



QLSP18CWAU
(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:

- White color
- High brightness output @ 350mA,
- High driving current to 1000mA
- Package Dimension = 1.6mmX1.6mmX1.5mm
- Low thermal resistance : <math><6^{\circ}\text{C/W}</math>
- ESD protection up to 4KV
- RoHS compliant
- Custom Bin available upon special request

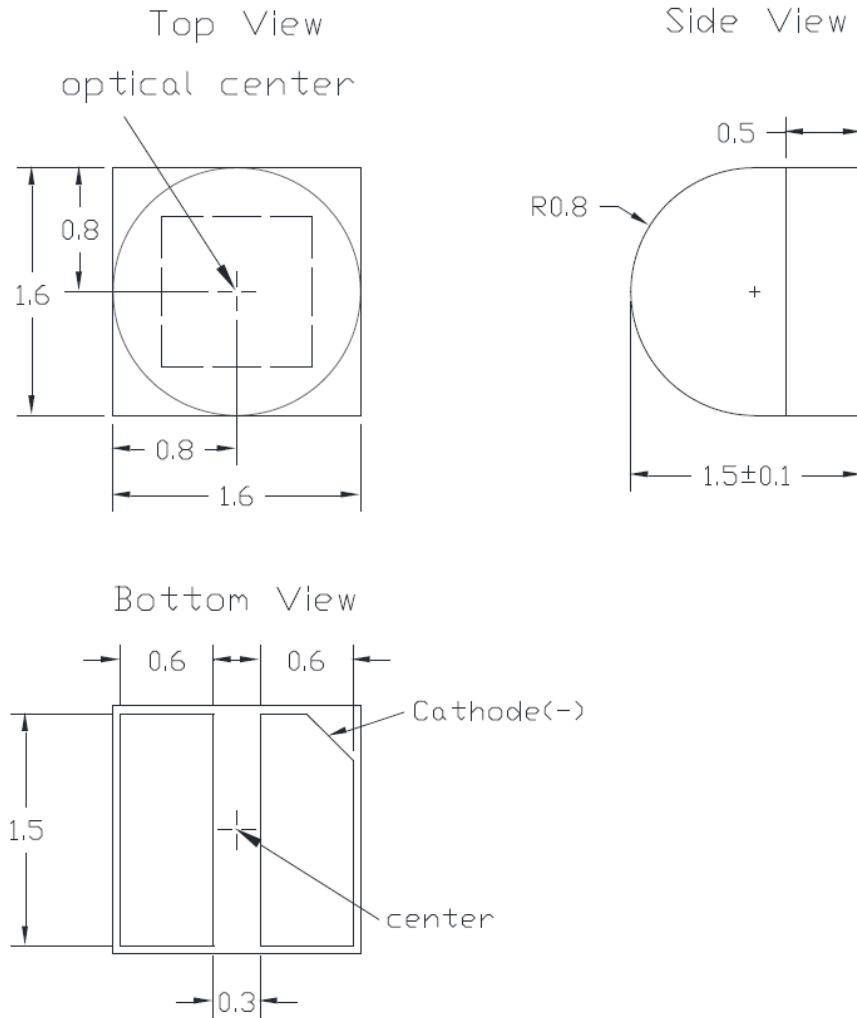
Application:

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

Compliance and Certification:



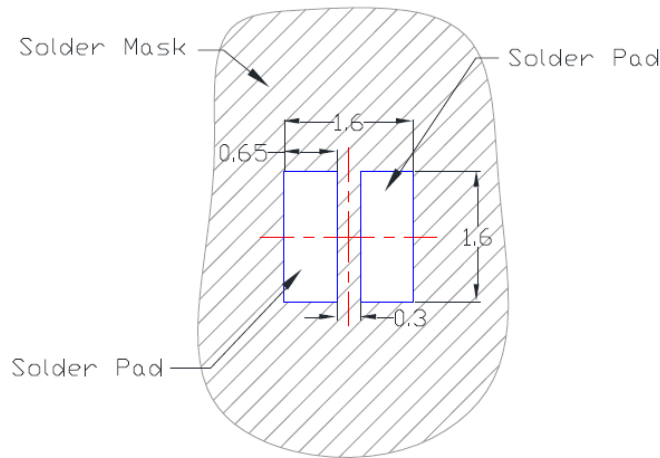
Mechanical Property: (Dimension)



1. Unless otherwise indicated, tolerances are ± 0.10 mm.
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)		Wavelength nm (CCT)	Luminous Flux(lm)		Refer @ 700mA Typ.(lm)
			Typ.	max		min	typ.	
QLSP18CWAU	Cold White	350	3.0	3.4	5000K~6000K	130	150	268

*Tolerance = +/- 7%

Absolute Maximum Rating

(T=25 °C)

Part #	P _d (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _j (°C)	TOP (°C)	T _{ST} (°C)	T _{SOL} (°C)**	R _{th(J-S)} (C/W)***
QLSP18CWAU	4000	1000	1300	5	125	-40~90	-40~100	260	6

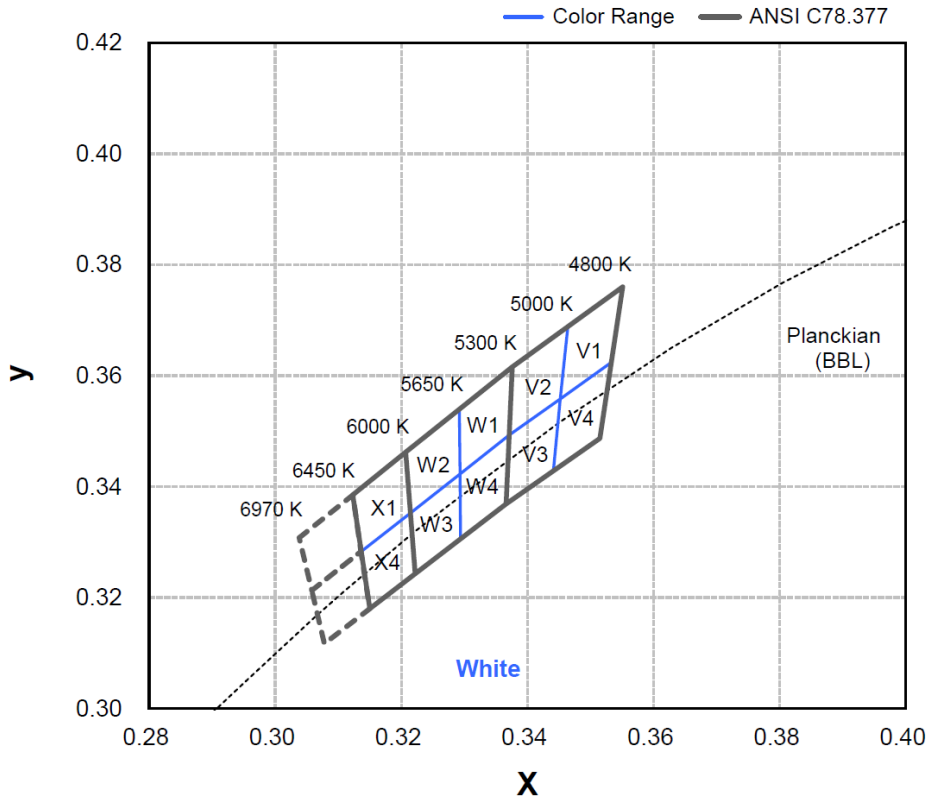
*Duty 1/10 @ 10Khz

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

*** Junction to substrate



Chromaticity Coordinates (Cold White)



Bin Code	x	y	Typ. CCT (K)	Bin Code	x	y	Typ. CCT (K)
V1	0.3464	0.3688	4870	W4	0.3293	0.3423	5475
	0.3551	0.3760			0.3371	0.3493	
	0.3533	0.3624			0.3366	0.3369	
	0.3452	0.3558			0.3294	0.3306	
V4	0.3452	0.3558	4870	W2	0.3207	0.3462	5830
	0.3533	0.3624			0.3292	0.3539	
	0.3515	0.3487			0.3293	0.3423	
	0.3441	0.3428			0.3215	0.3353	
V2	0.3376	0.3616	5155	W3	0.3215	0.3353	5830
	0.3464	0.3688			0.3293	0.3423	
	0.3452	0.3558			0.3294	0.3306	
	0.3371	0.3493			0.3222	0.3243	
V3	0.3371	0.3493	5155	X1	0.3123	0.3385	6240
	0.3452	0.3558			0.3207	0.3462	
	0.3441	0.3428			0.3215	0.3353	
	0.3366	0.3369			0.3136	0.3283	
W1	0.3292	0.3539	5475	X4	0.3136	0.3283	6240
	0.3376	0.3616			0.3215	0.3353	
	0.3371	0.3493			0.3222	0.3243	
	0.3293	0.3423			0.3150	0.3180	



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
Cold White	A	2.85	3.1
	B	3.1	3.35
	D	3.35	3.6

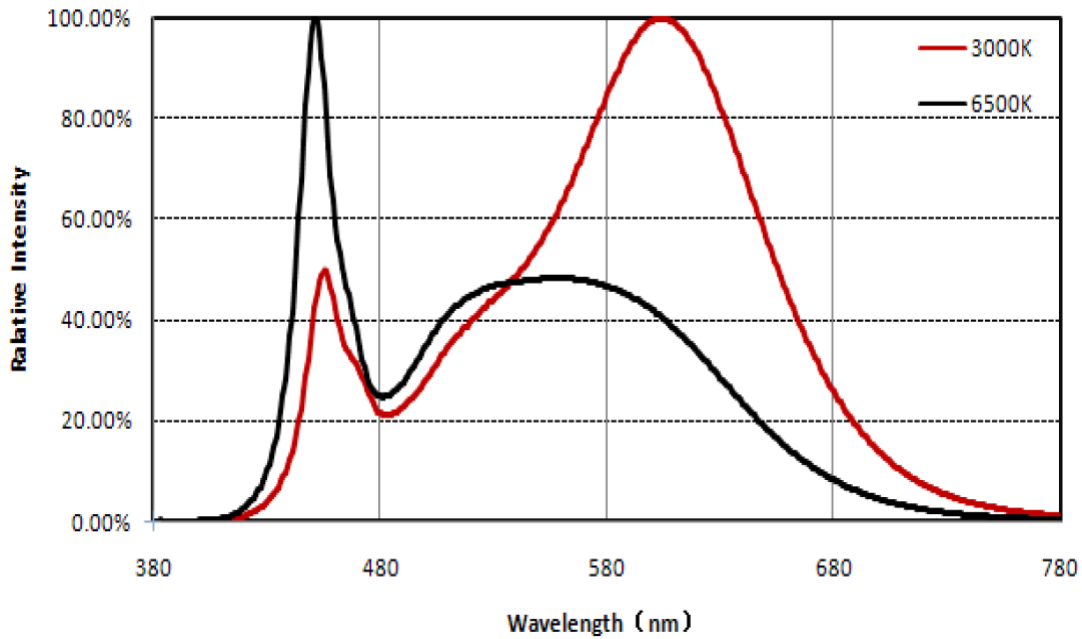
Luminous Flux Bin:

Rank @350mA (lm)			
Color	Code name	Low	High
Cold White	Q19	140	150
	Q29	150	160
	Q39	160	170

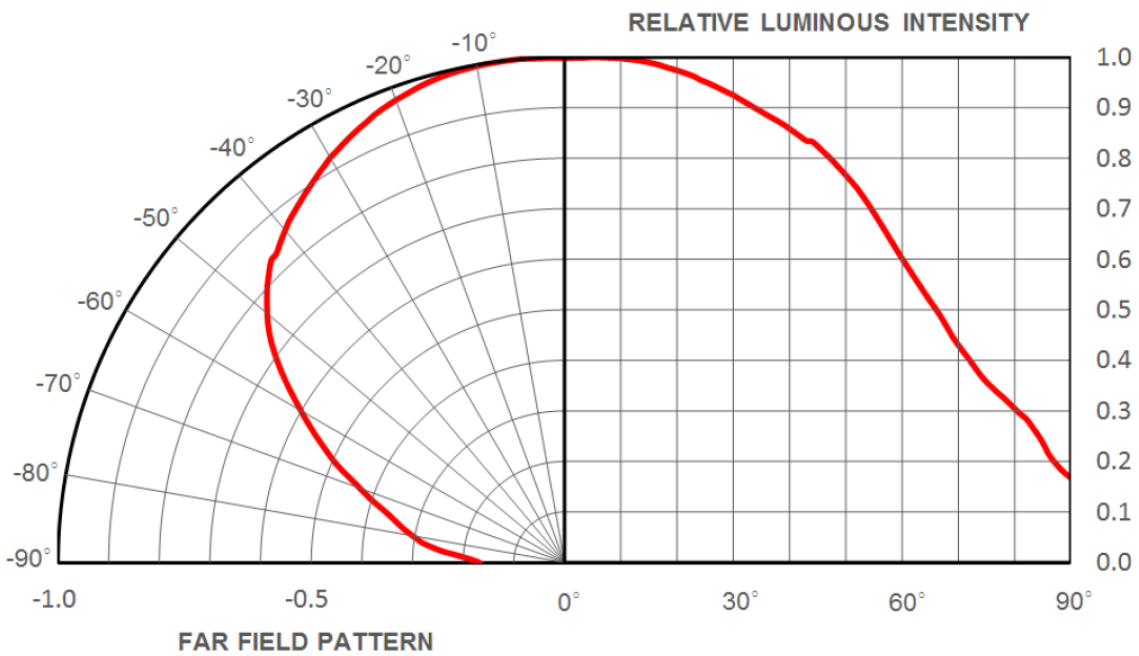
luminous flux tolerance is $\pm 7\%$



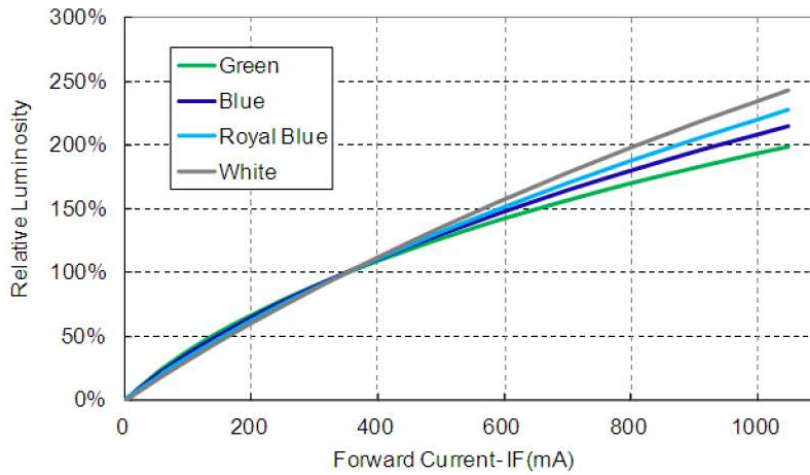
Characteristic Curves (1) Color Spectrum



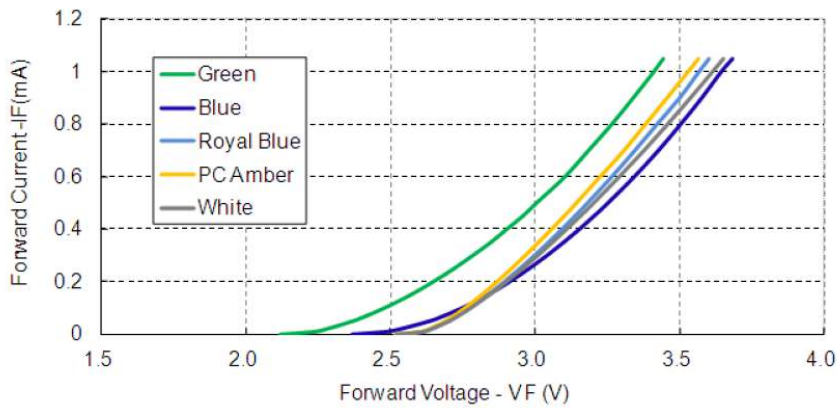
(2). Typical Representative Spatial Radiation Pattern



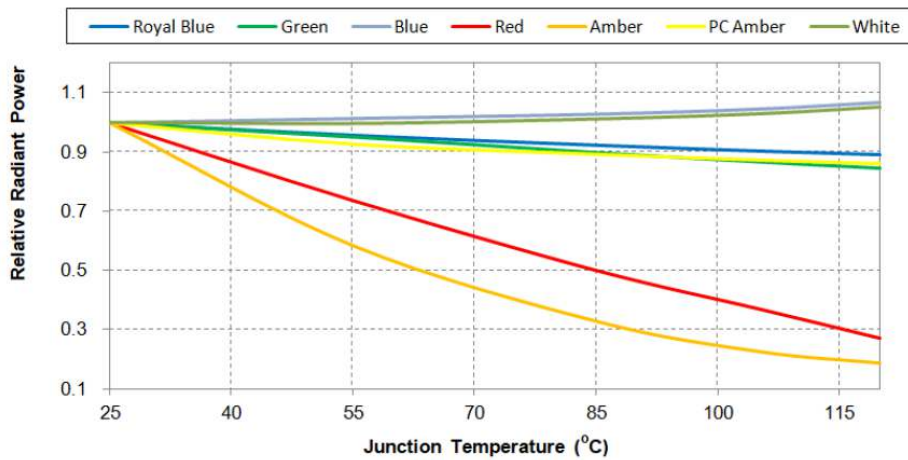
(3). Forward Current Characteristics



(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°C Operating	1000 Hrs	20 pcs
2	Steady State Operating Life of Low Temperature -40°C	-40°C Operating	1000 Hrs	20 pcs
3	Steady State Operating Life of Low Temperature 60°C	60°C Operating	1000 Hrs	20 pcs
4	Steady State Operating Life of Low Temperature 85°C	85°C Operating	1000 Hrs	20 pcs
5	Low temperature storage -40°C	-40°C Storage	1000 Hrs	20 pcs
6	High temperature storage 100°C	100°C Storage	1000 Hrs	20 pcs
7	Steady State Operating Life of High Humidity Heat 60°C 90%	60°C/90% Operating	1000 Hrs	20 pcs
8	Steady State Pulse Operating Life Condition	25°C 10Hz duty=1/10 Operating	200 Cycle	20 pcs
9	Resistance to soldering heat on PCB (JEDEC MSL3)	pre-store@60°C, 60%RH for 52hrs Tslid max.=260 10sec	3 Times	20 pcs
10	Heat Cycle Test (JEDEC MRC)	25°C~65°C~-10°C, 90%RH, 24hr/1cycle	10 Cycle	20 pcs
11	Thermal shock	-40°C/ 20minr~ 5minr~100°C /20min	300 Cycle	20 pcs

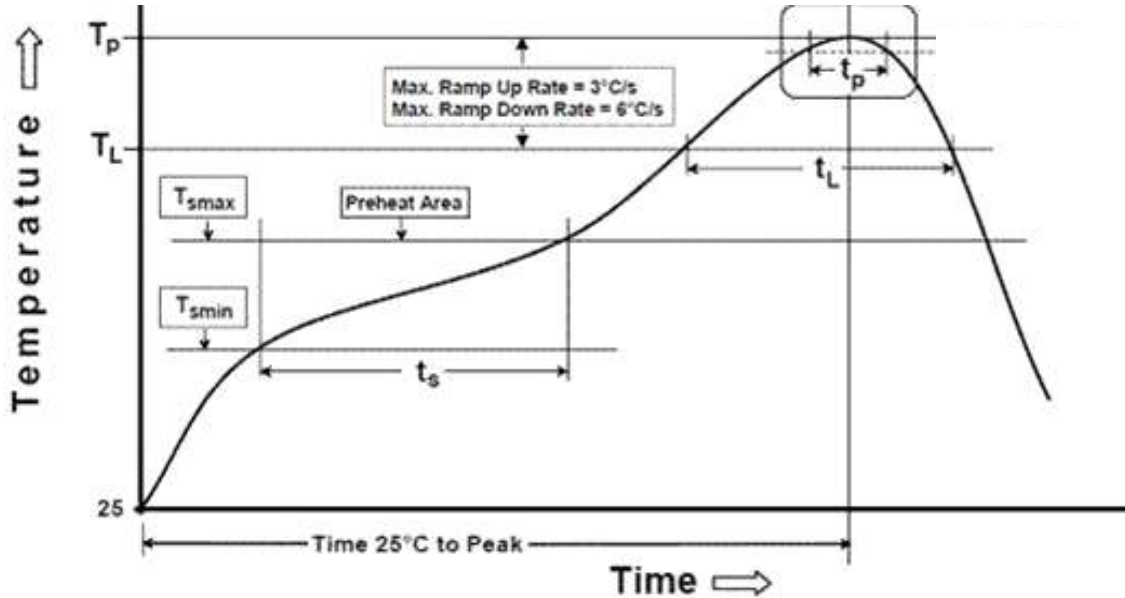
■ **Judgment Criteria:**

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



Solder Profile:

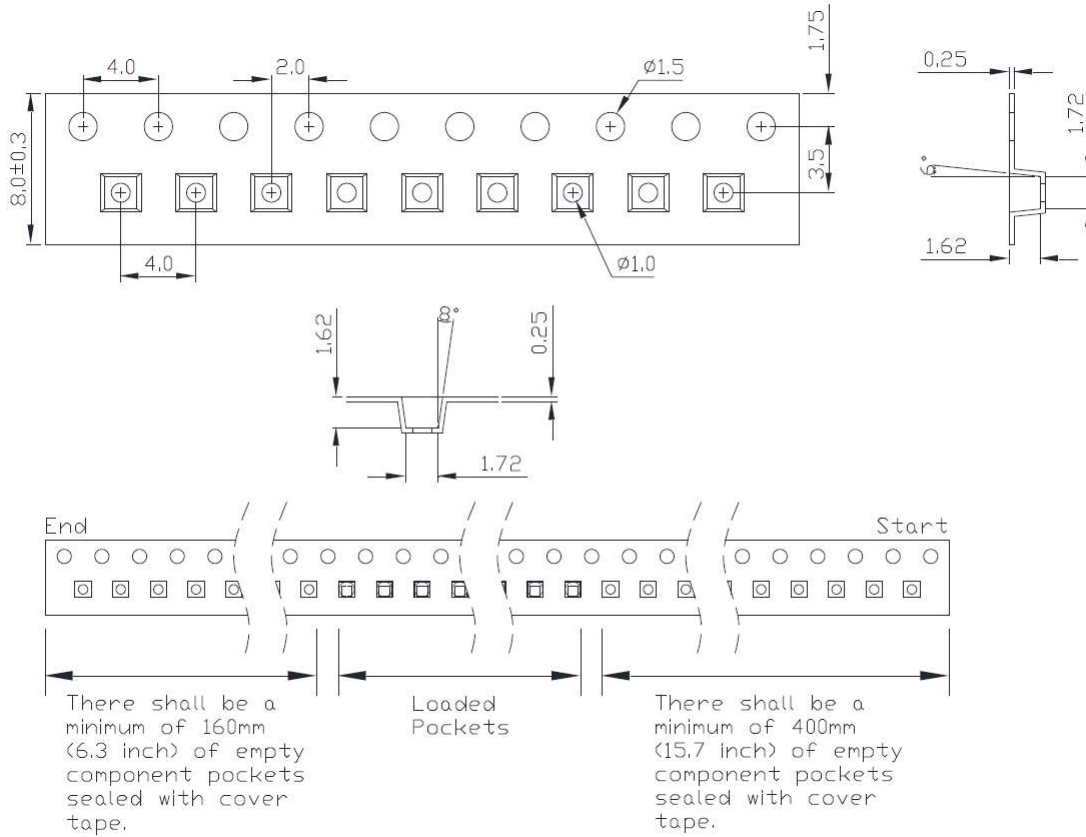
-The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):



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.		



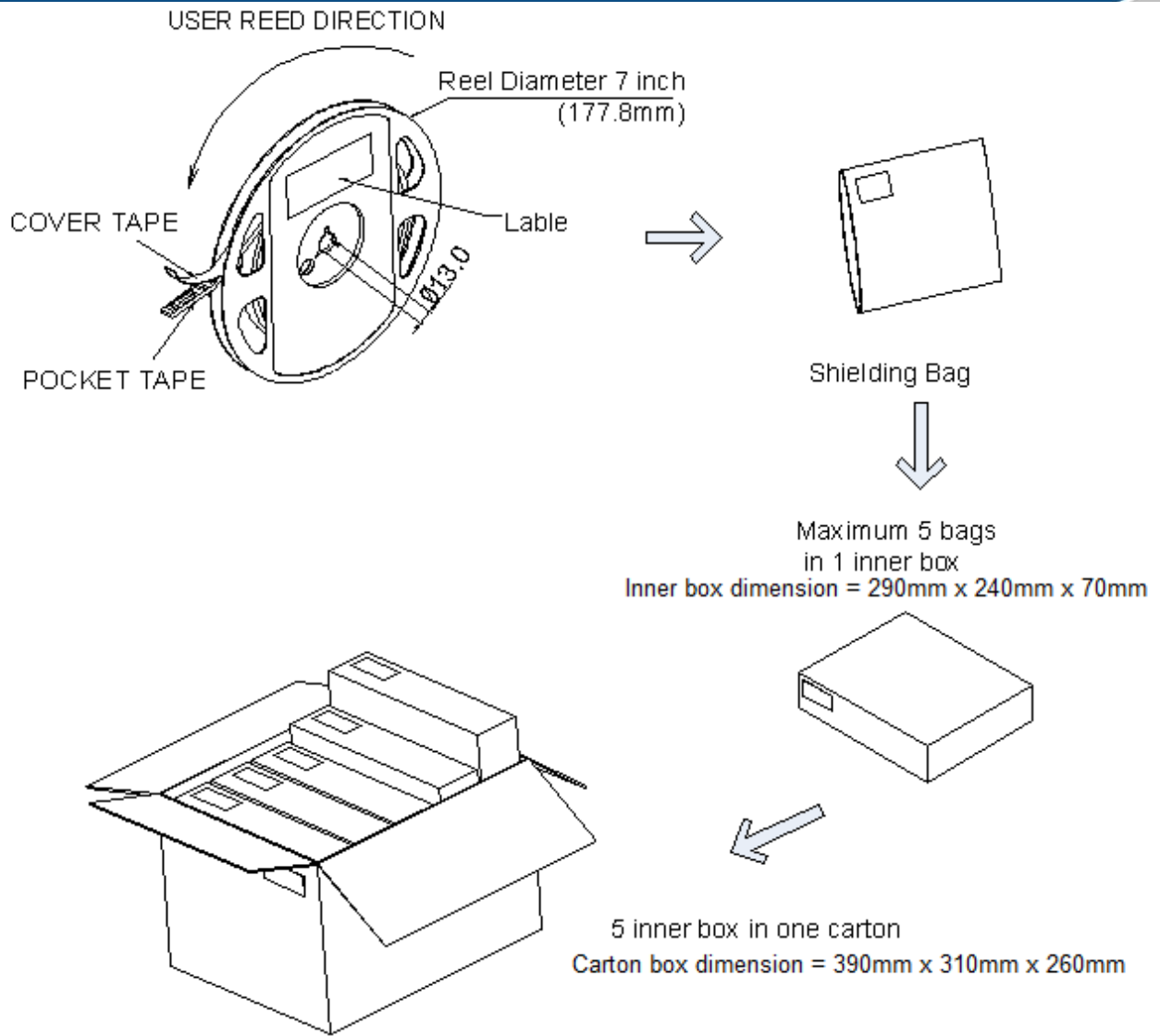
Taping & Packing:



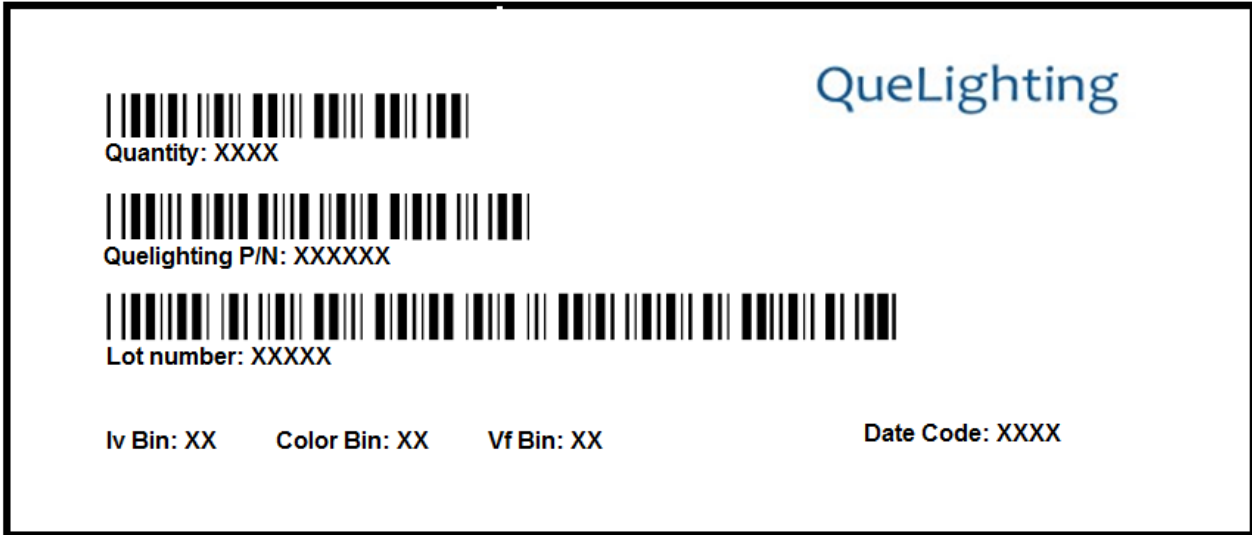
Notes:

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





Labeling



Ordering Information:

Part #	Multiple Quantities	Quantity per Reel
QLSP18CWAU		1000/2000 pcs



Revision History:

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

