QUELIGHTING

Sustainable Lighting Solution

QLSP19ZC2PCAH

Product Outline:

This high output reflector type 2835S LEDs with dual color in one package to suit customer's application. These dual color 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 color in package
- Cold White and PC Amber
- High brightness output @ 150mA
- Package Dimension = 3.5mmX2.8mmX0.68mm
- Available in white color and PC Amber
- RoHS compliant
- Custom Bin available upon special request

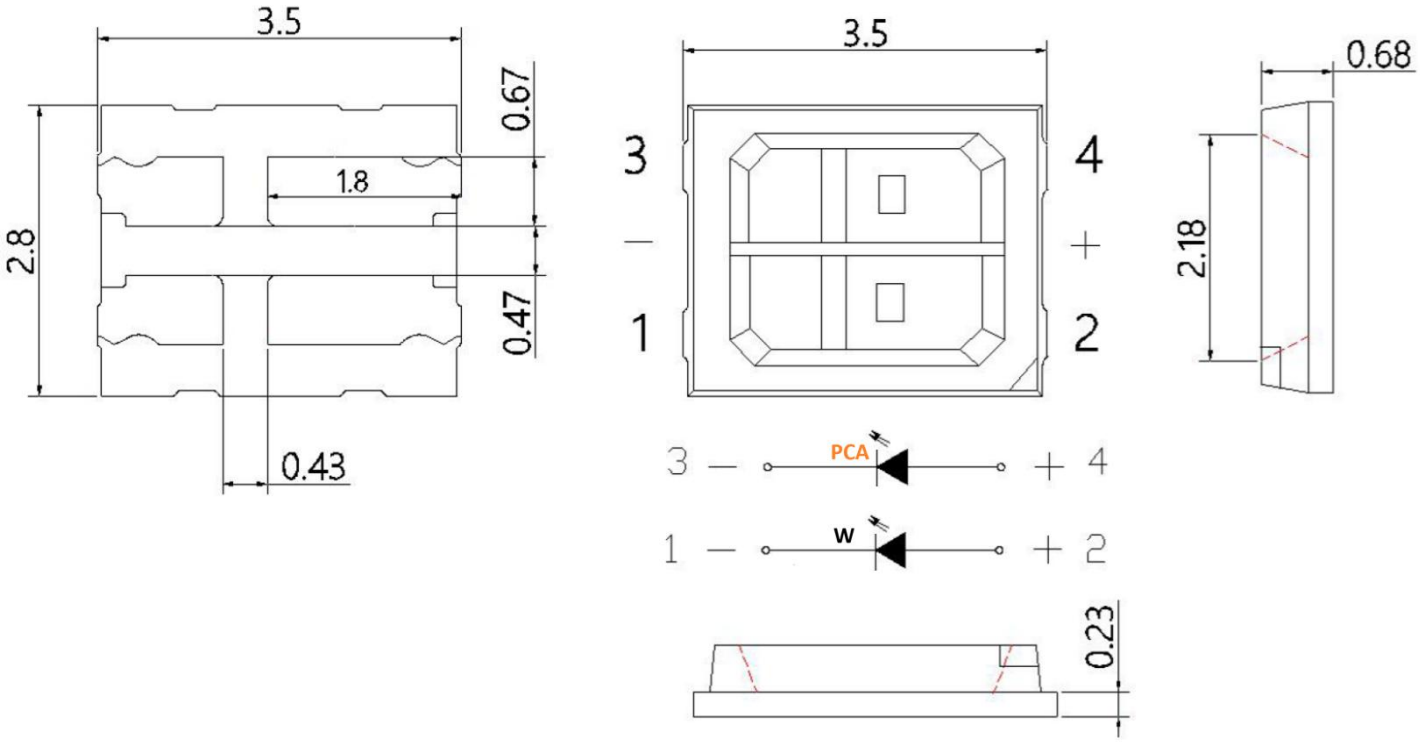
■ Application:

- Day Running light(DRL)
- Working light
- Turn signal lights

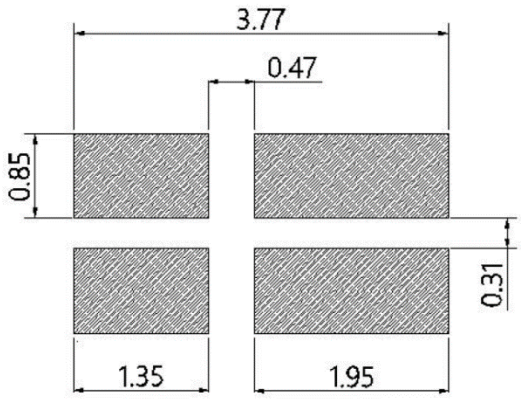
Compliance and Certification:

■ Mechanical Property:

(Dimension)



Recommended Solder footprint:



* All dimensions are in millimeters.
* The LEDs is designed to be reflow soldered on to a PCB. IF dip soldered that QL cannot guarantee its reliability.
* Reflow soldering must not be performed more than twice.

■ Product Selection with Ta=25℃,

Product	Color	I_F(mA)	V_F(V)		CCT	CRI	Luminous Flux(lm)*		Typical Efficacy (lm/W)
			Typ.	max	Typ		Min	typ.	
QLSP19ZC2PCAH	Cold White	150	3	3.4	6250	70	60	70	140
	PC Amber	150	3	3.4	1800	NA	45	55	120

*Tolerance = +/- 10%

■ Electrical / Optical Characteristic

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward voltage(1)	Vf	If=150mA	2.8	-	3.4	V
Color Rendering Index(2)	Ra		-	-	-	-
View angle	θ		-	120	-	Deg
Thermal Resistance(3)	Rth		-	25	-	℃/W

(1) The forward voltage tolerance is ± 0.1V
(2) The Color Rendering Index tolerance is ± 2

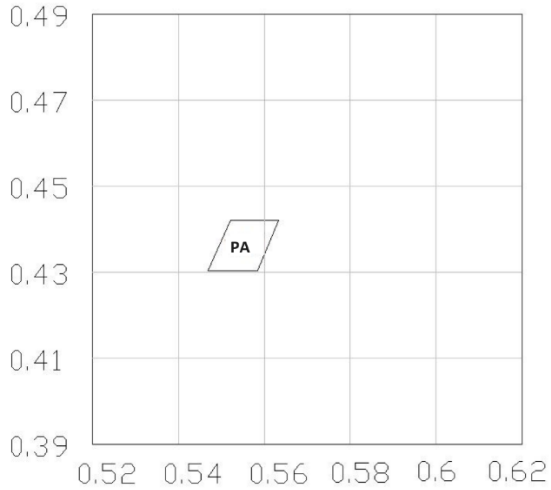
■ Absolute Maximum Rating

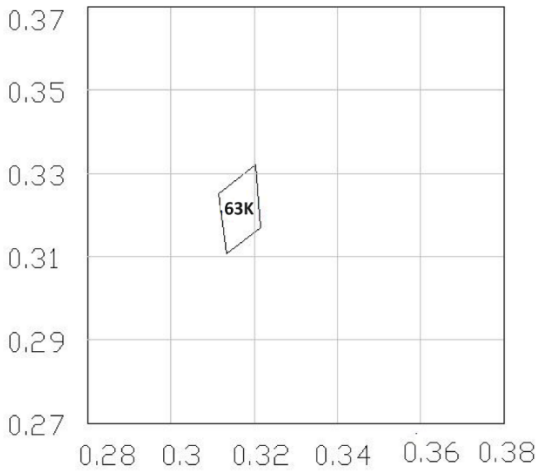
(T=25 ℃)

Part #	P_d (mW)	I_F (mA)	I_{FP} (mA)*	V_R (V)	T_{OP} (°C)	T_{ST} (°C)	T_{SOL} (°C)**
QLSP19ZC2PCAH	1000	150	180	5	-40 – 85	-40 - 105	260

*Duty 1/10 @ 10Khz
** IR Reflow for no more than 10 sec @ 250 °C

■ White Binning





BIN	CIE_x	CIE_y
PA	0.4309	0.4111
	0.4545	0.4198
	0.4416	0.3935
	0.4206	0.3877

BIN	CIE_x	CIE_y
63K	0. 3115	0. 3251
	0. 3202	0. 3320
	0. 3214	0. 3170
	0. 3134	0. 3106

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**
QQR	50	60	lm
QST	60	70	
QUV	70	80	

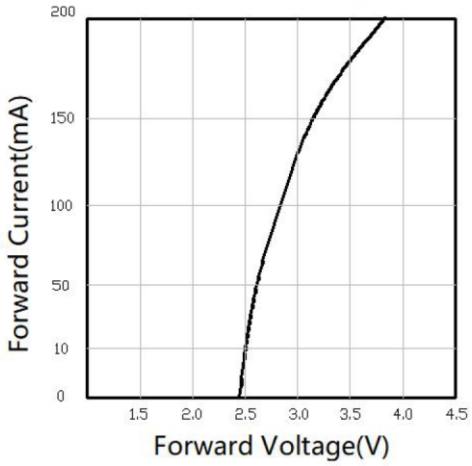
The luminous flux tolerance is ± 10%

■ Forward Voltage (V_F) Bin:

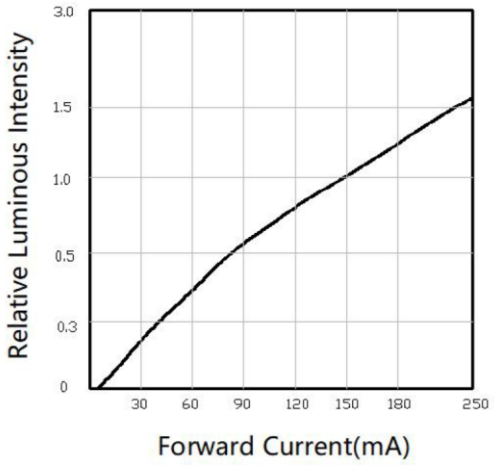
VF rank @ 150mA			
Code name	**Low**	**High**	**Unit**
Z5	2.8	3.4	V

The forward voltage tolerance is ± 0.1V

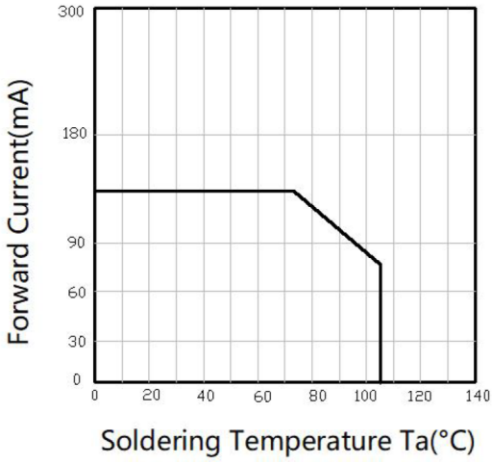
■ Characteristic Curves



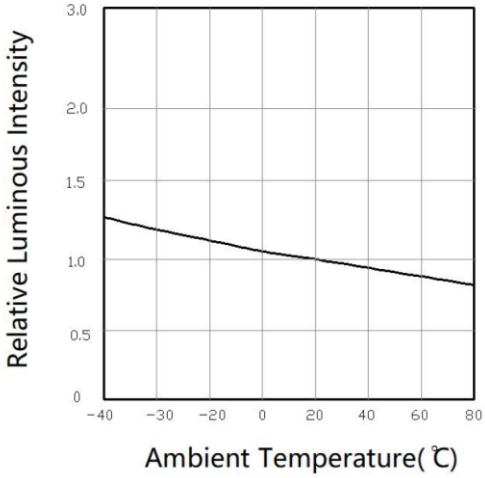
Forward Voltage vs. Forward Current



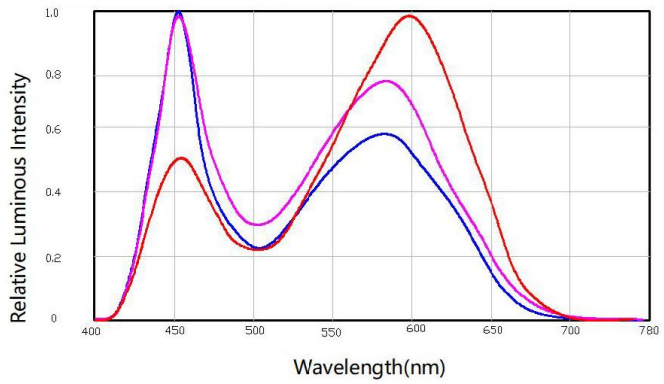
Forward current vs. Relative luminous intensity



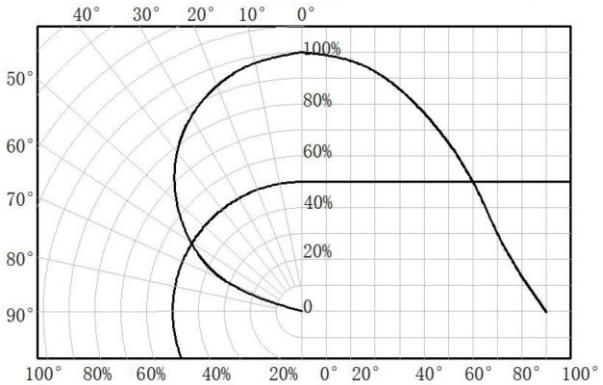
Forward Current VS Soldering Temperature



Ambient Temperature VS. Relative Intensity



Spectrum Distribution



Radiation Pattern

■ Reliability test:

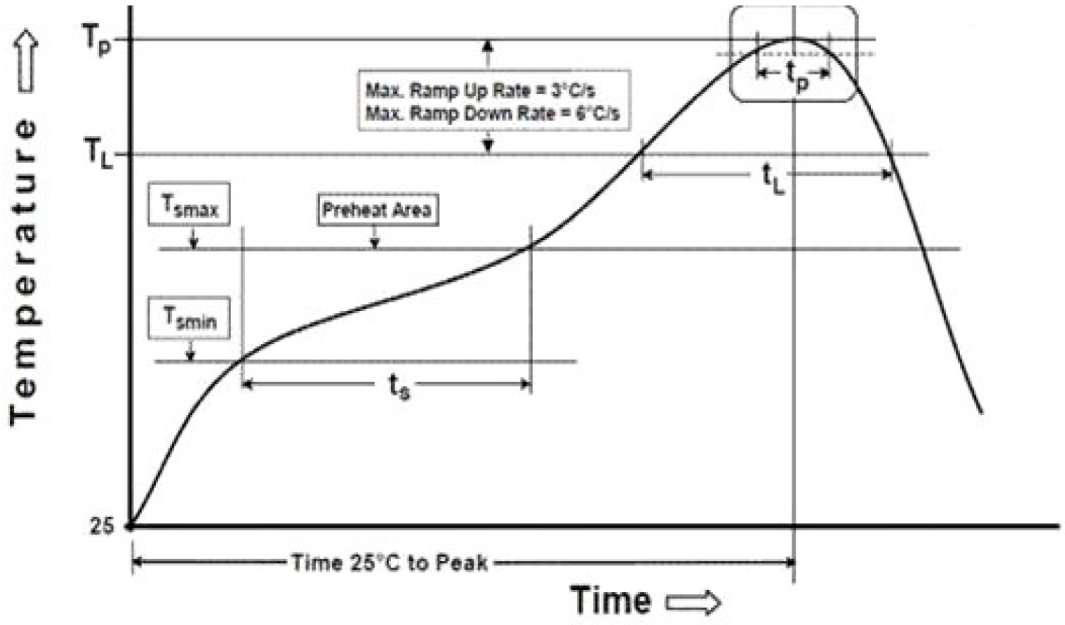
No	Item	Condition	Time/Cycle	Sample size
1	Steady State Operating Life of Room Temperature	25℃ Operating	1000 Hrs	20 pcs
2	Steady State Operating Life of Low Temperature -40℃	-40℃ Operating	1000 Hrs	20 pcs
3	Steady State Operating Life of Low Temperature 60℃	60℃ Operating	1000 Hrs	20 pcs
4	Steady State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

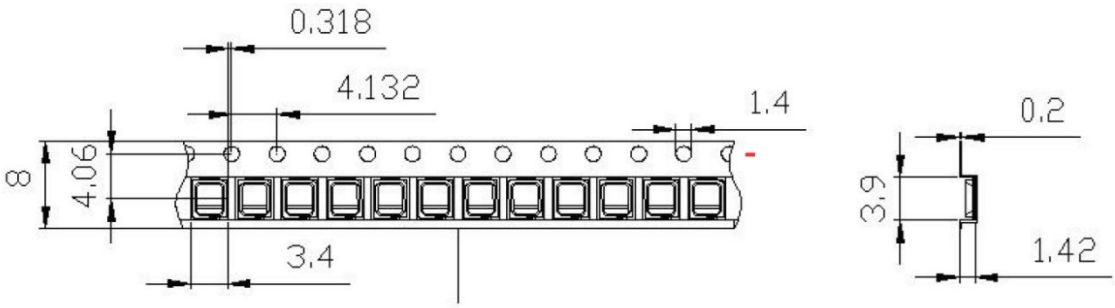
-The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):



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.		

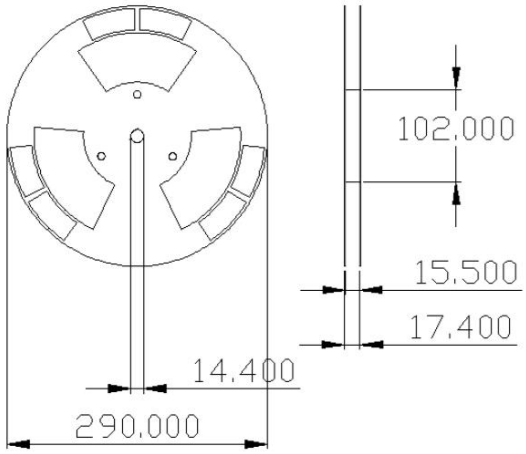
-The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):

■ Taping & Packing

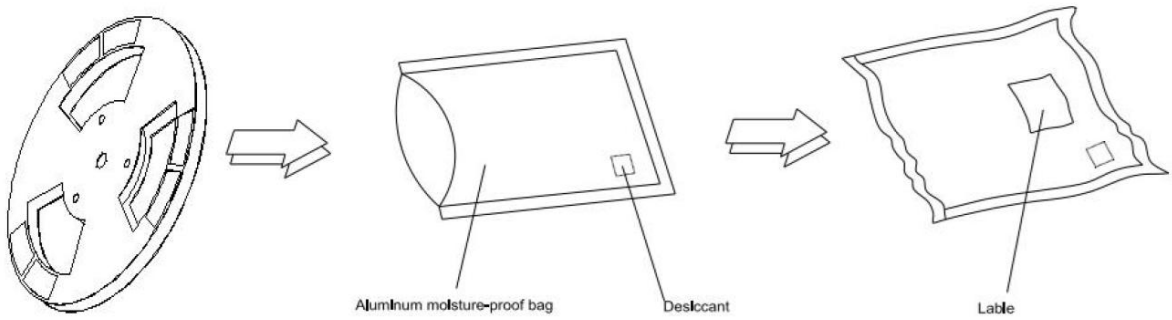


Unit : mm

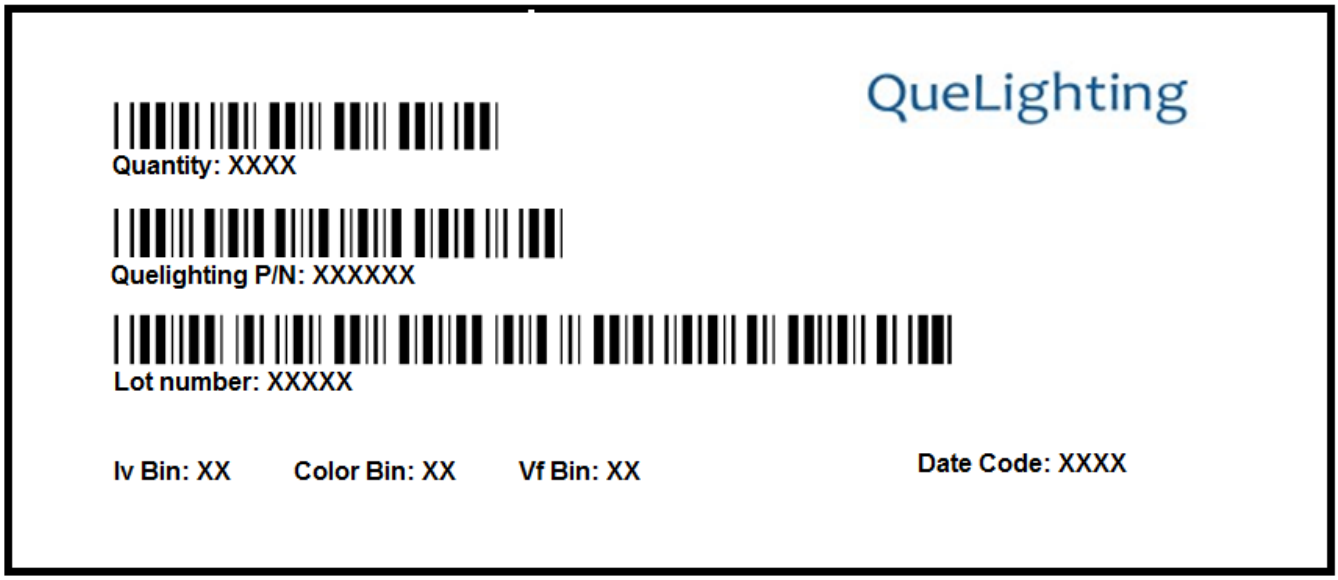
Reel Dimensions



Moisture Resistant Packaging



Labeling



Ordering Information:

Part #	Multiple Quantities	Quantity per Reel
QLSP19ZC2PCAH		3000 pcs

Revision History:

Revision Date:	Changes:	Version #:
02-10-2024	Initial release	1.0