

# Specification

**Model No. : LX-P-2835R0xxC0-002P1S0x**

**Production Part No. : LX-P-2835R0xxC0-002P1S0x**

**Approval Date : 08-May-18**

**Creation Date : 08-May-18**

**Approved By : .....**

**Prepared By : .....**

**Rev. No. : R0A-18**

**Rev. Note : .....**

## **Abbreviations-**

**LX - P - 2835 R 0xx C0 - 002 P1S0 x**

**1 2 3 4 5 6 7 8 9**

- 1** Company Initials
- 2** Lead Frame Material - F(IRON)/ P(PPA)/ T(PCT)/ E(EMC)/ L(ALUMINIUM)/ U(COPPER)/ C(CERAMIC)
- 3** Package Size - 2.8 x 3.5 mm
- 4** Emitting Color - W(White)/ R(Red)/ G(Green)/ B(Blue)/ V(Violet)/ Y(Yellow)
- 5** Average Minimum Lumen (@4000K)/ MCD (@25°C)
- 6** C.R.I. - C1(70Ra)/ C2(80Ra)/ C3(90Ra)/ C0(Color LED)
- 7** Package Operating Power - 001(Up to 0.1W)/ 002(Up to 0.2W)/ 005(Up to 0.5W).....
- 8** Series and Parallel Combination - P1(1Chip in Parallel)/ S0(ZERO Chip in Series).....
- 9** Bonding Wire Material - L(Alloy Wire)/ G(Gold Wire)/ U(Copper Alloy Wire)

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# LX-P-2835R0xxC0-002P1S0x

## Features

- PLCC-2 Package
- Wide View Angle
- Suitable for all SMT Assembly and Soldering Process
- Available on tape and reel
- Moisture sensitivity level: LEVEL 4
- Package: 4000 PC/Reel
- RoHS Compliant



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
DISCHARGE SENSITIVE  
DEVICES (E.S.D.)

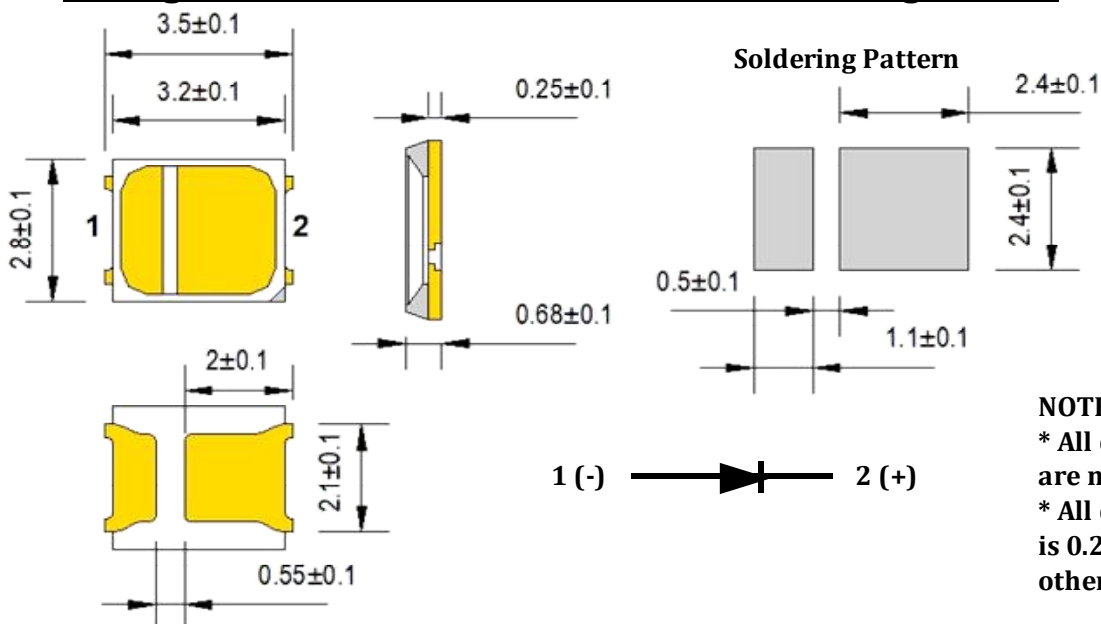
## Description

The color light LED are manufactured by using a respective color chip

## Applications

- Indoor Lighting Applications
- Indoor Display
- Backlight for LCD, Switch, Display, Symbols
- Automotive Lighting
- Other general use

## Package Dimensions and Recommended Soldering Pattern



### NOTE:

- \* All dimension units are millimeter (mm)
- \* All dimension tolerance is 0.2mm unless otherwise noted.

# LX-P-2835R0xxC0-002P1S0x

## Product Selection Guide

Part No.	Chip Material	Lens Type
LX-P-2835R0xxC0-002P1S0x	Red (AlGaInP)	Water Clear

## Production List

Model No.	Wave Length (λ)	MCD min	MCD max	Test Conditions
LX-P-2835R003C0-002P1S0L	615-635nm	900	1700	If : 60mA Vf : 1.8-2.8V Ta : 25°C VR : 5V
LX-P-2835R003C0-002P1S0G				
LX-P-2835R005C0-002P1S0L		1700	2200	
LX-P-2835R005C0-002P1S0G				
LX-P-2835R007C0-002P1S0L		2200	2800	
LX-P-2835R007C0-002P1S0G				
LX-P-2835R009C0-002P1S0L		2800	3400	
LX-P-2835R009C0-002P1S0G				

\*Lumen test done under 25°C

## Electrical / Optical Characteristics

Parameter	Min.	Typ.	Max.	Unit	Test Conditions
Forward Voltage (Vf)	1.8	--	2.8	V	If : 60mA
View Angle (2θ 1/2)	--	120	--	deg	Vf : 1.8-2.8V
Coclor Rendering Index (Ra)	--	--	--	Ra	Ta : 25°C
Reverse Voltage (IR)	--	--	5	μA	VR : 5V

### Notes:

- (2θ 1/2) is the angle from optical centerline where the luminous intensity is 1/2 of the optical centline luminous intencity value.
- Above data measurement tolerance is:
  - Luminous Flux : ± 10%
  - Forward Voltage : ± 0.1V
  - CRI : ± 3 Ra
  - Colour Coordinates : ± 0.003

## LX-P-2835R0xxC0-002P1S0x

### Absolute Maximum Ratings @ Ta = 25°C

Parameter	Rating	Unit
Power Dissipation (Pd)	210	mW
Forward Current (If)	60	mA
Peak Forward Current (IFP)	90	mA
Reverse Voltage (VR)	5	V
Electrostatic Discharge (HBM-ESD)	2000	V
Operating Temperature (Topr)	-40 ~ +85	°C
Storage Temperature (Tstg)	-40 ~ +100	°C
Thermal Resistance (Rthj-s) (Junction / Soldering Point)	25	°C/W
Junction Temperature (Tj)	115	°C

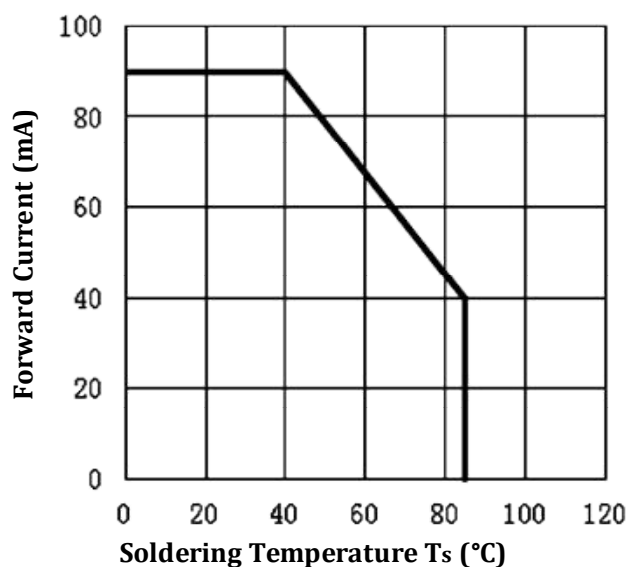
#### Notes:

1. 1/10 Duty Cycle, 0.1ms pulse width.

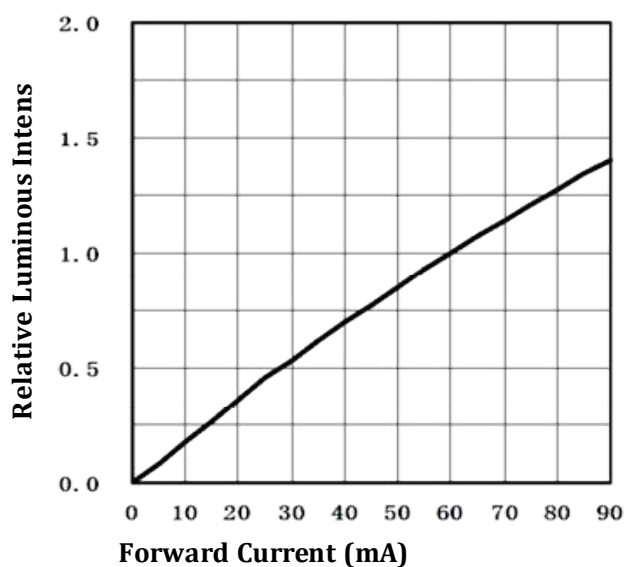
# LX-P-2835R0xxC0-002P1S0x

## Typical Optical Characteristics Curves

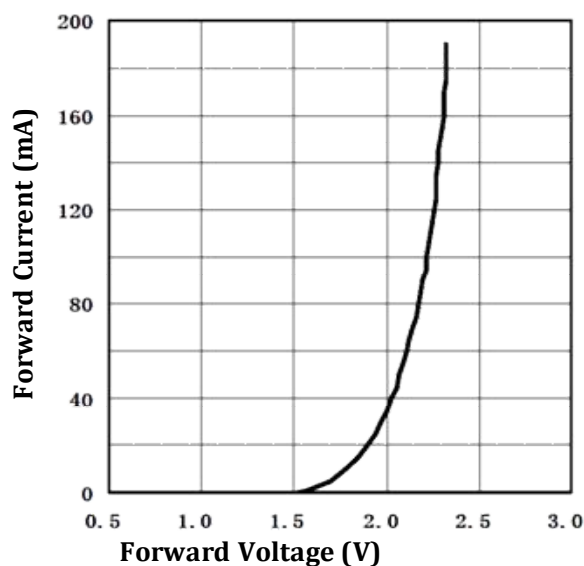
Soldering Temperature V/S Forward Current



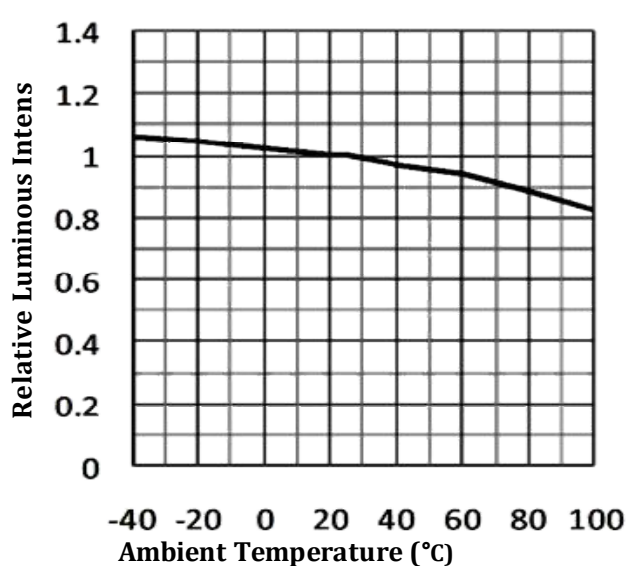
Forward Current V/S Relative Intensity



Forward Voltage V/S Forward Current



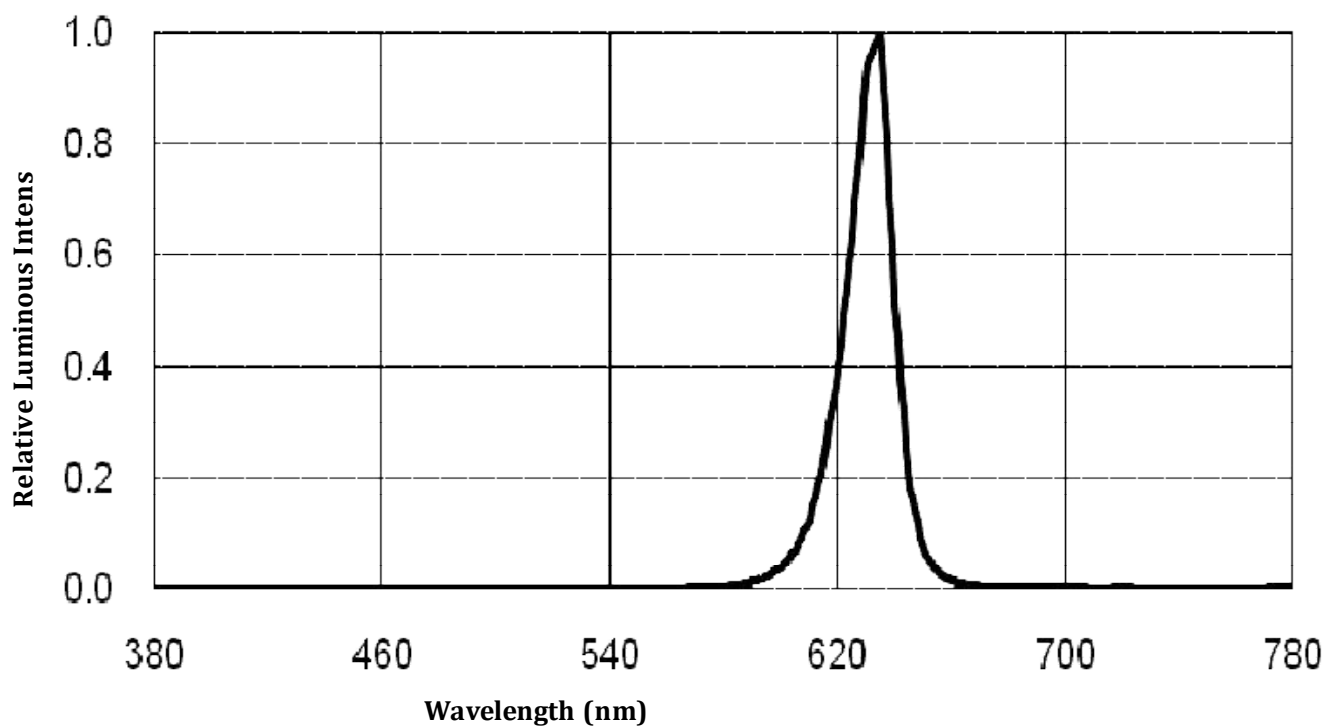
Ambient Temp. V/S Relative Intensity



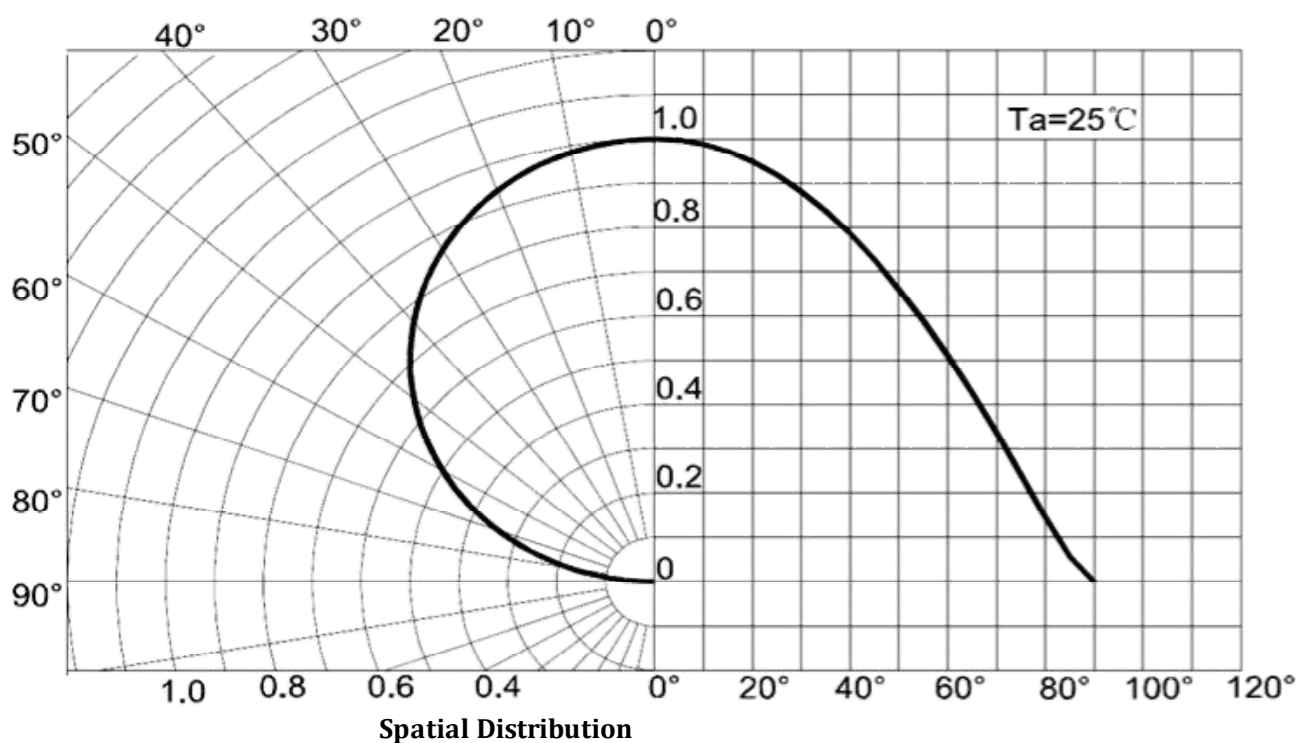
## LX-P-2835R0xxC0-002P1S0x

### Typical Optical Characteristics Curves

#### Relative Spectral Emission



#### Radiation Diagram



## LX-P-2835R0xxC0-002P1S0x

### Reliability Test Items and Conditions

Test Item	Ref. Standard	Test Condition	Time	Quantity	Ac/Re
Reflow	JESD22-B106	Temp 260°C max T=10 sec	3 times	22 Pcs	0/1
Temperature Cycle	JESD22-A104	100°C± 5°C 30min. ↑↓5 min -40°C±50°C 30min.	100 Cycles	22 Pcs	0/1
High Temperature Storage	JESD22-A103	Temp: 100°C±50°C	1000 Hrs.	22 Pcs	0/1
Low Temperature Storage	JESD22-A119	Temp: -40°C±50°C	1000 Hrs.	22 Pcs	0/1
Life Test	JESD22-A108	Ta=25°C±50°C If=60mA	1000 Hrs.	22 Pcs	0/1
High Temperature High Humidity Life Test	JESD22-A101	85°C±50°C/ 85%RH If=60mA	1000 Hrs.	22 Pcs	0/1

### Failure Criteria

Ref. Standard	Symbol	Test Condition	Failure Criteria	
			Min.	Max.
Forward Voltage	VF	IF=60mA	--	U.S.L*)x1.1
Reverse Current	IR	VR=5V	--	10μA
Luminous Flux	Lm	IF=60mA	L.S.L*)x0.7	--

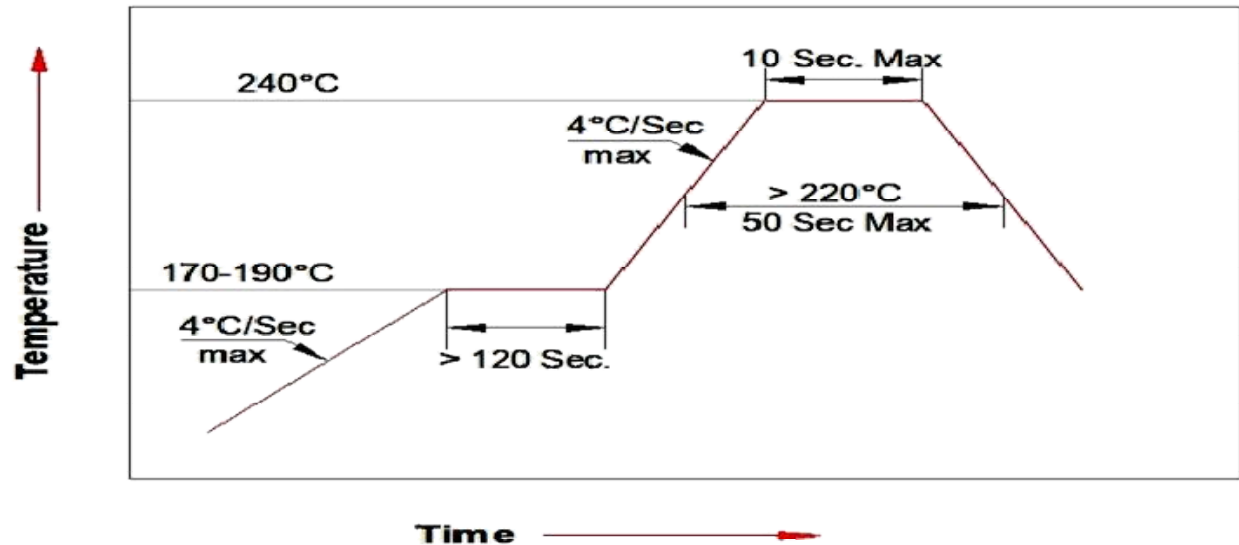
U.S.L: Upper standard level

L.S.L: Lower standard level

\*The technical information shown in the data sheets are limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.

## LX-P-2835R0xxC0-002P1S0x

### SMT Reflow Soldering Instruction



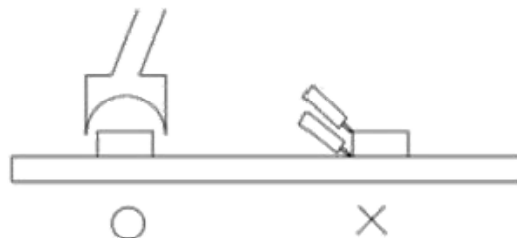
1. Reflow soldering should not be done more than two times.
2. When soldering, do not put stress on the LEDs during heating

### Soldering iron

1. When hand soldering, keep the temperature of iron below less 300°C less than 3 seconds
2. The hand solder should be done only one times

### Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed in advance whether the characteristics of LEDs will or will not be damaged by repairing.



### Cautions

The encapsulated material of the LEDs is silicone. Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when use the picking up nozzle, the pressure on the silicone resin should be proper.

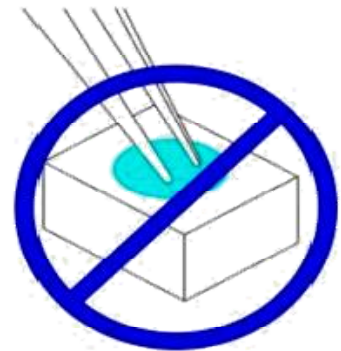
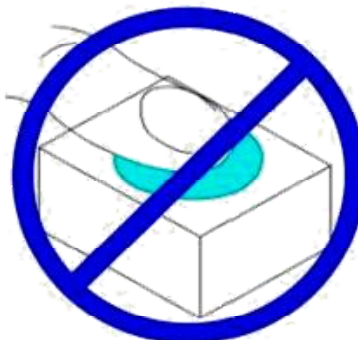
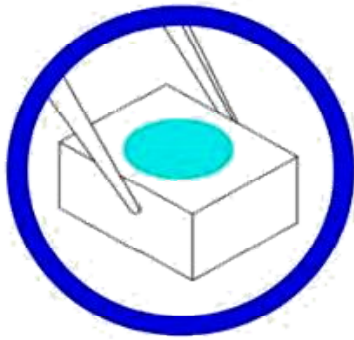


## LX-P-2835R0xxC0-002P1S0x

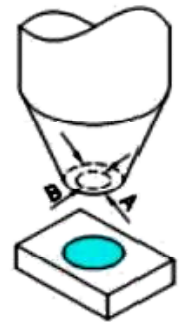
### Handling Precautions

Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more prone to damage by external mechanical force. As a result, Special handling precautions must be observed during assembling using silicone encapsulated LED products, Failure to comply might leads to damage and premature failure of the LED.

1. Handle the component along the side surface by using forceps or appropriate tools; do not directly touch or Handle the silicone lens surface, it may damage the internal circuitry.



2. The outer diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks. The inner diameter of the nozzle should be as large as possible. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.



3. Do not stack together assembled PCBs containing LEDs. Impact may scratch the silicone lens or damage the internal circuitry

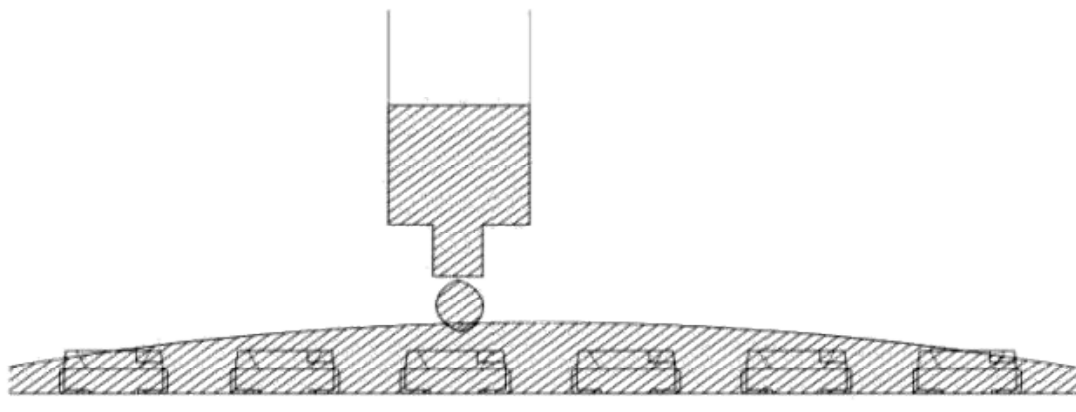
4. Not suitable to operate in acidic environment, PH<7



## LX-P-2835R0xxC0-002P1S0x

5.LED operating environment and sulfur element composition cannot be over 100PPM in the LED mating usage material.

6.When we need to use external glue for LED application products, please make sure that the external glue matches the LED packaging glue. Additionally ,as most of LED packaging glue is silica gel, and it has strong Oxygen permeability as well as strong moisture permeability; in order to prevent external material from getting into the inside of LED, which may cause the malfunction of LED, the single content of Bromine element is required to be less than 900PPM,the single content of Chlorine element is required to be less than 900PPM,the total content of Bromine element and Chlorine element in the external glue of the application products is required to be less than 1500PPM



7.Other points for attention, please refer to our LED user manual.

**SPECIAL NOTE:**

**LED package reflecting surface is coated with silver and covered with phosphor, both are highly reactive with BROMINE and SULPHOR under high temperatures, pay high attention for high concentration of Bromine and Sulphor. LED Color may shift when operated under high concentration of Bromine and Sulphor.**

# LX-P-2835R0xxC0-002P1S0x

$\Phi V$ : Luminous Intensity  
 VF: Forward Voltage  
 IF: Forward Current  
 TC: Color Temperature  
 X/Y: Coordinate Rank



RoHS

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**PART NO.:**

**$\Phi V$ :**

**IF:**

**VF:**

**TC:**

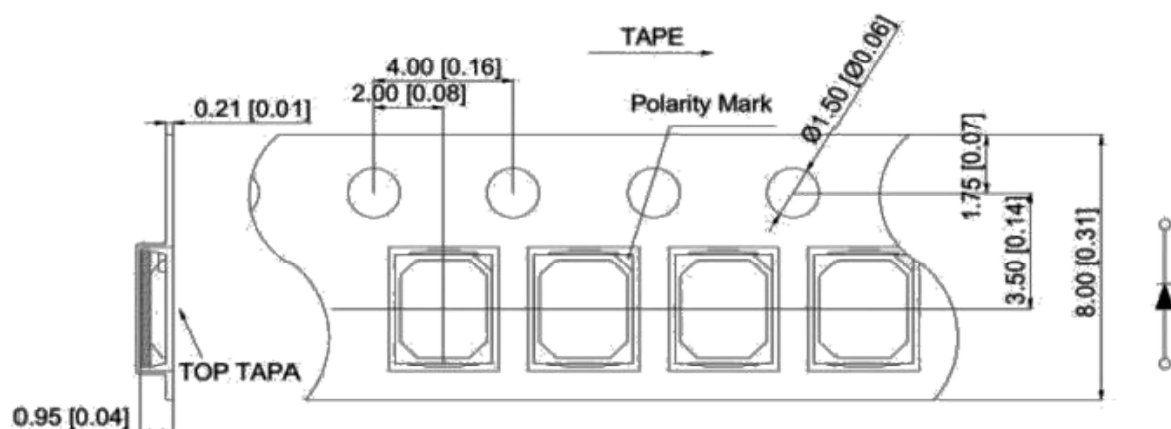
**X/Y ( $\lambda$ ):**

**QTY:**

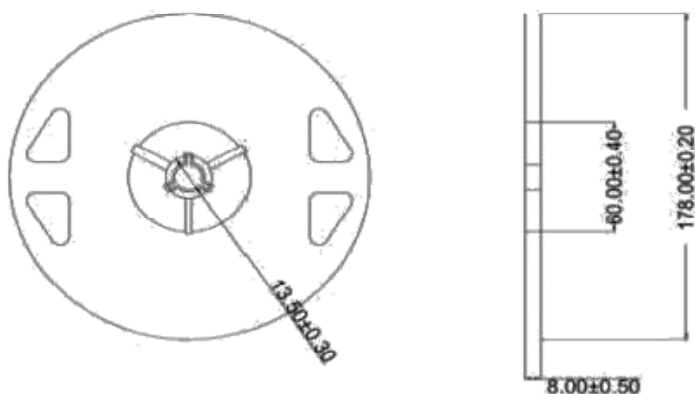
**SEALING DATE/ LOT NO.:**



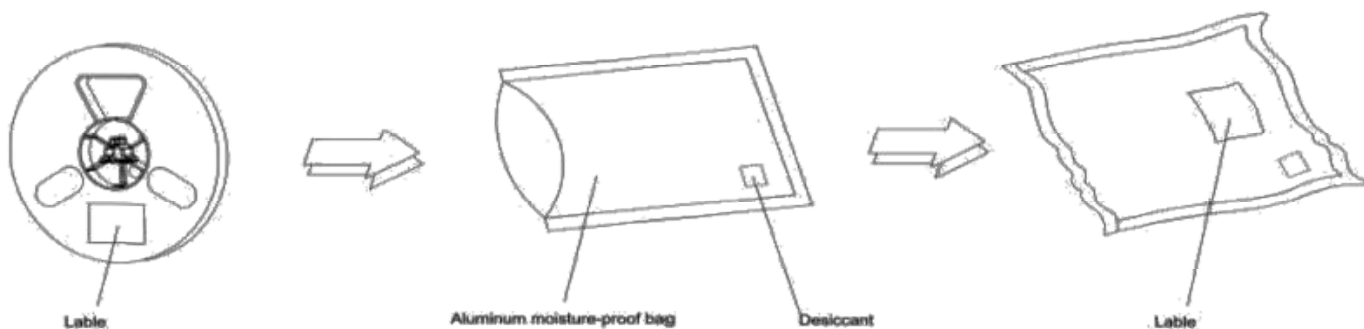
## Tape Specifications (Units : mm)



## Reel Dimensions



## Moisture Resistant Packaging



Note: The tolerances unless mentioned is  $\pm 0.1\text{mm}$ , Unit: mm