SEOUL OPTODEVICE

T5H

T5H is ϕ5 TO-Can type UV LEDs which is moisture-resistant metal PKG.

Furthermore, small size of package design makes this UV LED be suitable for compact designed UV applications.

According to these advantages, T5H is the ideal

UV source for various UV applications such as UV curing, coating, printing and high quality counterfeit Detectors, Etc.

T5H

Features

- Moisture-resistant
- TO-Can Type
- Compact Design
- Narrow Viewing Angle
- High Output Power
- Lead Free Product
- RoHS Compliant

Applications

- UV Curing
- Coating
- Printing
- Counterfeit Detection / Security
- UV Torch
- Fluorescence Photography
- Dental Curing
- Crime Inspection
- Oil Leak Detection

Rev0.0
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www.socled.com

Full Code of UV LED Series

Full code form : $X_1 X_2 X_3 - X_4 X_5 - X_6 X_7 X_8 X_9 X_{10}$

1. Part Number

- X_1 : Package Type
- X_2 : Package Outline Size
- X_3 : Lens Type

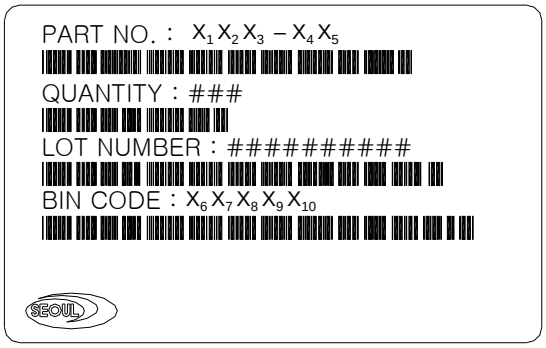
2. Internal Number

- X_4
- X_5

3. Code Labeling

- $X_6 X_7$: Peak Wavelength
- $X_8 X_9$: Radiant Flux
- X_{10} : Forward Voltage

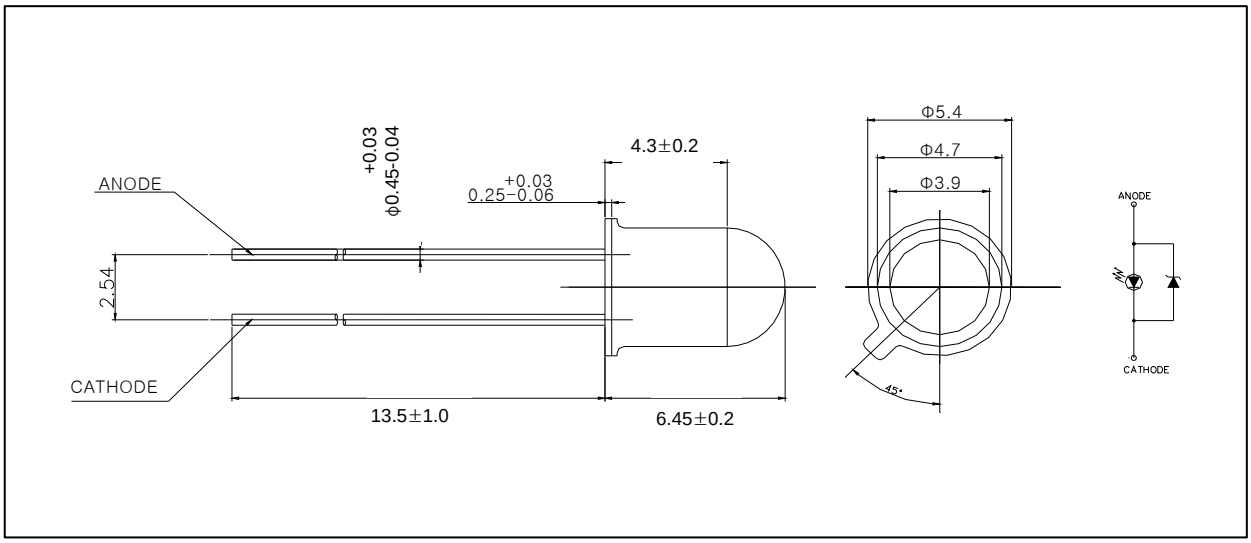
4. Sticker Diagram



For more information about binning and labeling, refer to the Application Note -1

Outline Dimensions and Materials

Part Number	Lens	Cap	Lead
T5H	Glass	Ni Plating iron alloy	Au Plating iron alloy



Notes :

1. All dimensions are in millimeters. (tolerance : ±0.2)
2. Scale : none

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

Characteristics for UV LED

1. T5H (Peak wavelength Rank : j, 360-370nm)

1-1. Electro-Optical characteristics at I_F=20mA, T_A=25ºC

Parameter	Symbol		Value			Unit
			Min	Typ	Max	
Peak wavelength [1]	Wp	j	360	365	370	nm
Optical Power Output [2]	Po [3]	A6	0.8	-	1.0	mW
		B1	1.0	-	1.5	
		B2	1.5	-	2.0	
Forward Voltage [4]	V_F		-	3.9	4.2	V
Spectrum Half Width	$\Delta\lambda$		-	18	-	nm
View Angle	2Θ 1/2		10			deg.

1-2. Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Forward Current	I_F	25	mA
Forward Peak Pulse Current	I_{FP} [5]	100	mA
Reverse Current	I_R	85	mA
Power Dissipation	P_D	105	mW
Operating Temperature	T_{opr}	-30 ~ +85	ºC
Storage Temperature	T_{stg}	-40 ~ +100	ºC
Solder Temperature [6]	T_S	260 ºC for 5 second	ºC

Notes :

1. Peak Wavelength Measurement tolerance : ±3nm
2. Optical Power Output Measurement tolerance : ± 10%
3. Po is the Total Radiant Flux as measured with an integrated sphere.
4. Forward Voltage Measurement tolerance : ±3%
5. duty factor=1%, frequency=1kHz
6. 3mm bellow seating plane
7. It contains a zener chip to protect the product from ESD.

Characteristics for Power UV LED

2. T5H (Peak wavelength Rank : k, 370-380nm)

2-1. Electro-Optical characteristics at I_F=20mA, T_A=25ºC

Parameter	Symbol		Value			Unit
			Min	Typ	Max	
Peak wavelength [1]	Wp	k	370	375	380	nm
Optical Power Output [2]	Po [3]	B2	1.5	-	2.0	mW
		B3	2.0	-	2.5	
		B4	2.5	-	3.0	
		B5	3.0	-	3.5	
Forward Voltage [4]	V_F		-	3.9	4.2	V
Spectrum Half Width	$\Delta\lambda$		-	13	-	nm
View Angle	2Θ 1/2		10			deg.

2-2. Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Forward Current	I_F	25	mA
Forward Peak Pulse Current	I_{FP} [5]	100	mA
Reverse Current	I_R	85	mA
Power Dissipation	P_D	105	mW
Operating Temperature	T_{opr}	-30 ~ +85	ºC
Storage Temperature	T_{stg}	-40 ~ +100	ºC
Solder Temperature [6]	T_S	260 ºC for 5 second	ºC

Notes :

1. Peak Wavelength Measurement tolerance : ±3nm
2. Optical Power Output Measurement tolerance : ± 10%
3. Po is the Total Radiant Flux as measured with an integrated sphere.
4. Forward Voltage Measurement tolerance : ±3%
5. duty factor=1%, frequency=1kHz
6. 3mm bellow seating plane
7. It contains a zener chip to protect the product from ESD.

Characteristics for Power UV LED

3. T5H (Peak wavelength Rank : m, 380-390nm)

3-1. Electro-Optical characteristics at I_F=20mA, T_A=25ºC

Parameter	Symbol		Value			Unit
			Min	Typ	Max	
Peak wavelength [1]	Wp	m	380	385	390	nm
Optical Power Output [2]	Po [3]	B4	2.5	-	3.0	mW
		B5	3.0	-	3.5	
		B6	3.5	-	4.0	
		C1	4.0	-	5.0	
		C2	5.0	-	6.0	
Forward Voltage [4]	V_F		-	3.7	4.2	V
Spectrum Half Width	$\Delta\lambda$		-	13	-	nm
View Angle	2Θ 1/2		10			deg.

2-2. Absolute Maximum Ratings

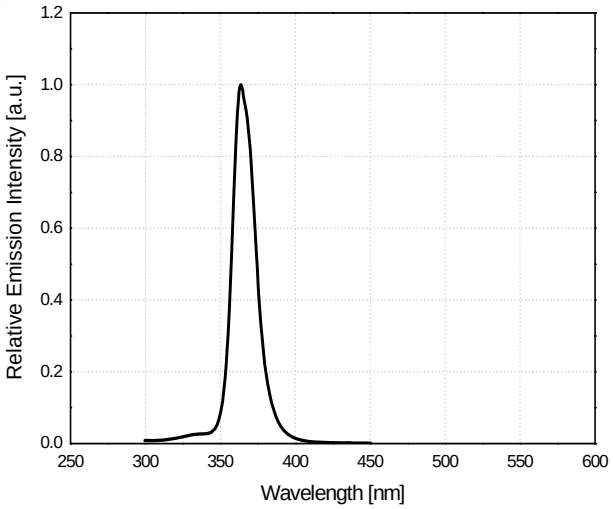
Parameter	Symbol	Value	Unit
Forward Current	I_F	25	mA
Forward Peak Pulse Current	I_{FP} [5]	100	mA
Reverse Current	I_R	85	mA
Power Dissipation	P_D	105	mW
Operating Temperature	T_{opr}	-30 ~ +85	ºC
Storage Temperature	T_{stg}	-40 ~ +100	ºC
Solder Temperature [6]	T_S	260 ºC for 5 second	ºC

Notes :

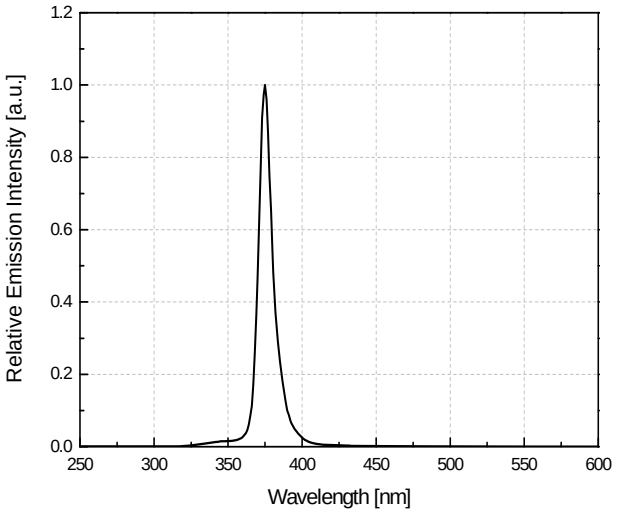
1. Peak Wavelength Measurement tolerance : ±3nm
2. Optical Power Output Measurement tolerance : ± 10%
3. Po is the Total Radiant Flux as measured with an integrated sphere.
4. Forward Voltage Measurement tolerance : ±3%
5. duty factor=1%, frequency=1kHz
6. 3mm bellow seating plane
7. It contains a zener chip to protect the product from ESD.

Spectrum Characteristics, Ta=25°C, 20mA

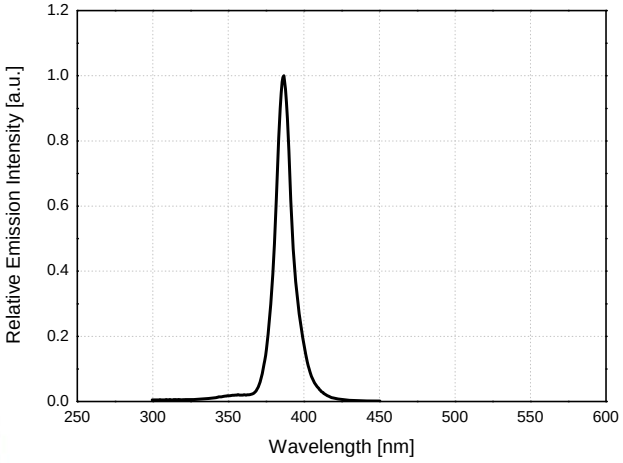
1. Peak Wavelength : j (360-370nm)



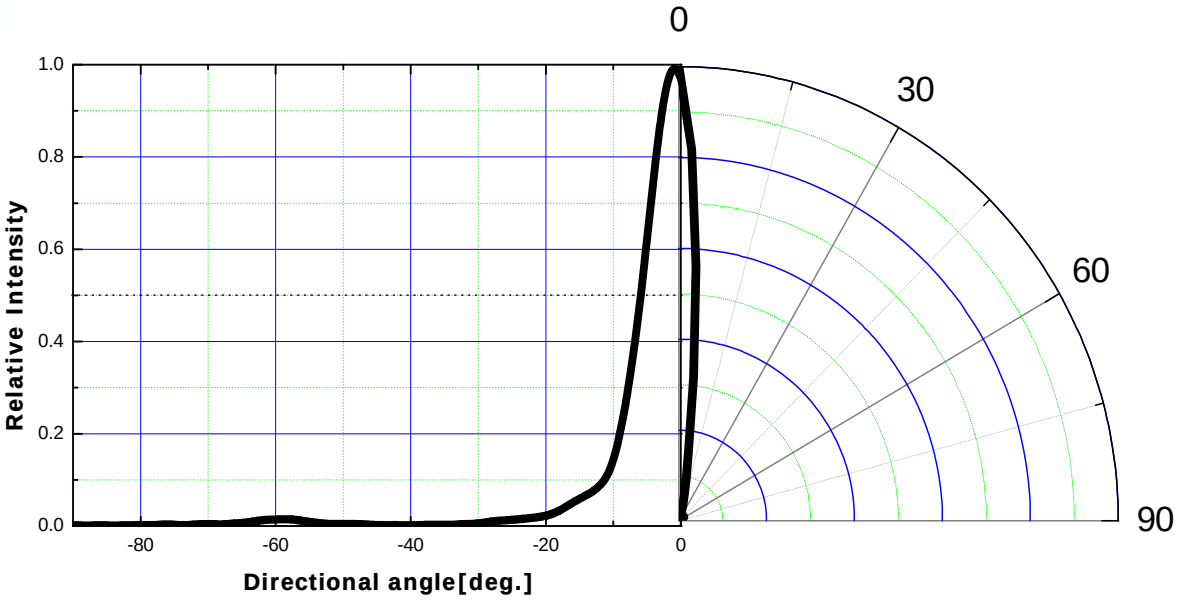
2. Peak Wavelength : k (370-380nm)



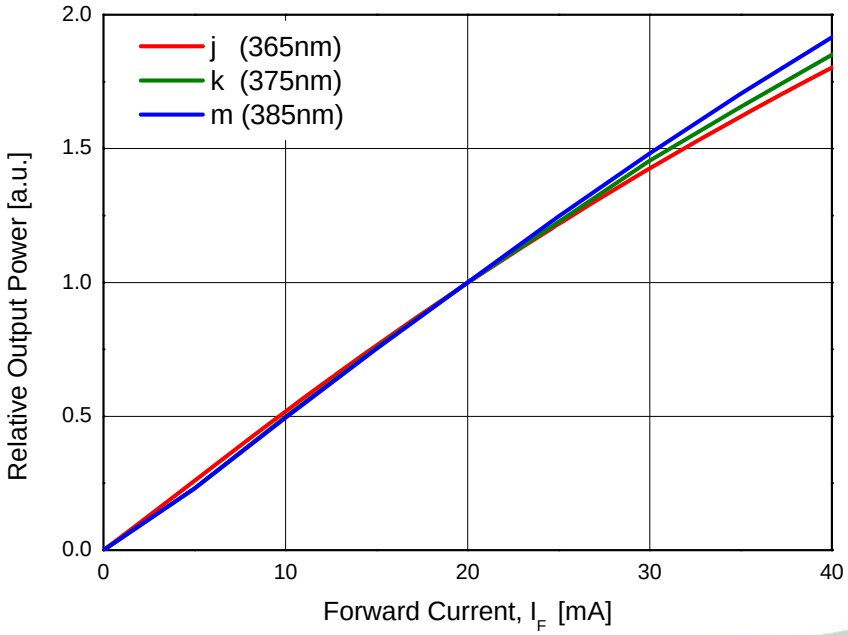
3. Peak Wavelength : m (380-390nm)



Typical Radiation Pattern

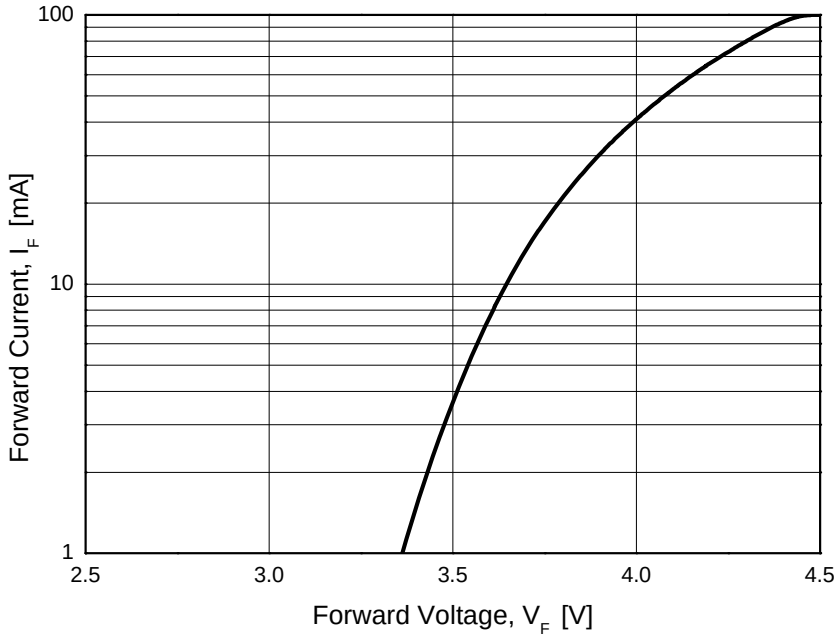


Forward Current Vs. Relative Output Power

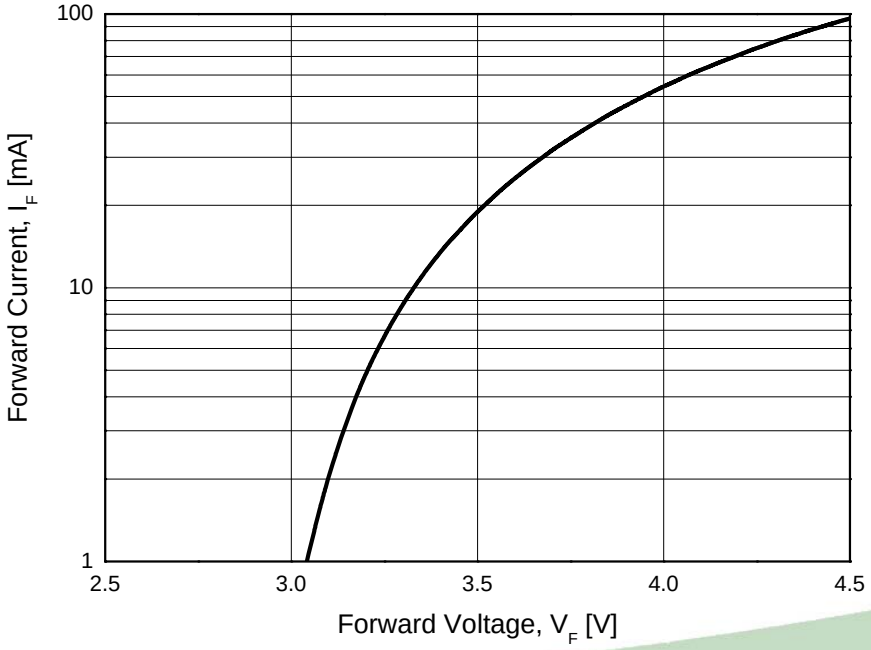


Forward Current Vs. Forward Voltage

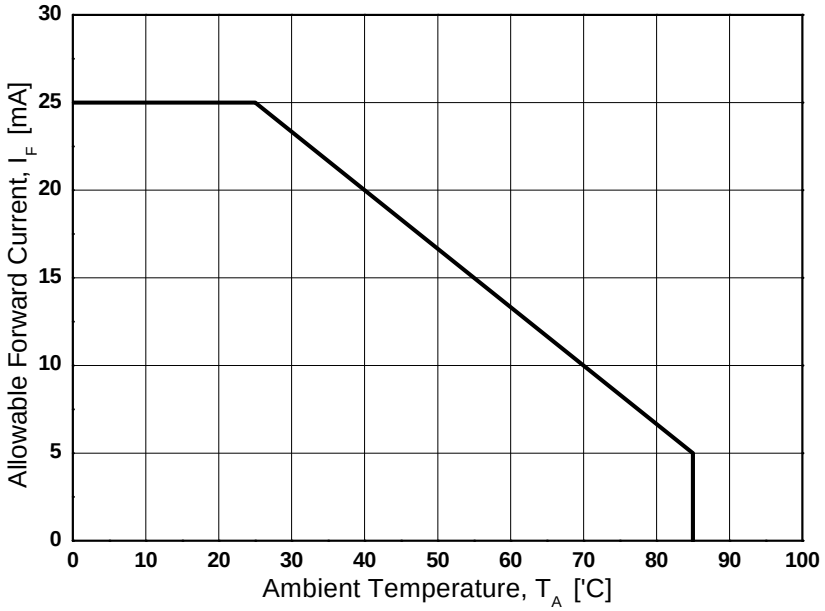
1. Peak Wavelength : j, k (360-370nm, 370~380nm)



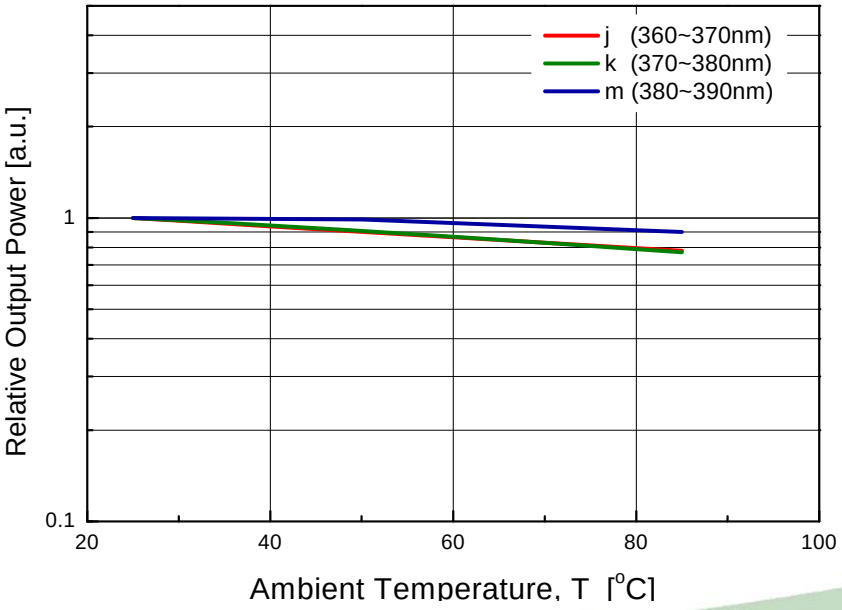
2. Peak Wavelength : m (380~390nm)



Ambient Temperature Vs. Allowable Forward Current



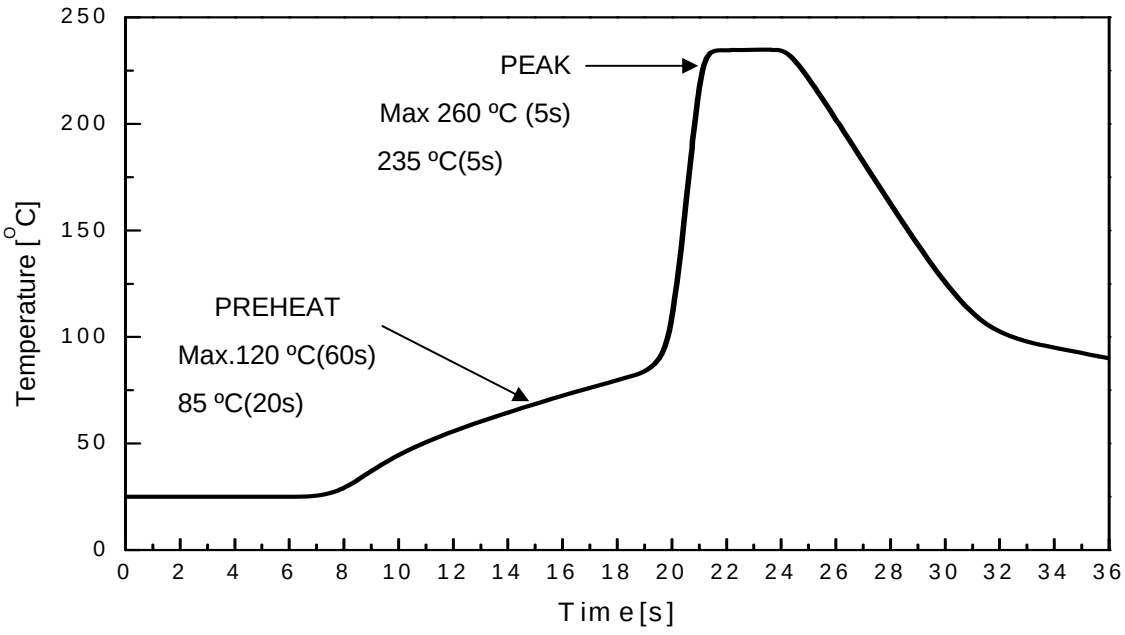
Ambient Temperature Vs. Relative Output Power



Soldering Profile (Ta=25℃)

1. Wave Soldering Conditions / Profile

- Preliminary heating to be at 85ºC(120 ºC max) for 20 seconds(60 seconds max).
- Soldering heat to be at 235 ºC (260ºC max) for 5 seconds.
- Soak time above 200 ºC is 5 seconds



2. Hand Soldering conditions

Not more than 5 seconds at max. 300ºC, under Soldering iron.

* Caution

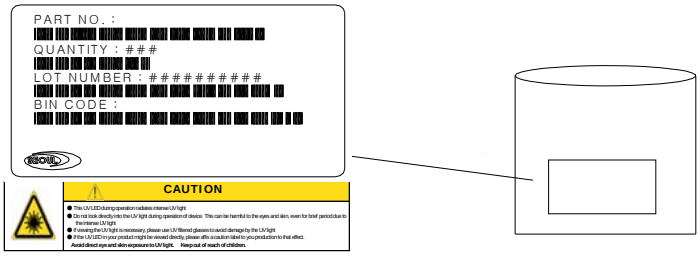
- The LEDs must not be repositioned after soldering.
- Do not apply any stress to the lead particularly when heat.

Note : In case the soldered products are reused in soldering process, we don't guarantee the products.

Packaging Structure

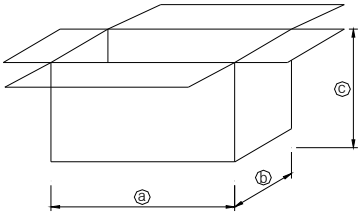
- The LEDs are packed in cardboard boxes after packaging in anti-electrostatic bag.
- The label on minimum packing unit shows; Part Number, Quantity, Lot Number, Bin Code.
- In order to protect the LEDs from mechanical shock,we pack them in cardboard boxes for transportation.
- The LEDs may be damaged if the boxes are dropped or receive a strong impact against them, so precautions must be taken to prevent any damage.
- The boxes are not water resistant and therefore must be kept away from water and moisture.

1) Anti-electrostatic bag (Max. 500pcs/bag)



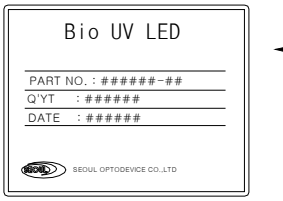
2) Inner Box (Max. 1bag/box)

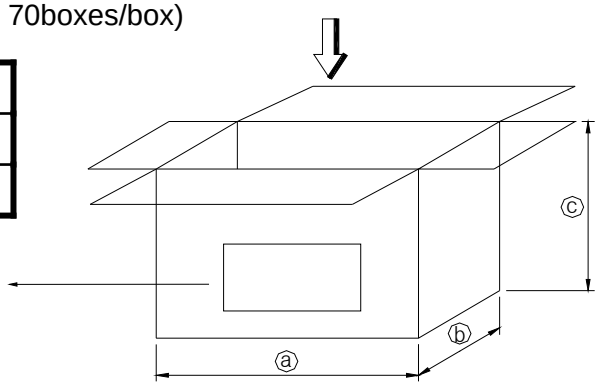
SIZE (mm)		
ⓐ	ⓑ	ⓒ
170	95	50



3) Outer Box (Max. 70boxes/box)

SIZE (mm)		
ⓐ	ⓑ	ⓒ
480	270	325





Precaution for Use

1. Caution

• The devices are UV LEDs. During the operation, The UV LED radiates UV light, which precaution must be taken to prevent looking directly at the UV light with unaided eyes.
Do not look directly into the UV light or look through the optical system.
If there is a possibility to receive the reflection of UV light, protect by using the UV light protective glasses so that UV light should not catch one's eye directly.

2. Storage

• To avoid the moisture penetration, we recommend storing UV LEDs in a dry box (or desiccator) with a desiccant . The recommended storage conditions are Temperature 5 to 30 degrees Centigrade. Humidity 50% maximum.

3. Precaution after opening packaging

• Soldering should be done right after opening the package(within 24Hrs).
• Keeping of a fraction
  - Sealing
  - Temperature : 5 ~ 40℃ Humidity : less than 30%
• If the package has been opened more than 1week or the color of desiccant changes, components should be dried for 10-12hr at 60±5℃
• Any mechanical force or any excess vibration shall not be accepted to apply during cooling process to normal temp. after soldering.
• Please avoid rapid cooling after soldering.
• Please avoid conditions which may cause the LEDs to corrode, tarnish or discolor.

4. Lead Forming

- When the lead forming is required before soldering , care must be taken to avoid any bending and mechanical stress. The stress to the base may damage the LEDs.
- When mounting the LEDs onto a PCB, the holes on the circuit board should be exactly aligned with the leads of the LEDs.
- It is recommended that tooling made to precisely form and cut the leads to length rather than rely on hand operating.

5. Static Electricity

- Static Electricity and surge voltage damage the LEDs. So it is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.
- All devices, equipment and machinery must be grounded properly. It is recommended that precautions should be taken against surge voltage to the equipment that mounts the LEDs.

6. Heat Generation

- Thermal is one of the important parameters to design the end product. Please consider the heat generation of the LEDs.
- The operating current should be decided after considering the ambient maximum temperature of LEDs.

7. Others

- The color of the LEDs is changed slightly an operating current and thermal.
- Anti radioactive ray design is not considered for the products listed here.
- This device should not be used in any type of fluid such as water, oil, organic solvent and etc. When washing is required, IPA(Isopropyl Alcohol) should be used.
- When the LEDs are illuminating, operating current should be decided after considering the junction temperature.

  Cf.) Please refer *Ambient temperature vs. Allowable Forward Current* graph on page 10
- The appearance and specifications of the product may be modified for improvement without notice.