



QLSP15USDNB-270  
Reverse Mount  
Bi-color Red/Blue



## Product Outline:

This is a reverse mountable bi color LED with AllnGaP Red and InGaN Blue. With small footprint and compact size, this package is ideal for status indication.

## Features:

- Package in 8mm tape on 7" diameter reel
- Compatible with automatic placement equipment.
- Compliance with EU REACH
- RoHS compliant
- Compatible with infrared and vapor phase reflow solder process.
- Custom Bin available upon special request
- View angel  $>120^\circ$
- Color: AllnGaP Red / InGaN Blue

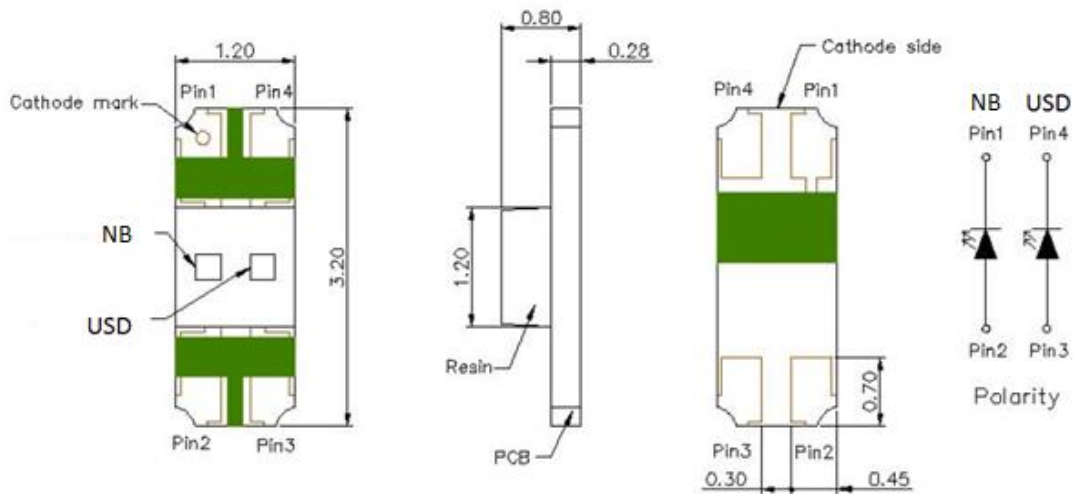
## Application:

- 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:

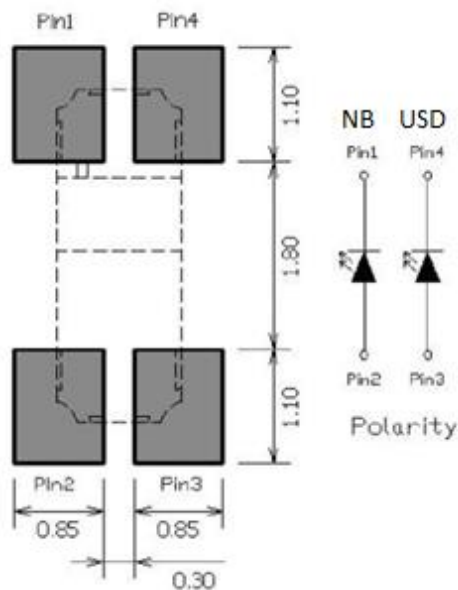


### Mechanical Property: (Dimension)



- \* 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)

Color	P <sub>D</sub> (mW)	I <sub>F</sub> (mA)	I <sub>FP</sub> * (mA)	T <sub>OP</sub> (°C)	T <sub>ST</sub> (°C)	V <sub>R</sub> (V)
USD (Red)	50	20	100	-40 ~ 85	-40 ~ 85	5
NB (Blue)	65	20	60	-40 ~ 85	-40 ~ 85	5

 \*I<sub>FP</sub>: is pulse @ 1/10 duty cycle and 0.1ms

## ■ Electrical / Optical Characteristic

(Ta=25 oC)

(AlInGaP RED)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I <sub>v</sub>		180		mcd	I <sub>F</sub> =20mA
Peak Wavelength	λ <sub>p</sub>		632		nm	
Dominant Wavelength	λ <sub>d</sub>		624		nm	
Forward Voltage	V <sub>f</sub>		2.0	2.4	V	
View Angle	θ		120		deg	

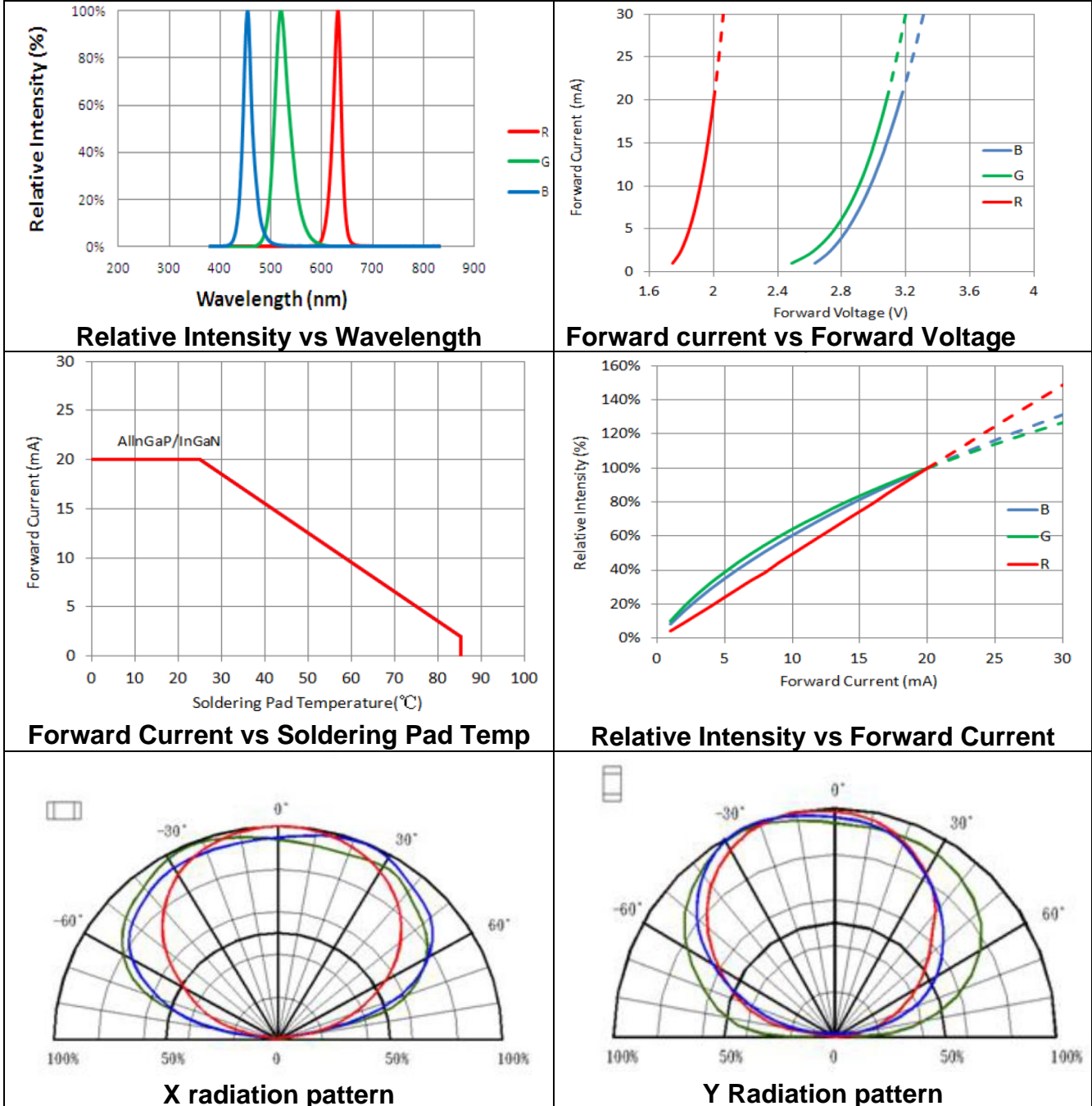
(InGaN Blue)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I <sub>v</sub>		75		mcd	I <sub>F</sub> =20mA
Peak Wavelength	λ <sub>p</sub>		470		nm	
Dominant Wavelength	λ <sub>d</sub>		472		nm	
Forward Voltage	V <sub>f</sub>		3.3	3.6	V	
View Angle	θ		120		deg	

- (1) Tolerance of Dominant Wavelength ±1nm
- (2) Tolerance of measurement: V<sub>F</sub>=+/- 0.1V
- (3) Tolerance of Luminous Intensity: ±11%



# 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 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	300 Cycle	20 pcs

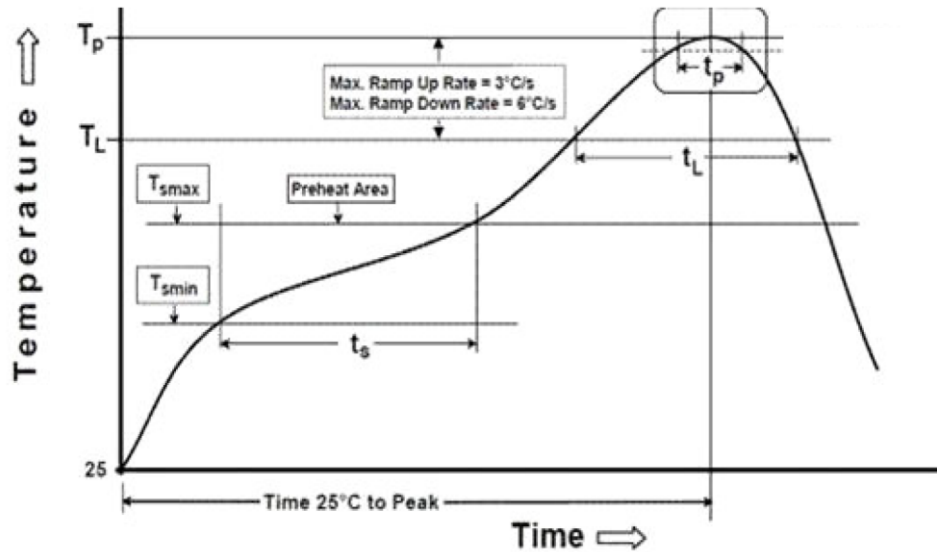
### ■ Judgment Criteria:

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	R : 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):

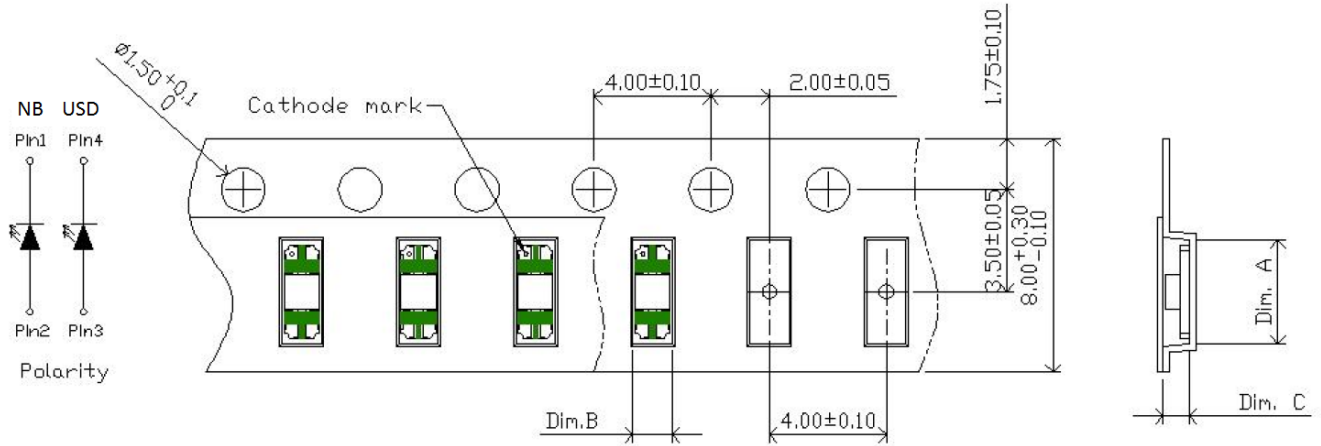


Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Temperature Min( $T_{smin}$ )	100°C	150°C
Temperature Max( $T_{smax}$ )	150°C	200°C
Time( $t_a$ ) from ( $T_{smin}$ to $T_{smax}$ )	60-120 seconds	60-120 seconds
Ramp-up rate( $T_L$ to $T_p$ )	3°C/second max.	3°C/second max.
Liquidous Temperature(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



### Taping & Packing:

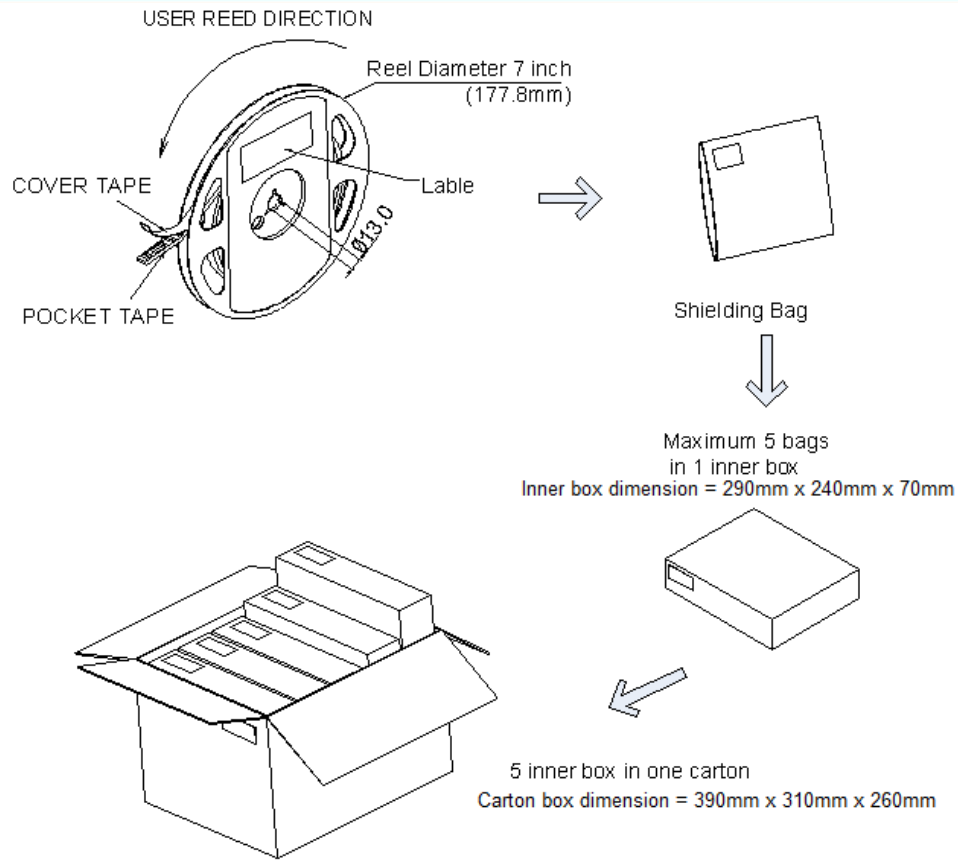


Dim. A	Dim. B	Dim. C	Q'ty/Reel
3.55±0.05	1.35±0.05	0.88±0.05	3K

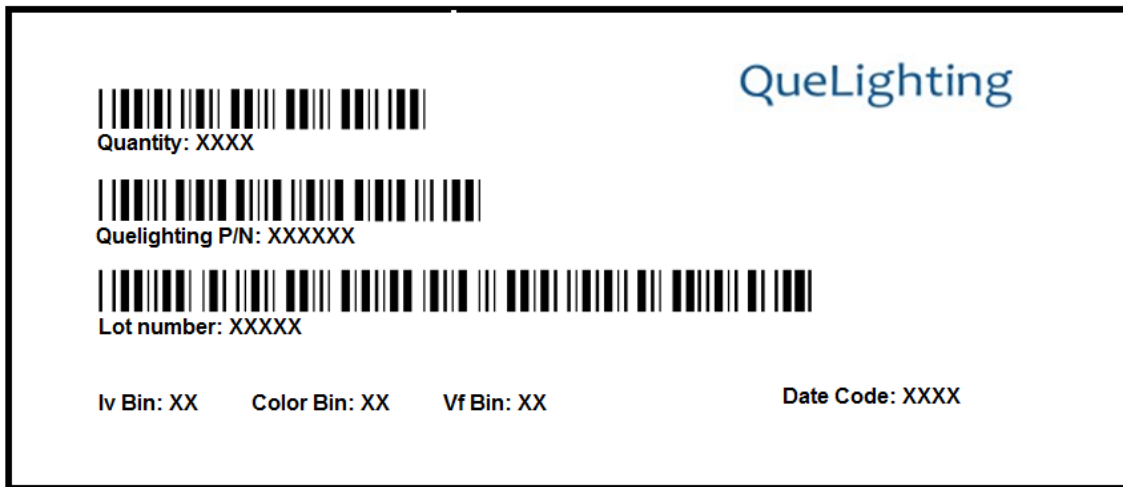
Unit : mm







## Labeling



**Ordering Information:**

Part #	Multiple Quantities	Quantity per Reel
QLSP15USDNB-270		3000 pcs



**Revision History:**

<b>Revision Date:</b>	<b>Changes:</b>	<b>Version #:</b>
2-5-2021	Initial release	1.0

