



Sustainable Lighting Solution



QLSP19UXL-XXX
2835 CRI90 0.5W



Product Outline:

This high output reflector type 2835S LEDs are available in warm white / neutral white / pure white / and cold white to suit customer's application. These 0.5W 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 @ 65mA
- Max. current @ 180mA
- Package Dimension = 3.5mmX2.8mmX0.7mm
- CRI = 90 and above
- Available in white color
- ANSI binning
- RoHS compliant
- Custom Bin available upon special request

■ Application:

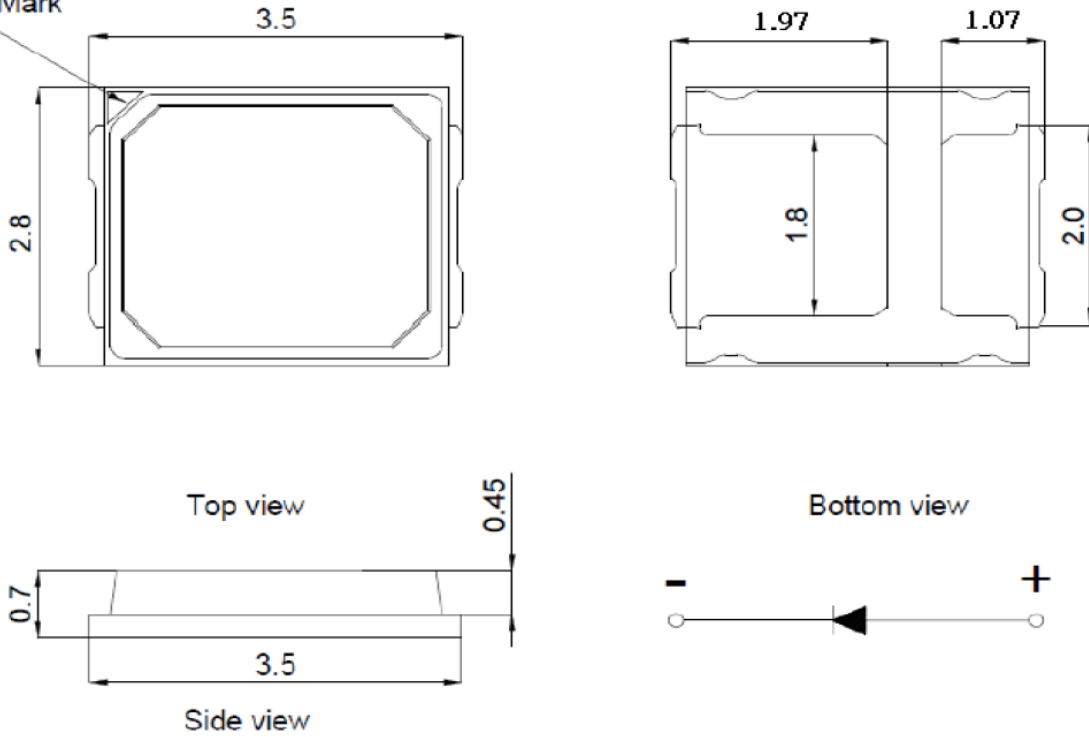
- Architecture Lighting
- Tube Lighting
- Interior Lighting
- General Lighting

Compliance and Certification:



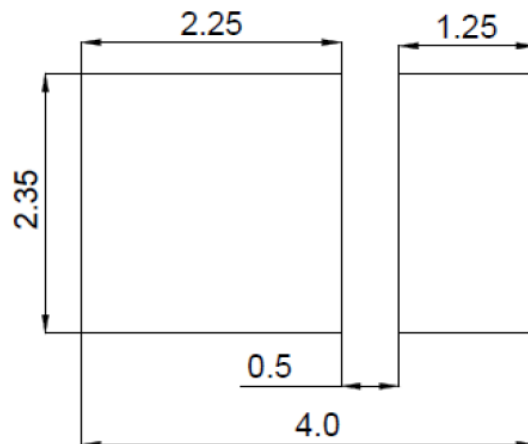
**■ Mechanical Property:
(Dimension)**

Cathode Mark



Unit: mm

Recommended Solder footprint:



■ Product Selection with Ta=25°C, Test current 150mA

Product	Color	I _F (mA)	V _F (V)		CCT	CRI	Luminous Flux(lm)*		Typical Efficacy (lm/W)
			Typ.	max			Min	typ.	
QLSP19UW1L-XXX	Warm White	65	2.88	3.1	2700	90	55	31.9	170
QLSP19UW2L-XXX	Warm White	65	2.88	3.1	3000	90	55	32.3	173
QLSP19UNL-XXX	Neutral White	65	2.88	3.1	4000	90	55	33.2	177
QLSP19UPL-XXX	Pure White	65	2.88	3.1	5000	90	60	33.2	177
QLSP19UC1L-XXX	Cold White	65	2.88	3.1	5700	90	60	32.5	174
QLSP19UC2L-XXX	Cold White	65	2.88	3.1	6500	90	60	32.5	174

*Tolerance = +/- 10%

■ Electrical / Optical Characteristic

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward voltage ⁽¹⁾	V _f	I _f =65mA	2.7	-	3.1	V
Color Rendering Index ⁽²⁾	R _a		90	-	-	-
View angle	θ		-	120	-	Deg
Thermal Resistance ⁽³⁾	R _{th}		-	25	-	°C/W

(1) The forward voltage tolerance is ± 0.1V

(2) The Color Rendering Index tolerance is ± 2



■ Performance at Commonly Used Drive Currents

Product	Color	Drive Current1 (mA)	Typical Vf Tsp = 25°C (V)	Typical Power Tsp = 25°C (W)	Typical Pulsed Flux2 Tsp = 25°C (lm)	Typical DC Flux3 Tsp = 85°C (lm)	Typical Efficacy Tsp = 25°C (lm/W)
QLSP19UW1L	2700K	40	2.79	0.1	19.9	17.7	178
		60	2.86	0.2	29.2	26.1	170
		100	3.00	0.3	46.6	41.6	155
		120	3.06	0.4	55.0	49.0	150
		150	3.15	0.5	66.9	59.6	142
QLSP19UW2L	3000K	40	2.79	0.1	20.4	18.2	182
		60	2.86	0.2	30.0	26.7	175
		100	3.00	0.3	47.9	42.7	160
		120	3.06	0.4	56.5	50.3	154
		150	3.15	0.5	68.5	61.1	145
QLSP19UNL	4000K	40	2.79	0.1	20.5	18.3	184
		60	2.86	0.2	30.3	27.0	177
		100	3.00	0.3	48.8	43.5	163
		120	3.06	0.4	57.6	51.4	157
		150	3.15	0.5	70.3	62.7	149
QLSP19UPL	5000K	40	2.79	0.1	20.5	18.3	184
		60	2.86	0.2	30.3	27.0	177
		100	3.00	0.3	48.8	43.5	163
		120	3.06	0.4	57.6	51.4	157
		150	3.15	0.5	70.3	62.7	149
QLSP19UC1L	5700K	40	2.79	0.1	20.4	18.2	183
		60	2.86	0.2	30.2	26.9	176
		100	3.00	0.3	48.5	43.2	162
		120	3.06	0.4	57.2	51.0	156
		150	3.15	0.5	69.5	62.0	147
QLSP19UC2L	6500K	40	2.79	0.1	20.4	18.2	183
		60	2.86	0.2	30.2	26.9	176
		100	3.00	0.3	48.5	43.2	162
		120	3.06	0.4	57.2	51.0	156
		150	3.15	0.5	69.5	62.0	147



■ Absolute Maximum Rating

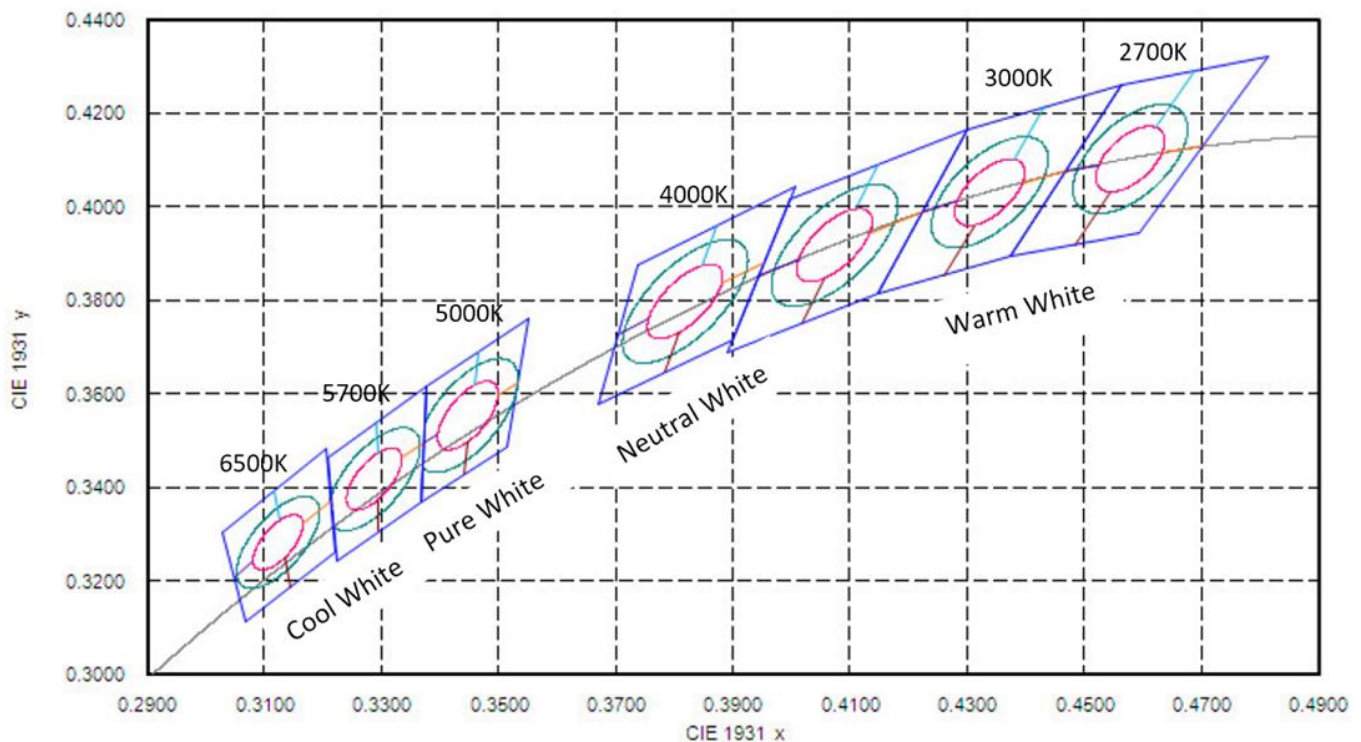
(T=25 °C)

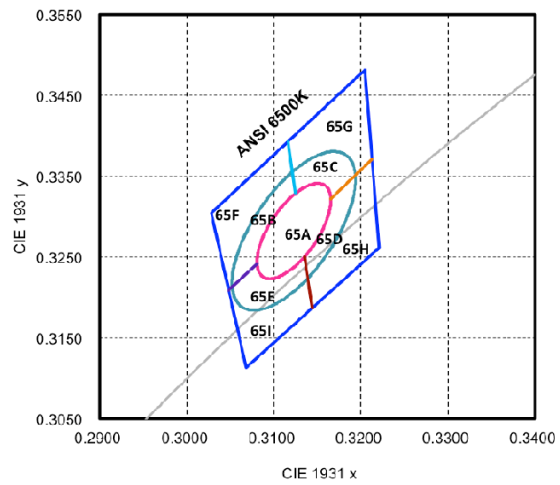
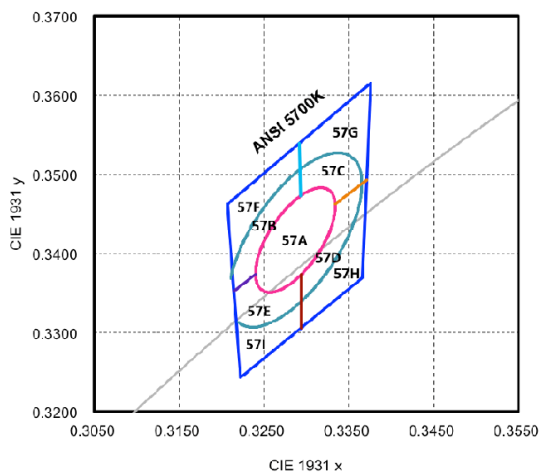
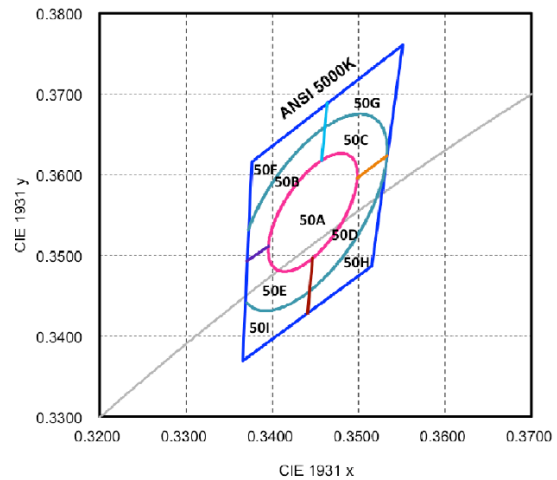
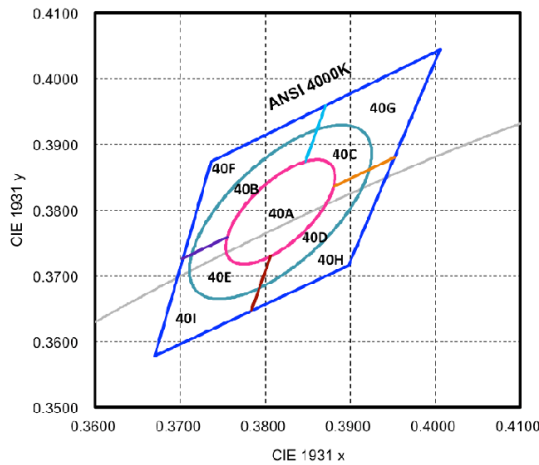
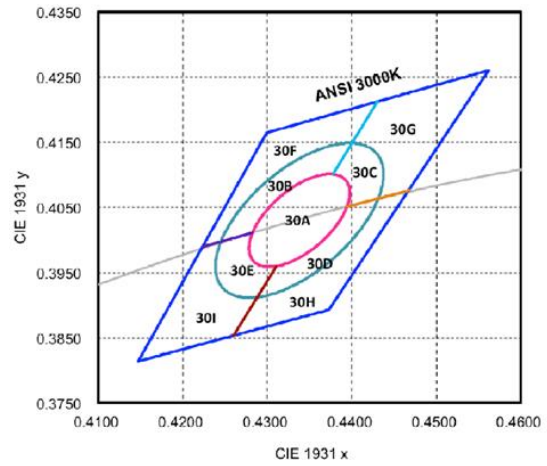
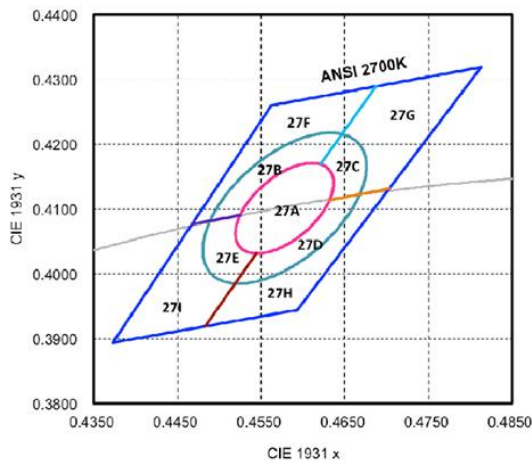
Part #	P _d (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{OP} (°C)	T _{ST} (°C)	T _{SOL} (°C)**
QLS19UXL-XXX	650	180	360	5	-40 – 85	-40 - 105	260

*Duty 1/10 @ 10Khz

** IR Reflow for no more than 10 sec @ 250 °C

■ White Binning





Note: (1). Correlated color temperature is derived from the CIE 1931 Chromaticity diagram
 (2). Measurement tolerance is +/- 0.01



■ **Luminous Flux Bin:**

Im rank (Im) @ 65mA			
Code name	Low	High	Unit
QM1	28	30	lm
QM2	30	32	
QN1	32	34	
QN2	34	36	

The luminous flux tolerance is $\pm 10\%$

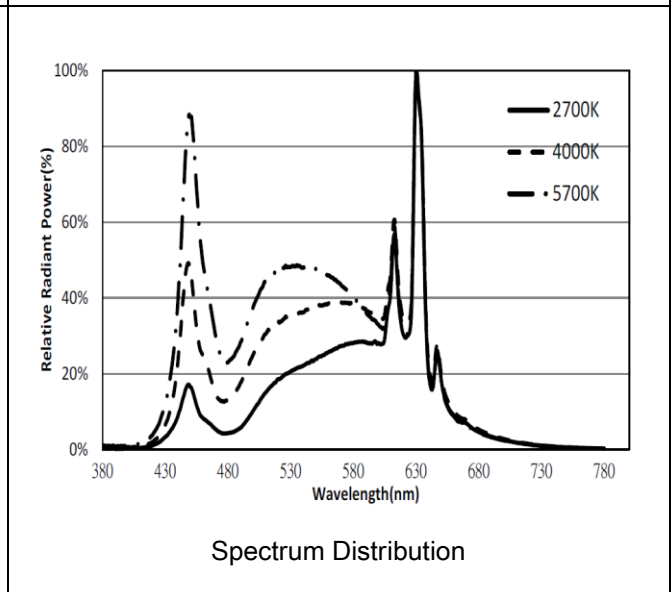
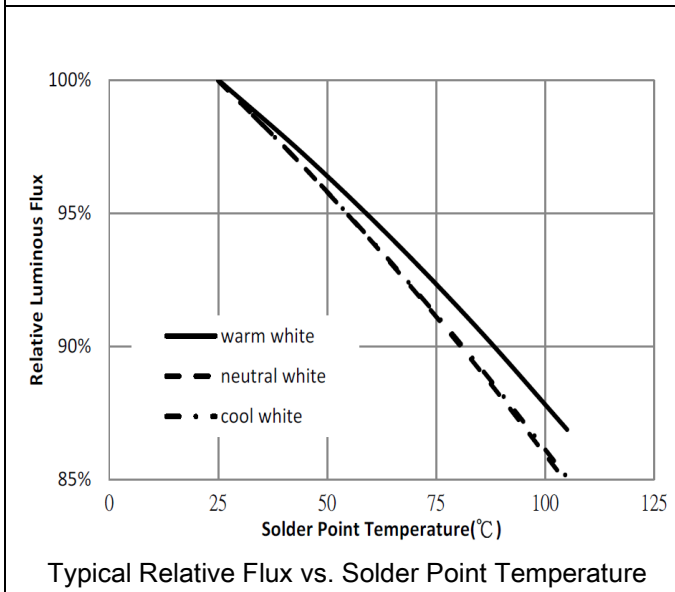
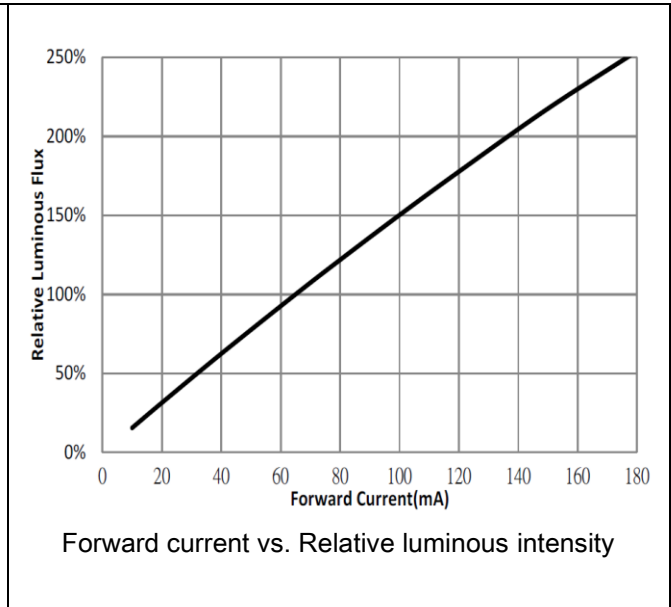
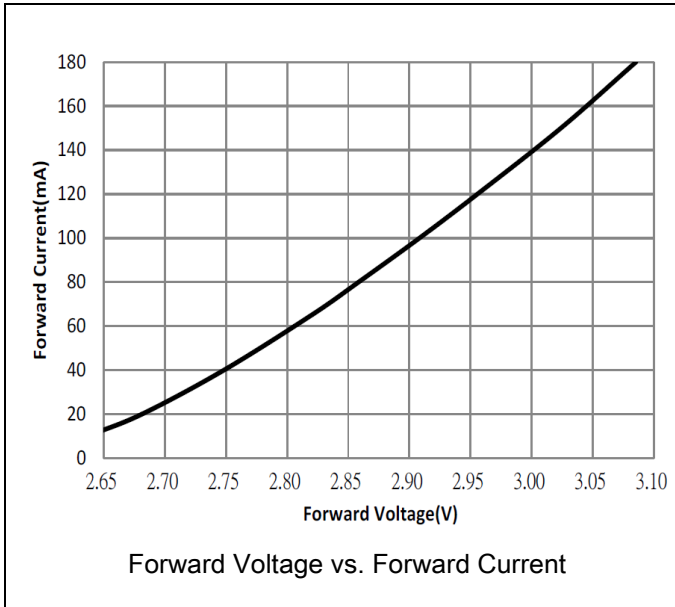
■ **Forward Voltage (V_F) Bin:**

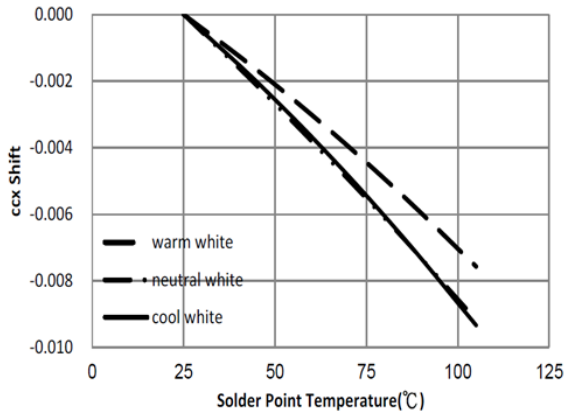
VF rank @ 65mA			
Code name	Low	High	Unit
9	2.7	2.8	V
0	2.8	2.9	
1	2.9	3	
2	3	3.1	

The forward voltage tolerance is $\pm 0.1V$

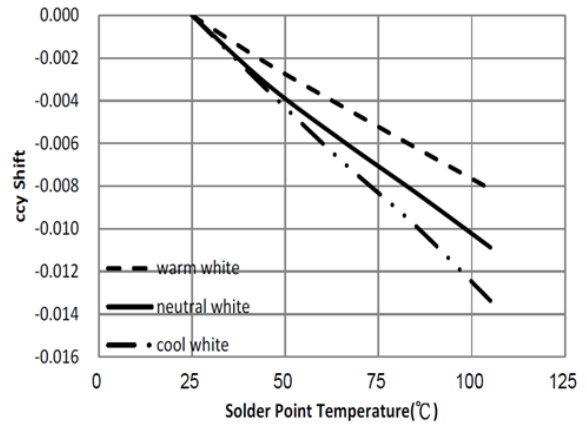


Characteristic Curves

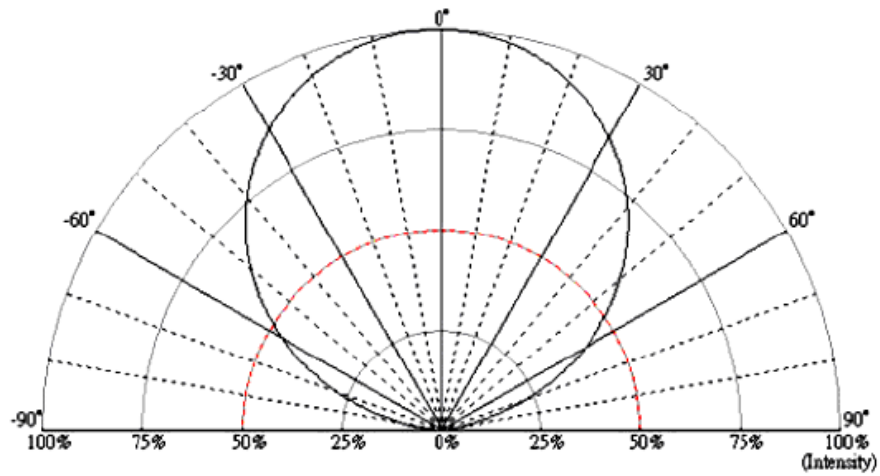




Typical ccx Shift vs. Solder Point Temperature



Typical ccy Shift vs. Solder Point Temperature



Radiation Pattern



■ 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	200 Cycle	20 pcs

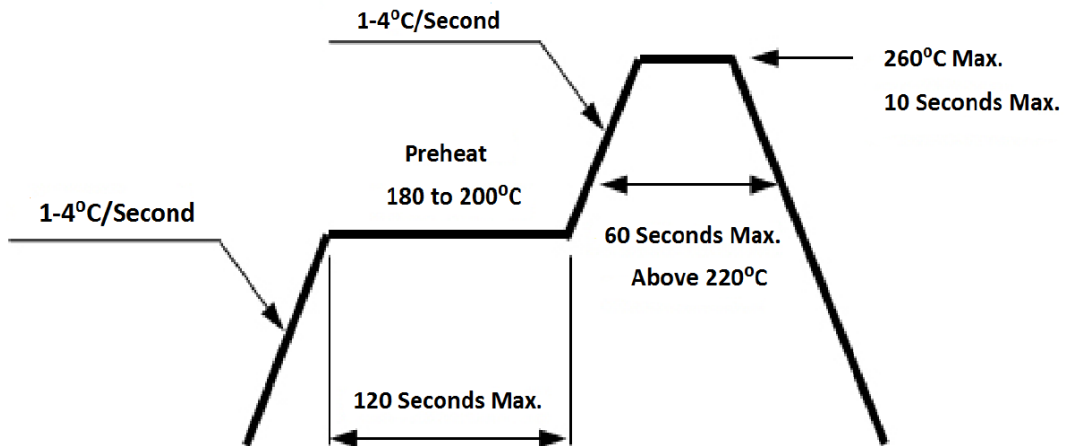
■ Judgment Criteria:

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	150 mA	$\Delta Vf < 10\%$
Luminous Flux	Iv	150 mA	$\Delta Iv < 30\%$

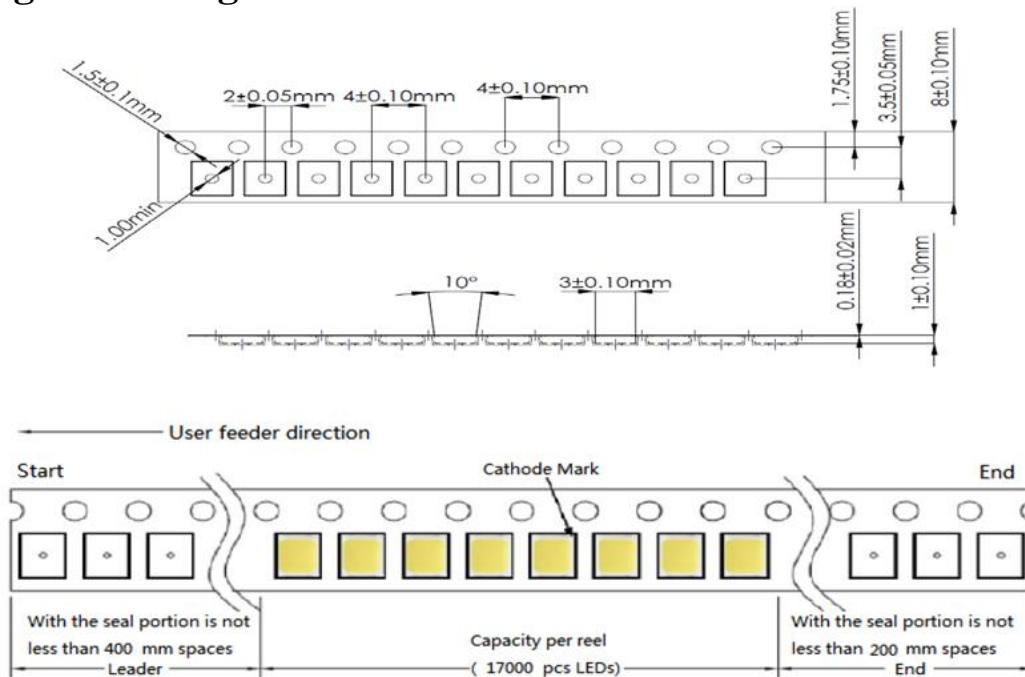


■ Solder Profile:

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

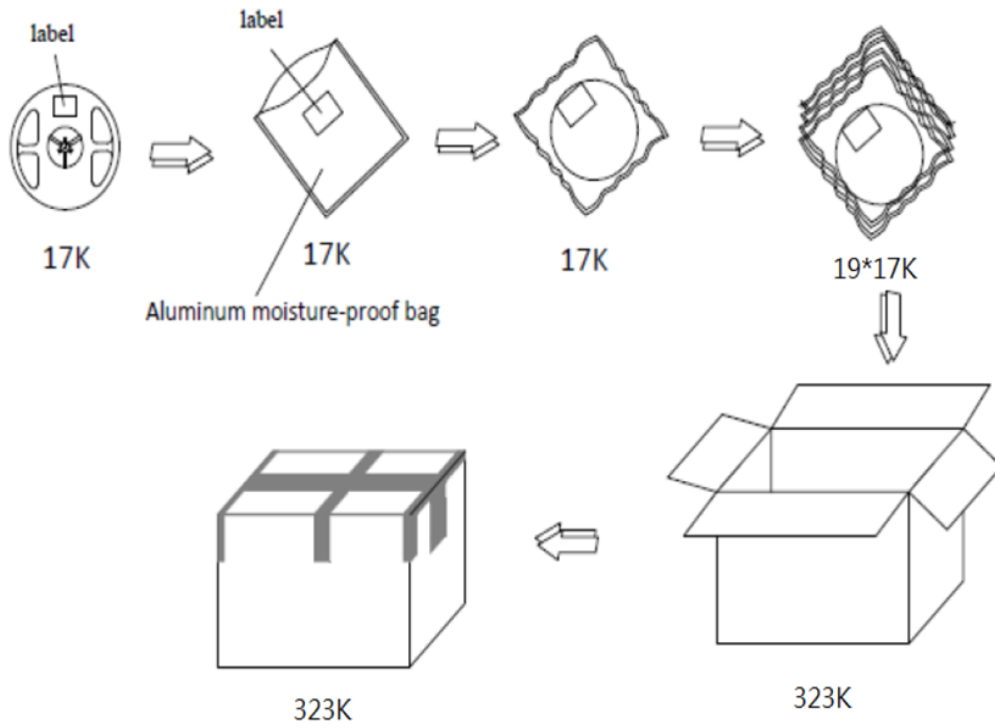
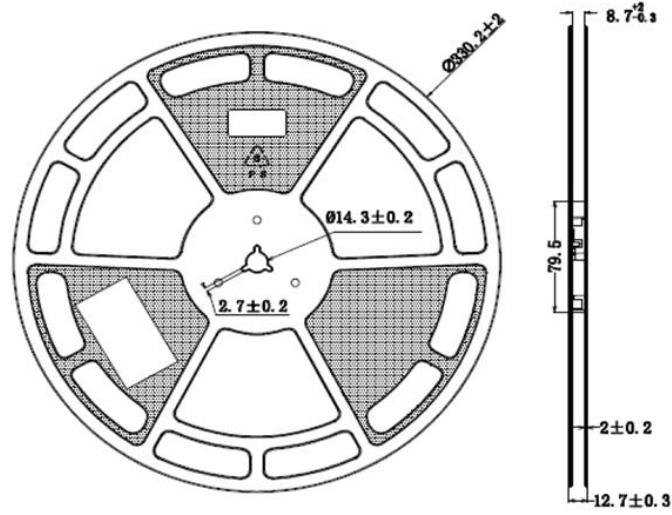


■ Taping & Packing

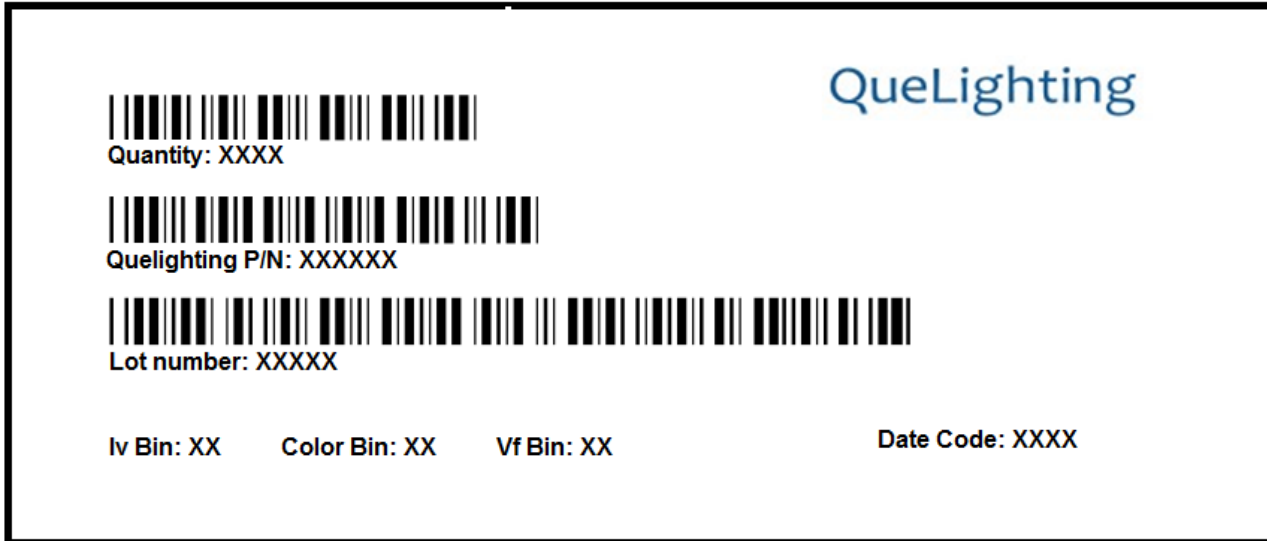


Unit : mm





Labeling



Ordering Information:

Part #	Multiple Quantities	Quantity per Reel
QLSP19UXL-XXX		17000 pcs



Revision History:

Revision Date:	Changes:	Version #:
04-10-2023	Initial release	1.0

