



QLUV07EYGE
3535 3mW UVB LED



Product Outline:

The high output ceramic type 3535 LEDs, UVB LED series are designed for high current operation and high power output applications. Quelighting UV LED is ideal UV light source for water disinfection.

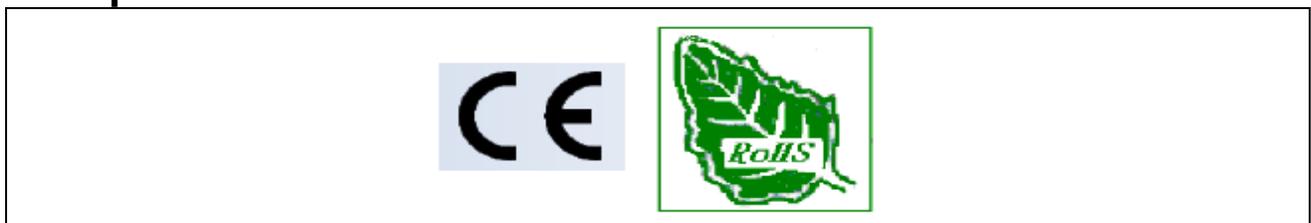
Features:

- UVB 310nm LED
- Max. current = 30mA
- Package Dimension = 3.5mmX3.5mmX1.05mm
- Ceramic substrate
- MSL 3 qualified according to J-STD 020
- Low thermal resistance
- View angle = 120 degree
- RoHS compliant
- Custom Bin available upon special request

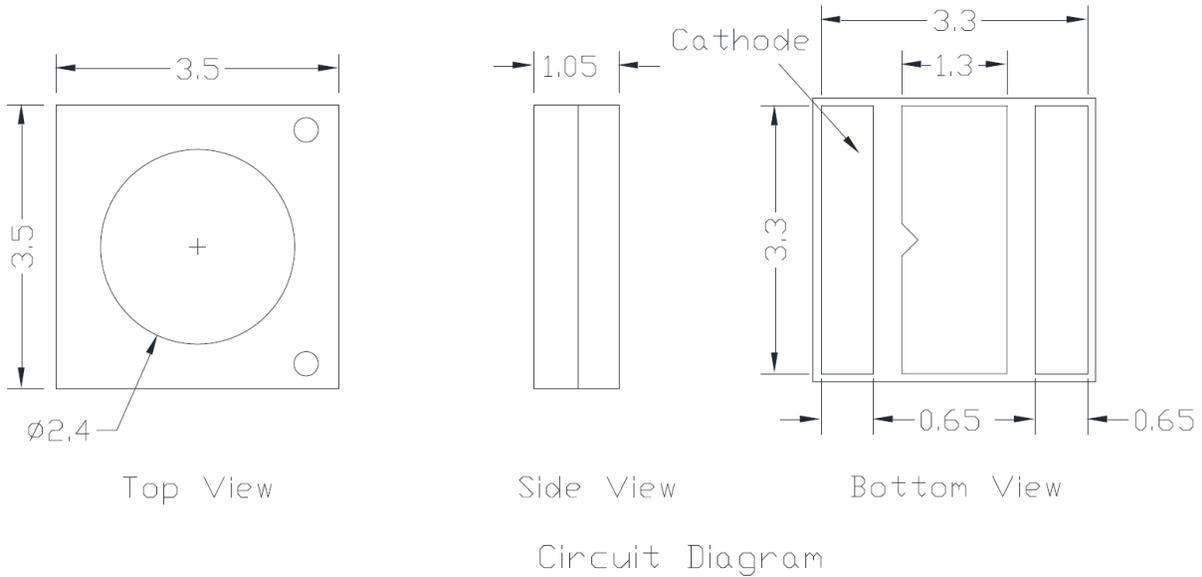
Application:

- Plant Growth
- Skin Condition Treatment
- Disinfection
- Phototherapy
- Bio-Analysis/DetectionFeatures

Compliance and Certification:



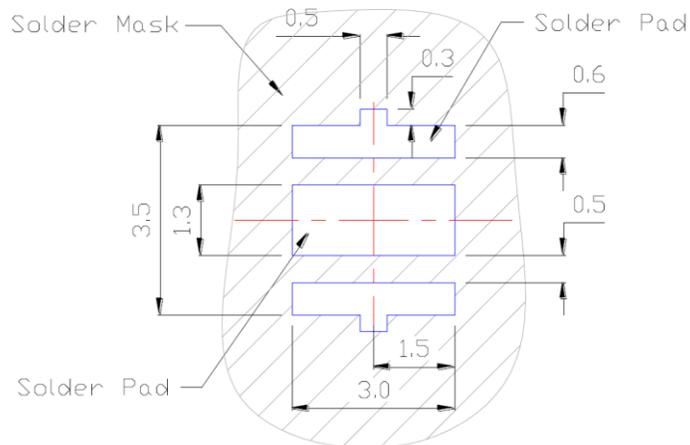
Mechanical Property: 140 Degree Field Angle



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 $T=0.12\text{ mm}$



Electrical / Optical Characteristic

(T=25 °C)

Product	View angle	I _F (mA)	V _F (V)		Wavelength (nm)	Radiant Power(mW)	
			Typ.	max		min	typ.
QLUV07EYGE	130	20	6.5	8	300-315	2	3.3

- (1) The Forward Voltage tolerance is $\pm 0.1V$
- (2) The Peak wavelength tolerance is ± 2
- (3) The Radiant power is $\pm 7\%$

Absolute Maximum Rating

(T=25 °C)

Part #	P _d (mW)	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)***
QLUV07EYGE	0.24	30	40	-5	-40 – 60	-40 - 85	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

Peak Wavelength Binning

Wavelength Rank @ 20mA			
Code name	Low	High	Units
U300	300	315	nm

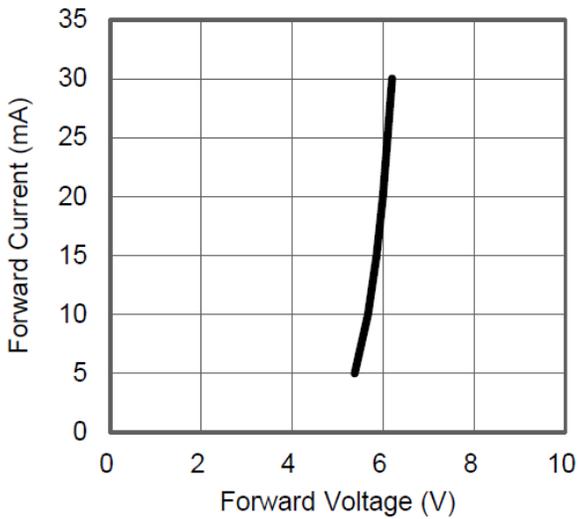
Forward Voltage (V_F) Bin:

VF Rank @ 20mA			
Code name	Min.	Max.	Units
A	5.0	5.5	V
B	5.5	6.0	
C	6.0	6.5	
D	6.5	7.0	
E	7.0	7.5	
F	7.5	8.0	

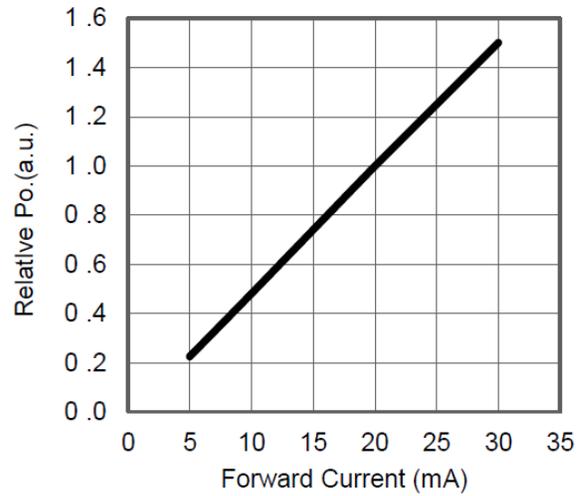
The forward voltage tolerance is $\pm 0.1V$



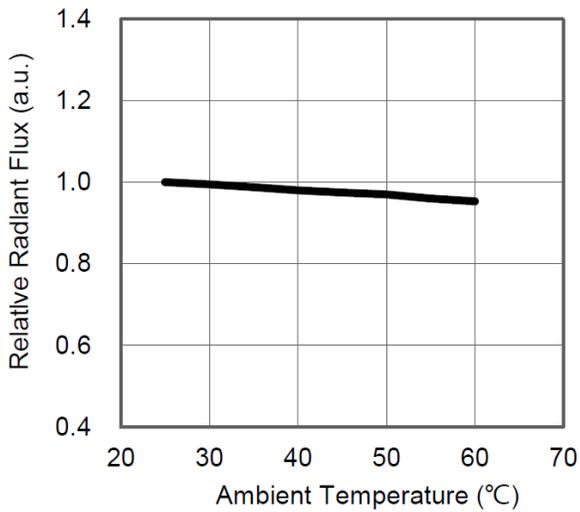
Characteristic Curves



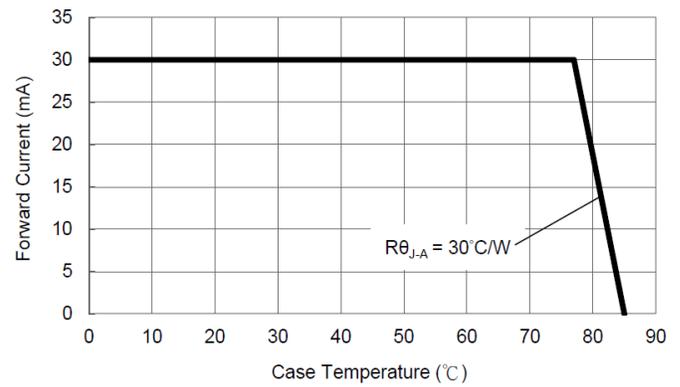
Forward Voltage vs. Forward Current



Forward current vs. Relative luminous intensity

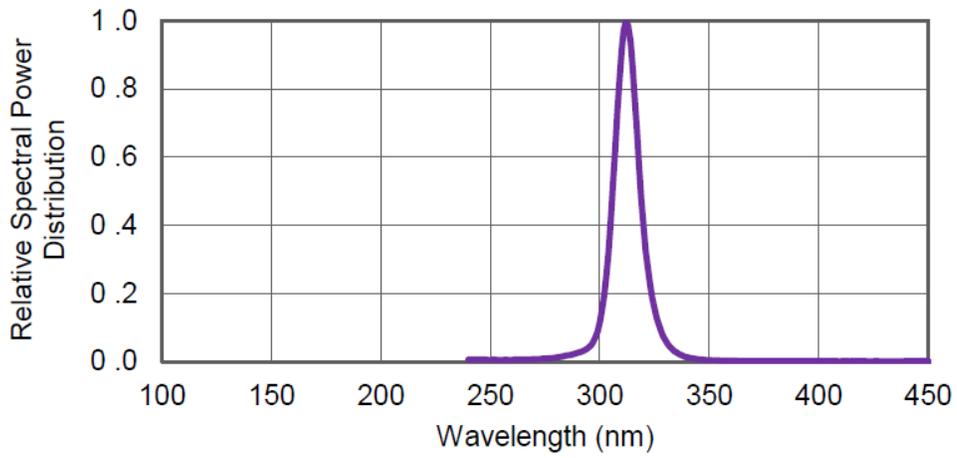


Relative Luminous Intensity vs Ambient Temperature

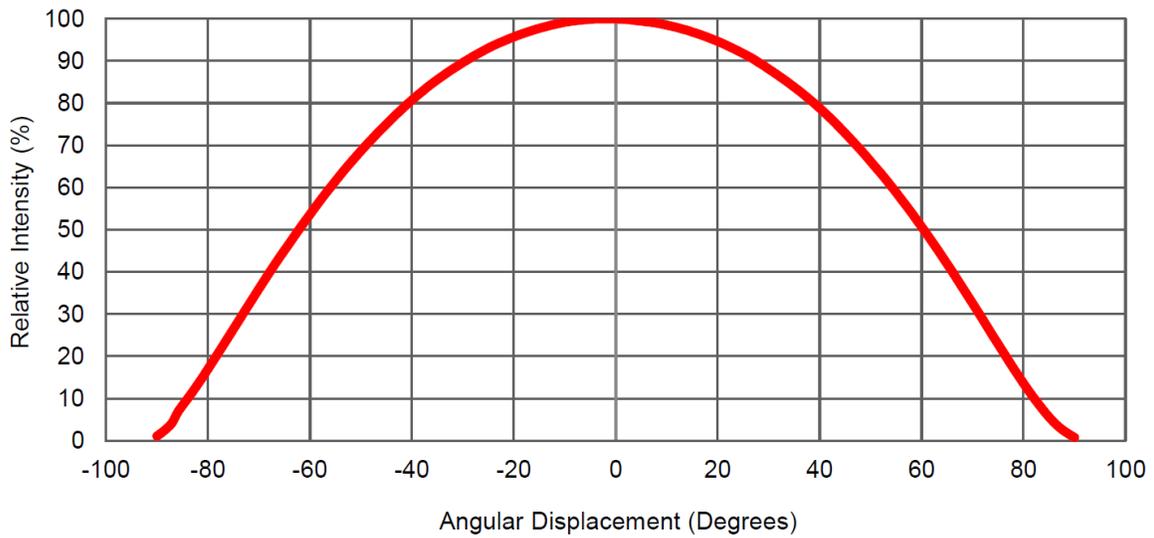


Solder Temperature (Slug) vs. Maximum Forward Current





Spectrum Distribution



Typical Representative Spatial 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 Tslid 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 / 20minr~ 5minr~100°C /20min	100 Cycle	10 pcs

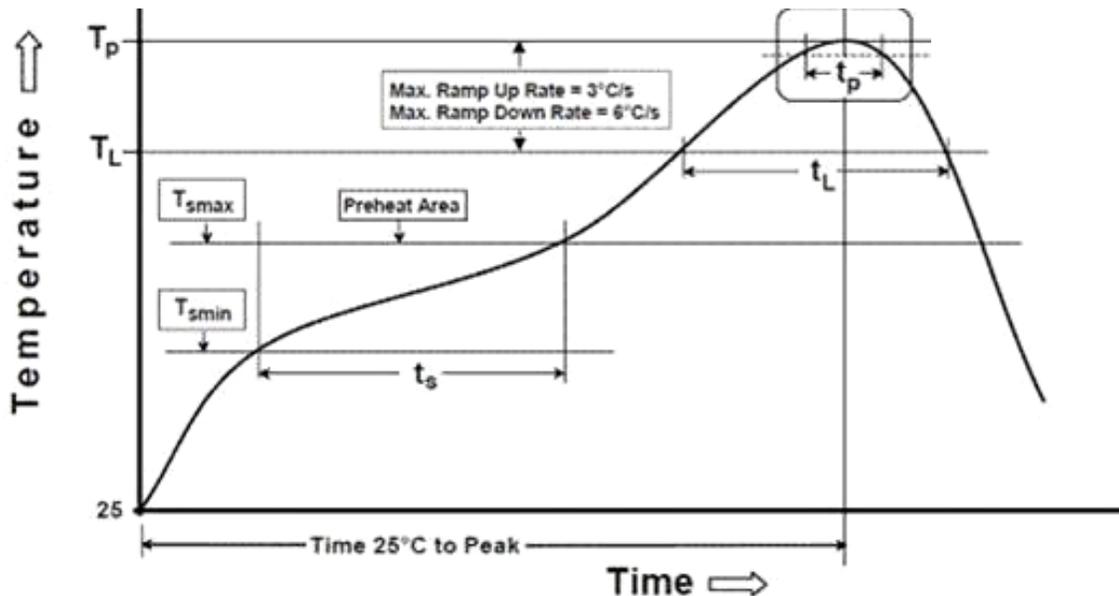
■ Judgment Criteria:

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



Solder Profile:

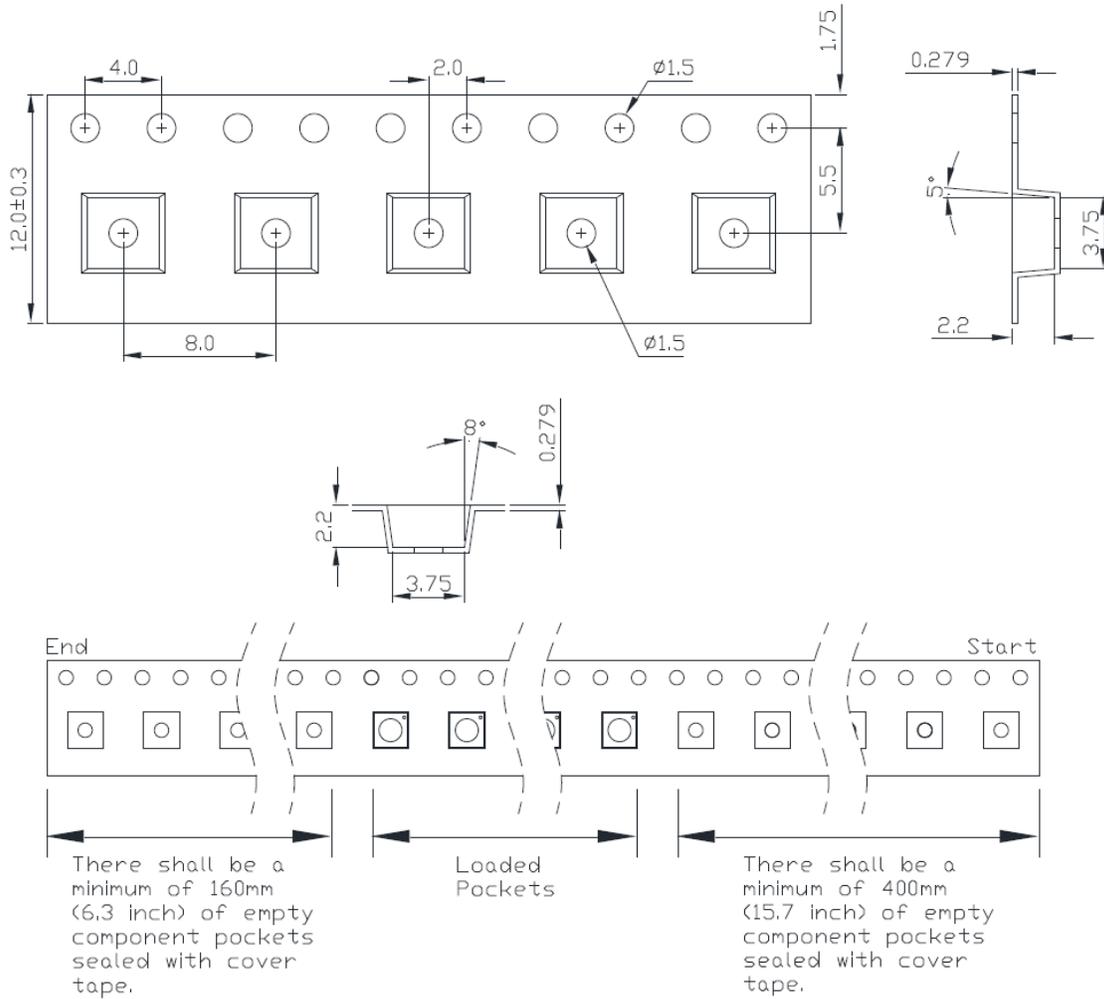
-The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):



Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Temperature Min(T_{smin})	100°C	150°C
Temperature Max(T_{smax})	150°C	200°C
Time(t_a) from (T_{smin} to T_{smax})	60-120 seconds	60-120 seconds
Ramp-up rate(T_L to T_P)	3°C/second max.	3°C/second max.
Liquidous Temperature(T_L)	183°C	217°C
Time(t_L) maintained above T_L	60-150 seconds	60-150 seconds
Peak package body temperature(T_P)	235°C	260°C
Time within 5°C of Actual Peak temperature (t_p)	20seconds*	30 seconds*
Ramp-down rate(T_P to T_L)	6°C/second max.	6°C/second max.
Time 25°C to peak temperature	6 minutes max.	8 minutes max.
* Tolerance for peak profile temperature (T_P) is defined as a supplier minimum and a user maximum.		



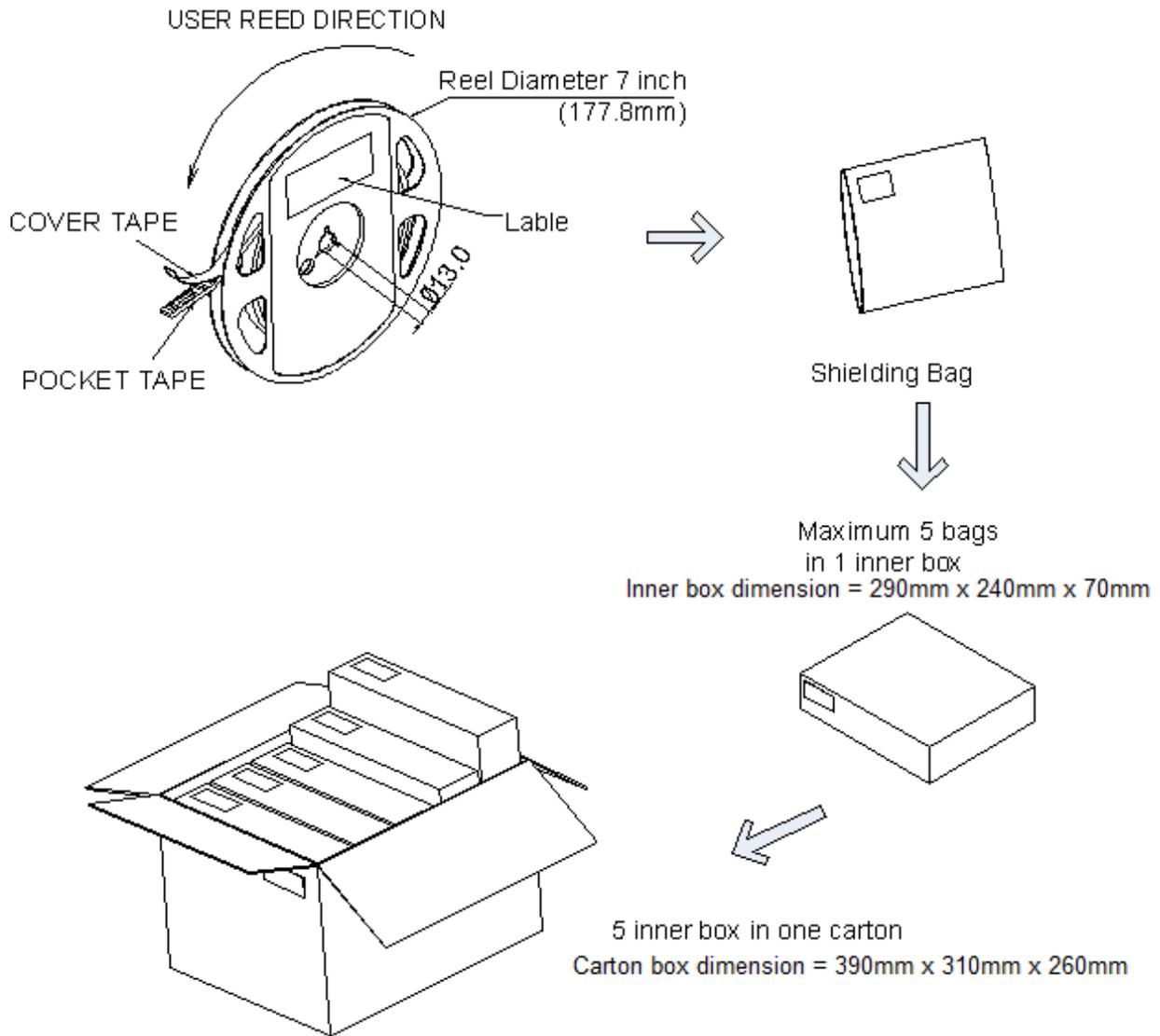
Taping & Packing:



Notes:

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





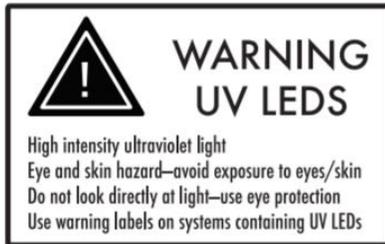
Eye Safety Guidelines During operation

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.

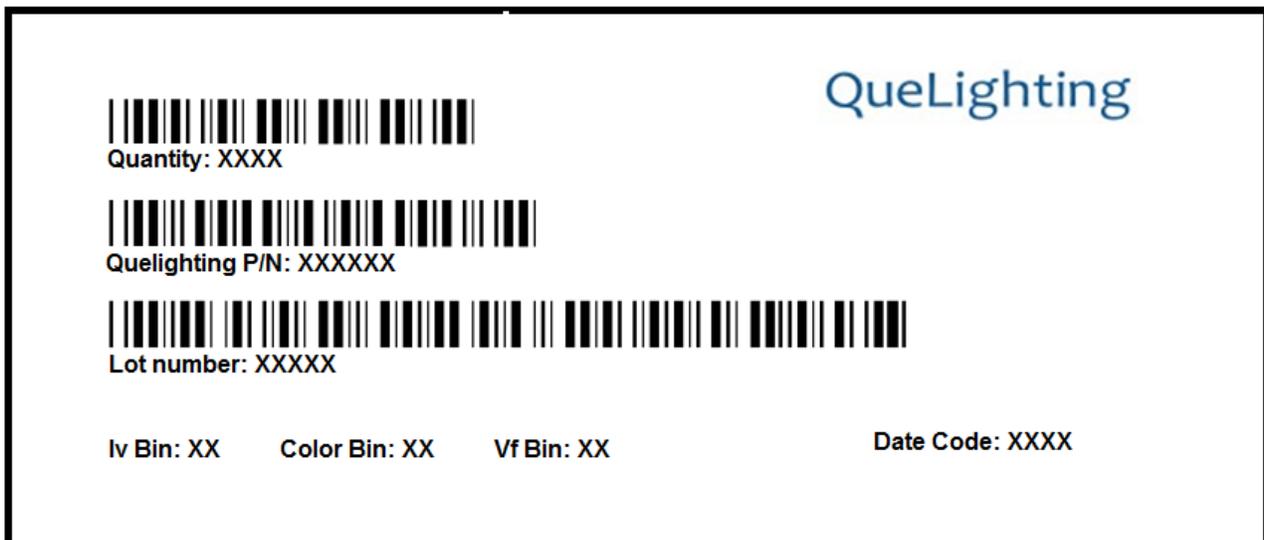
- 1) Avoid looking directly at the UV light: Wear protective glasses/goggle with ANSI Z87 rated.
- 2) Wear facial shield / Lab Coat with long sleeve / Gloves to cover skin may exposed to UVC LEDs.
- 3) Attach warning labels on products/systems that is composed with UV LEDs.



Warning label:



Labeling



Ordering Information:

Part #	Multiple Quantities	Quantity per Reel
QLUV07EYGE		250, 500 or 1000 pcs



Revision History:

Revision Date:	Changes:	Version #:
01-01-2020	Initial release	1.0
09-08-2021	Added the Vf bin code	1.1

