



QLSP19PCARH



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
- **PC Amber** and **Red** color
- 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

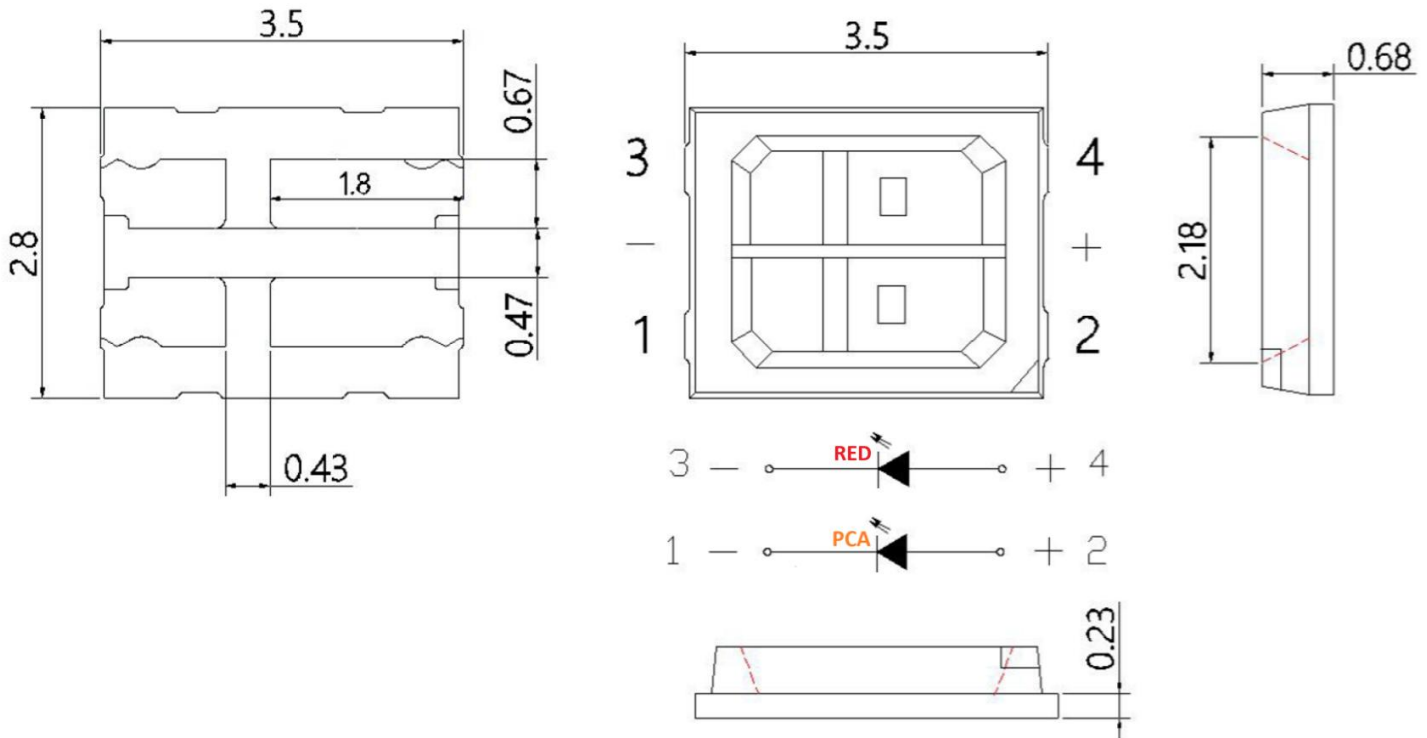
■ Application:

- Stop light
- Working light
- Turn signal light

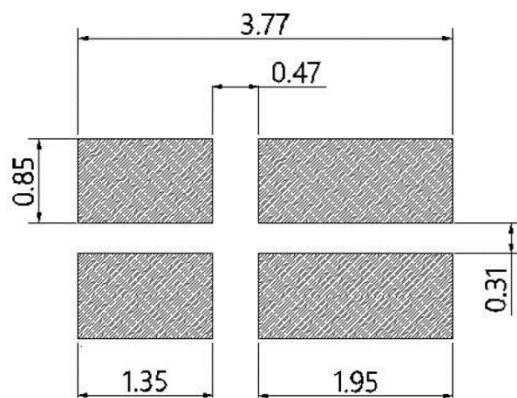
Compliance and Certification:



■ 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°C,

Product	Color	I _F (mA)	V _F (V)		Wd/CCT	Luminous Flux (lm)*	
			Typ.	max		Min	typ.
QLSP19PCARH	Red	150	2.2	2.6	620-630nm	15	25
	PC Amber	150	3	3.4	1800K	30	45

*Tolerance = +/- 10%

■ Electrical / Optical Characteristic

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward voltage(Red)	V _f	I _f =150mA	1.8	-	2.6	V
Forward voltage(PC Amber)			2.8		3.4	
ESD	KV		-	4	-	-
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

■ Absolute Maximum Rating

(T=25 °C)

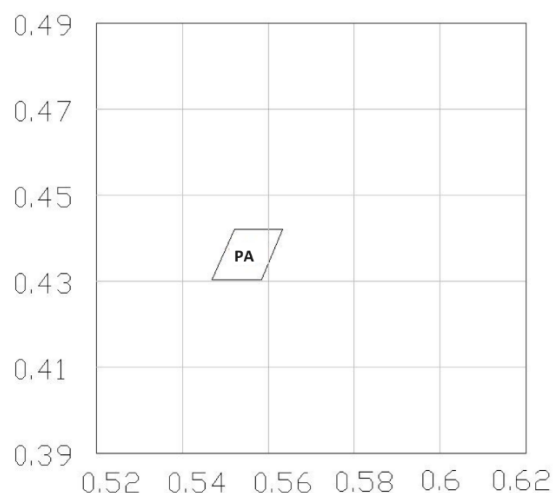
Part #	P _d (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{OP} (°C)	T _{ST} (°C)	T _{SOL} (°C)**
QLSP19PCARH	1000	150	180	5	-40 – 85	-40 - 105	260

*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

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) @ 150mA			
Code name	Low	High	Unit
QH5	15	20	Im
QJ9	20	30	
QN9	30	40	
QP9	40	50	

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

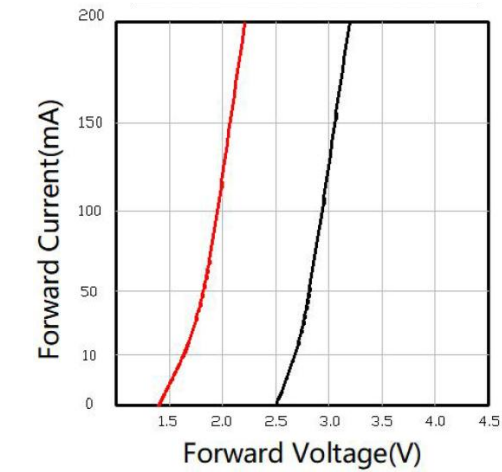
■ Forward Voltage (VF) Bin:

VF rank @ 150mA			
Code name	Low	High	Unit
PU(Red)	1.8	2.4	V
Z5(PC Amber)	2.8	3.4	

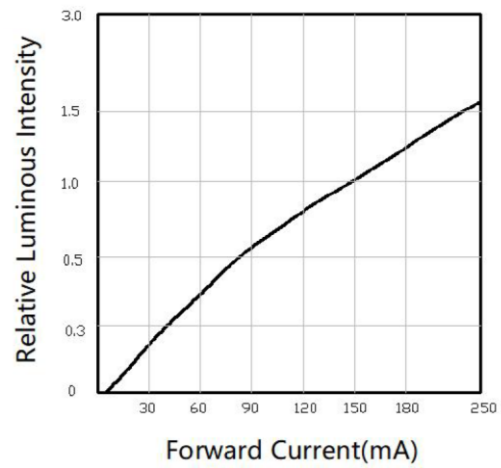
The forward voltage tolerance is $\pm 0.1V$



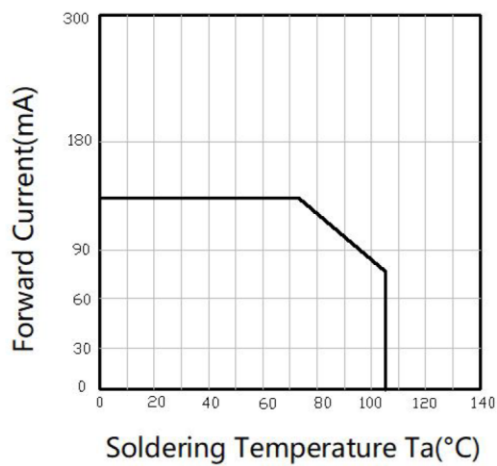
■ Characteristic Curves



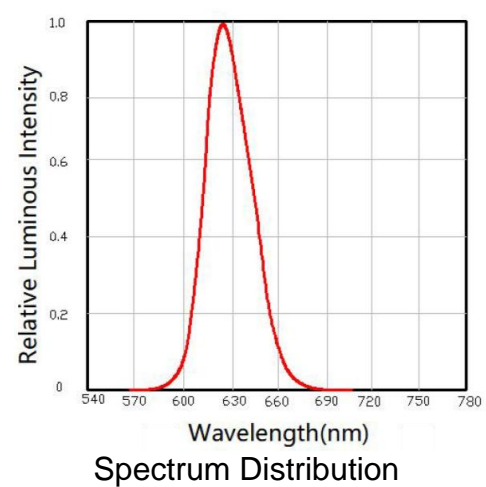
Forward Voltage vs. Forward Current



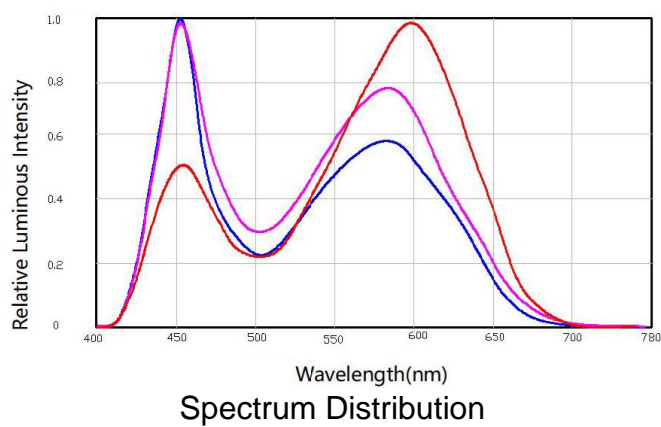
Forward current vs. Relative luminous intensity



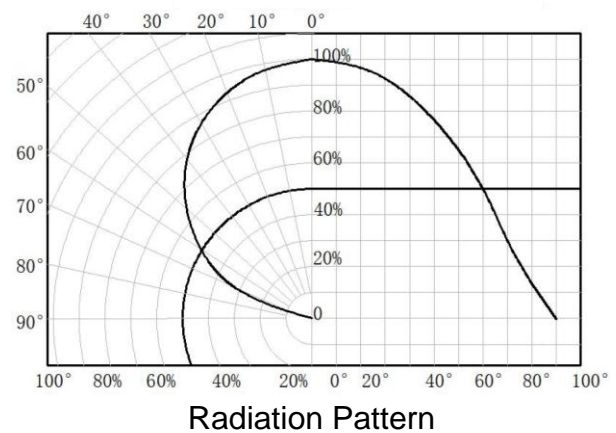
Forward Current VS Soldering Temperature



Spectrum Distribution



Spectrum Distribution



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 T _{sld} 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	200 Cycle	20 pcs

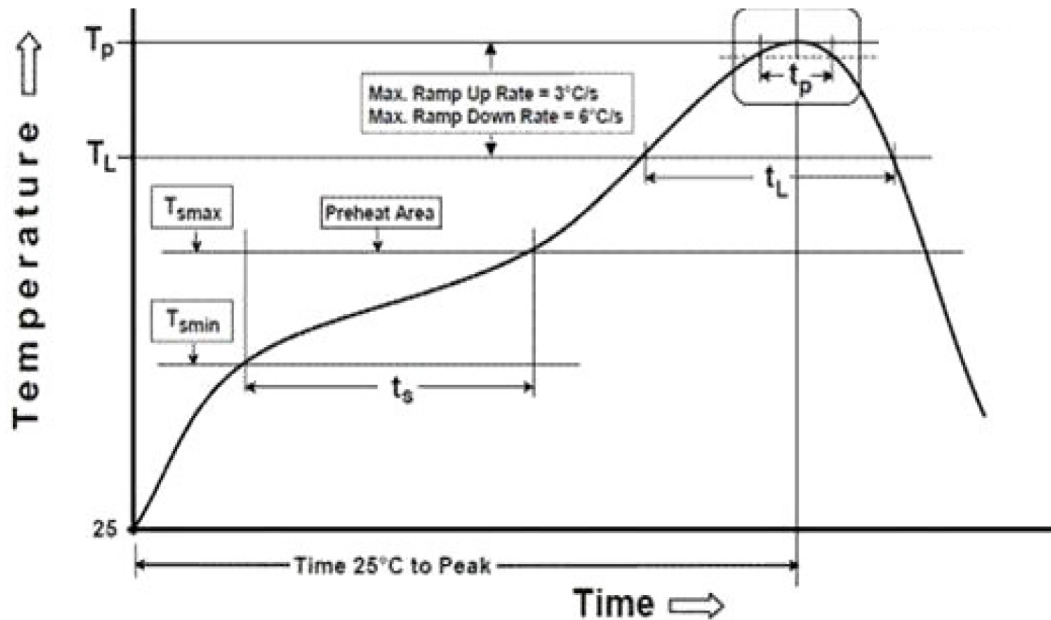
■ Judgment Criteria:

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	V _f	150 mA	$\Delta V_f < 10\%$
Luminous Flux	I _v	150 mA	$\Delta I_v < 30\%$



■ Solder Profile:

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

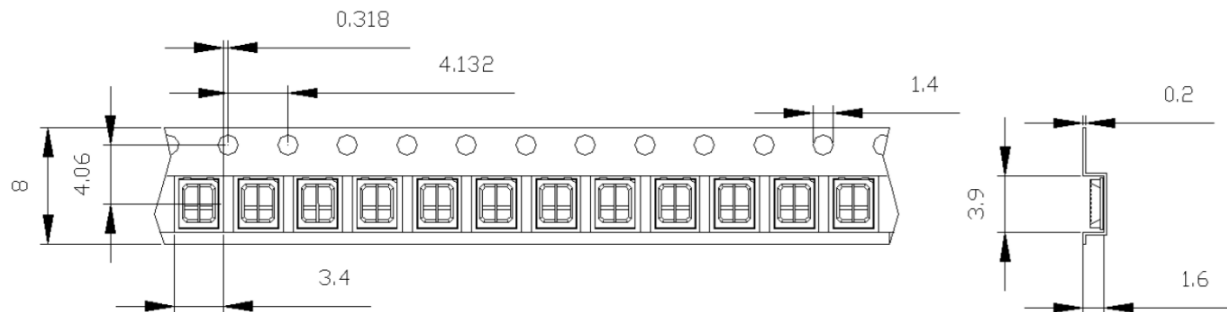


Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Temperature Min(T_{ssmin})	100°C	150°C
Temperature Max(T_{smax})	150°C	200°C
Time(t_a) from (T_{ssmin} to T_{smax})	60-120 seconds	60-120 seconds
Ramp-up rate(T_L to T_p)	3°C/second max.	3°C/second max.
Liquidous Temperature(T_L)	183°C	217°C
Time(t_L) 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.		

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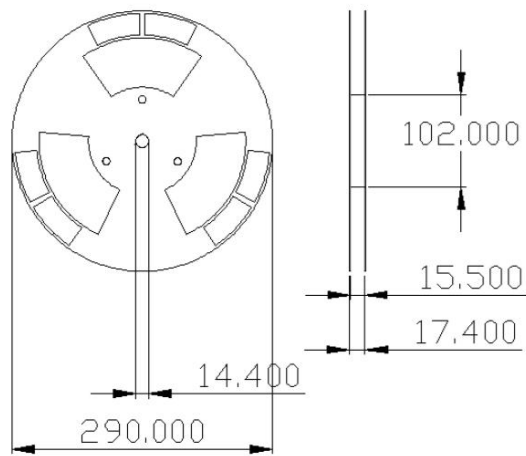


■ Taping & Packing

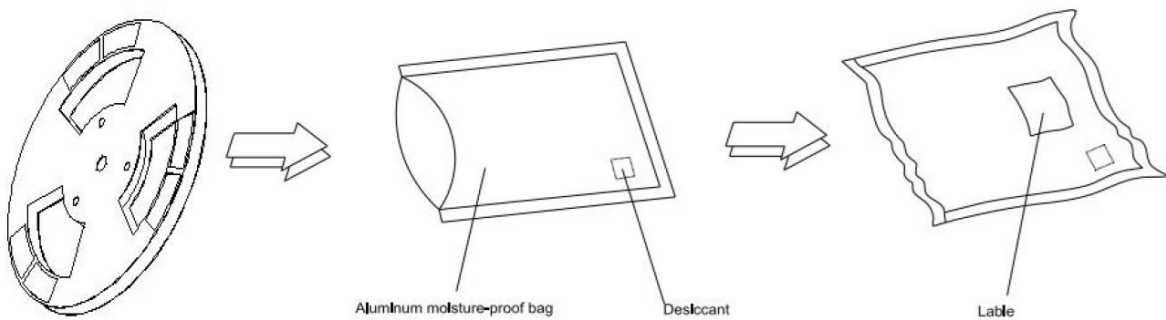


Unit : mm


Reel Dimensions






Moisture Resistant Packaging




Labeling


Quantity: XXXX


P/N: XXXXXX


Lot number: XXXXX

Iv Bin: XX

Color Bin: XX

Vf Bin: XX

Date Code: XXXX

Ordering Information:

Part #	Multiple Quantities	Quantity per Reel
QLSP19PCARH		3000 pcs



Revision History:

Revision Date:	Changes:	Version #:
02-10-2025	Initial release	1.0

