QUELIGHTING

Sustainable Lighting Solution

QLSP19WXH-314
2835 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:

- Dual chip in package
- High brightness output @ 150mA
- Max. current @ 180mA
- Package Dimension = 3.5mmX2.8mmX0.68mm
- CRI = 80 and above
- Available in white color
- ANSI binning
- RoHS compliant
- Custom Bin available upon special request

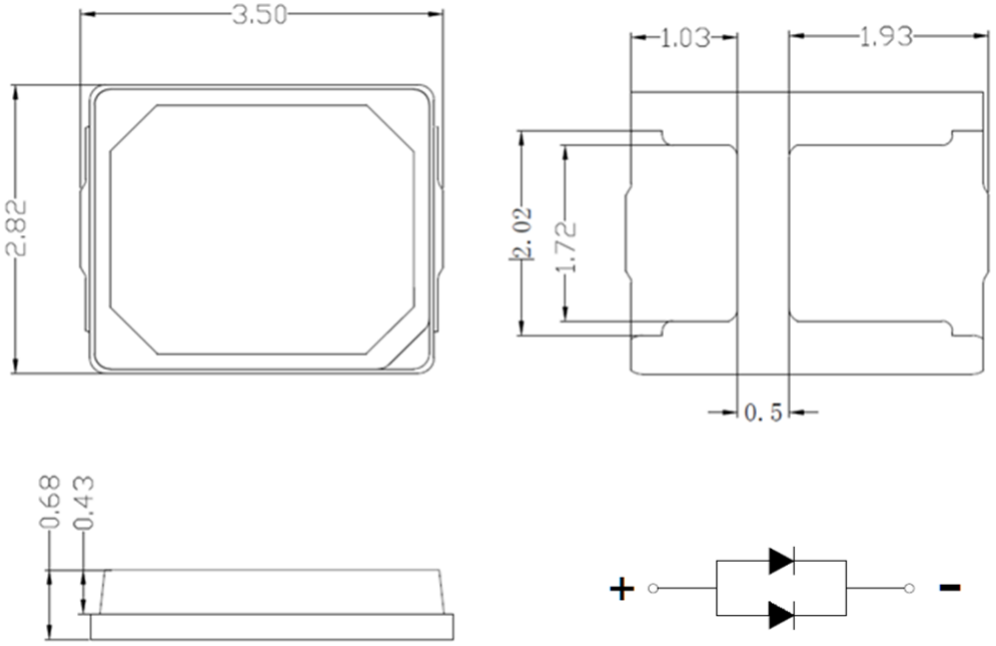
■ Application:

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

Compliance and Certification:

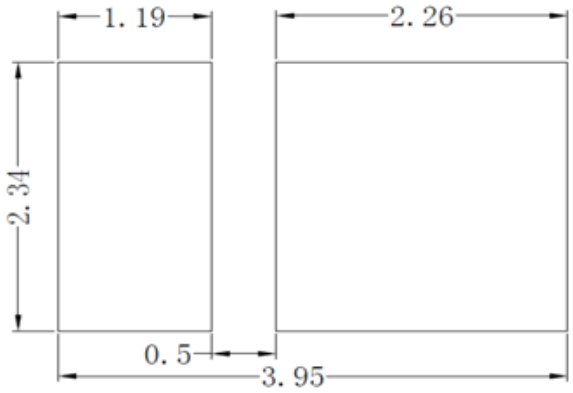
■ Mechanical Property:

(Dimension)



Unit: mm↵

Recommended Solder footprint:



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

Product	Color	I_F(mA)	V_F(V)		CCT	CRI	Luminous Flux(lm)*		Typical Efficacy (lm/W)
			Typ.	max	Typ		Min	typ.	
QLSP19WW1H	Warm White	150	2.85	3.1	2700	80		73	171
QLSP19WW2H	Warm White	150	2.85	3.1	3000	80		77	180
QLSP19WNH	Neutral White	150	2.85	3.1	4000	80		77	180
QLSP19WPH	Pure White	150	2.85	3.1	5000	80		81	190
QLSP19WC1H	Cold White	150	2.85	3.1	5700	80		81	190
QLSP19WC2H	Cold White	150	2.85	3.1	6500	80		81	190

*Tolerance = +/- 10%

■ Electrical / Optical Characteristic

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward voltage(1)	Vf	If=150mA	2.8	-	3.1	V
Color Rendering Index(2)	Ra		80	-	-	-
View angle	θ		-	120	-	Deg
Thermal Resistance(3)	R_{th}		-	25	-	℃/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)
QLSP19WW1H	2700K	30	2.64	0.1	15.8	15	199
		42	2.66	0.1	21.4	18	192
		60	2.69	0.2	30.6	26	189
		90	2.76	0.2	45.6	38	183
		120	2.81	0.3	59.4	50	176
		150	2.85	0.4	73.0	67	171
QLSP19WW2H	3000K	30	2.64	0.1	15.8	15	199
		42	2.66	0.1	22.0	19	197
		60	2.69	0.2	31.3	28	194
		90	2.76	0.2	47.1	40	189
		120	2.81	0.3	62.7	52	186
		150	2.85	0.4	77.0	70	180
QLSP19WNH	4000K	30	2.64	0.1	17.5	16	221
		42	2.66	0.1	23.8	20	213
		60	2.69	0.2	33.9	29	210
		90	2.76	0.2	50.6	43	203
		120	2.81	0.3	66	55	196
		150	2.85	0.4	81	74	189
QLSP19WPH	5000K	30	2.64	0.1	17.5	16	221
		42	2.66	0.1	23.8	20	213
		60	2.69	0.2	33.9	29	210
		90	2.76	0.2	50.6	43	203
		120	2.81	0.3	66	55	196
		150	2.85	0.4	81	74	189
QLSP19WC1H	5700K	30	2.64	0.1	17.5	16	221
		42	2.66	0.1	23.8	20	213
		60	2.69	0.2	33.9	29	210
		90	2.76	0.2	50.6	43	203
		120	2.81	0.3	66	55	196
		150	2.85	0.4	81	74	189
QLSP19WC2H	6500K	30	2.64	0.1	17.5	16	221
		42	2.66	0.1	23.8	20	213
		60	2.69	0.2	33.9	29	210
		90	2.76	0.2	50.6	43	203
		120	2.81	0.3	66	55	196
		150	2.85	0.4	81	74	189

■ Absolute Maximum Rating

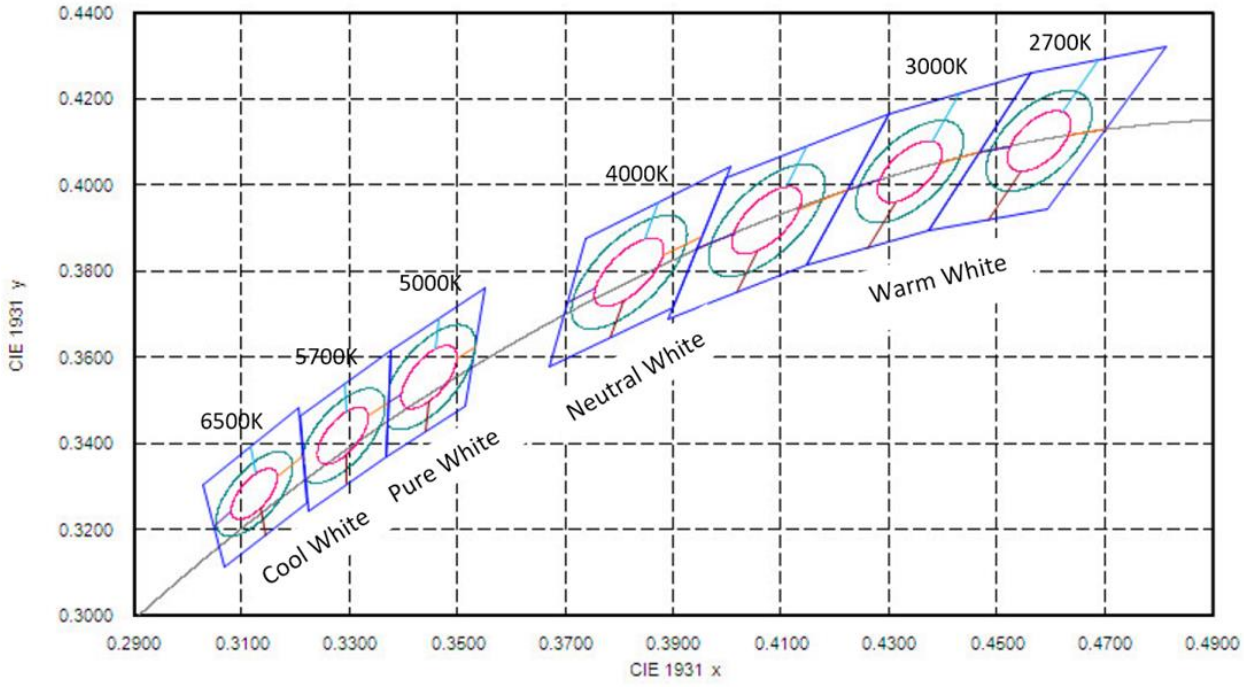
(T=25 °C)

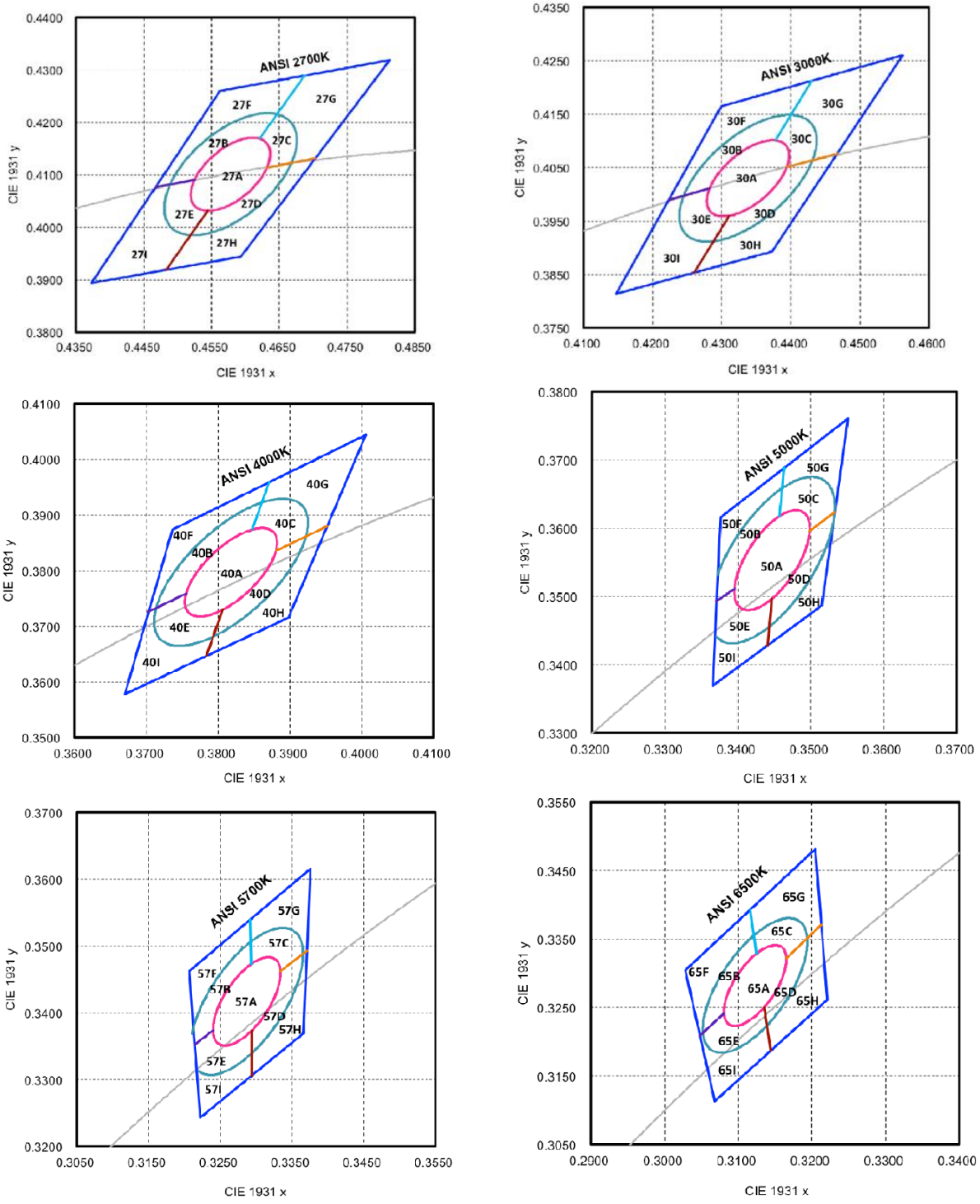
Part #	P_d (mW)	I_F (mA)	I_{FP} (mA)*	V_R (V)	T_{OP} (°C)	T_{ST} (°C)	T_{SOL} (°C)**
QLSP19WXH-314	650	180	360	5	-40 – 85	-40 - 105	260

*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:

lm rank (lm) @ 150mA			
Code name	**Low**	**High**	**Unit**
QS	60	65	lm
QT	65	70	
QU	70	75	
QV	75	80	
QW	80	85	

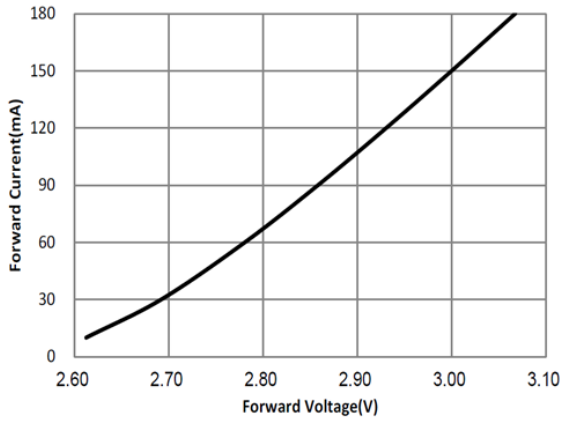
The luminous flux tolerance is ± 10%

■ Forward Voltage (V_F) Bin:

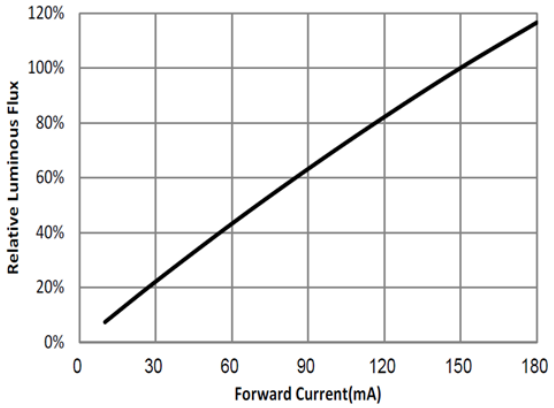
VF rank @ 150mA			
Code name	**Low**	**High**	**Unit**
Y	2.7	2.8	V
Z	2.8	2.9	
1	2.9	3	
2	3	3.1	

The forward voltage tolerance is ± 0.1V

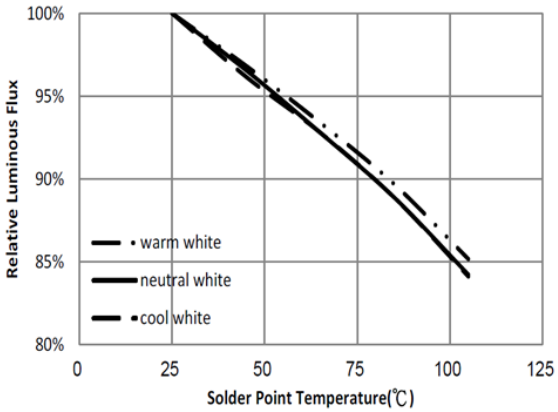
■ Characteristic Curves



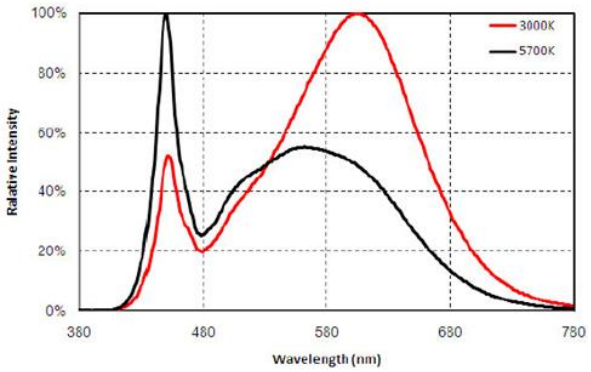
Forward Voltage vs. Forward Current



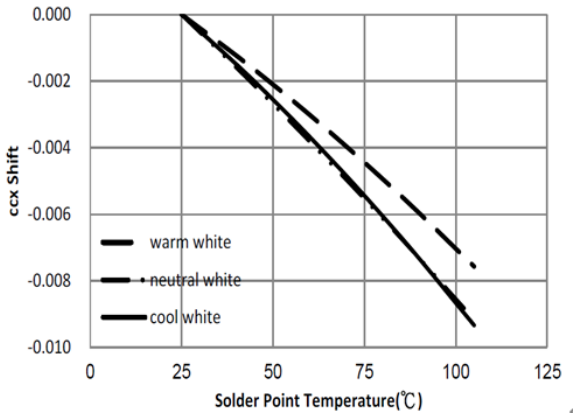
Forward current vs. Relative luminous intensity



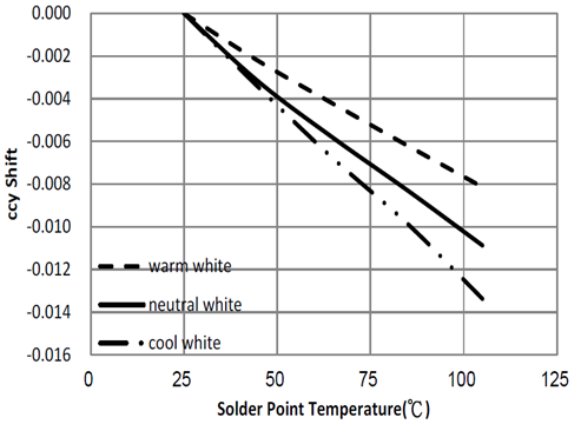
Forward Current VS Soldering Temperature



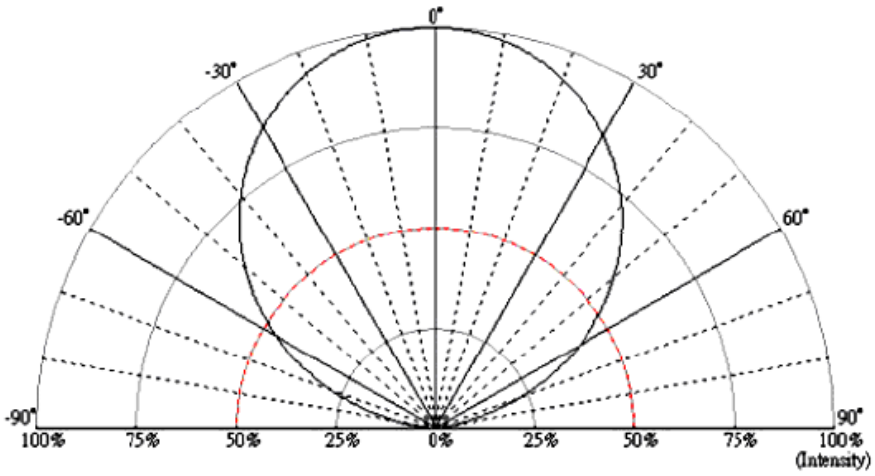
Spectrum Distribution



Typical ccx Shift vs. Solder Point Temperature



Typical ccy Shift vs. Solder Point Temperature



Radiation Pattern

■ Reliability test:

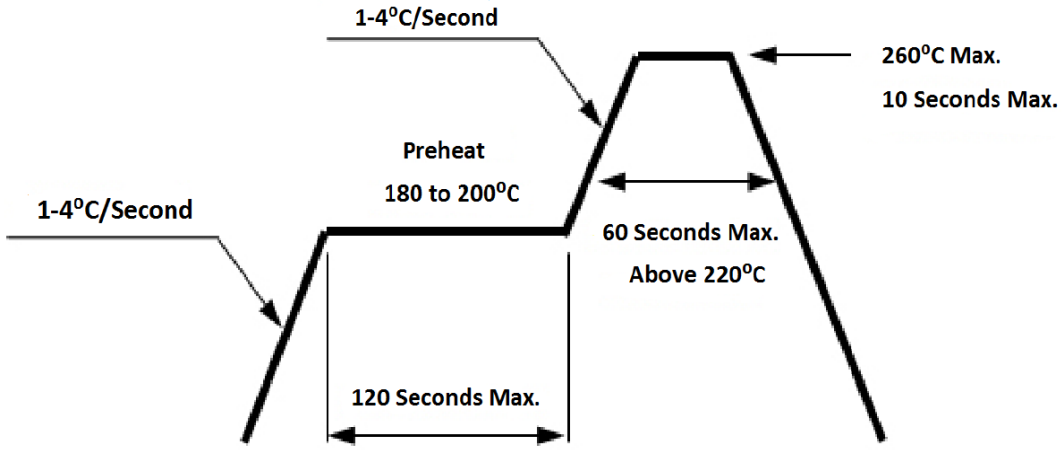
No	Item	Condition	Time/Cycle	Sample size
1	Steady State Operating Life of Room Temperature	25℃ Operating	1000 Hrs	20 pcs
2	Steady State Operating Life of Low Temperature -40℃	-40℃ Operating	1000 Hrs	20 pcs
3	Steady State Operating Life of Low Temperature 60℃	60℃ Operating	1000 Hrs	20 pcs
4	Steady State 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%	60°C/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	200 Cycle	20 pcs

■ Judgment Criteria:

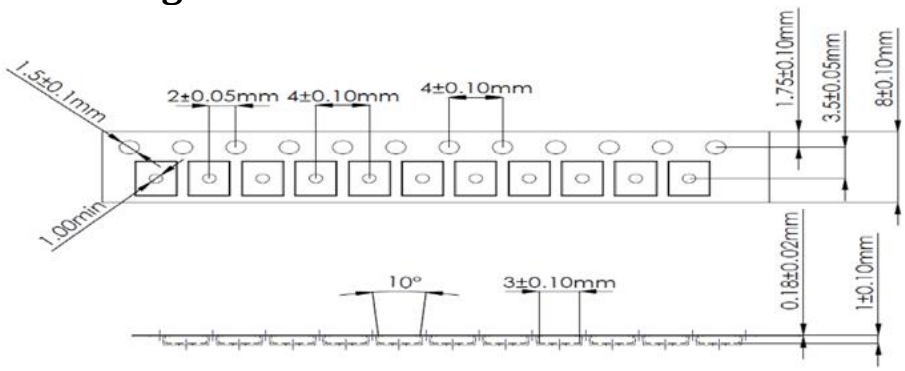
Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	150 mA	△Vf< 10%
Luminous Flux	Iv	150 mA	△Iv< 30%

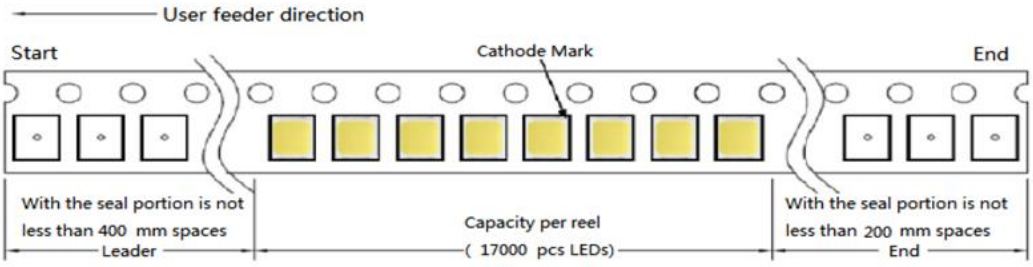
■ Solder Profile:

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

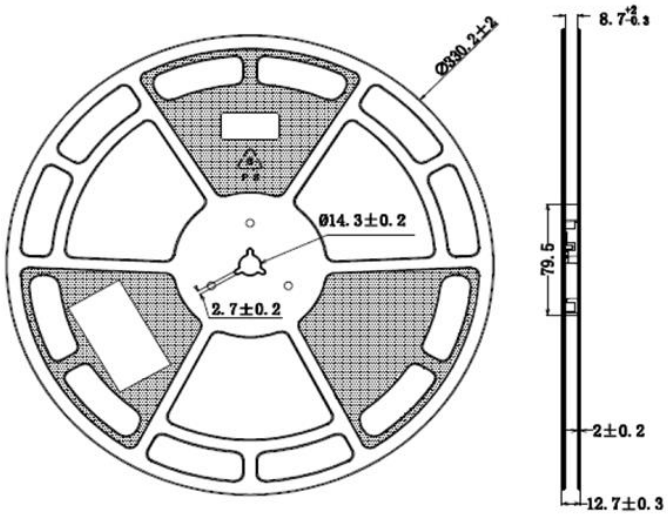


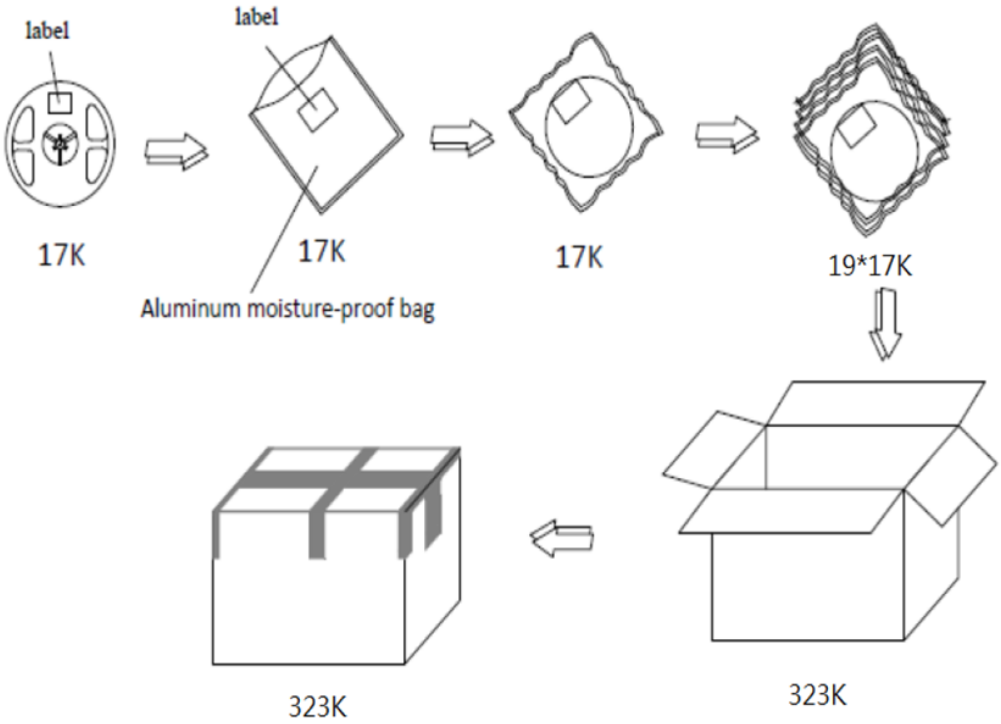
■ Taping & Packing



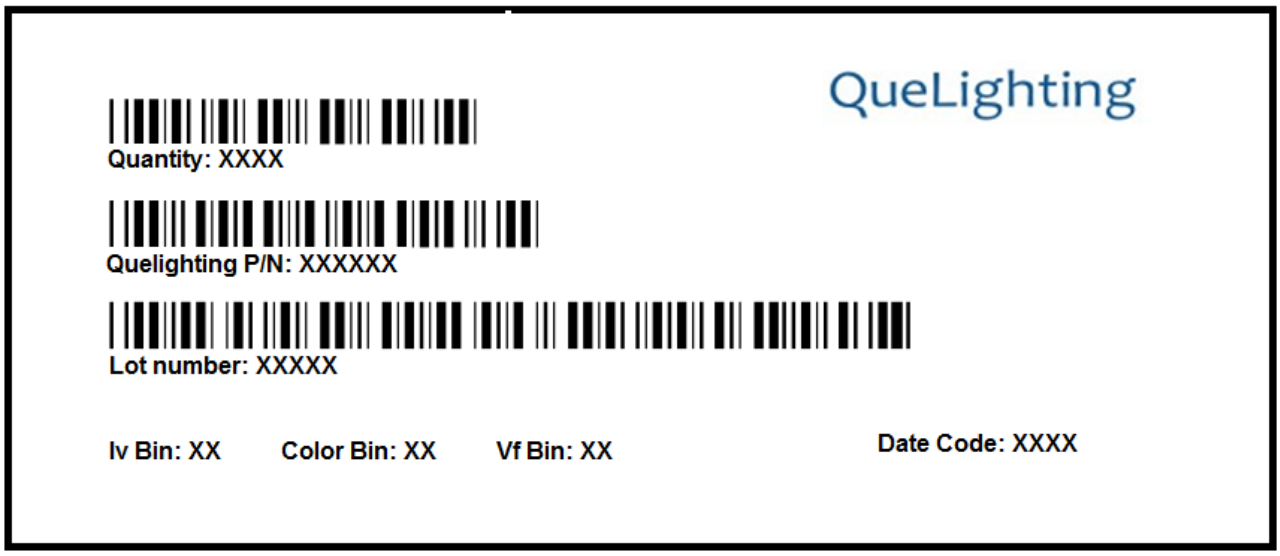


Unit : mm


Ø330.2±2
Ø14.3±0.2
2.7±0.2
8.7
79.5
2±0.2
12.7±0.3


label
label
17K
17K
17K
19*17K
Aluminum moisture-proof bag
323K
323K

Labeling



Ordering Information:

Part #	Multiple Quantities	Quantity per Reel
QLSP19WXH-314		17000 pcs

Revision History:

Revision Date:	Changes:	Version #:
08-25-2021	Initial release	1.0