



Product Outline:

The high output reflector type 3030 LEDs are available in warm white / neutral white / pure white and cold white to suit customer's application. These 1~1.5W LEDs are equipped with heat sink to enhance operating performance. With special binning technology, these LEDs are ideal for architecture lighting and special lighting needs.

Features:

- High brightness output @ 150mA
- Max. current = 265mA @ 1.8W
- Package Dimension = 3.2mmX3.0mmX0.6mm
- CRI = 80 and above
- Available color temperature in warm white / neutral white / pure white and cold white
- RoHS compliant
- Custom Bin available upon special request

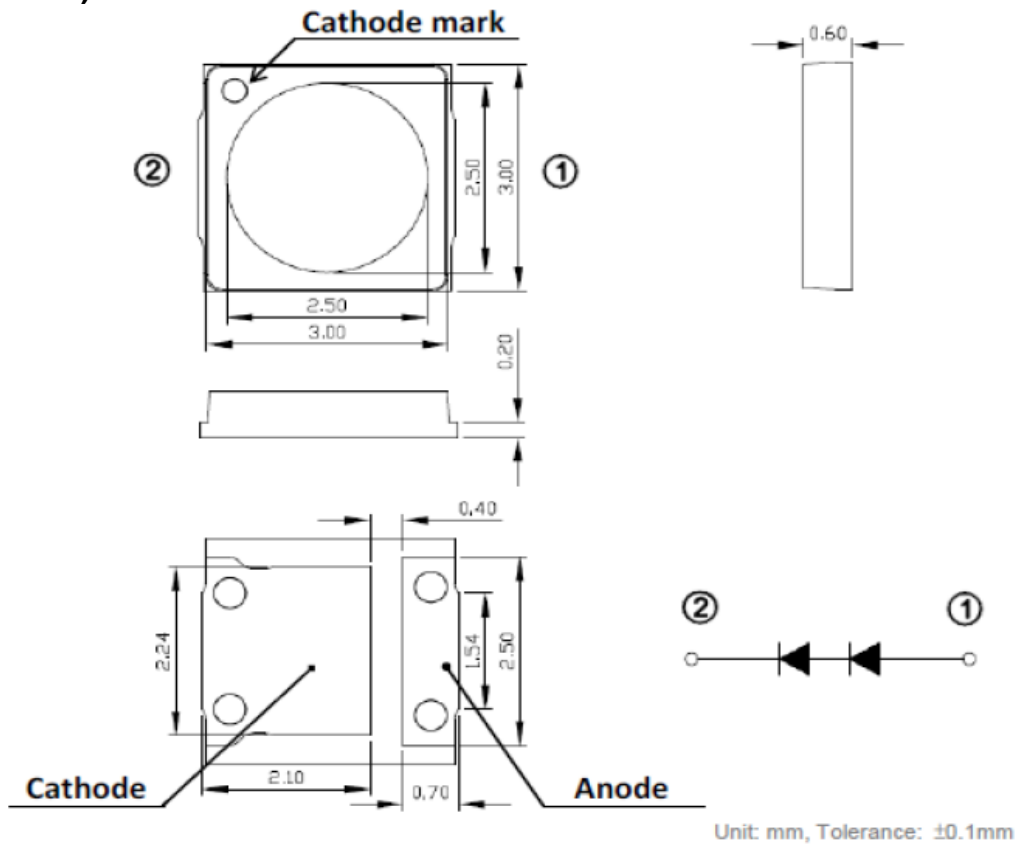
Application:

- Architecture Lighting
- Garden Lighting
- Interior Lighting

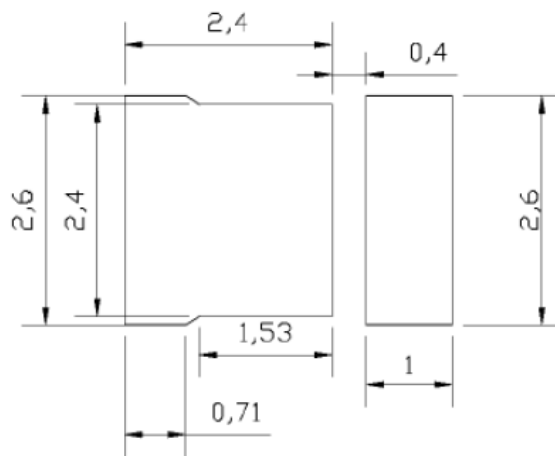
Compliance and Certification:



Mechanical Property: (Dimension)



Recommended Solder footprint:



Electrical / Optical Characteristic

(T=25 °C)

Product	Color	I _F (mA)	V _F (V)		CCT	CRI	Luminous Flux(lm)	
			Typ.	max			min	typ.
QLSP03WW1H	Warm White	150	6.2	6.6	2700K	>80	120	129
QLSP03WW2H	Warm White	150	6.2	6.6	3000K	>80	120	129
QLSP03WNH	Neutral White	150	6.2	6.6	4000K	>80	120	132
QLSP03WPH	Pure White	150	6.2	6.6	5000K	>80	130	137
QLSP03WC1H	Cold White	150	6.2	6.6	5700K	>80	130	137
QLSP03WC2H	Cold White	150	6.2	6.6	6500K	>80	120	132

- (1) The Forward Voltage tolerance is $\pm 0.1V$
- (2) The Color Rendering Index tolerance is ± 2
- (3) The luminous flux tolerance 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)***
All White	1800	265	530	-	-40 – 85	-40 - 100	125	260	8

*Duty 1/10 @ 10Khz

** Junction Temperature

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

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

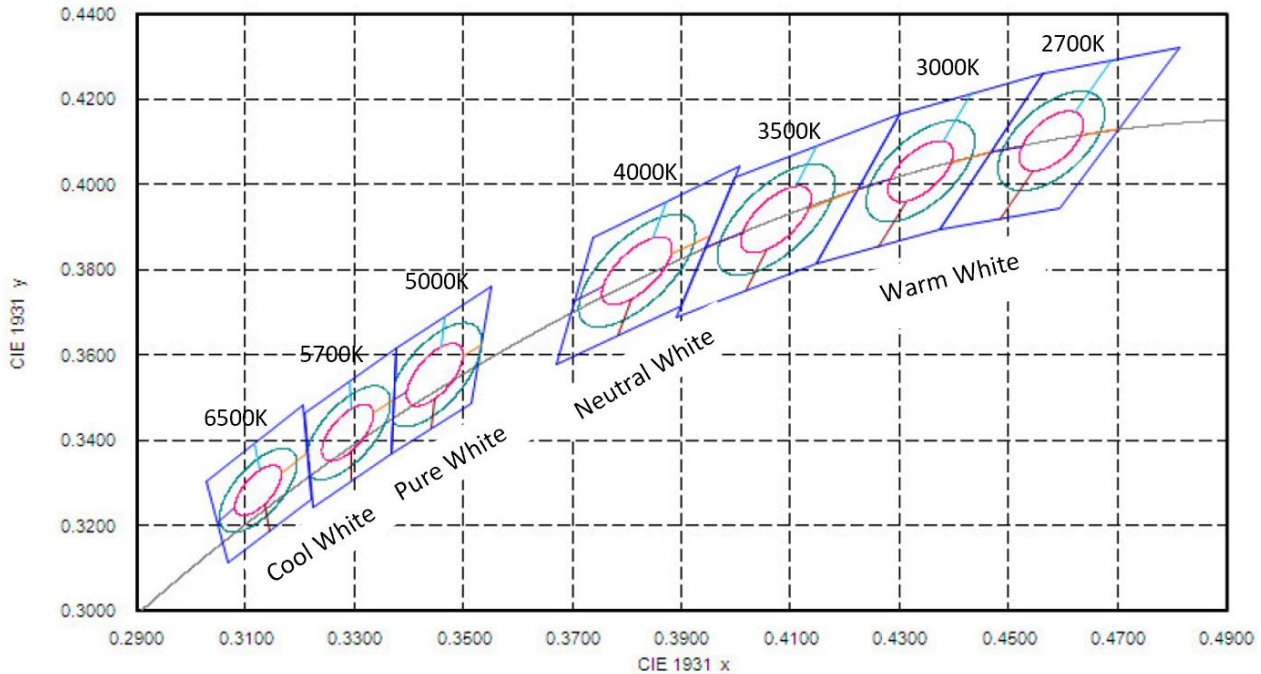
Brightness reference for different drive current

(T=25 °C)

Power Consumption	0.34W		0.6W		0.93W		1.35W	
Operation Current (mA)	60mA		100mA		150mA		200mA	
QLSP03WW1H 2700K	44.8lm	132lm/W	76lm	126lm/W	112lm	120lm/W	140lm	110lm/W
QLSP03WW2H 3000K	46.4lm	136lm/W	80lm	133lm/W	116lm	125lm/W	145lm	114lm/W
QLSP03WNH 4000K	48lm	141lm/W	83lm	138lm/W	120lm	129lm/W	150lm	118lm/W
QLSP03WPH 5000K	52lm	153lm/W	89.7lm	149lm/W	130lm	139lm/W	162lm	127lm/W
QLSP03WC1H 5700K	52lm	153lm/W	89.7lm	149lm/W	130lm	139lm/W	162lm	127lm/W
QLSP03WC2H 6500K	52lm	153lm/W	89.7lm	149lm/W	130lm	139lm/W	162lm	127lm/W



White Binning



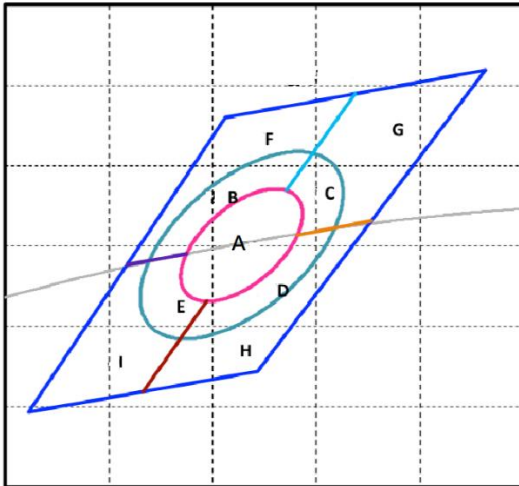
Bin Range of Chromaticity Coordinates

ANSI CCT	Color Space	Target Center point (cx,cy)	Major Axis,a	Minor Axis,b	Ellipse Rotation Angle
2700K	3-step MacAdam ellipse	(0.4578,0.4101)	0.0081	0.0042	53.70°
3000K	3-step MacAdam ellipse	(0.4338,0.403)	0.0083	0.00408	53.22°
4000K	3-step MacAdam ellipse	(0.3818,0.3797)	0.0094	0.00402	53.72°
5000K	3-step MacAdam ellipse	(0.3447,0.3553)	0.0082	0.00354	59.62°
5700K	3-step MacAdam ellipse	(0.3287,0.3417)	0.0075	0.0032	59.09°
6500K	3-step MacAdam ellipse	(0.3123,0.3282)	0.0067	0.00285	58.57°

- (1) Correlated color temperature is derived from the CIE 1931 chromaticity diagram
- (2) CIE measurement tolerance is ± 0.005



CIE binning code



Forward Voltage (V_F) Bin:

VF rank		
Code name	Low	High
D	5.8	6.0
E	6.0	6.2
F	6.2	6.4
G	6.4	6.6

The forward voltage tolerance is $\pm 0.1V$

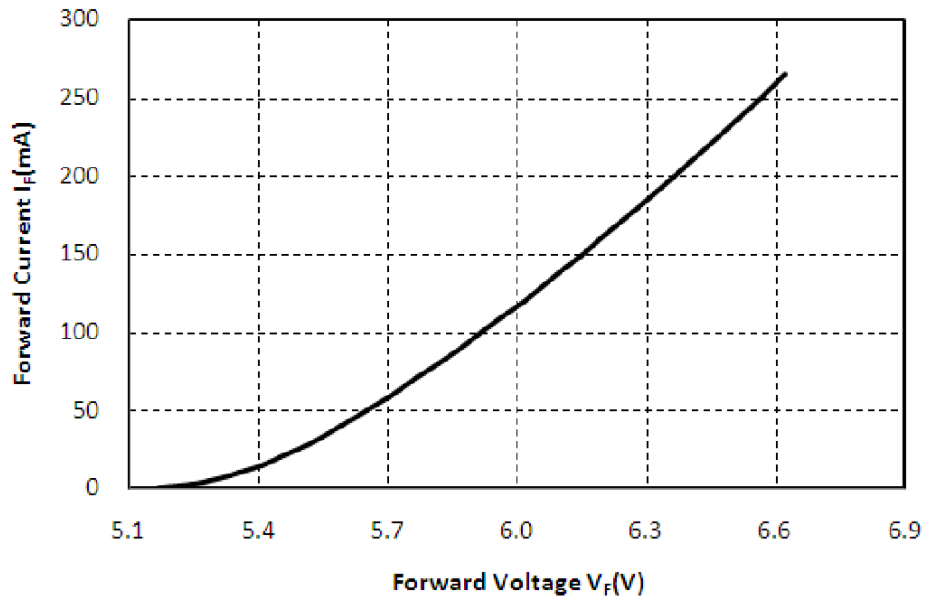
Luminous Flux Bin:

Im rank (Im)@150mA		
Code name	Low	High
QX2	118	130
QY1	130	142
QY2	142	156

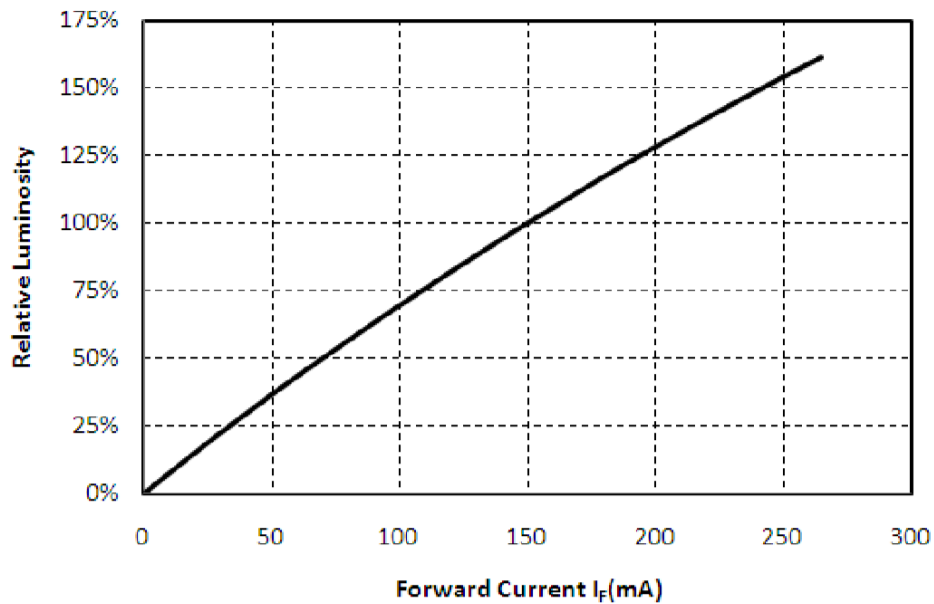
luminous flux tolerance is $\pm 7\%$



Characteristic Curves

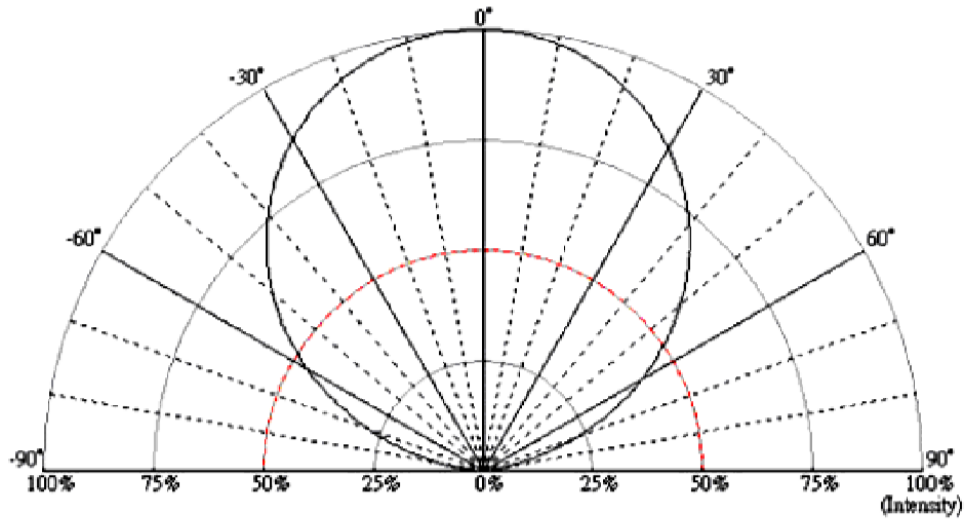


Forward Voltage vs. Forward Current

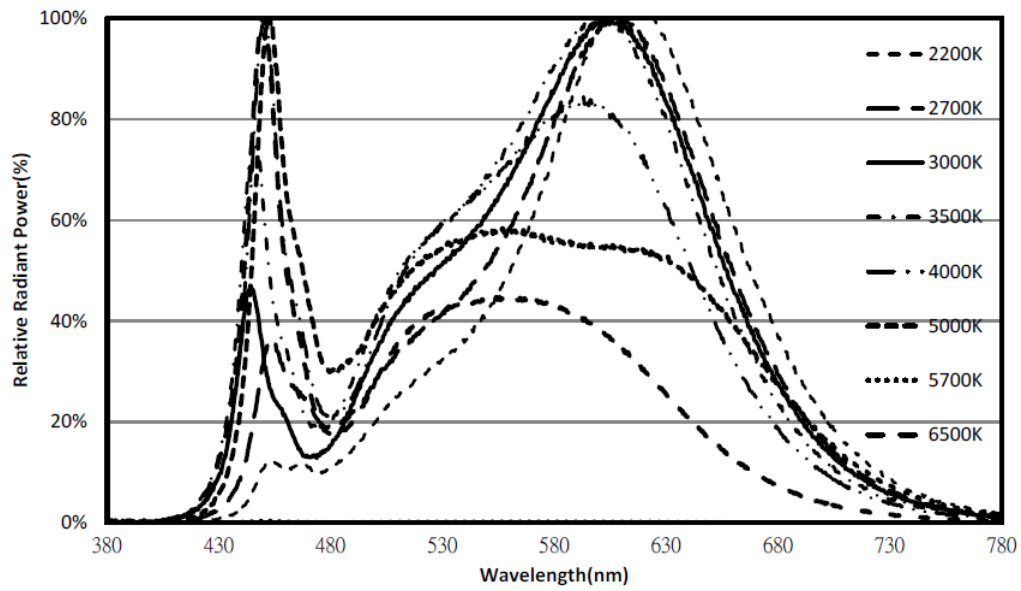


Forward current vs. Relative luminous intensity



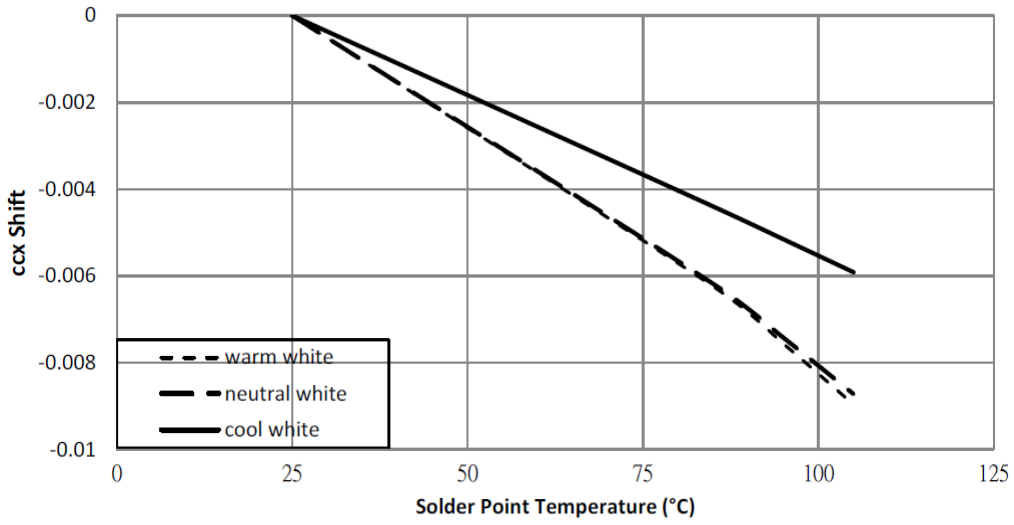


Radiation Pattern



Spectrum Distribution





Forward Current vs. Chromaticity Coordinate



■ 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/ 20min~ 5min~100°C /20min	300 Cycle	20 pcs

■ Judgment Criteria:

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	150 mA	$\Delta Vf < 10\%$
Luminous Flux	Iv	150 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):

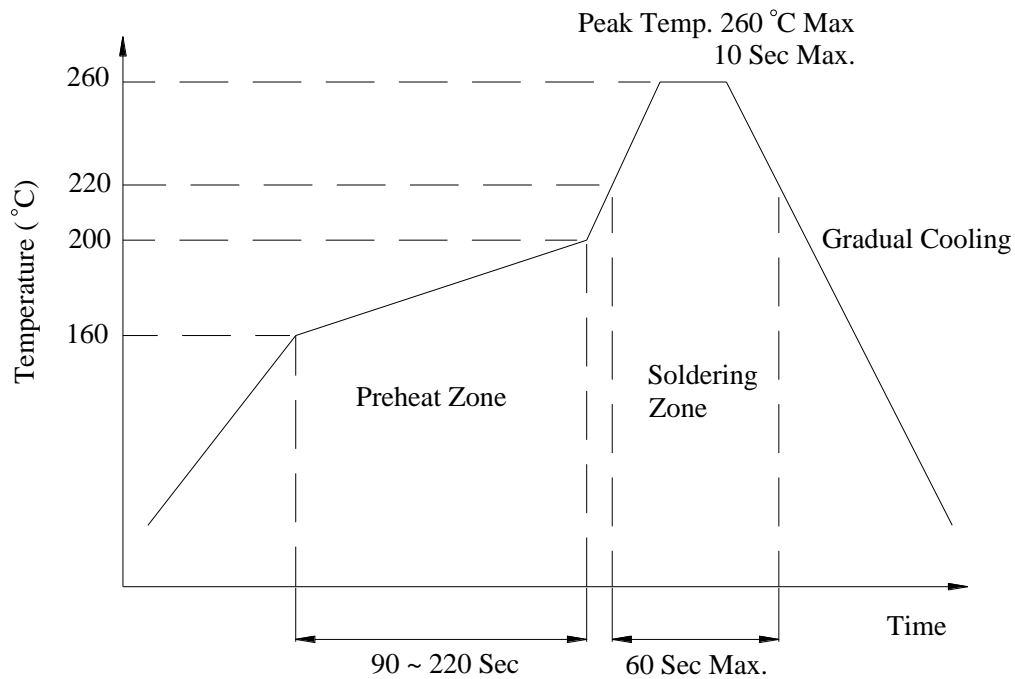
- When soldering LEDs,
- Do not solder/reflow the same LED over two times.
- Recommend soldering conditions:

Hand soldering: 350 °C max , 3 sec. max.

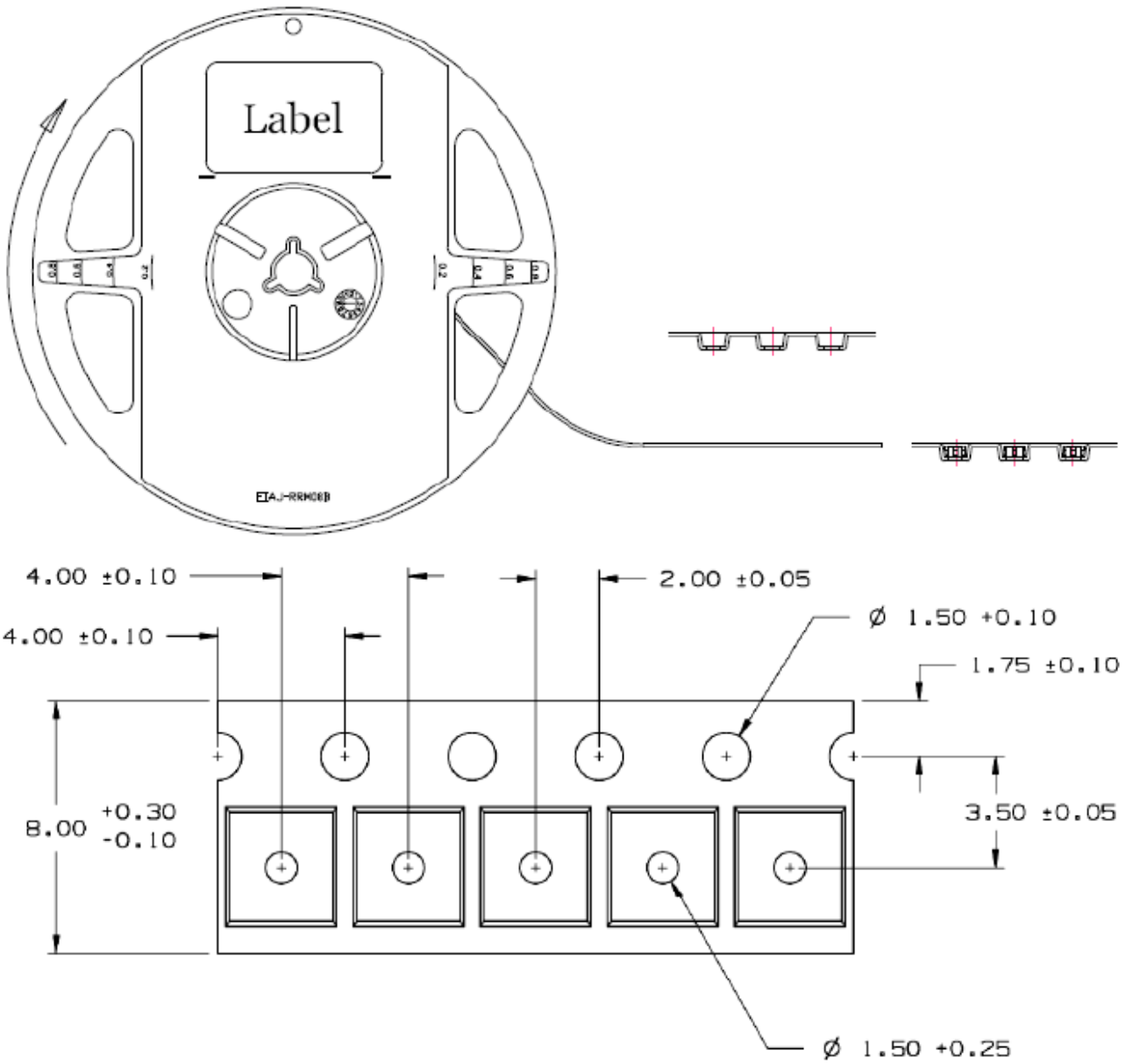
Reflow soldering: Pre-heat 150 max , 180 sec. max. °C

Peak 260 ma °C x , 10 sec. max.

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

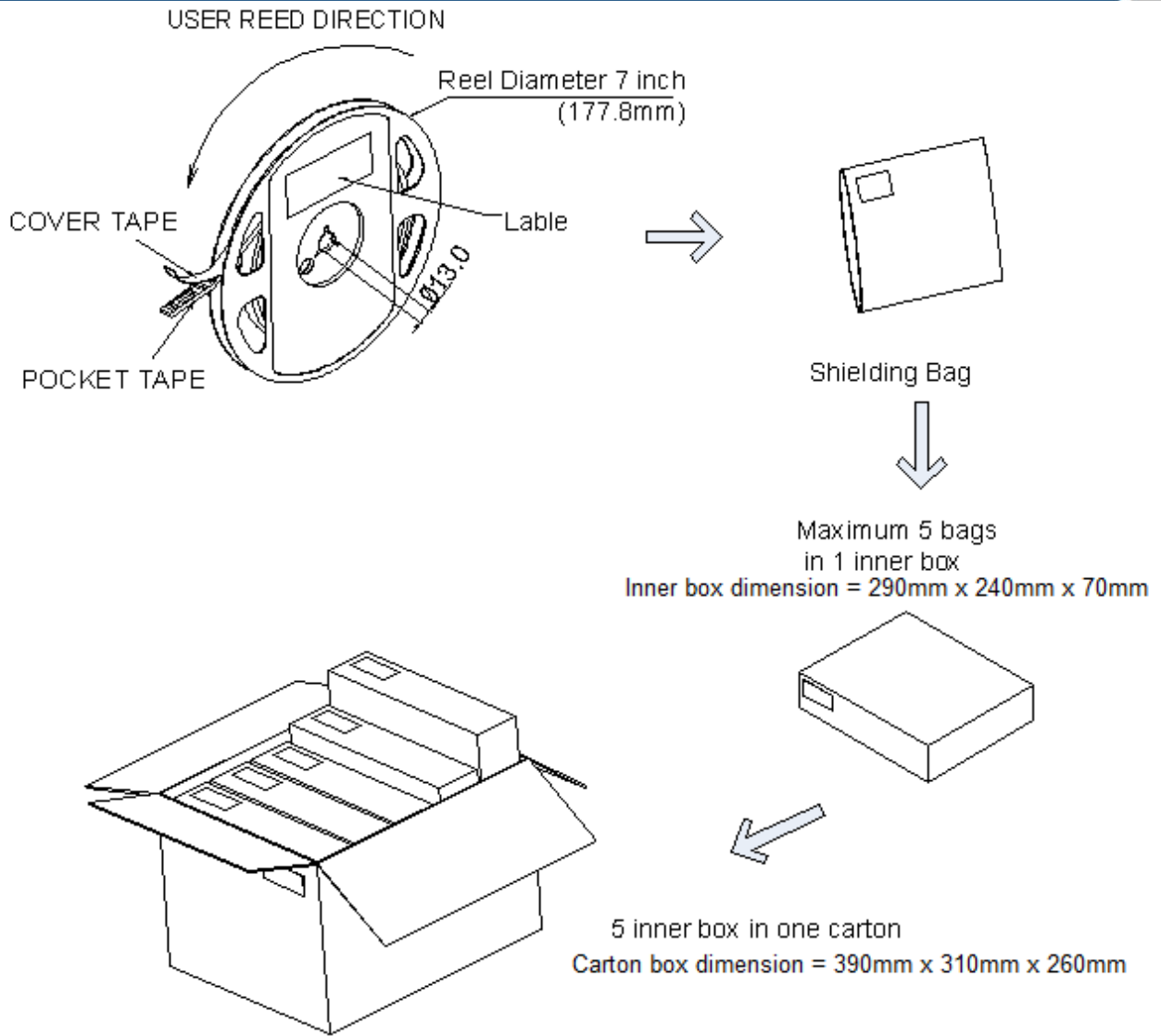


Taping & Packing:

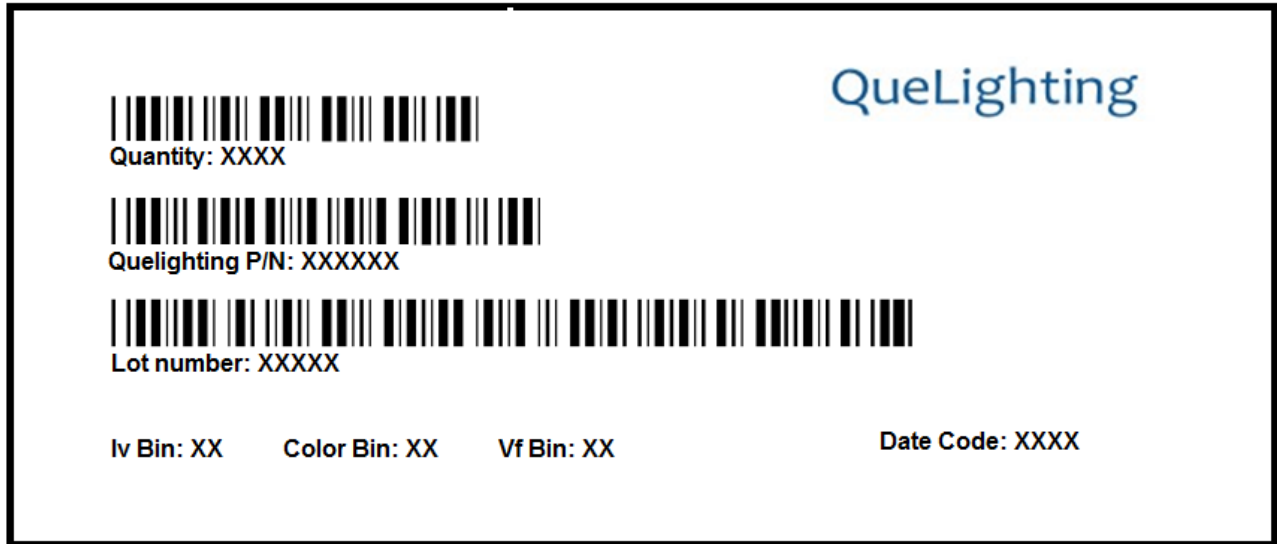


Unit : mm





Labeling



Ordering Information:

Part #	Multiple Quantities	Quantity per Reel
QLSP03WXH		1000 or 2000 pcs



Revision History:

Revision Date:	Changes:	Version #:
06-15-2015	Initial release	1.0
09-24-2019	Update the performance	1.1

