



UA-100 UV LEDs

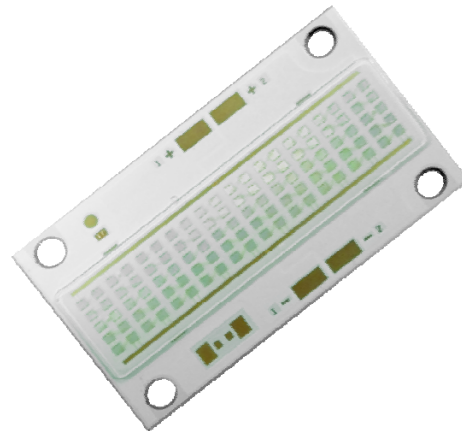


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Features:

- Supply wide UV-A wavelength from 365nm to 430nm
- Over 3W/cm² of Optical power typical from 390nm to 430nm
- High thermal conductivity package:
 - > Junction to heat sink thermal resistance of < 0.3°C/W
- High radiometric efficiency
- Environmentally friendly: RoHS compliant, mercury-free
- Variable drive currents: less than 2.3A through 3A for 2set

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

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.

Packaging Technology

Thermal management is critical in high power LED applications. FLEDA UA-100 UV LEDs have the lowest thermal resistance of any LED on the market with a thermal resistance from junction to heat sink of $0.3^{\circ}\text{C}/\text{W}$ or $0.35^{\circ}\text{C}/\text{W}$. 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.

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 even the most demanding applications.

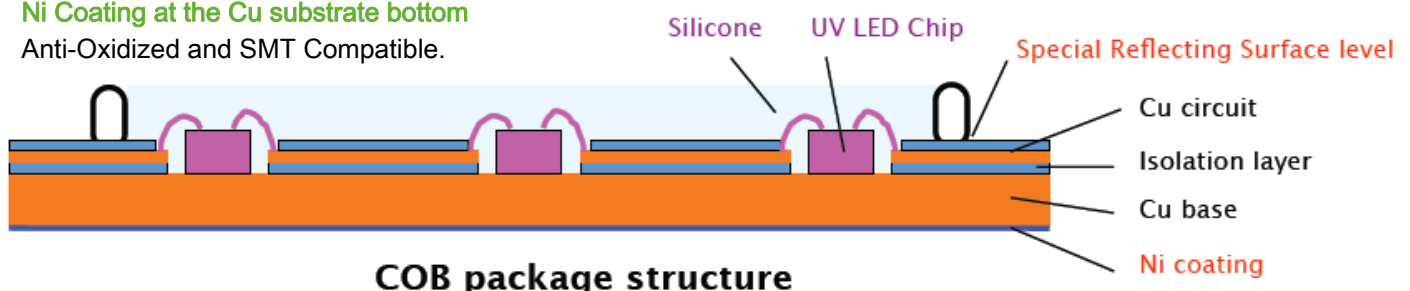
Environmental Benefits

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 fo 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 $<0.16^{\circ}\text{C}/\text{W}$ / High thermal conductivity $401\text{W}/(\text{m.K})$**
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

Optical & Electric Characteristics

Optical Characteristics (Ta=25°C)

Parameter	Symbol	Wavelength	Conditions	Min.	Typ.	Max.	Unit
Irradiance <small>Note[1]</small>	Ee	365-370 nm	IF=3000mA <small>Note[2]</small>	0.15	0.3	-	W/cm ²
		370-380 nm		0.4	0.6	-	
		380-390 nm		1.8	2.2	-	
		390-410 nm		2.5	3.4	-	
View Angle	2θ _{1/2}	X-Axis	IF=3000mA	140	150	160	Degree
		Y-Axis		120	130	140	

Note: [1] Irradiance measured by DYMAX ACCU-CAL 50-LED Meter, and the distance of test is 5 mm.

[2] Conditions IF=3000mA for 2set , Single set conditions IF=1500mA.

Electric Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage <small>Note[1]</small>	VF	IF=3000mA	32	-	38	V
Reverse Current <small>Note[2]</small>	I _r	VR=5V			10	uA
Thermal Resistance Junction to Board	R _{thJ-B}	IF=3000mA		0.1		°C/W
Temperature Coefficient fo Forward Voltage	ΔV _F /ΔT	IF=3000mA	-	-64	-	mV/°C

Note: [1] Conditions IF=3000mA for 2set , Single set conditions IF=1500mA.

[2] Single chip VR.

Absolute Maximum Rating (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Power Dissipation	PD	125	W
Continuous Forward Current <small>Note[1]</small>	IF	3500	mA
Peak Forward Current <small>Note[2]</small>	IF(Peak)	5000	mA
LED Junction Temperature	T _j	120	°C
Operating Temperature Range	Topr	30°C To +80°C	
Storage Temperature Range	Tstg	-40°C To +100°C	
Manual Soldering Temperature	Tsol	260°C±20°C For 3-5 Seconds	
ESD Sensitivity <small>Note[3]</small>	ESD	500V HBM	

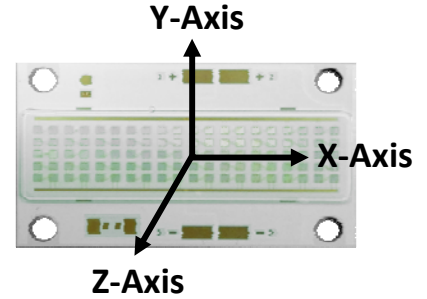
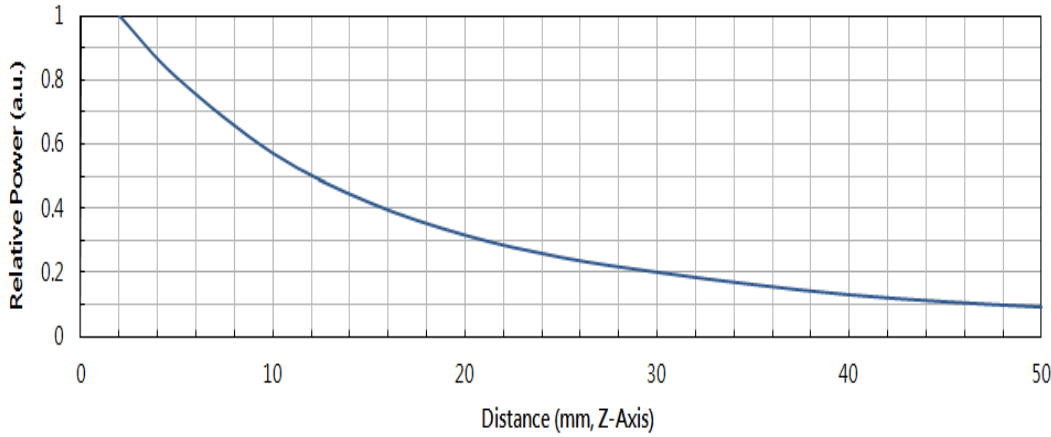
Note: [1] Conditions IF=3500mA for 2set , Single set conditions IF=1750mA.

[2] Condition for I_{FP} is pulse of 10% duty cycle @ 1kHz, Conditions IF=5000mA for 2set

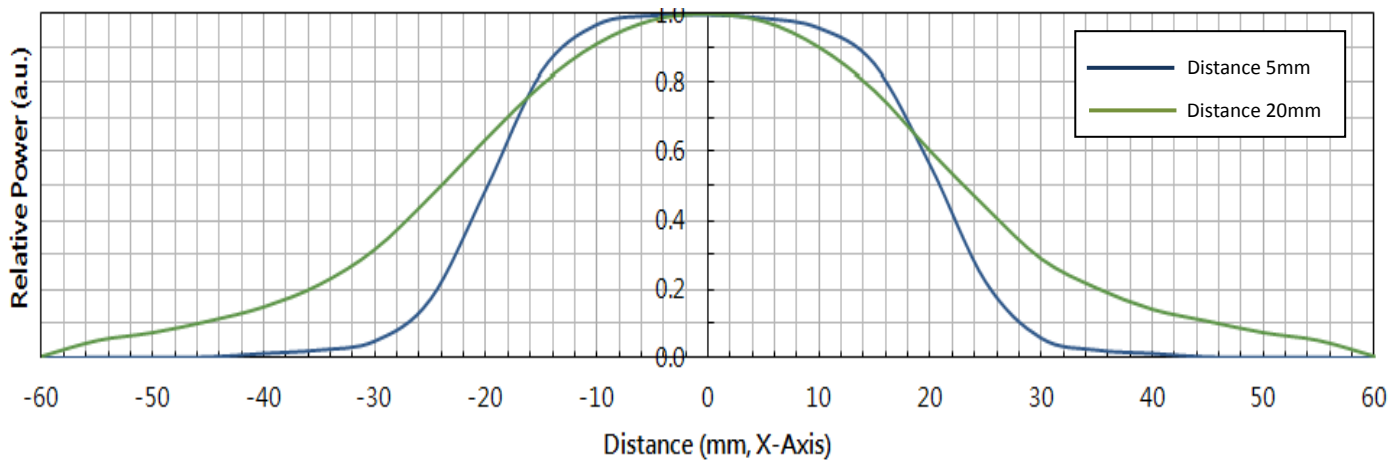
[3] Single chip ESD

Optical & Electric Characteristics

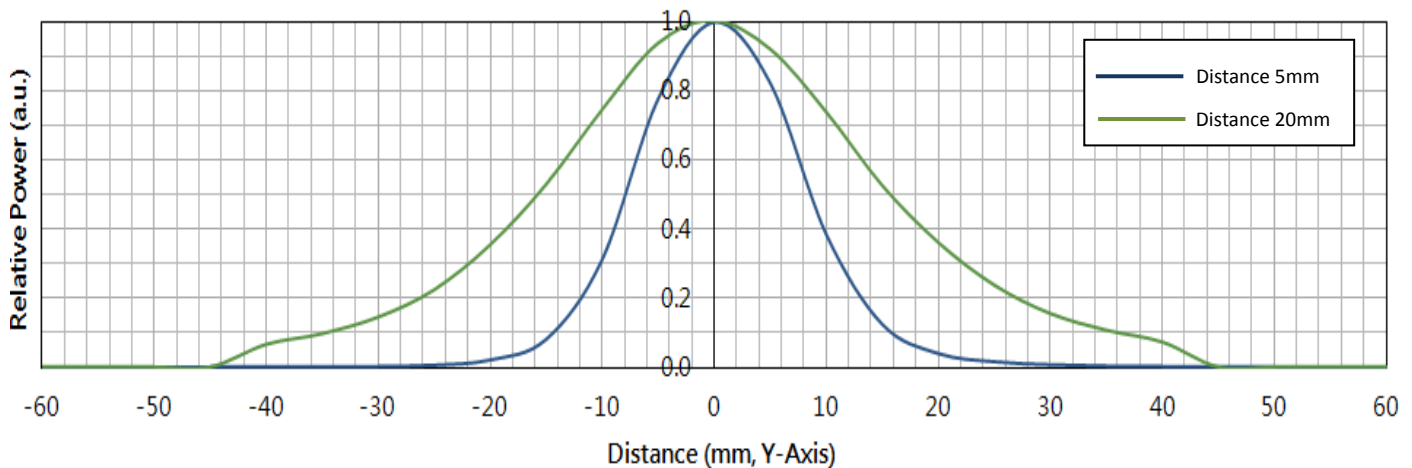
Relative Power vs Distance (at central point), $I_F=3000\text{mA}$ for 2set



Relative Power vs X-Axis, $I_F=3000\text{mA}$ for 2set

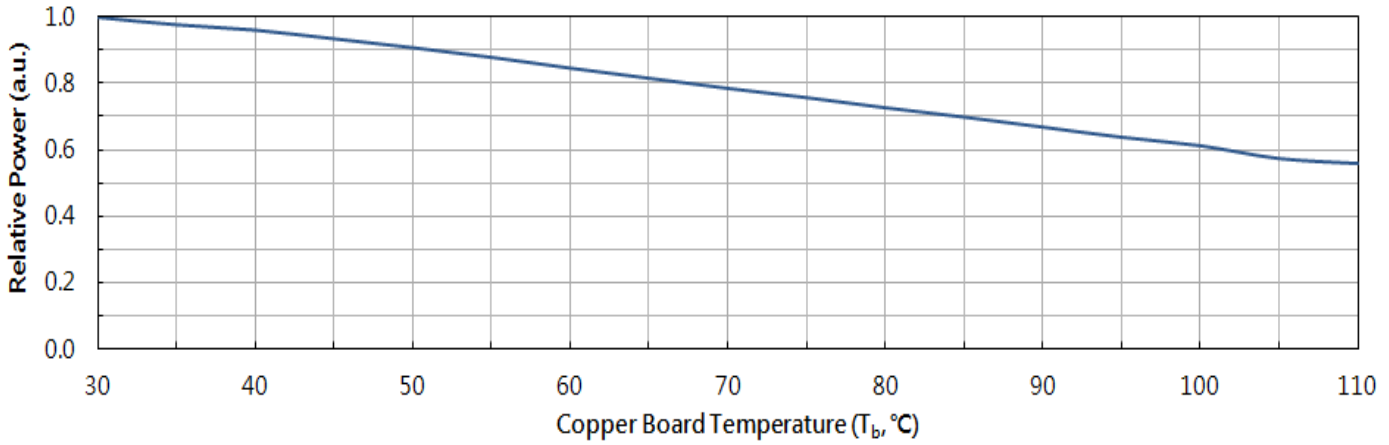


Relative Power vs Y-Axis, $I_F=3000\text{mA}$ for 2set

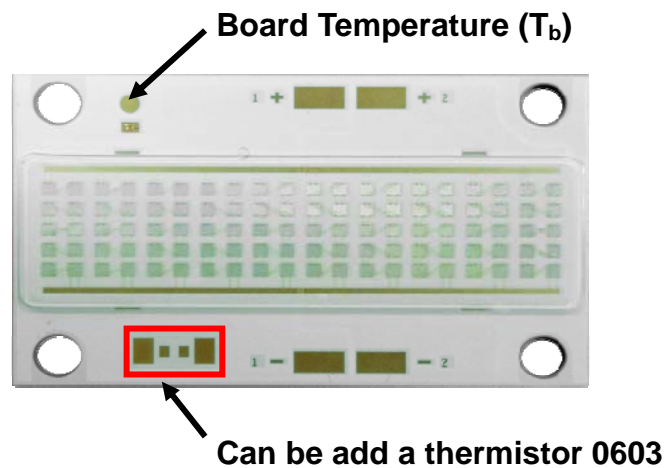
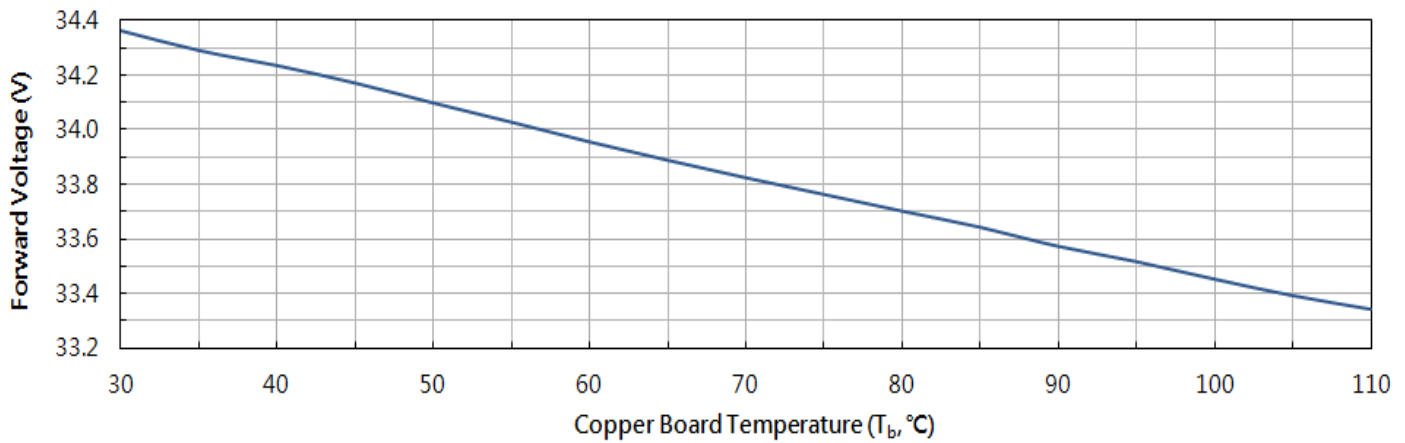


Optical & Electric Characteristics

Relative Power vs Board Temperature (T_b)

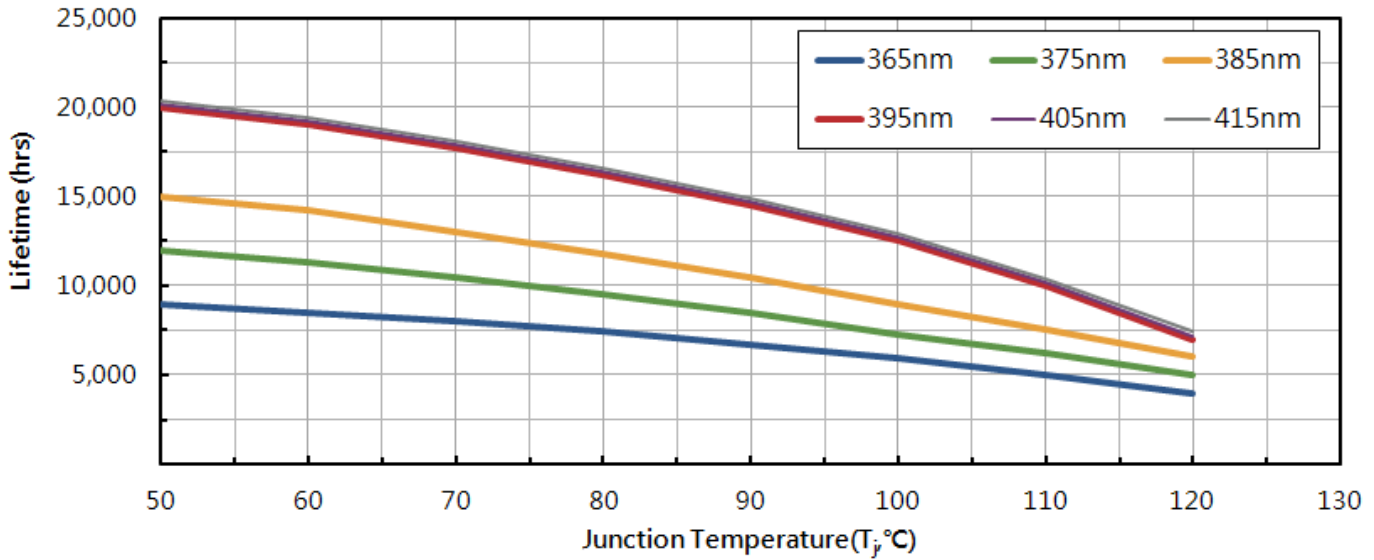


Forward Voltage vs Board Temperature (T_b)

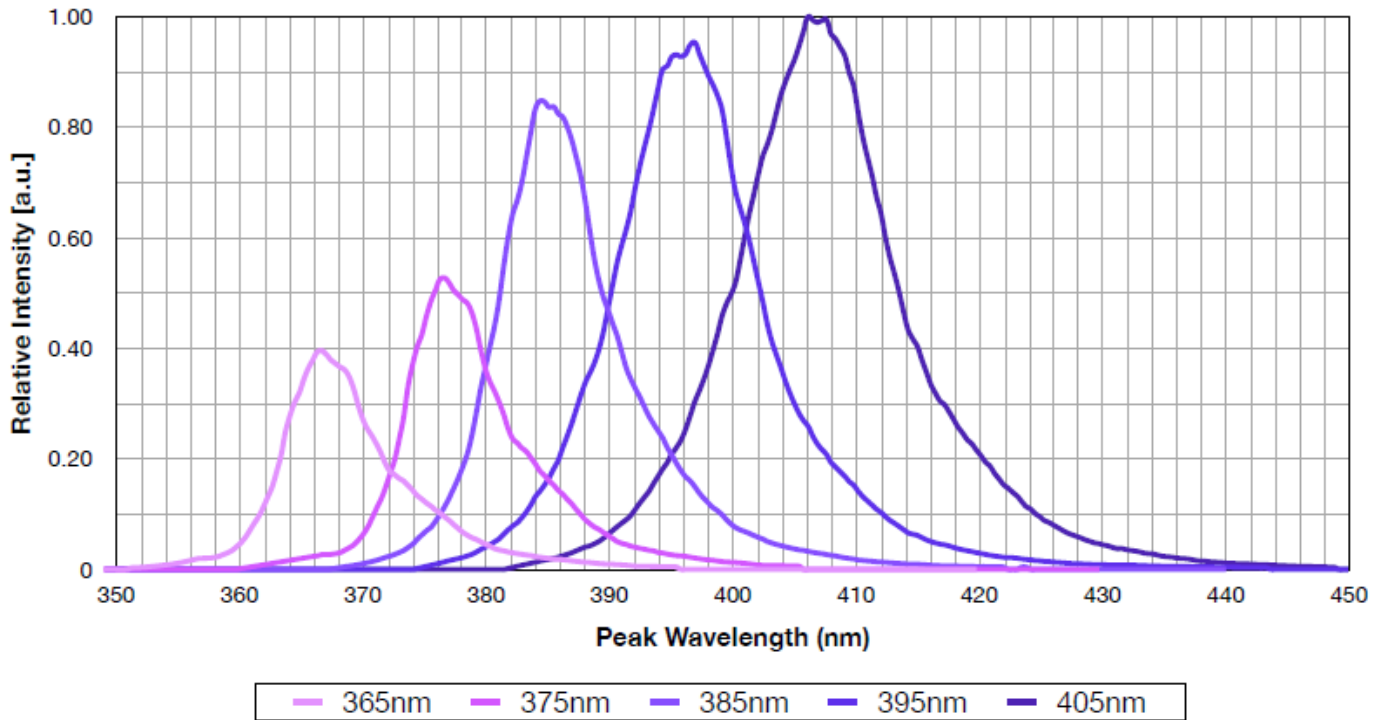


UV COB LED Reliability

UA-100 (B50,L70) Lifetimes @ IF=3000mA for 2set

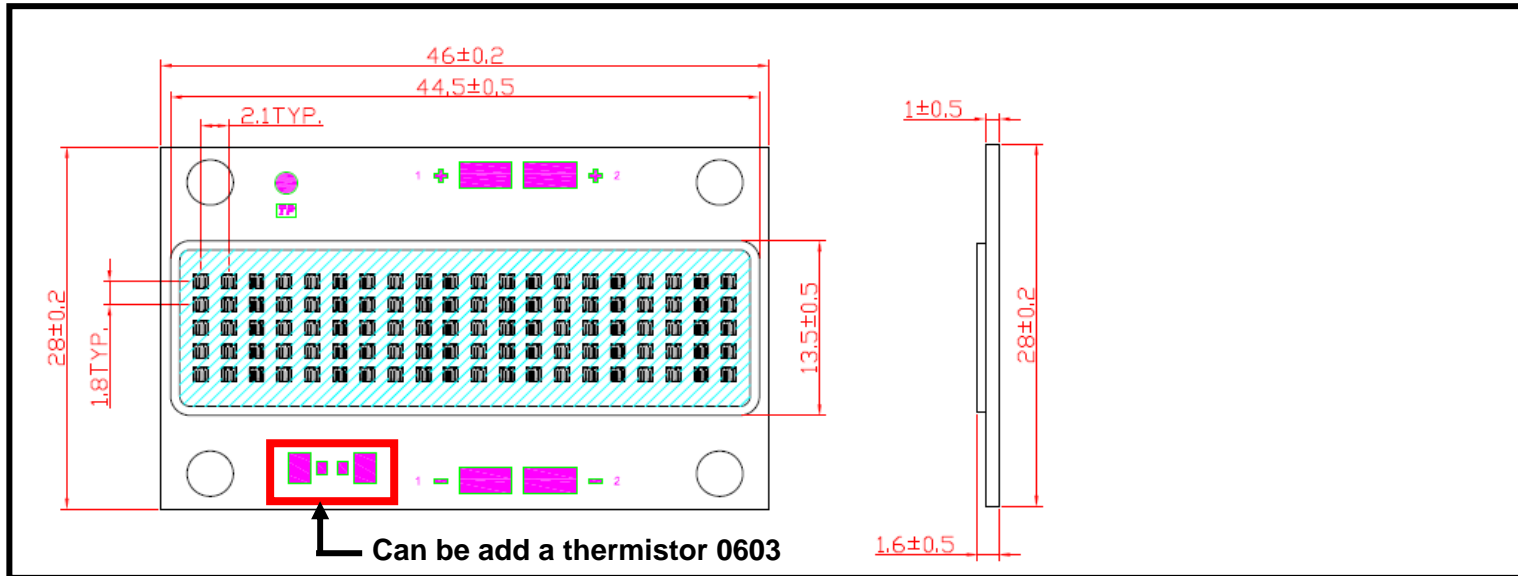


UV COB LED Spectrum Distribution



Mechanical Dimensions

Dimensions in millimeters



LED Array: 10s5p 2set

Typical Voltage: 33V

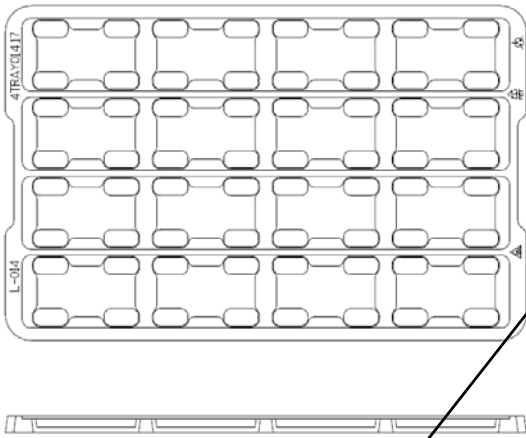
Operating Current: 3000mA for 2set , Single set conditions $I_F=1500\text{mA}$

Notes:

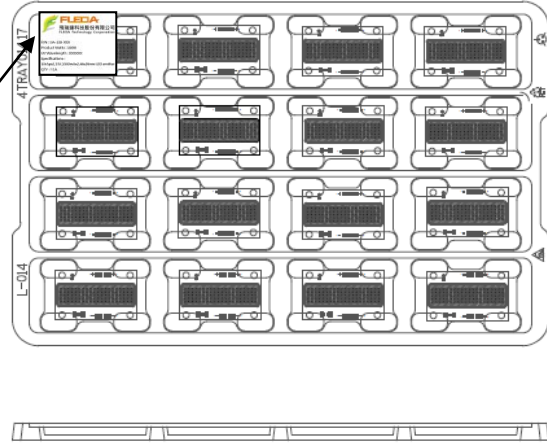
- (1) All dimensions are in millimeters.
- (2) Tolerance is $\pm 0.25\text{mm}$

Packing Informations - UA-100

PET Tray Dimension



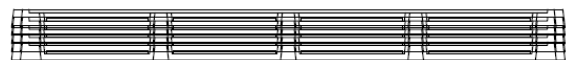
Put Emitter onto tray



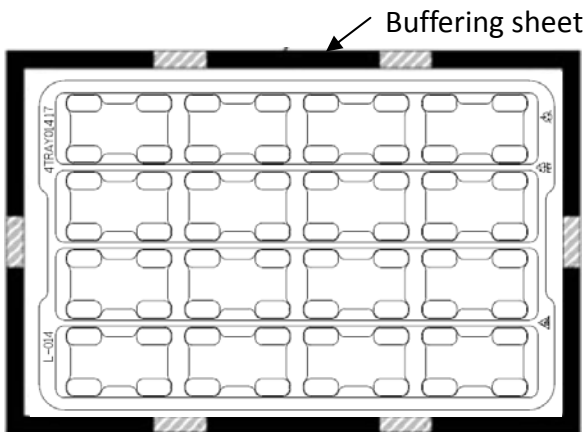
Label format



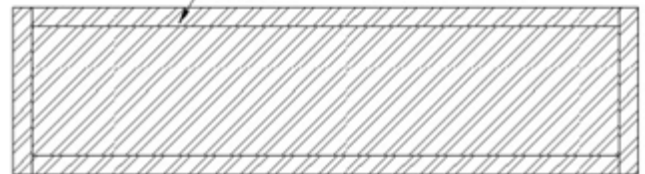
Stack 15 tray with 1 cover (full) Add bubble sheet if not full



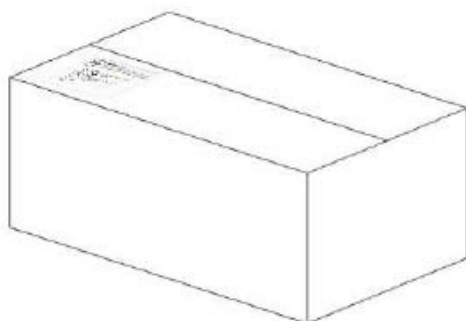
Put tray into Buffering sheet



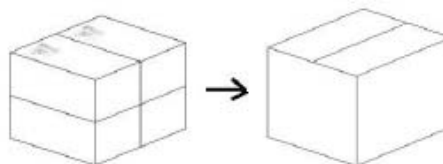
Buffering sheet cover



Put into Carton and add label outside



Put into Outer Box (4 cartons)

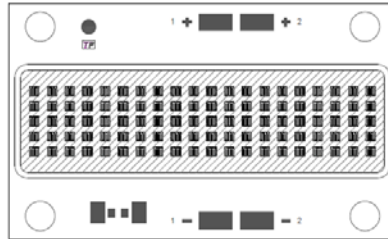


Notice

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) Soldering methods

- Set up the temperature of welding head to $400\pm 10^{\circ}\text{C}$ when soldering.
- Put Emitter on a $100\pm 10^{\circ}\text{C}$ hot plate and set up welding head temperature to $300\pm 10^{\circ}\text{C}$
- Either is OK.

(3) Wires

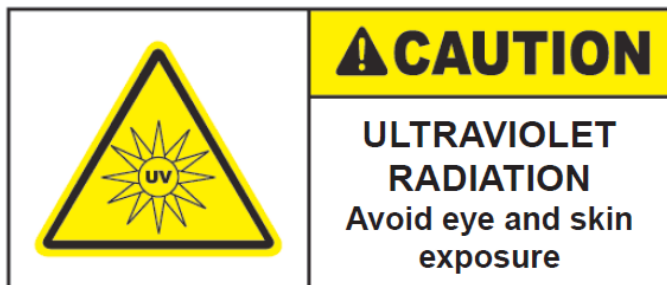
Suggested using strand wires (softer) to connect power, don't use solid wires.

Used Notice

- In order to avoid absorption of moisture, it is recommended that the products are stored in the dry box (or desiccators) with a desiccants. Alternatively the following environment is recommended. Storage temperature: $5^{\circ}\text{C} \sim 30^{\circ}\text{C}$, Humidity: 60% HR Max.
- Soldering rapidly cooling should be avoided.
- Products should not be assembly on distorted surface of heat sink.
- Products should not contact with any types of fluid, such as water, oil, organic solvents,...etc.
- The maximum ambient temperature should be taken into consideration when determining the operating current.
- This product must be driven by constant power supplier.
- 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.
- 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)	
		Min	Max	Min	Max
UV	UA-100-415	410	420	2.5	4
	UA-100-405	400	410	2.5	4
	UA-100-395	390	400	2.5	4
	UA-100-385	380	390	1.8	2.5
	UA-100-375	370	380	0.4	0.65
	UA-100-365	365	370	0.15	0.4



DISCLAIMER

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