



QLSP15B-304 V1.0
(SMD 1206 Reverse Mount LED)



Product Outline:

QLSP15XX series is the chip with reverse mount SMD LED. This led with a combination of high brightness output and small footprint. thus, enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.

Features:

- Blue color chip led
- Ultra brightness with 1206 package
- Reverse mount package
- Compatible with automatic placement equipment.
- RoHS compliant
- Custom Bin available upon special request
- View angel >120°

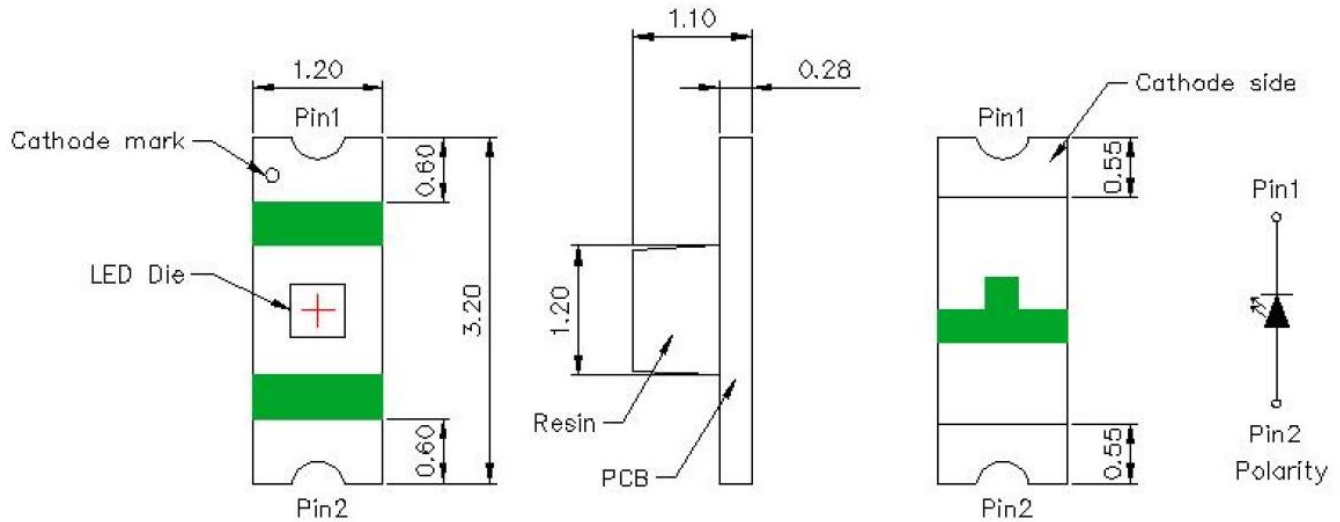
Application:

- Keypad backlighting
- Backlighting in dashboard and switch.
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- General use.

Compliance and Certification:

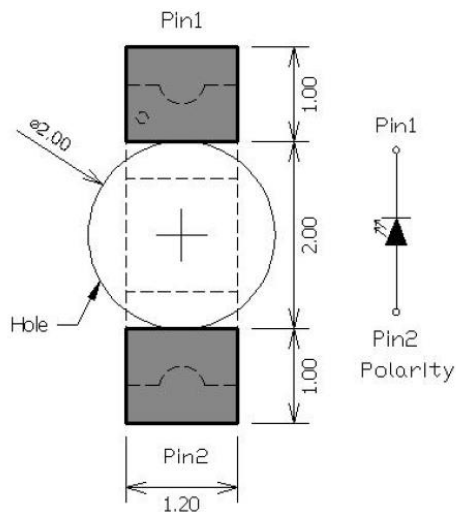


Mechanical Property: (Dimension)



- * All dimensions are in millimeters,
- * Tolerances are $\pm 0.10\text{mm}$.

Recommended Solder footprint:



- * All dimensions are in millimeters.
- * Reflow soldering must not be performed more than twice.



Characteristics

■ Absolute Maximum Ratings

(Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
DC Forward Current	I_f	20	mA
Pulse Forward Current (Duty 1/10 @1KHz)	I_{FP}	80	mA
Total Power Dissipation	P_d	78	mW
Electrostatic Discharge (HBM)	ESD	2000	V
Storage Temperature	T_{stg}	-40 ~ 100	°C
Operation Temperature	T_{opr}	-40 ~ 85	°C
Soldering Temperature	T_{sol}	260 < 10 sec	°C

(1) Proper current rating must be observed to maintain junction temperature below maximum at all time

■ Electrical / Optical Characteristic

(Ta=25 °C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I_v	45		112	mcd	IF=20mA
Forward Voltage	V_f	2.7		3.9	V	
View Angle	θ		130		deg	

(1) Tolerance of Luminous Intensity: ±15%

(2) Tolerance of Chromaticity Coordinate : ±0.007

(3) Tolerance of measurement: VF=+/- 0.1V



■ Groups

■ Wavelength Bin:

Wd Rank (nm)				Condition
Color	Code name	Low	High	unit
Blue	B	464	468	IF=20mA
	C	468	472	
	D	472	476	

■ Forward Voltage (VF) Bin:

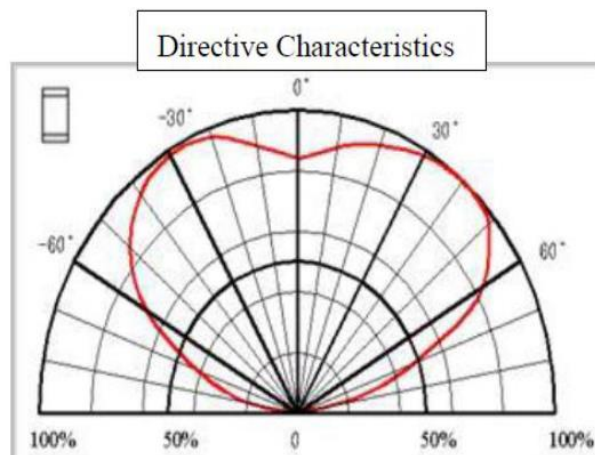
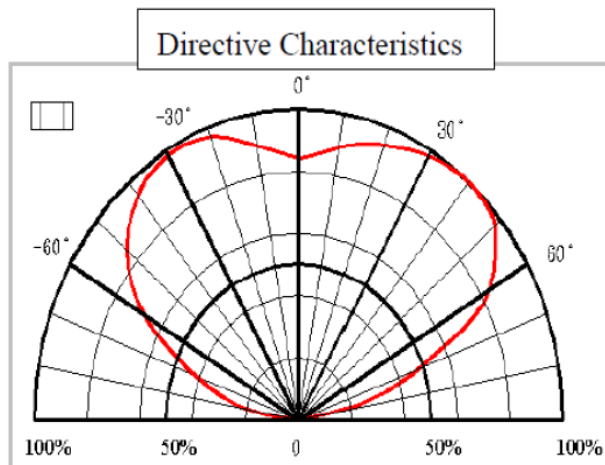
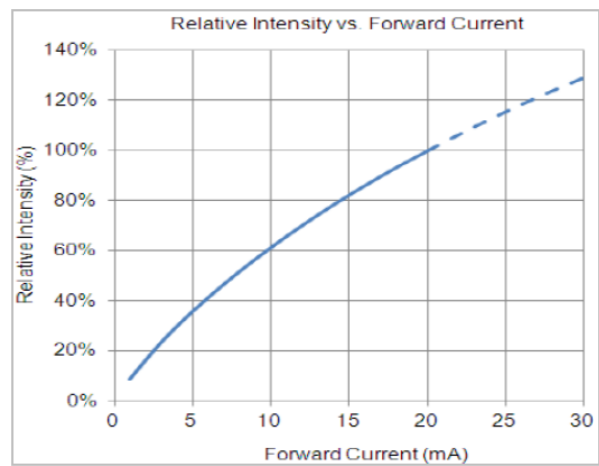
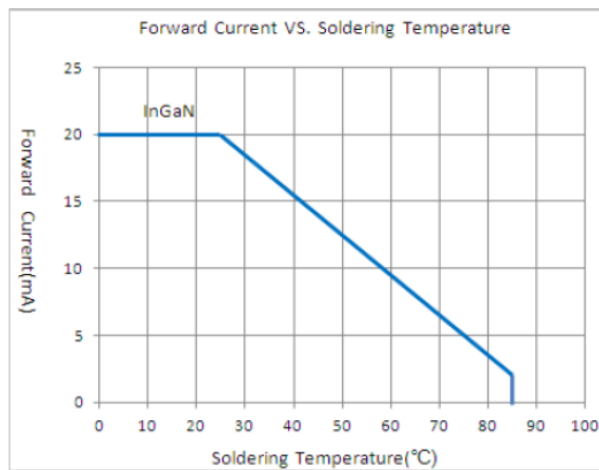
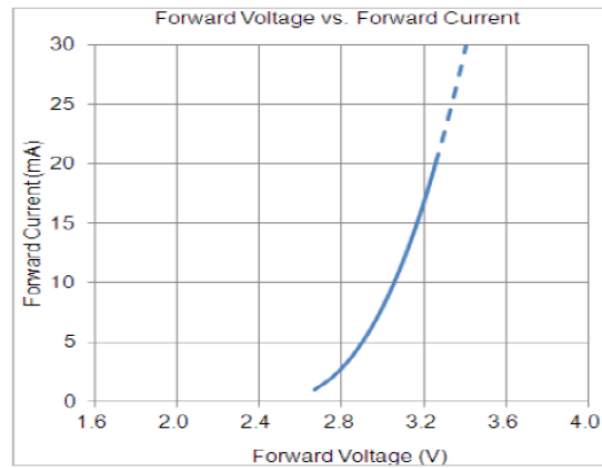
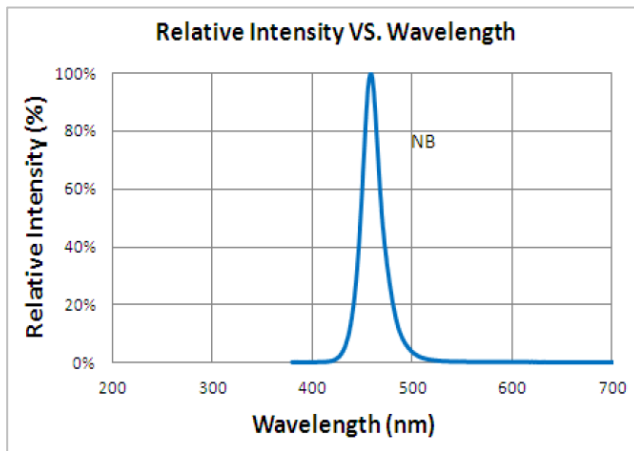
VF Rank (V)				Condition
Color	Code name	Low	High	unit
Blue	90	2.7	2.9	IF=20mA
	12	2.9	3.1	
	34	3.1	3.3	
	56	3.3	3.5	
	78	3.5	3.7	

■ Luminous Intensity Bin:

Rank (mcd)				Condition
Color	Code name	Low	High	Unit
Blue	P	45	71.5	IF=20mA
	Q	71.5	112.5	



Characteristic Curves



■ 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 Tsld 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	B : IF=20 mA	$\Delta Vf < 10\%$
Luminous Flux	Iv		$\Delta Iv < 30\%$

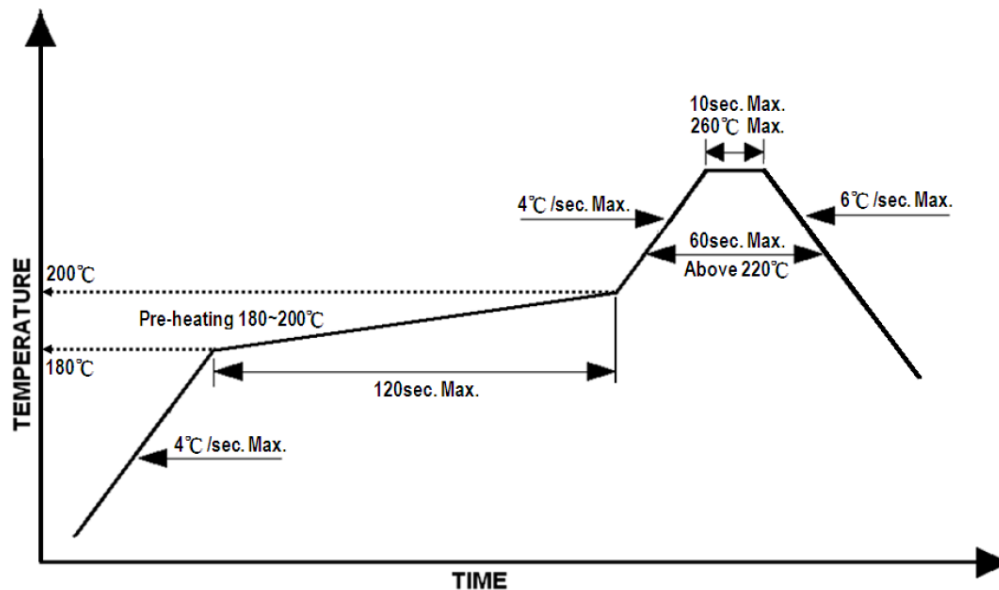


Solder Profile:

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

Recommend soldering paste specifications

1. Operating temp.: Above 220°C, 60sec
2. Peak temp.: 260°C Max., 10sec Max.
3. Reflow soldering should not be done more than two times.
4. Never take next process until the component is cooled down to room temperature after reflow.
5. The recommended reflow soldering profile (measuring on the surface of the LED terminal) is following:



Reworking

1. Rework should be completed within 5 seconds under 260°C.
2. The iron tip must not come in contact with the copper foil.
3. Twin-head type is preferred.

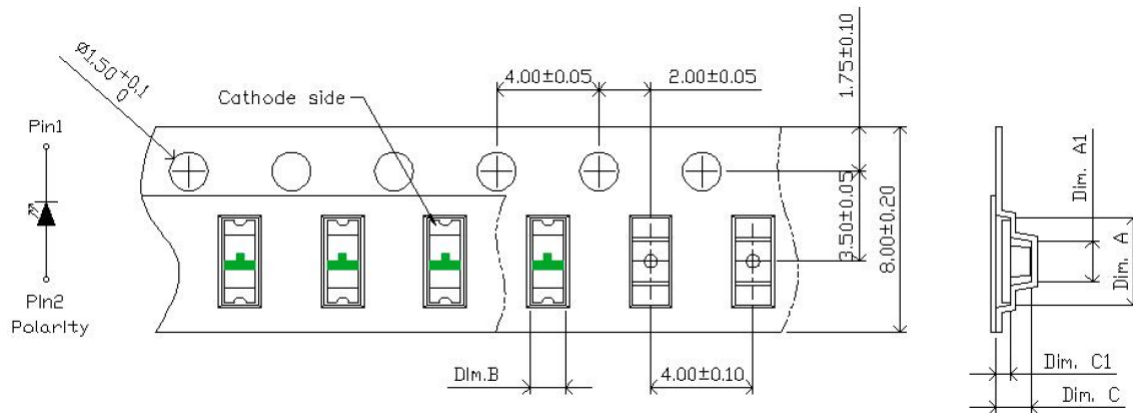
Cleaning

Following are cleaning procedures after soldering:

1. An alcohol-based solvent such as isopropyl alcohol (IPA) is recommended.
2. Temperature x Time should be 50°C x 30sec. or <30°C x 3min
3. Ultra sonic cleaning: < 15W/ bath; bath volume ≤ 1liter
4. Curing: 100°C max, <3min

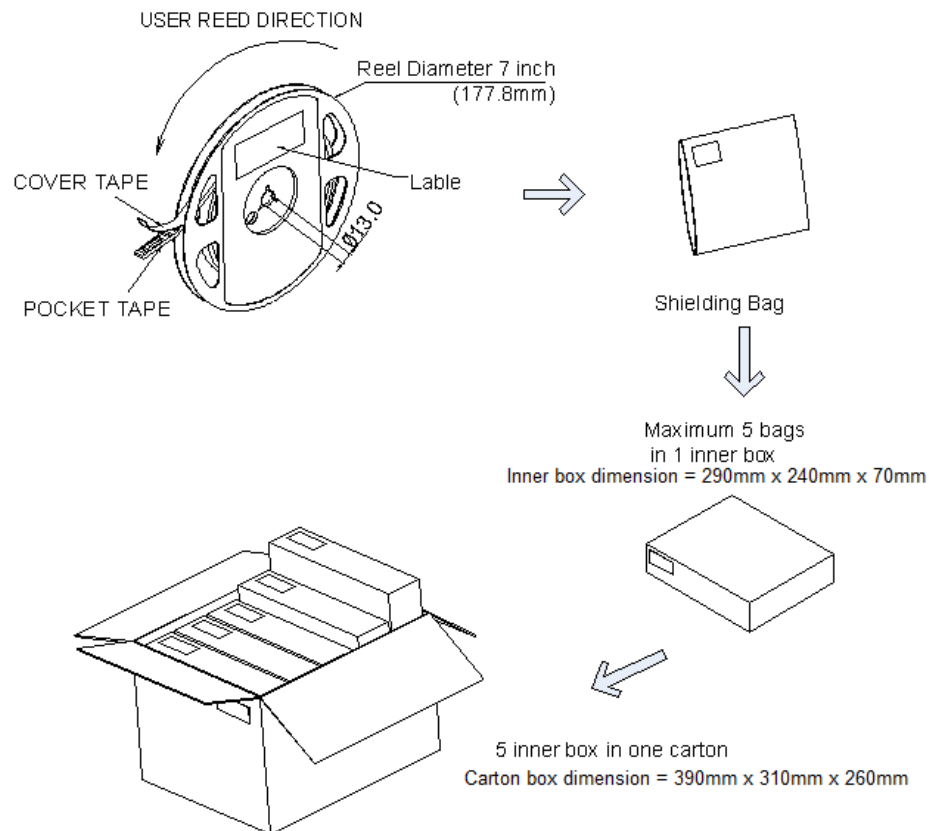


Taping & Packing:





Dim. A	Dim. B	Dim. C	Q'ty/Reel
3.40±0.10	1.42±0.10	1.37±0.10	3K


Unit: mm




Labeling


 Quantity: XXXX


 Quelighting 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
QLSP15B-304		3000 pcs

Revision History:

Revision Date:	Changes:	Version #:
05-16-2021	Initial release	1.0

