



QLUV07P2EM-308 V1.0
3535 UVC LED



Product Outline:

The high output ceramic type 3535 with 125 degree view angle LEDs, UVC LED series are designed for high current operation and high power output applications. Quelighting UV LED is ideal UV light source for water disinfection, Sterilization and Air purification.

Features:

- UVC LED **255nm**
- **Dice Technology: AlGaIn**
- Max. current = **150mA** , up to **1.5W**
- Package Dimension = 3.55mmX3.55mmX1.72mm
- Ceramic substrate
- MSL 3 qualified according to J-STD 020
- Low thermal resistance
- View angle = **125°**
- RoHS compliant
- Custom Bin available upon special request

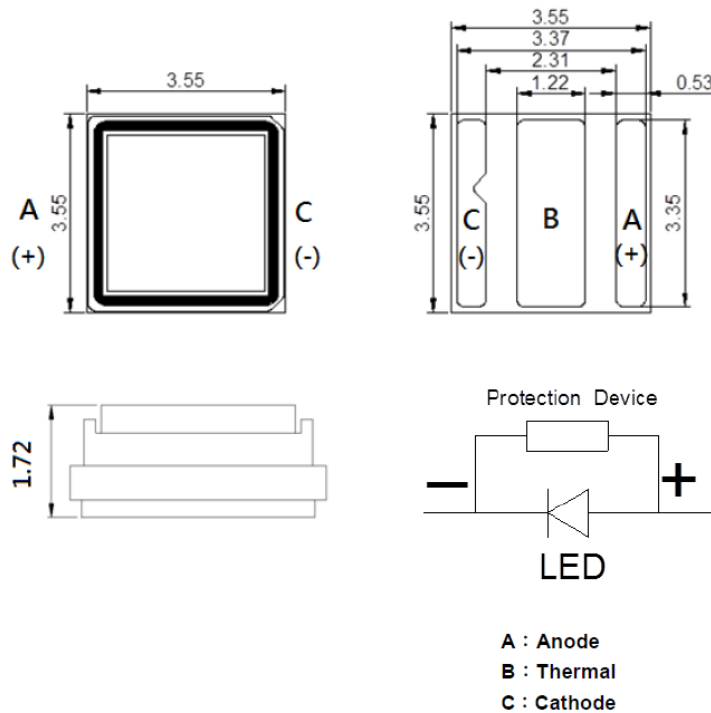
Application:

- Water disinfection
- Air purifiers
- Disinfection
- Phototherapy
- Bio-Analysis/Detection Features

Compliance and Certification:



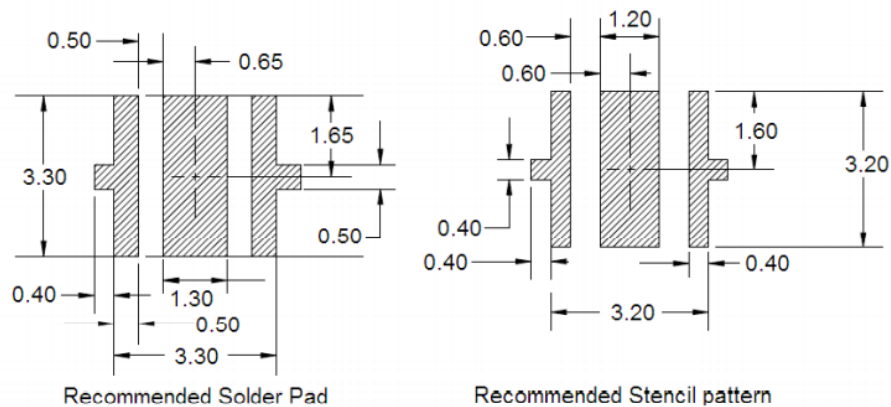
Mechanical Property:



Note:

1. All dimension in millimeters
2. tolerance is $\pm 0.2\text{mm}$

Recommended Solder footprint:



Note:

1. All dimension in millimeters
2. The drawing without tolerances is for reference only
3. Suggest stencil T=0.12 mm



Electrical / Optical Characteristic

(T=25 °C)

Product	View angle	I _F (mA)	V _F (V)			Wavelength (nm)	Radiant Power(mW)		
			Min	Typ.	Max		Min	Typ.	Max.
QLUV07P2EM-308	125°	100	5.0	5.8	7.0	250-260	10	12	18

 (1) The Forward Voltage tolerance is $\pm 0.1V$

 (2) The Peak wavelength tolerance is $\pm 5nm$

 (3) The Radiant power is $\pm 10\%$

Absolute Maximum Rating

(T=25 °C)

Part #	P _d (W)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{OP} (°C)	T _{ST} (°C)	T _J (°C)**	T _{SOL} (°C)**	R _{th(J-S)} (C/W)***
QLUV07P2EM-308	1.05	150	180	5	-30~ + 60	-40~+100	85	260	15

*Duty 1/10 @ 10Khz

** Junction Temperature

*** IR Reflow for no more than 10 sec @ 260 °C

**** Thermal resistance is calculated from junction to solder

Wavelength Rank

Wavelength Rank @ 100mA			
Code name	Low	High	Unit
U250T	250	260	nm



Radiant Power

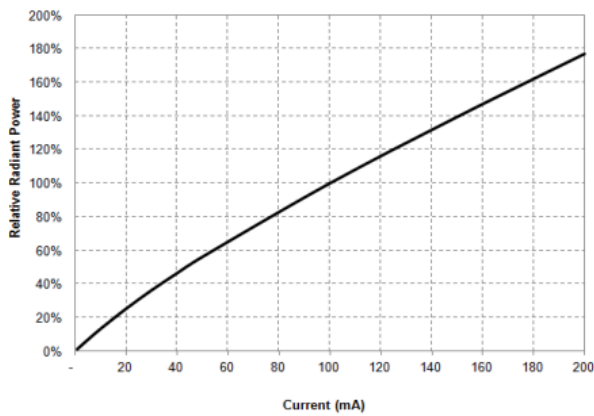
Radiant Power Rank @ 100mA			
P _o RANK	Min	Max	Unit
B2	10	12	mW
B3	12	14	
B4	14	16	
B5	16	18	

Forward Voltage

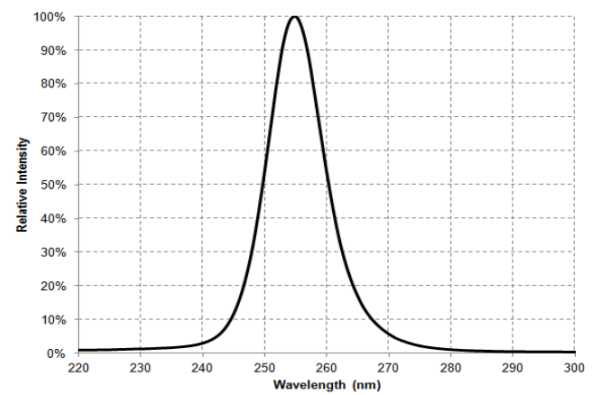
Forward Voltage Rank @ 100mA			
V _f RANK	Min	Max	Unit
3	5.0	5.5	V
4	5.5	6.0	
5	6.0	6.5	
6	6.5	7.0	



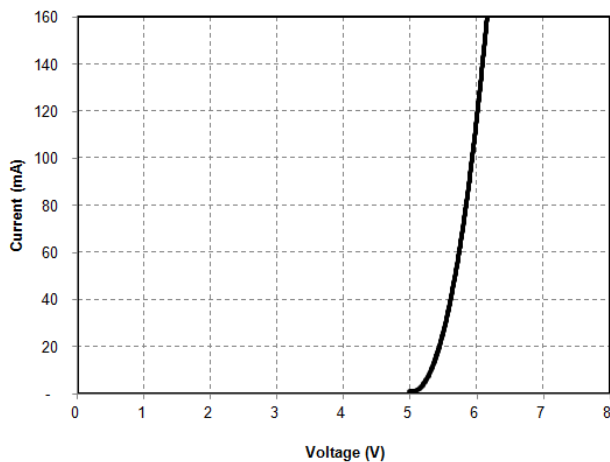
Characteristic Curves



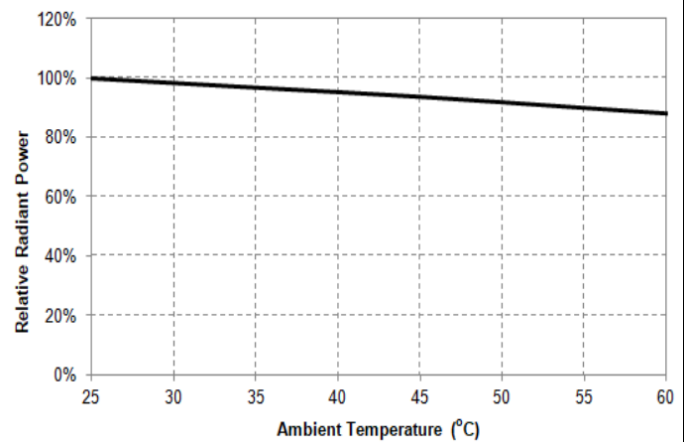
● Radiant Flux vs. Forward Current



● Typical Spatial Distribution



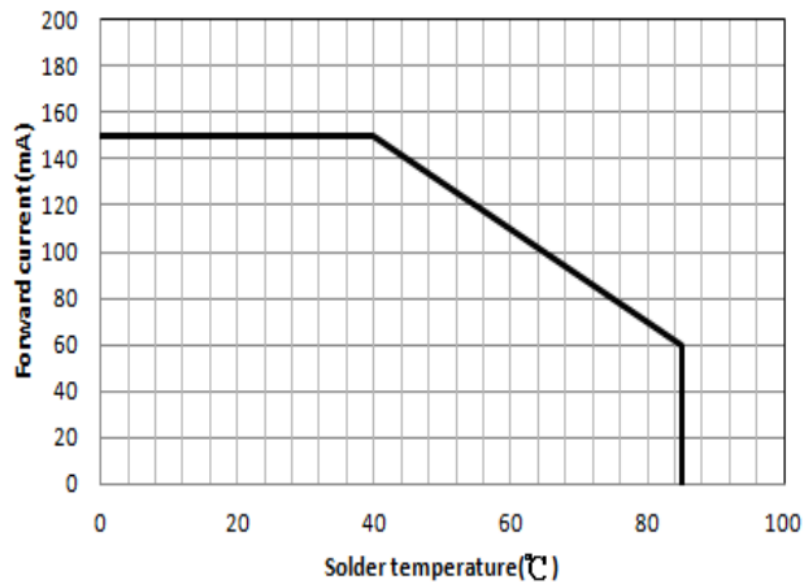
● Forward Current vs. Forward Voltage



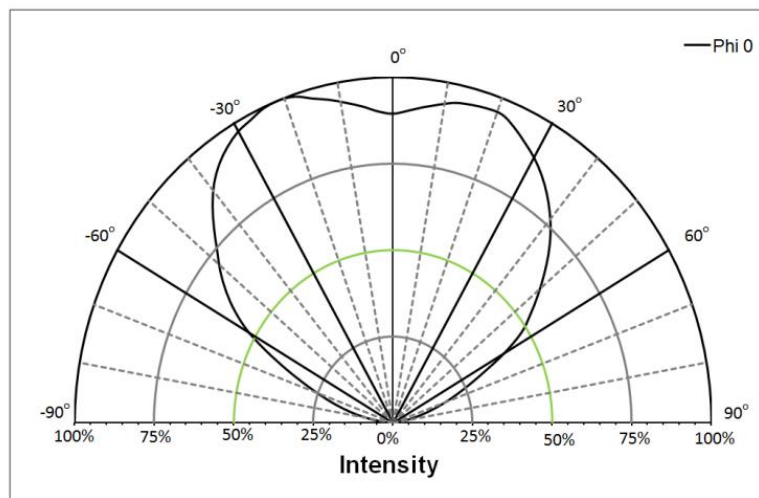
● Radiant flux vs. Ambient Temperature



● Derating Curve



● Radiation Pattern



■ Reliability test:

No	Item	Condition	Time/Cycle	Sample size
1	Steady State Operating Life of Room Temperature	25°C Operating	500 Hrs	10 pcs
2	Steady State Operating Life of Low Temperature -40°C	-40°C Operating	500 Hrs	10 pcs
3	Steady State Operating Life of Low Temperature 60°C	60°C Operating	500 Hrs	10 pcs
4	Steady State Operating Life of Low Temperature 85°C	65°C Operating	500 Hrs	10 pcs
5	Low temperature storage -40°C	-40°C Storage	500 Hrs	10 pcs
6	High temperature storage 100°C	100°C Storage	500 Hrs	10 pcs
7	Steady State Operating Life of High Humidity Heat 60°C 90%	60°C/90% Operating	500 Hrs	10 pcs
8	Steady State Pulse Operating Life Condition	25°C 10Hz duty=1/10 Operating	100 Cycle	10 pcs
9	Resistance to soldering heat on PCB (JEDEC MSL3)	pre-store@60°C, 60%RH for 52hrs Tsltd max.=260 10sec	3 Times	10 pcs
10	Heat Cycle Test (JEDEC MRC)	25°C~65°C~-10°C, 90%RH, 24hr/1cycle	10 Cycle	10 pcs
11	Thermal shock	-40°C/ 20min~ 5min~100°C /20min	100 Cycle	10 pcs

■ Judgment Criteria:

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	100 mA	$\Delta Vf < 10\%$
Luminous Flux	Iv	100 mA	$\Delta Iv < 30\%$



Solder Profile:

-The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):

- When soldering LEDs,
- Do not solder/reflow the same LED over two times.
- Recommend soldering conditions:

Pre-heat for Reflow soldering: Min 150°C , Max 200°C, Time: 90±30 sec

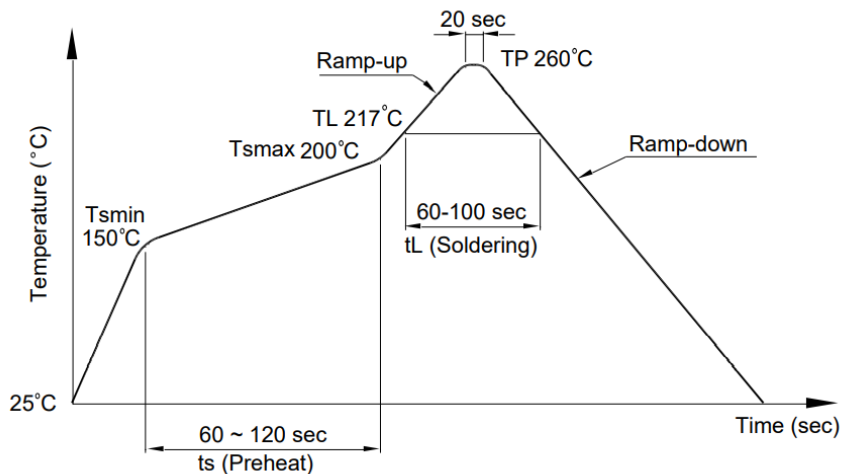
Soldering Zone (T_L): 217°C , Time: 60~100 sec

Peak Temperature (T_p) 260°C max , 10 sec. max.

Ramp-Up Rate: 3°C /sec max.

Ramp-Down Rate: 3~6°C /sec

- Reflow temperature profile as below: (lead-free solder)

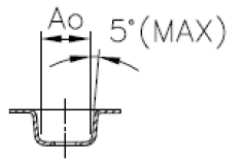
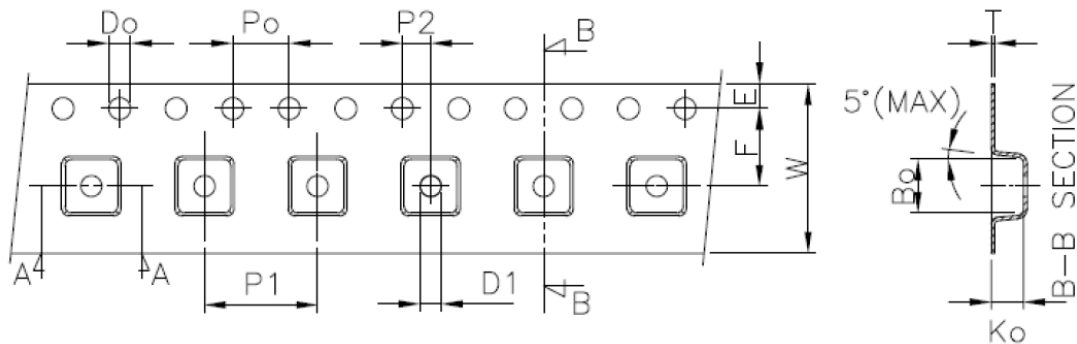


Note:

1. One time soldering is recommended; do not exceed 3 times reflow process.
2. The recommended peak temperature is 245°C. The maximum soldering temperature should be controlled under 260°C

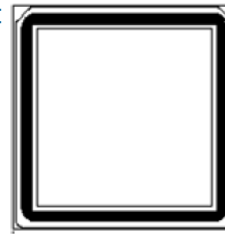


Taping & Packing:



A-A SECTION

Orientation:



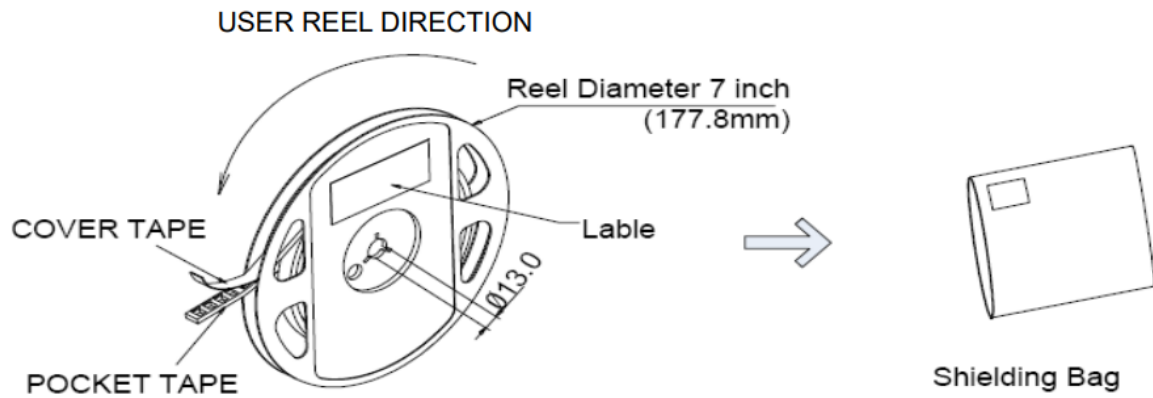
UNIT:mm

Symbol	Ao	Bo	Ko	Po	P1	P2	T
Spec	3.72 ± 0.10	3.72 ± 0.10	2.7 ± 0.10	4.00 ± 0.10	8.00 ± 0.10	2.00 ± 0.10	0.25 ± 0.10
Symbol	E	F	Do	D1	W	10Po	--
Spec	1.75 ± 0.10	5.5 ± 0.05	1.55 ± 0.05	1.50 ± 0.10	12.0 ± 0.30	40.0 ± 0.20	--

Notes:

1. Drawing not to scale.
2. All dimensions are in millimeters.
3. Unless otherwise indicated, tolerances are $\pm 0.10\text{mm}$.

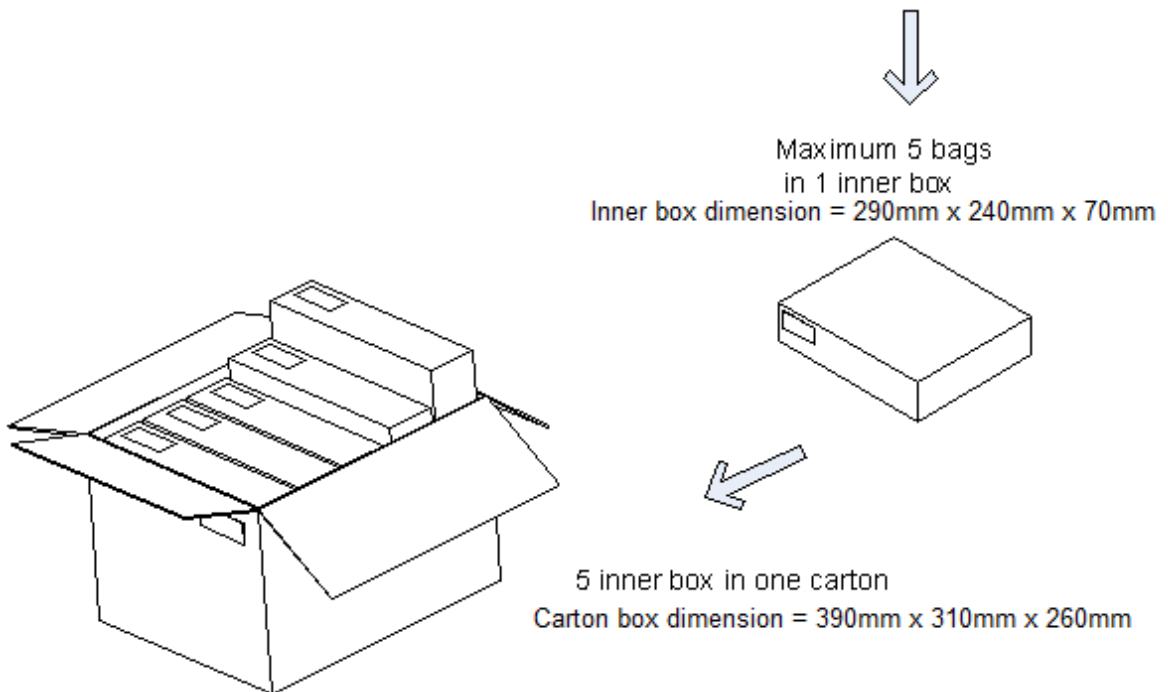




7 inch Anti-Static Reel

Max 500pcs/reel

Min 250pcs/reel



Eye Safety Guidelines During operation





The LED emits high intensity ultraviolet (UV) light, which is harmful to skin and eyes. UV light is hazardous to skin and may cause cancer.

- 1) Avoid looking directly at the UV light: Wear protective glasses/goggle with ANSI Z87 rated.
- 2) Wear facial shield / Lab Coat with long sleeve / Gloves to cover skin may exposed to UVC LEDs.
- 3) Attach warning labels on products/systems that is composed with UV LEDs.

Warning label:



Labeling

		
 Quantity: XXXX		
 Quelighting P/N: XXXXXX		
 Lot number: XXXXX		
Iv Bin: XX	Color Bin: XX	Vf Bin: XX
Date Code: XXXX		



Ordering Information:

Part #	Multiple Quantities	Quantity per Reel
QLUV07P2EM-308		250, 500 pcs

Revision History:

Revision Date:	Changes:	Version #:
2021-06-16	Initial release	1.0

