QUELIGHTING

Sustainable Lighting Solution

QLSP18PCAAU

(High Power 1616 LED)

Product Outline:

QLSP18XXAU series are high power LEDs that bring high performance and quality of light to wide range of lighting application. The lighting application such as cation light, decoration light, signal, specific industrial and commercial lighting.

Features:

- PC Amber color
- High brightness output @ 350mA,
- High driving current to 1000mA
- Package Dimension = 1.6mmX1.6mmX1.5mm
- Low thermal resistance : <6°C/W
- ESD protection up to 4KV
- RoHS compliant
- Custom Bin available upon special request

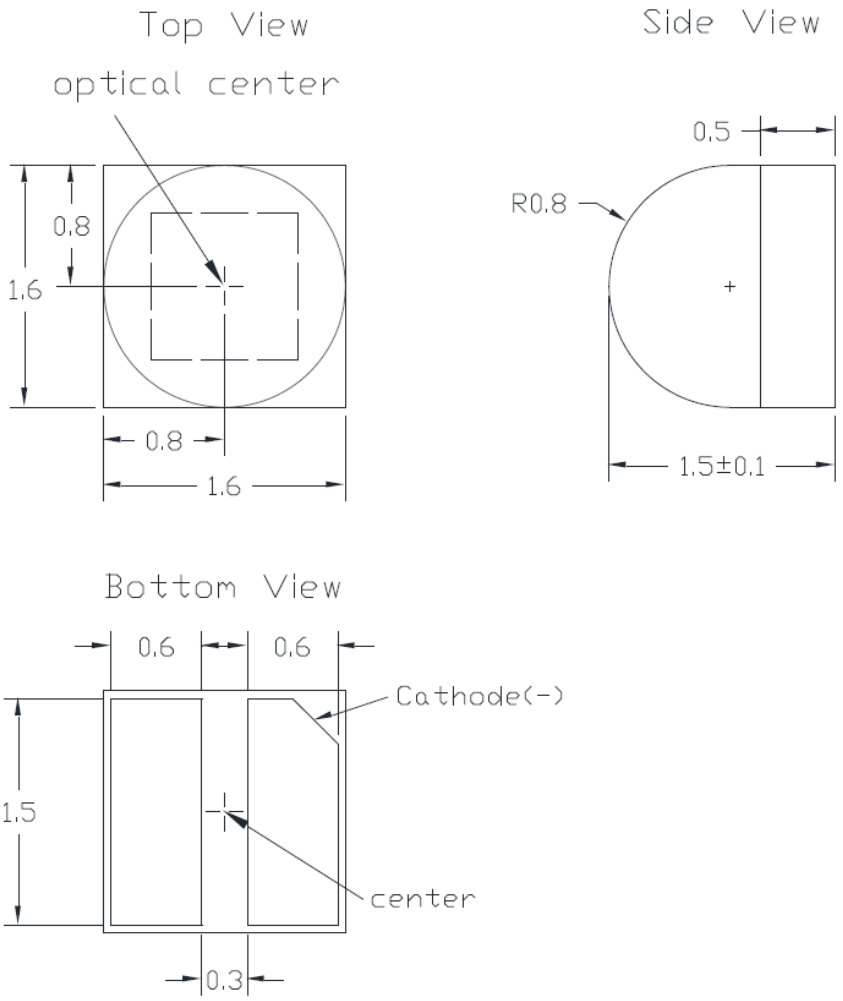
Application:

- Architecture Lighting
- Garden Lighting
- Exterior Automotive Lighting
- Warming lamp
- Indoor Lighting
- Outdoor Lighting

Compliance and Certification:

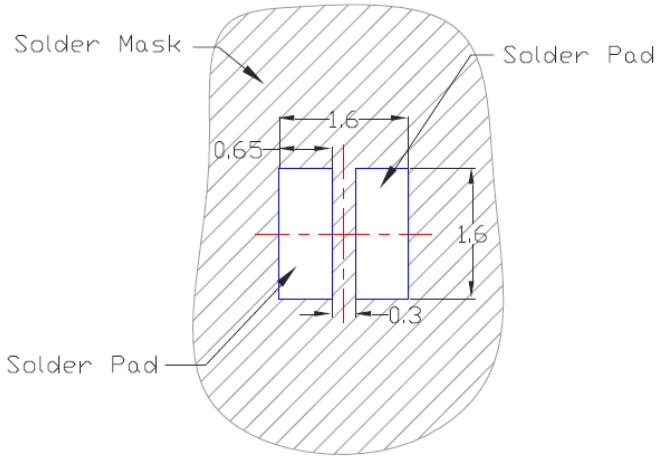
Mechanical Property:

(Dimension)



1. Unless otherwise indicated, tolerances are ±0.10mm.
2. Please do not solder the emitter by manual hand soldering, otherwise it will damage the emitter.
3. Please do not use a force of over **0.3kgf** impact or pressure on the lens of the LED, otherwise it will cause a catastrophic failure.

Recommended Solder footprint:



All dimensions are in millimeters.

Electrical / Optical Characteristic

(T=25 °C)

Product	Color	I_F(mA)	V_F(V)		Wd	Luminous Flux(lm)		Refer @ 700mA Typ.(lm)
			Typ.	max	nm (CCT)	min	typ.	
QLSP18PCAAU	PC Amber	350	3.0	3.4	NA	90	100	180

*Tolerance = +/- 7%

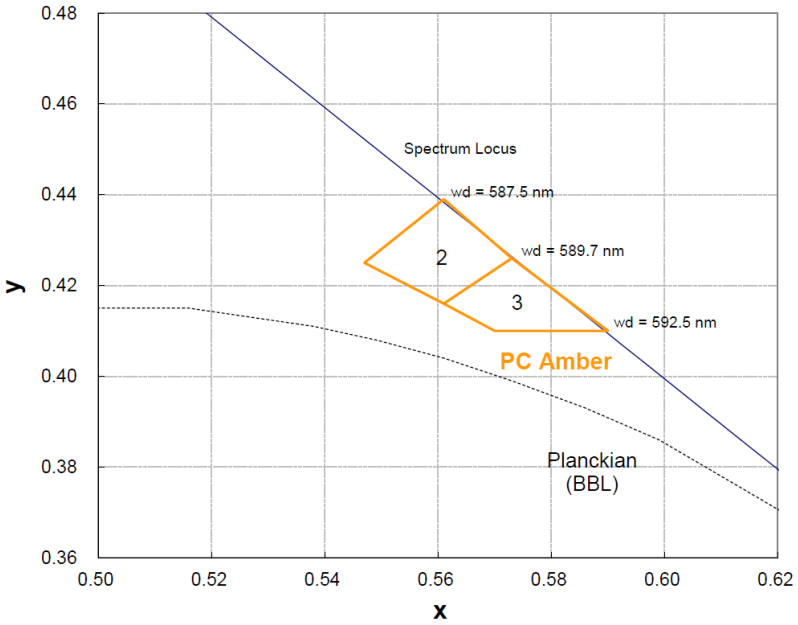
Absolute Maximum Rating

(T=25 °C)

Part #	P_d (mW)	I_F (mA)	I_{FP} (mA)*	V_R (V)	Tj(°C)	TOP (oC)	T_{ST} (°C)	T_{SOL} (°C)**	$R_{th(J-S)}$ (C/W)***
QLSP18PCAAU	4000	1000	1300	5	125	-40~90	-40~100	260	6

*Duty 1/10 @ 10Khz
** IR Reflow for no more than 10 sec @ 260 °C
*** Junction to substrate

Chromaticity Coordinates (PC Amber)



Bin code	CIE-X	CIE-Y		Bin code	CIE-X	CIE-Y
2	0.547	0.425		3	0.561	0.416
	0.561	0.416			0.573	0.426
	0.573	0.426			0.59	0.41
	0.561	0.439			0.57	0.41

Note : 1. Correlated color temperature is derived from the CIE 1931chromaticity diagram
2. CIE measurement tolerance is ± 0.007

Forward Voltage (VF) Bin:

VF Rank (V)			
Color	**Code name**	**Low**	**High**
PC Amber	A	2.85	3.1
	B	3.1	3.35
	D	3.35	3.6

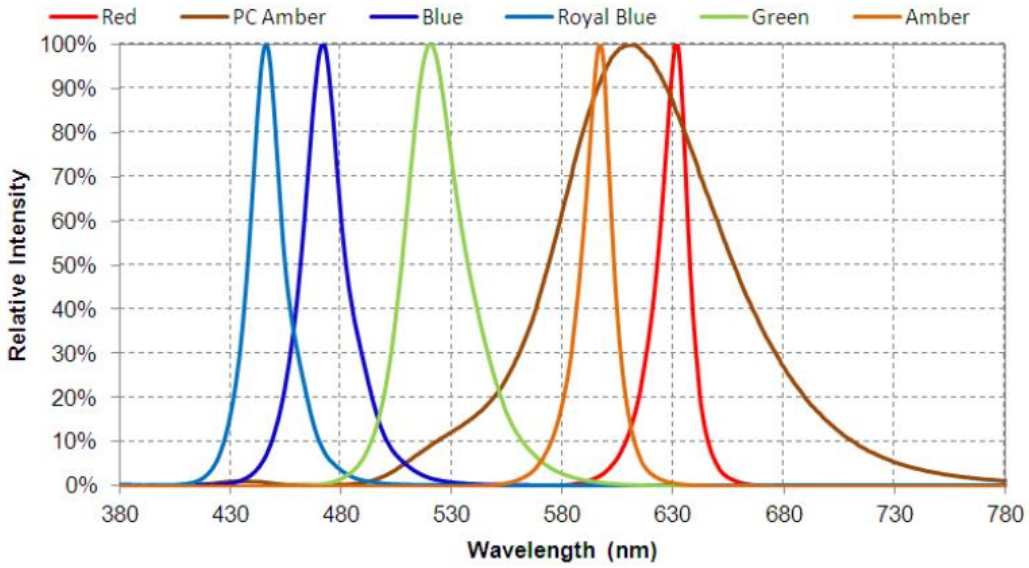
Luminous Flux Bin:

Rank @350mA (lm)			
Color	**Code name**	**Low**	**High**
PC Amber	QW9	90	100
	QX9	100	110

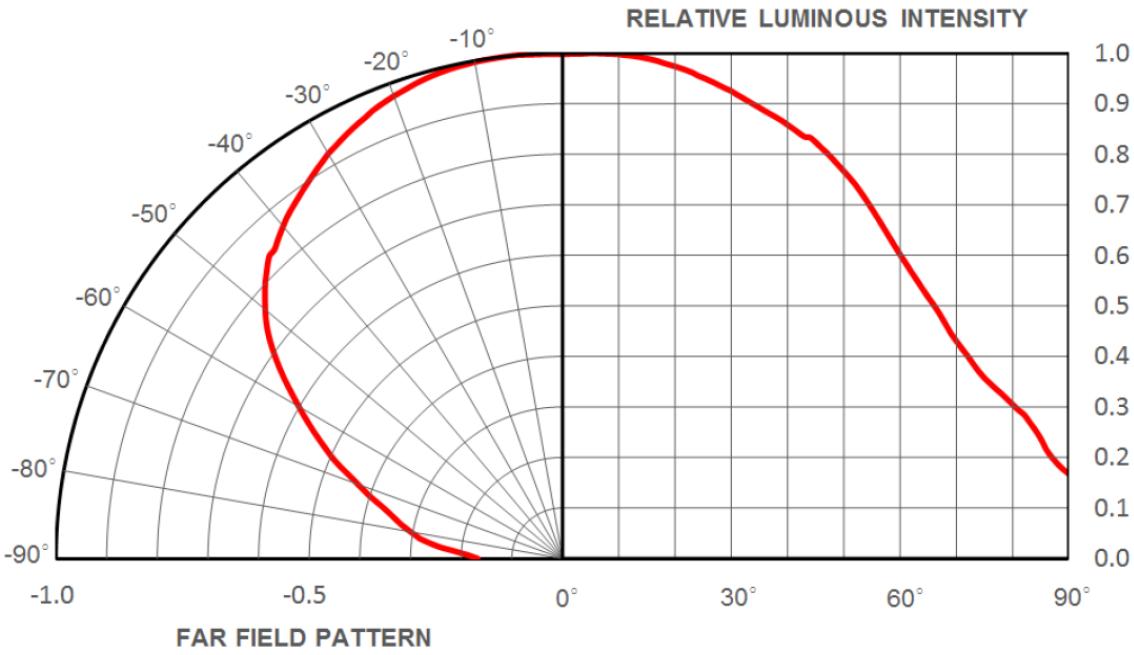
luminous flux tolerance is ± 7%

Characteristic Curves

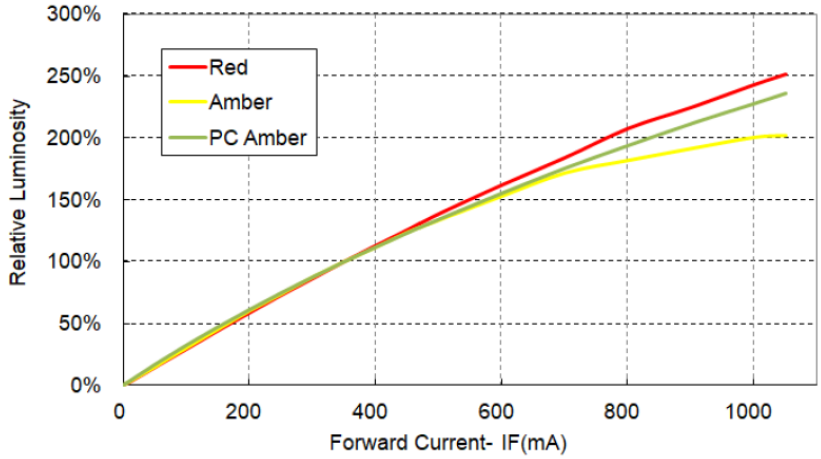
(1) Color Spectrum



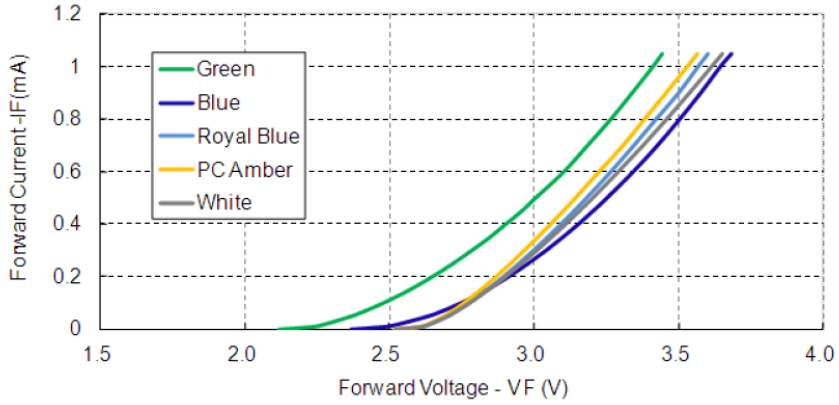
(2). Typical Representative Spatial Radiation Pattern



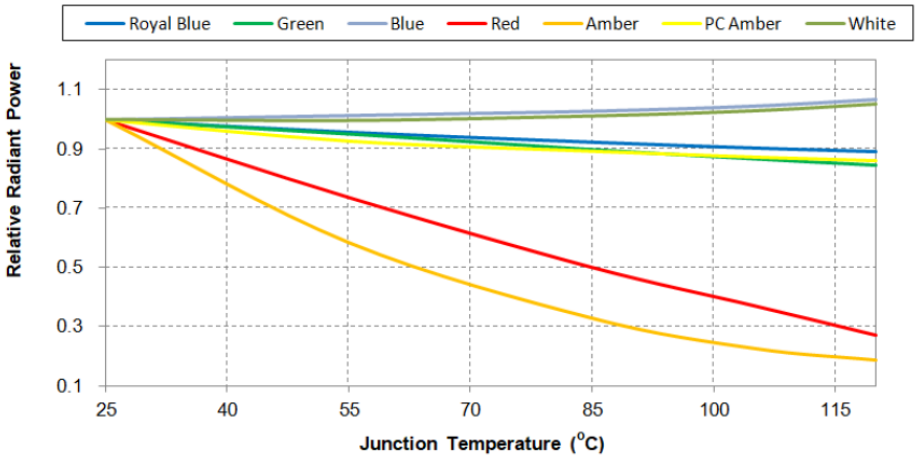
(3). Forward Current Characteristics



(4). Forward Current vs Forward Voltage



(5). Relative light output VS. Tj (IF = 350mA)



■ Reliability test:

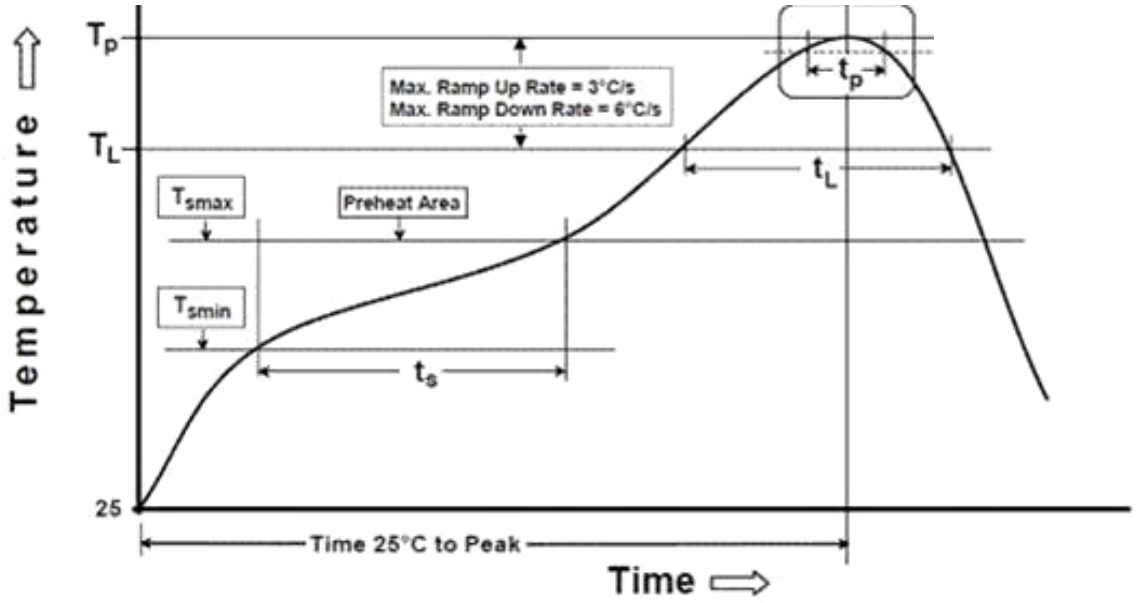
No	Item	Condition	Time/Cycle	Sample size
1	Steady State Operating Life of Room Temperature	25℃ Operating	1000 Hrs	20 pcs
2	Steady State Operating Life of Low Temperature -40℃	-40℃ Operating	1000 Hrs	20 pcs
3	Steady State Operating Life of Low Temperature 60℃	60℃ Operating	1000 Hrs	20 pcs
4	Steady State Operating Life of Low Temperature 85℃	85℃ Operating	1000 Hrs	20 pcs
5	Low temperature storage -40℃	-40℃ Storage	1000 Hrs	20 pcs
6	High temperature storage 100℃	100℃ Storage	1000 Hrs	20 pcs
7	Steady State Operating Life of High Humidity Heat 60℃90%	60ºC/90% Operating	1000 Hrs	20 pcs
8	Steady State Pulse Operating Life Condition	25℃10Hz duty=1/10 Operating	200 Cycle	20 pcs
9	Resistance to soldering heat on PCB (JEDEC MSL3)	pre-store@60℃, 60%RH for 52hrs Tsld max.=260 10sec	3 Times	20 pcs
10	Heat Cycle Test (JEDEC MRC)	25℃~65℃~-10℃, 90%RH, 24hr/1cycle	10 Cycle	20 pcs
11	Thermal shock	-40℃/ 20minr~ 5minr~100℃ /20min	300 Cycle	20 pcs

■ Judgment Criteria:

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	350 mA	△Vf< 10%
Luminous Flux	Iv	350 mA	△Iv< 30%

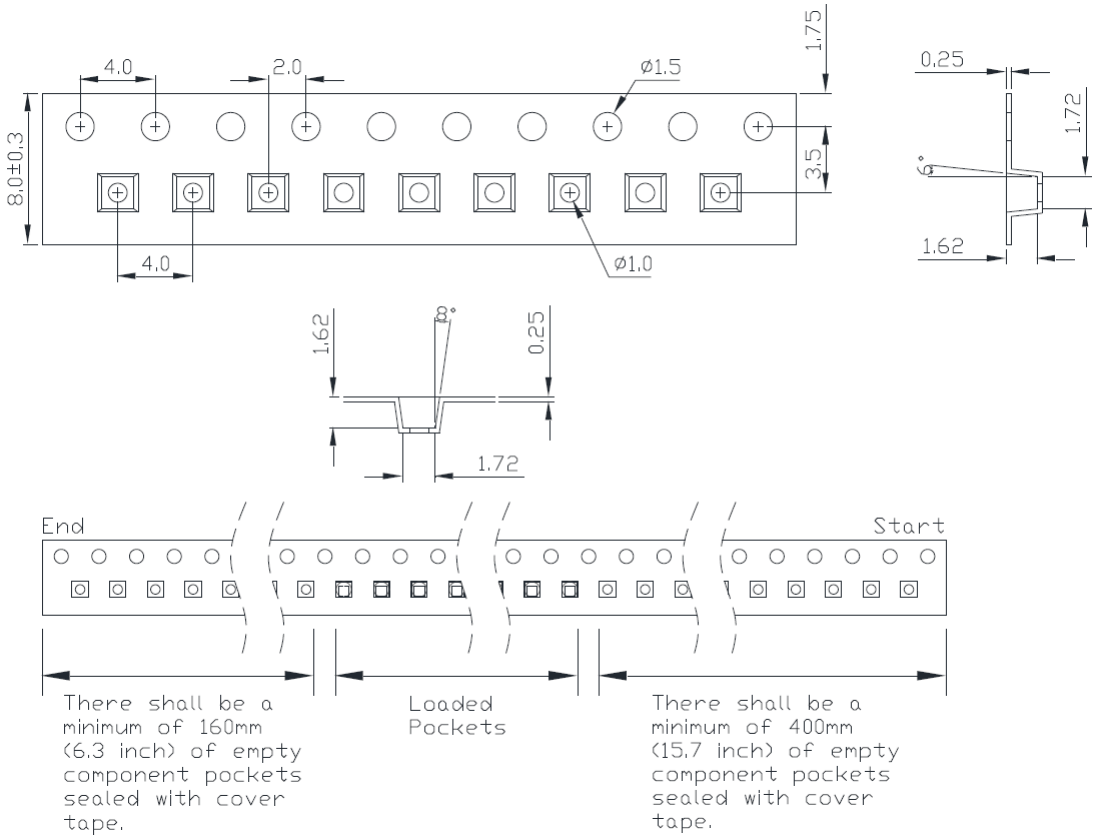
Solder Profile:

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

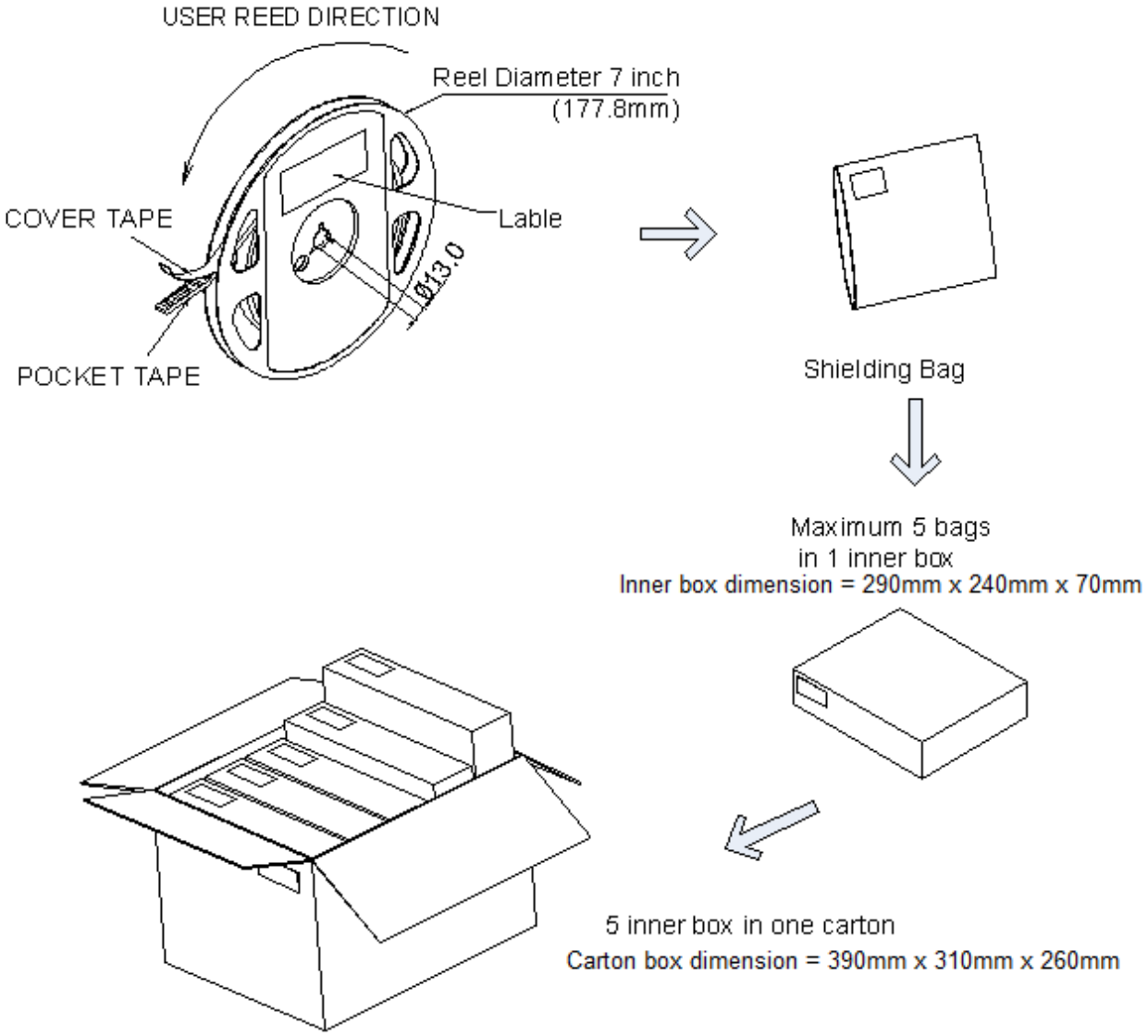


Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Temperature Min(T_{smin})	100℃	150℃
Temperature Max(T_{smax})	150℃	200℃
Time(t_a) from (T_{smin} to T_{smax})	60-120 seconds	60-120 seconds
Ramp-up rate(T_L to T_P)	3℃/second max.	3℃/second max.
Liquidous Temperature(T_L)	183℃	217℃
Time(t_L) maintained above T_L	60-150 seconds	60-150 seconds
Peak package body temperature(T_P)	235℃	260℃
Time within 5℃ of Actual Peak temperature (t_p)	20seconds*	30 seconds*
Ramp-down rate(T_P to T_L)	6℃/second max.	6℃/second max.
Time 25℃ 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.		

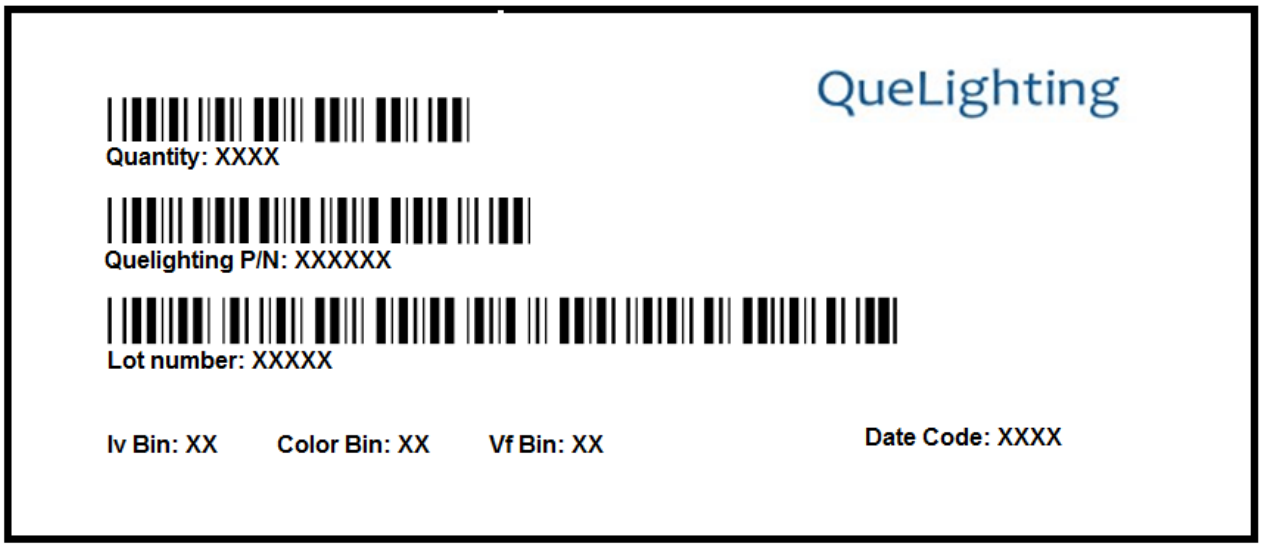
Taping & Packing:



Notes:
1. Drawing not to scale.
2. All dimensions are in millimeters.
3. Unless otherwise indicated, tolerances are ± 0.10mm.


USER REED DIRECTION
Reel Diameter 7 inch
(177.8mm)
COVER TAPE
Lable
ø13.0
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
QLSP18PCAU		1000/2000 pcs

Revision History:

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