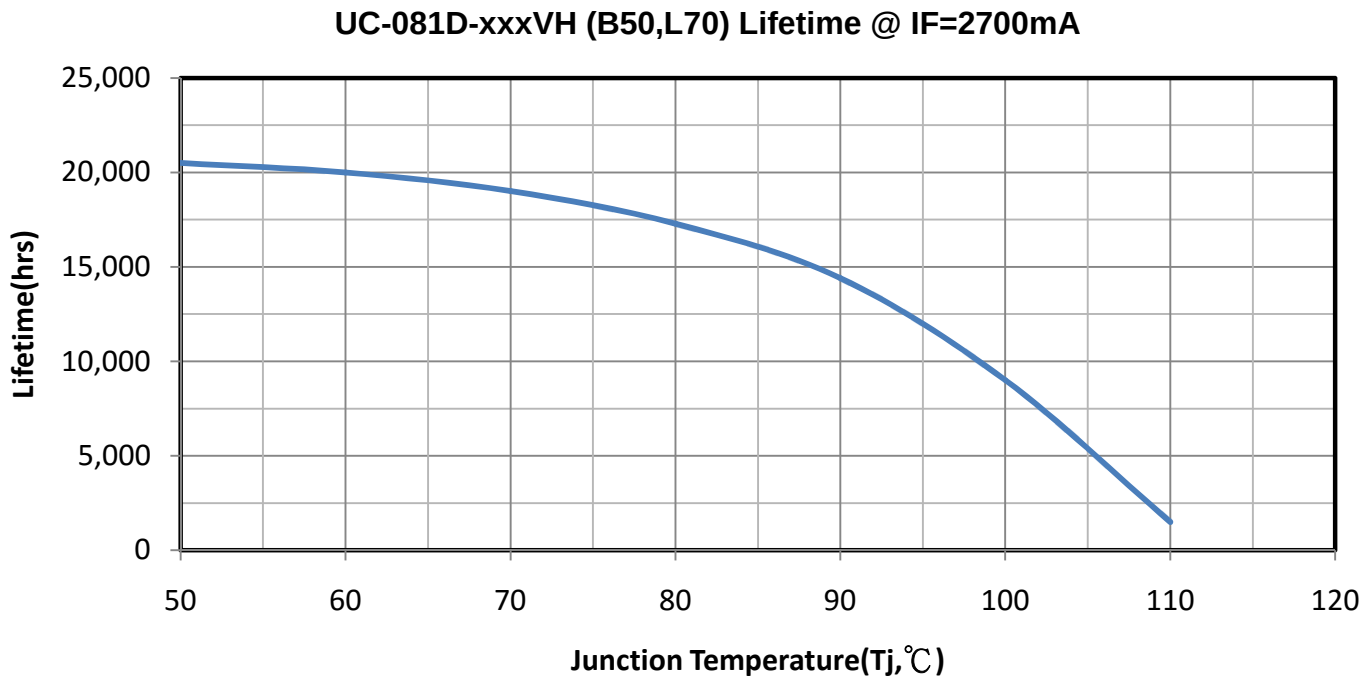
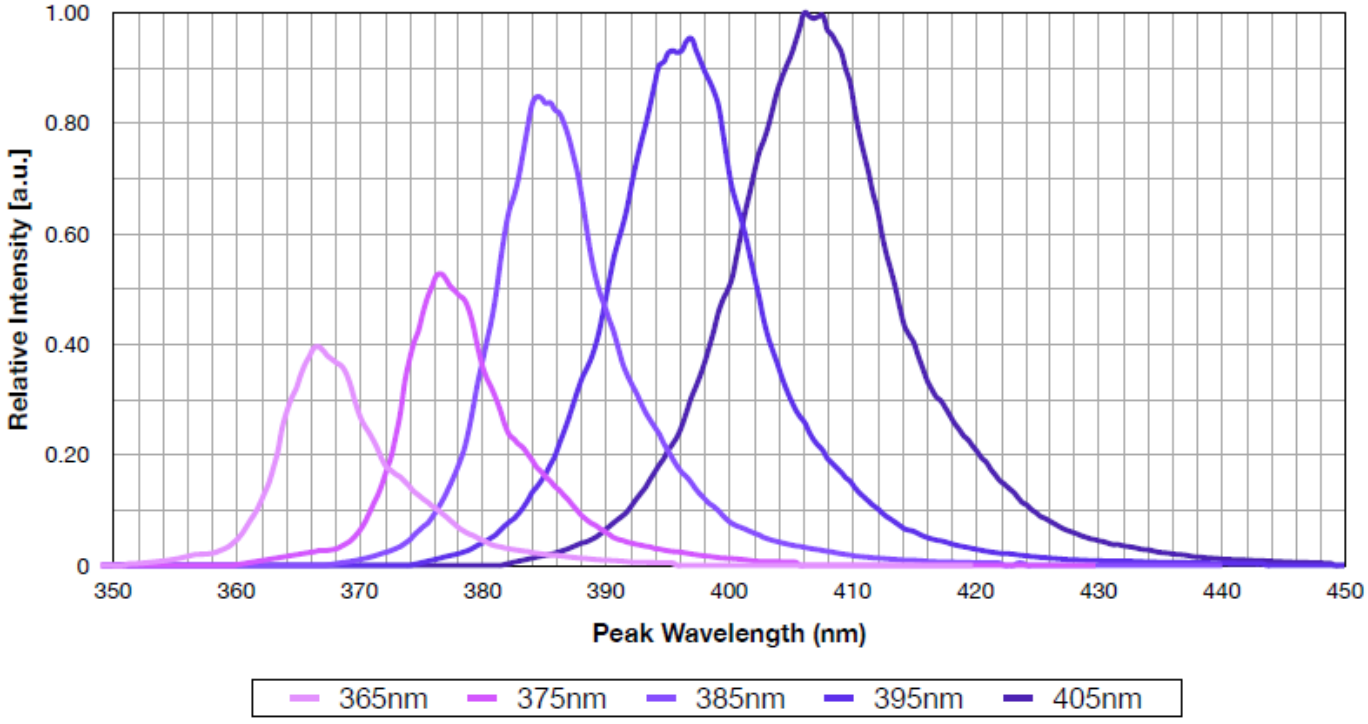
UV COB LED Reliability



UV COB LED Spectrum Distribution



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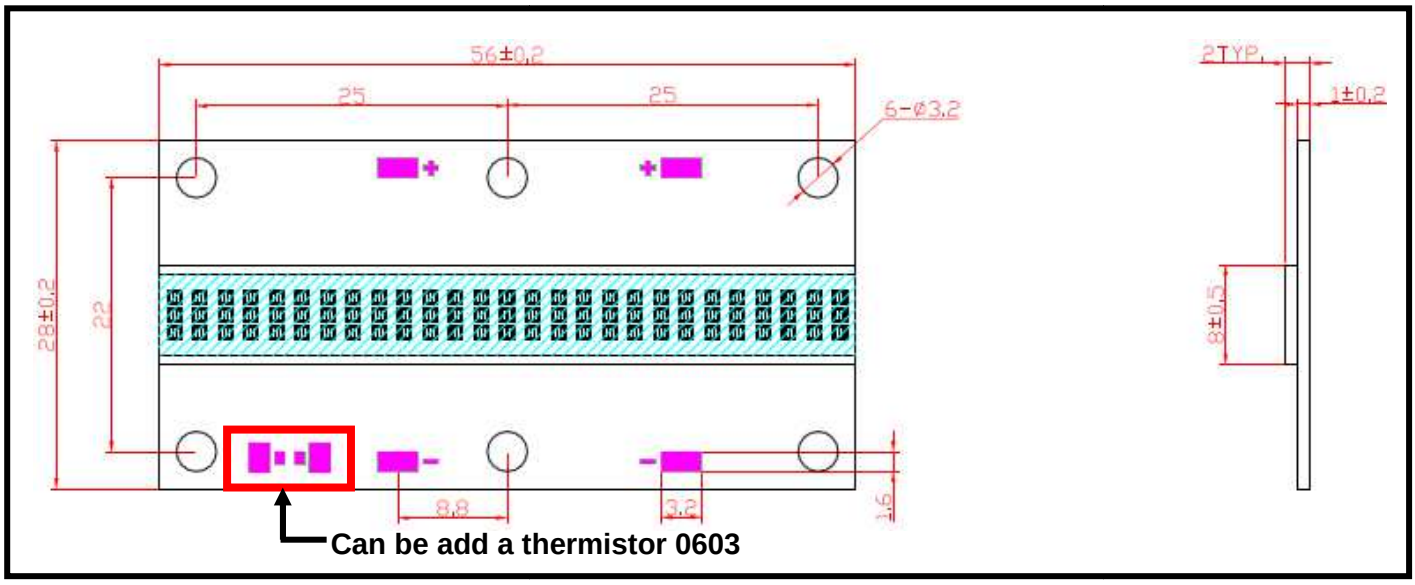
Mechanical Dimensions

Dimensions in millimeters



LED Array: 9S9P
Typical Voltage: 32V
Operating Current: 5400mA

Notes:
(1) All dimensions are in millimeters.
(2) Tolerance is ±0.25mm

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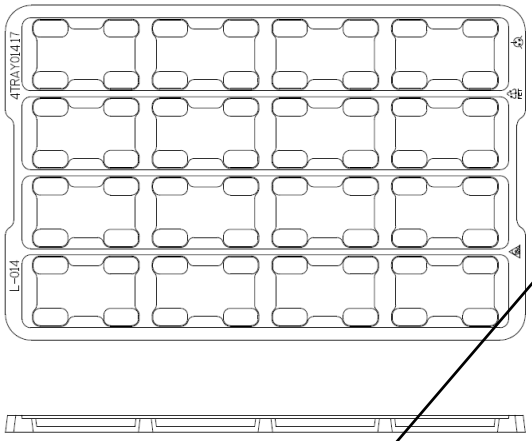
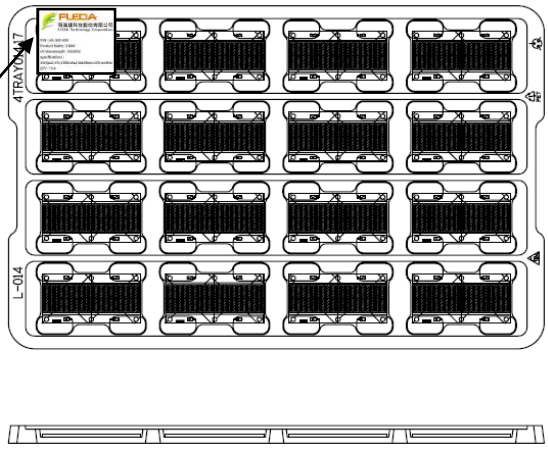
Packing Information - UC Series

PET Tray Dimension

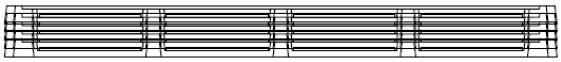


Put Emitter onto tray

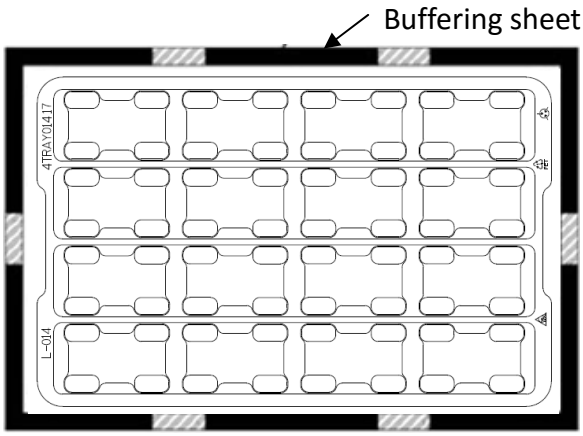


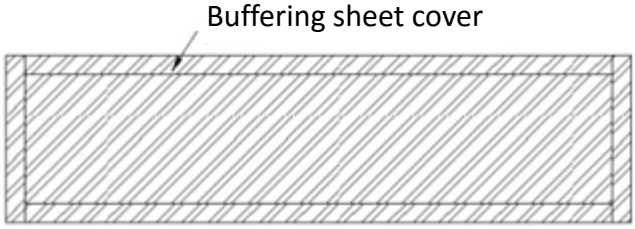
Label format

Stack 15 tray with 1 cover (full) Add bubble sheet if not full

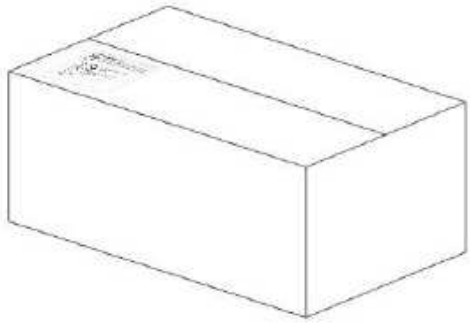


Put tray into Buffering sheet

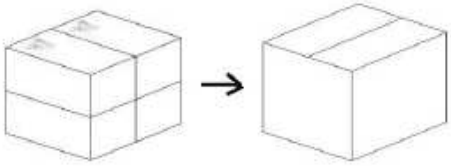




Put into Carton and add label outside



Put into Outer Box (4 cartons)



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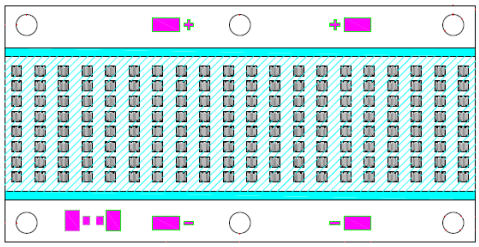
Notice

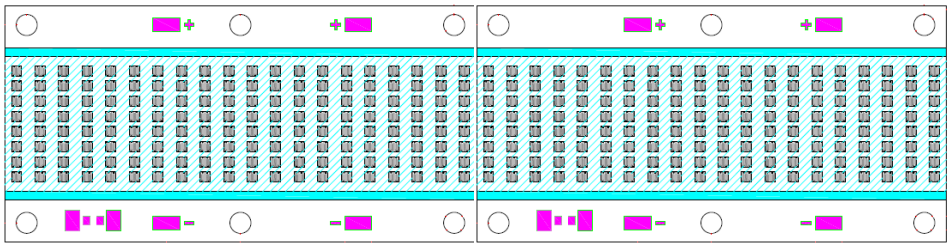
Assembly Notice

(1) Do not touch emitting area.
Do not touch or scratch silicon forming matrix area since it could damage the bonding of LED chips or wires and cause dead zone.



Don’t touch the surface of Emitter

(2) Assembly guideline
Wiring emitter’s anode/cathode pad, then fix emitter with screws onto heat sink.



(3) Soldering methods
a) Set up the temperature of welding head to 400±10℃ when soldering.
b) Put Emitter on a 100±10℃ hot plate and set up welding head temperature to 300±10℃
c) Either is OK.

(4) Wires
Suggested using strand wires (softer) to connect power, don’t use solid wires.

Used Notice

(1) In order to avoid absorption of moisture, it is recommended that the products are sotred in the dry box (or desiccators) with a desiccants. Alternatively the following environment is recommended. Storage temperature: 5℃ ~ 30℃ , Humidity: 60% HR Max.

(2) Soldering rapidly cooling should be avoided.

(3) Products should not be assembly on distorted surface of heat sink.

(4) Products should not contact with any types of fluid, such as water, oil, organic solvents,...etc.

(5) The maximum ambient temperature should be taken into consideration when determining the operating current.

(6) This product must be driven by constant power supplier.

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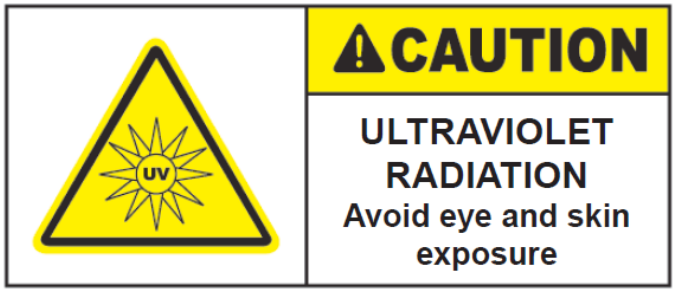
(7) ESD Precautions Static Electricity and surge damages LEDs. It is recommended that wrist bands or anti-electrostatic gloves be used when handing the LEDs. All devices, equipment, and machinery should be properly grounded.

(8) The appearance and specifications of product may be modified for improvement without notice.

Ordering Information

Color	Order Code	Peak Wavelength (nm)		Light Intensity (W/cm^2)@5400mA	
		Min	Max	Min	Max
UV	UC-081D-415VH	410	420	5	8
	UC-081D-405VH	400	410	5	8
	UC-081D-395VH	390	400	5	8
	UC-081D-385VH	380	390	4	6
	UC-081D-375VH	370	380	3	5
	UC-081D-365VH	365	370	2	4



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