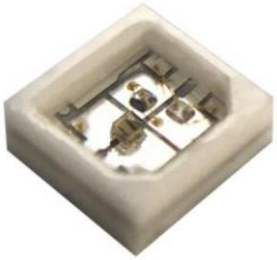
QueLighting



QLUV03NJEF

3030 UVC+UVA LED

Product Outline:

The high output ceramic type 3030 LEDs, UVC and UVA dual wavelength in LED are designed for high current operation and high power output applications. Quelighting UV LED is ideal UV light source for water disinfection.

Features:

- UVC+UVA LED
- Max. current = 70mA
- Package Dimension = 3.0mmX3.0mmX0.9mm
- Ceramic subtract
- Low thermal resistance
- View angle = 120 degree
- RoHS compliant
- Custom Bin available upon special request

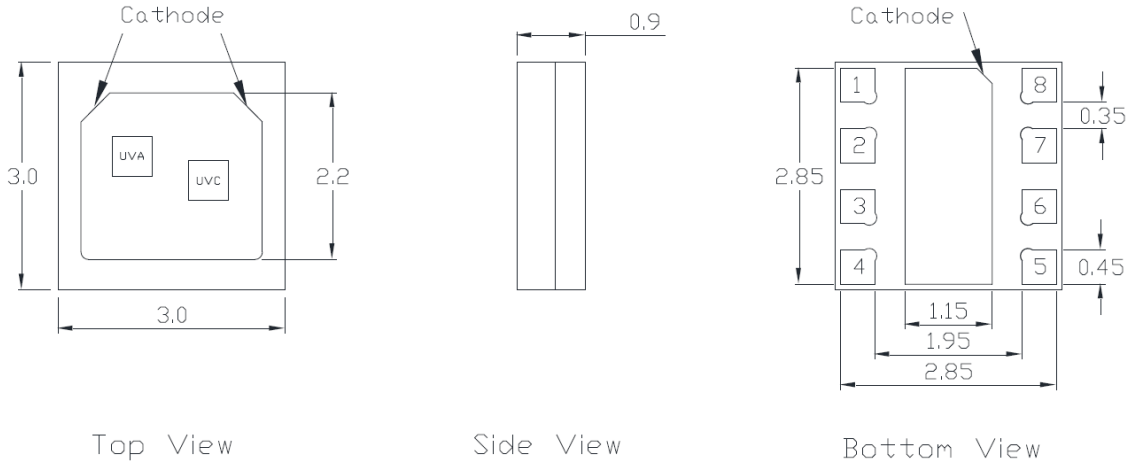
Application:

- Water disinfection
- Air purifiers
- Disinfection, Sterilization
- Phototherapy

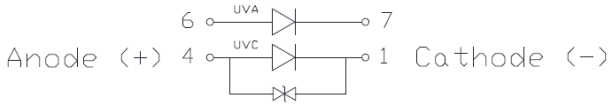
Compliance and Certification:

Mechanical Property:

120 Degree Field Angle



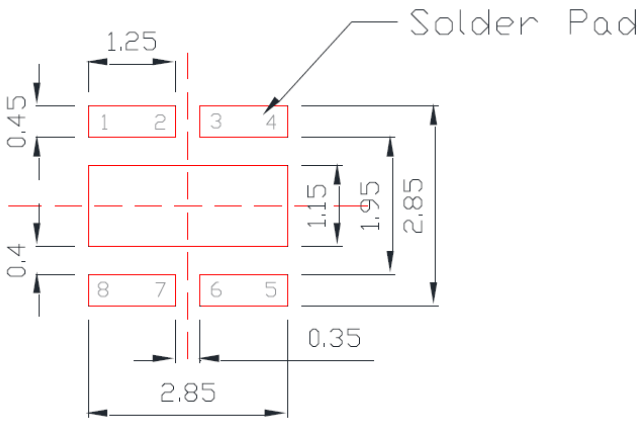
Circuit Diagram



Note:

1. All dimension in millimeters
2. tolerance is ±0.2mm

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)	
			Typ.	max		min	typ.
QLUV03NJEF-UVC	130	20	6.8	8	265-285	2.0	3.5
QLUV03NJEF-UVA	130	20	3.2	4	400~410	10	13

(1) The Forward Voltage tolerance is ±0.1V
(2) The Peak wavelength tolerance is ±2
(3) The Radiant power is ± 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)	Tj (°C)**	T_{SOL} (°C)**	$R_{th(J-S)}$ (C/W)***
QLUV03NJEF	380	50	100	-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				
Color	**Code name**	**Low**	**High**	**Units**
UVC	U265T	265	275	nm
	U275T	275	285	
UVA	U400A	400	410	

Forward Voltage (V_F) Bin:

VF rank @ 20mA				
Color	**Code name**	**Low**	**High**	**Units**
UVC	V9	5	6	V
	A9	6	7	
	F9	7	8	
UVA	29	3	4	

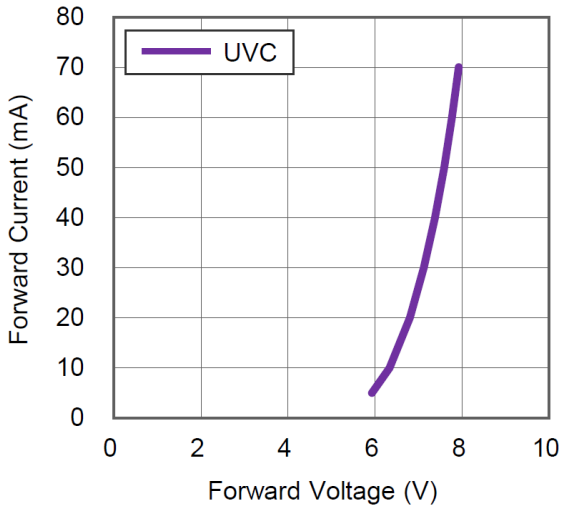
The forward voltage tolerance is ± 0.5V

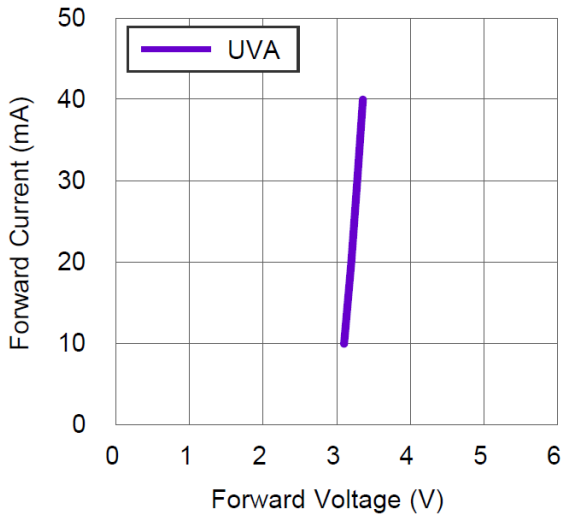
Radiant Power Binning:

Radiant Power rank (mW) @ 20mA				
Color	**Code name**	**Low**	**High**	**Units**
UVC	PZ35	2.0	4	mW
UVA	P0020	10	18	mW

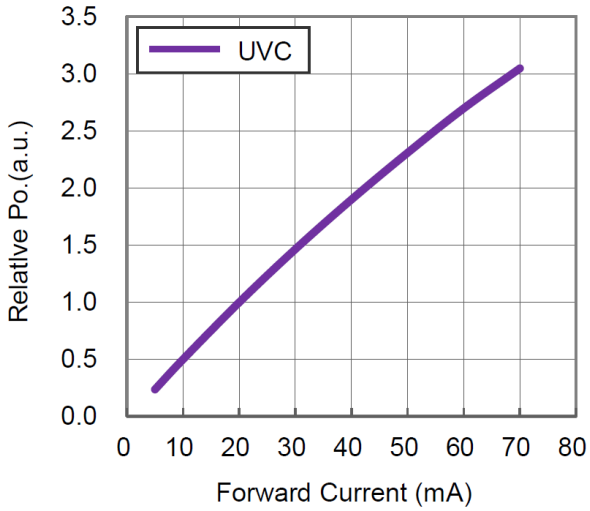
luminous flux tolerance is ± 15%

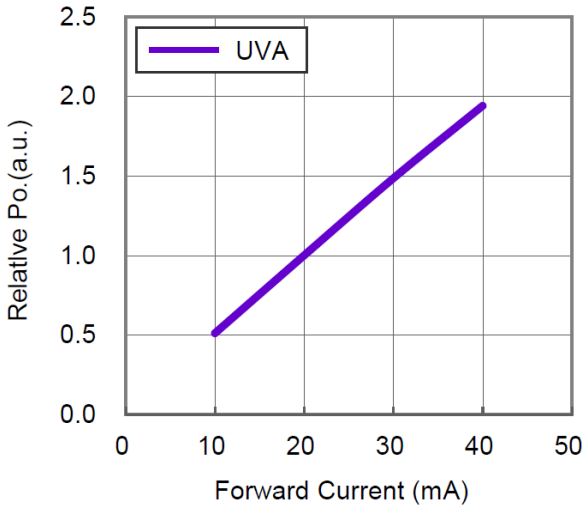
Characteristic Curves



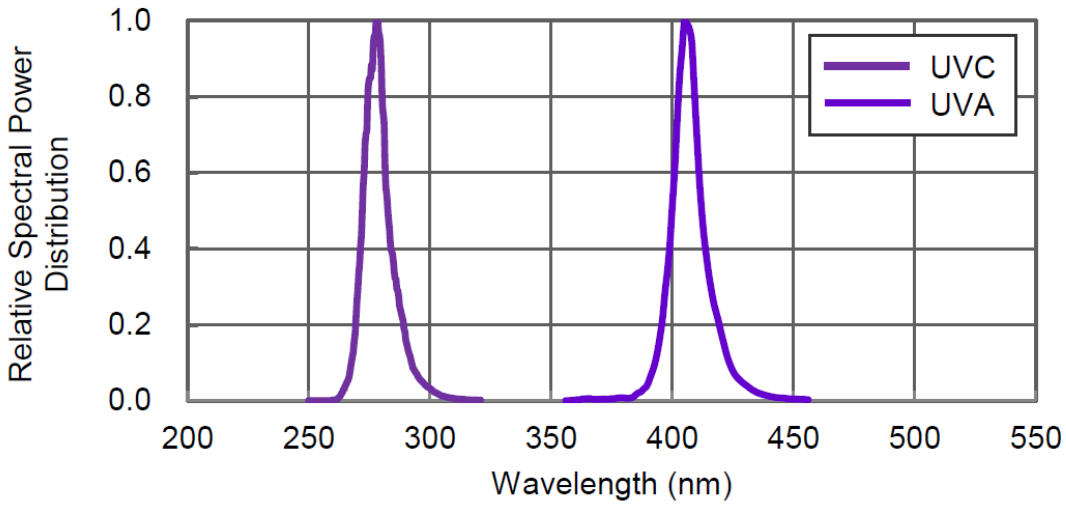


Forward Voltage vs. Forward Current

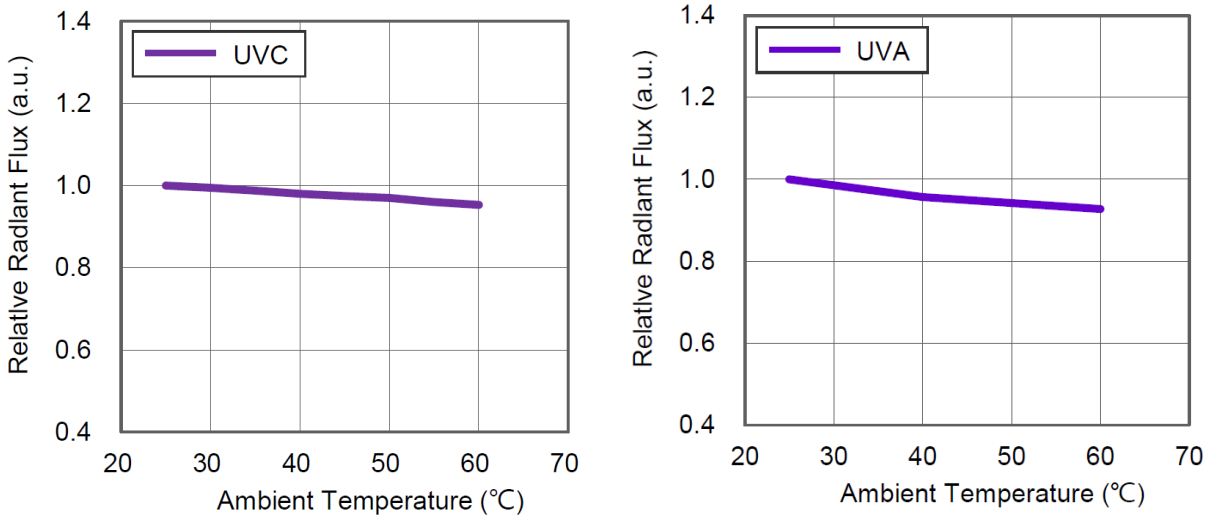




Forward current vs. Relative luminous intensity



Spectrum Distribution



Relative Luminous Intensity vs Ambient Temperature

■ Reliability test:

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

■ Judgment Criteria:

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	20 mA	△Vf< 10%
Luminous Flux	Iv	20 mA	△Iv< 30%

Solder Profile:

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

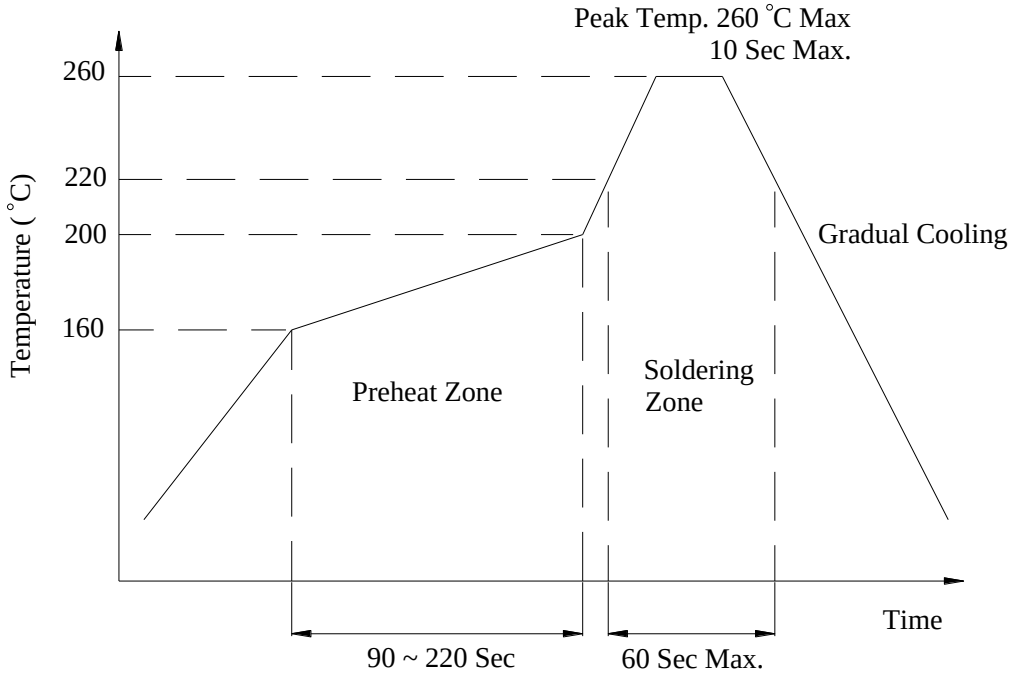
- When soldering LEDs,
- Do not solder/reflow the same LED over two times.
- Recommend soldering conditions:

  Hand soldering: 350 ℃ max , 3 sec. max.

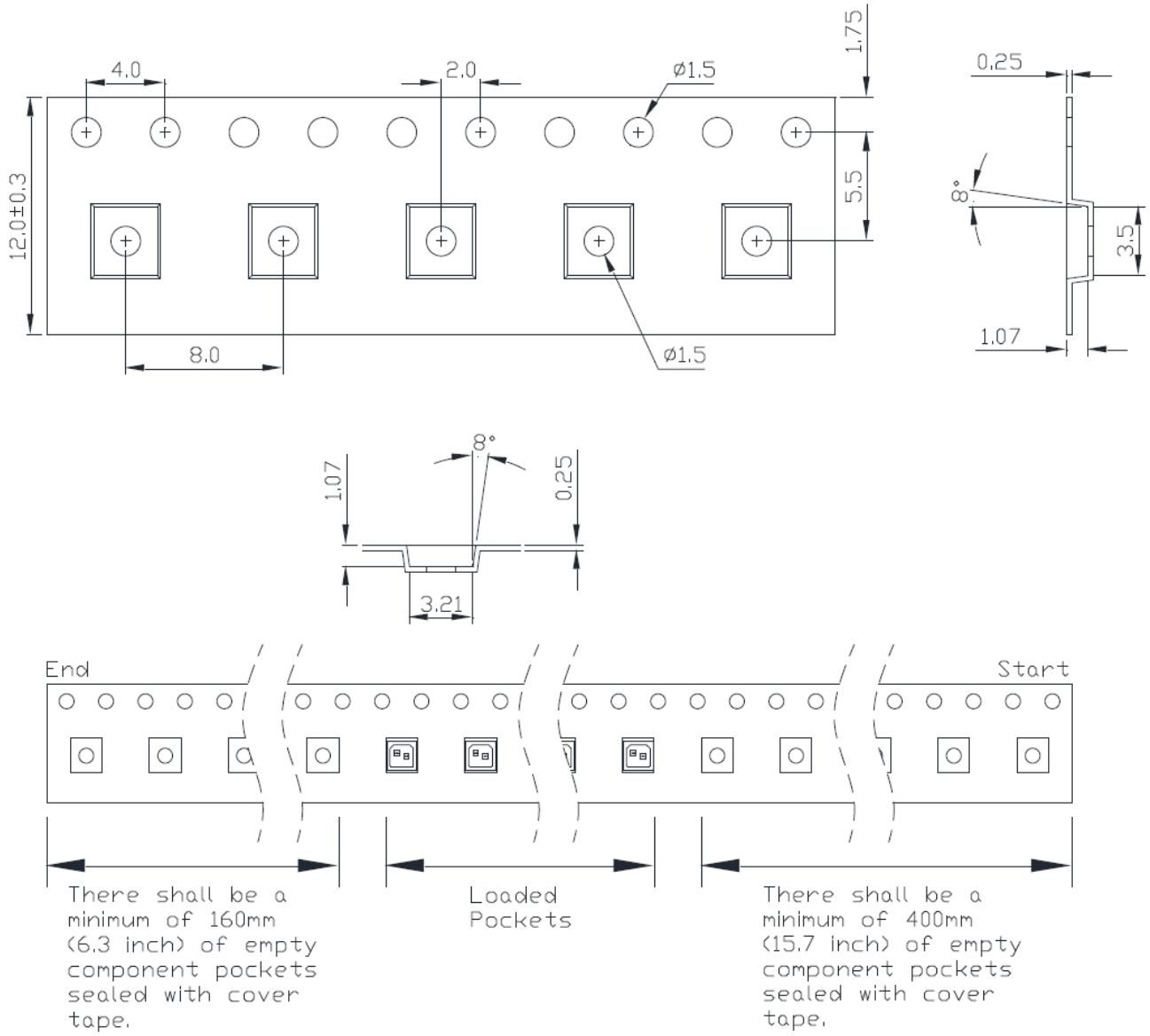
  Reflow soldering: Pre-heat 150 max , 180 sec. max. ℃

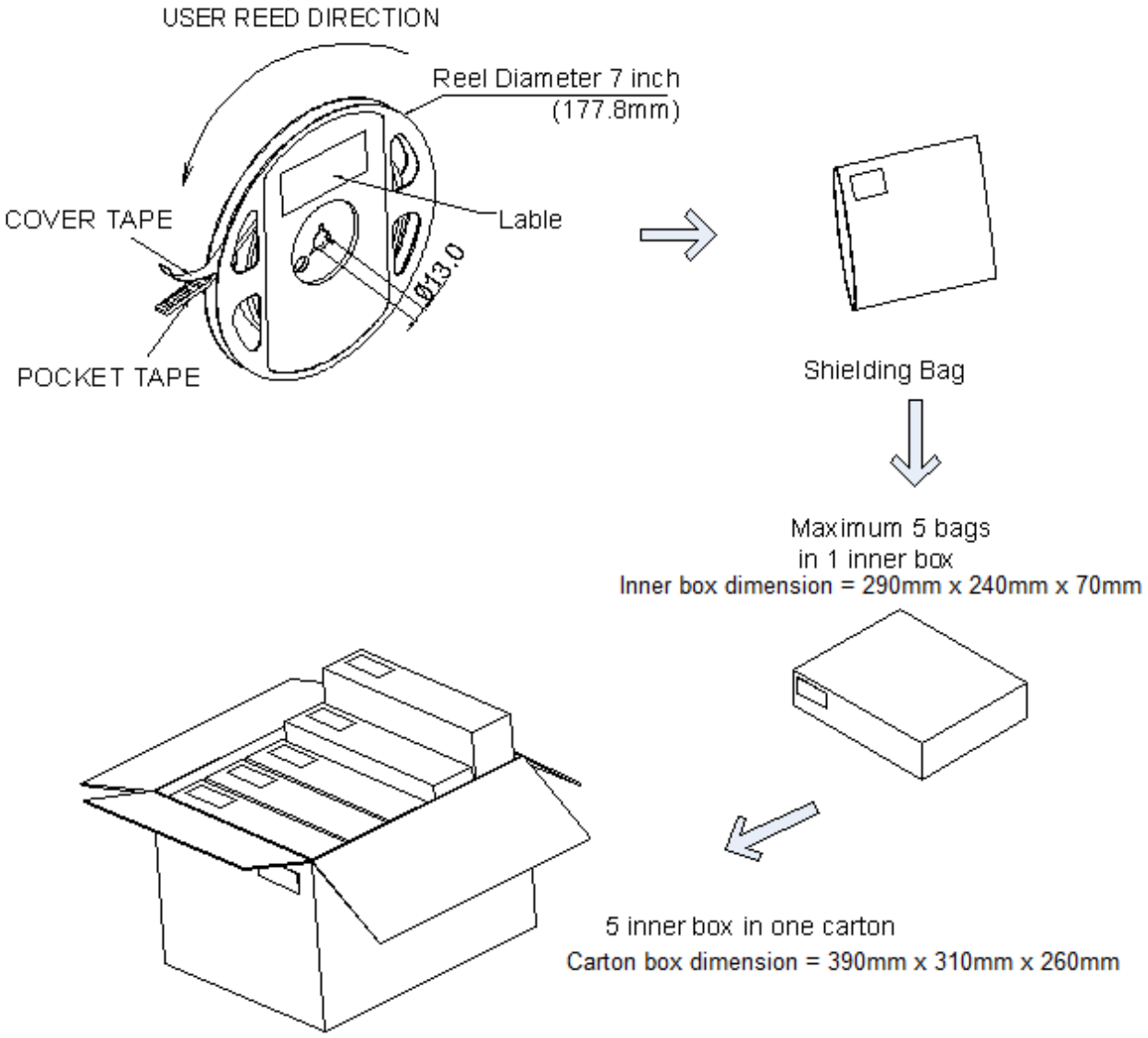
  Peak 260 ma ℃ x , 10 sec. max.

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

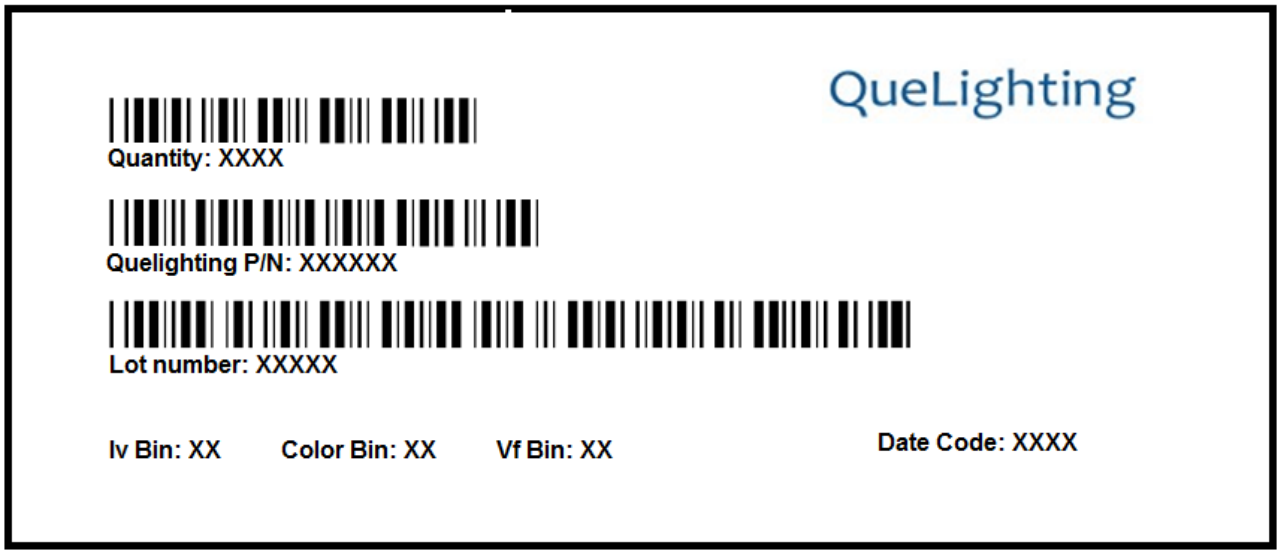


Taping & Packing:




USER REED DIRECTION
Reel Diameter 7 inch
(177.8mm)
COVER TAPE
Lable
POCKET TAPE
Shielding Bag
Maximum 5 bags
in 1 inner box
Inner box dimension = 290mm x 240mm x 70mm
5 inner box in one carton
Carton box dimension = 390mm x 310mm x 260mm

Labeling



Ordering Information:

Part #	Multiple Quantities	Quantity per Reel
QLUV03NJYEF		100, 250 or 1000 pcs

Revision History:

Revision Date:	Changes:	Version #:
04-20-2020	Initial release	1.0
08-08-2022	Revised specification	1.1