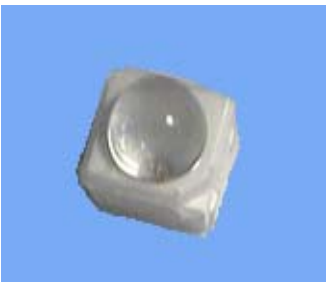


SMD ■ Top View LEDs with Lens 67-21B/BAC-AHLA-MS



Features

- P-LCC-2 package.
- Colored diffused resin.
- Wide viewing angle 40°
- Inner reflector and white package.
- Soldering methods: IR reflow soldering.
- Compliance with EU REACH

Description

• The 67-21B series is available in soft orange, red, green and yellow. Due to the package design, the LED has wide viewing angle and optimized light coupling by inter reflector. This feature makes the ideal for light pipe application. The low current requirement makes this device ideal for portable equipment or any other application where power is at a premium.

Applications

- Indicator and backlight for audio and video equipment.
- Indicator and backlight in office and family equipment.
- Flat backlight for LCD's, switches and symbols.
- Light pipe application.
- General use.

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	Blue	Diffused

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	30	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	100	mA
Power Dissipation	P_d	120	mW
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +100	°C
ESD (Classification acc. AEC Q101)	ESD_{HBM}	1000	V
Soldering Temperature	T_{sol}	Reflow Soldering : 260 °C for 10 sec. Hand Soldering : 350 °C for 3 sec.	

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I _v	715	-----	1800	mcd	I _F =20mA
Viewing Angle	2θ _{1/2}	-----	40	-----	deg	I _F =20mA
Peak Wavelength	λ _p	-----	468	-----	nm	I _F =20mA
Dominant Wavelength	λ _d	465	-----	475	nm	I _F =20mA
Spectrum Radiation Bandwidth	Δλ	-----	26	-----	nm	I _F =20mA
Forward Voltage	V _F	2.8	-----	3.6	V	I _F =20mA
Reverse Current	I _R	-----	-----	50	μA	V _R =5V

Note:

1. Tolerance of Luminous Intensity: ±10%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
H	715	900	mcd	$I_F = 20\text{mA}$
J	900	1125		
K	1125	1425		
L	1425	1800		

Note. Tolerance of Luminous Intensity: $\pm 10\%$

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
1a	465.0	467.5	nm	$I_F = 20\text{mA}$
1b	467.5	470.0		
2a	470.0	472.5		
2b	472.5	475.0		

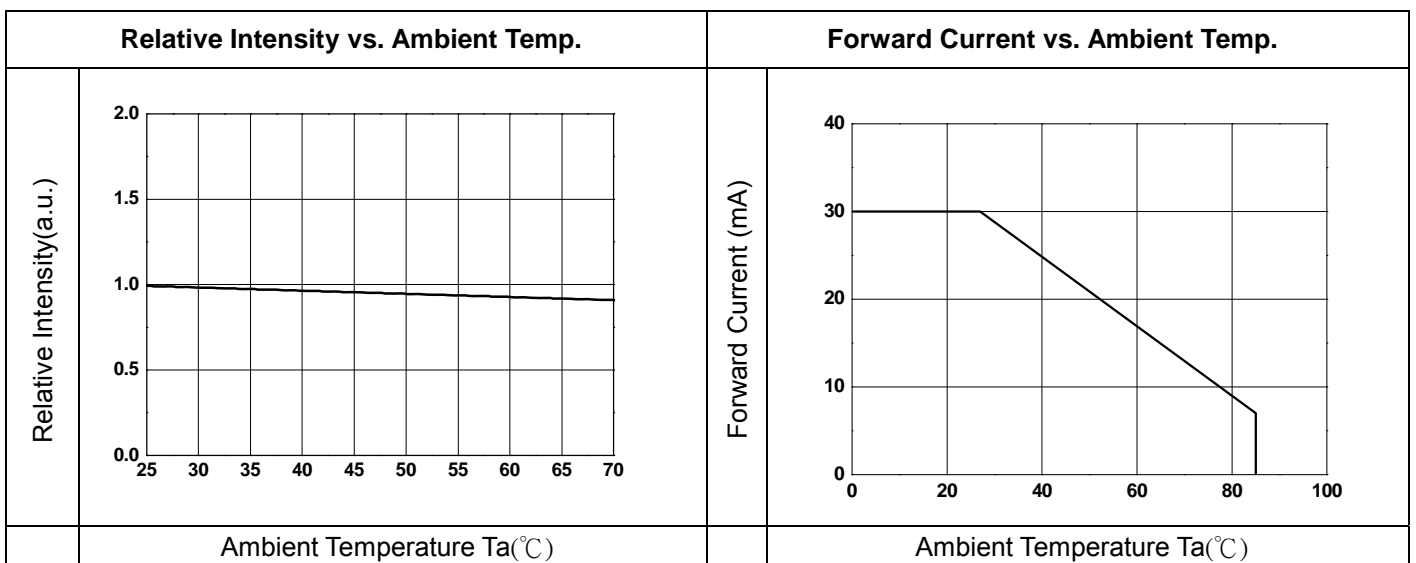
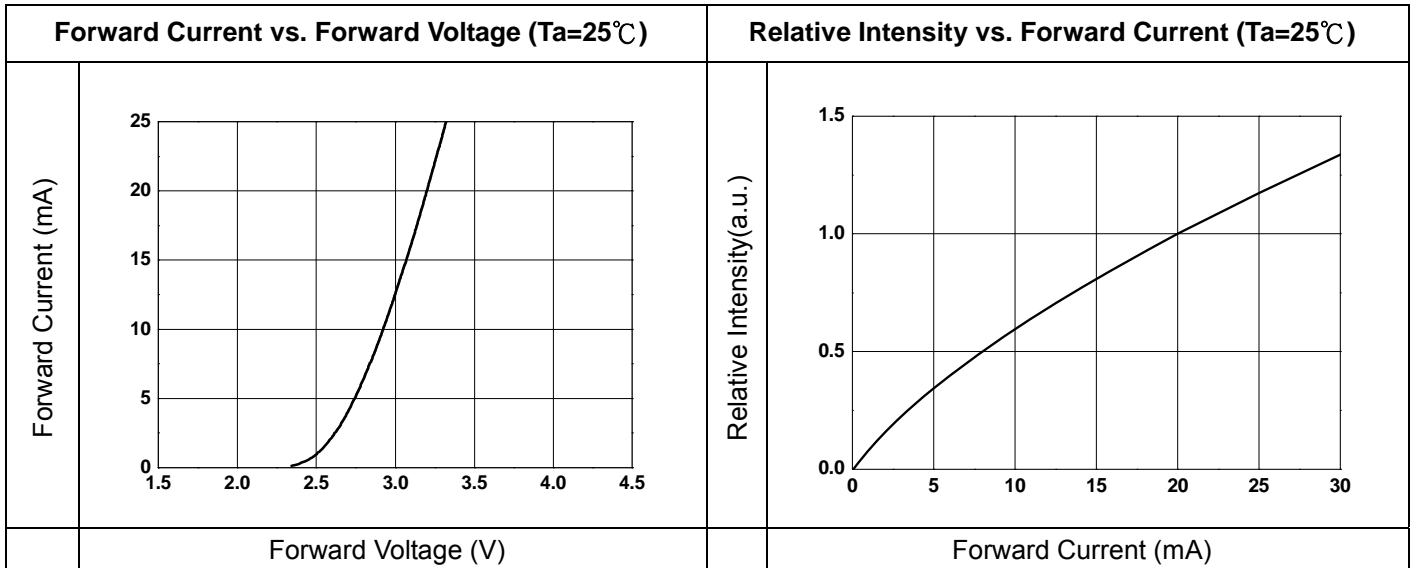
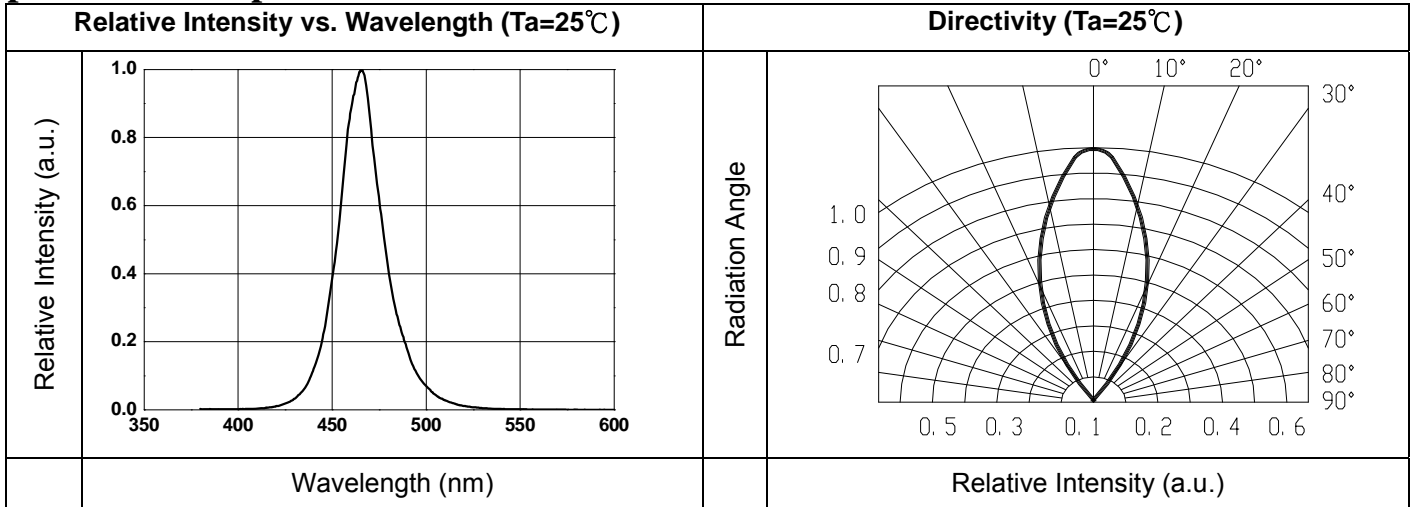
Note. Tolerance of Dominant Wavelength: $\pm 1\text{nm}$

Bin Range of Forward Voltage

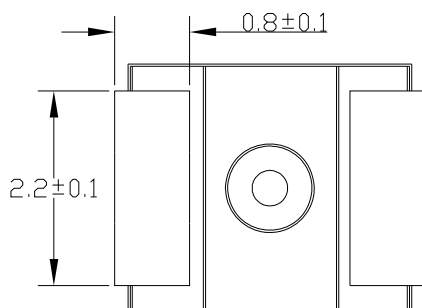
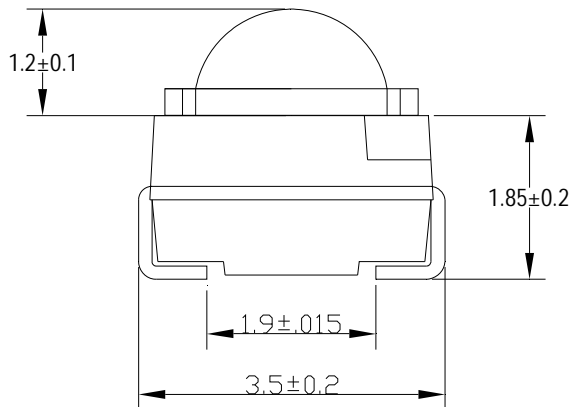
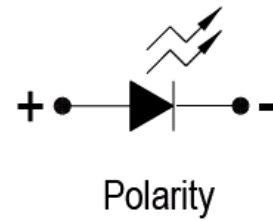
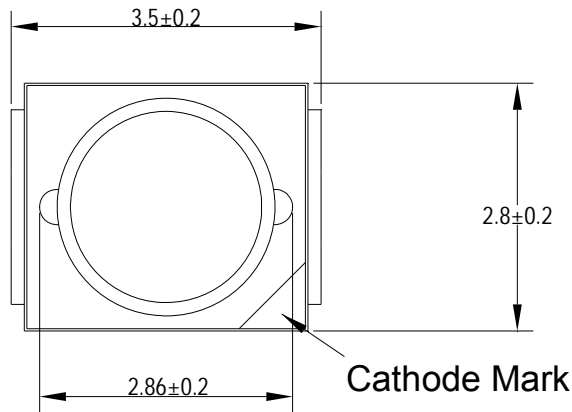
Bin Code	Min.	Max.	Unit	Condition
0	2.8	3.0	V	$I_F = 20\text{mA}$
1	3.0	3.2		
2	3.2	3.4		
3	3.4	3.6		

Note. Tolerance of Forward Voltage: $\pm 0.1\text{V}$

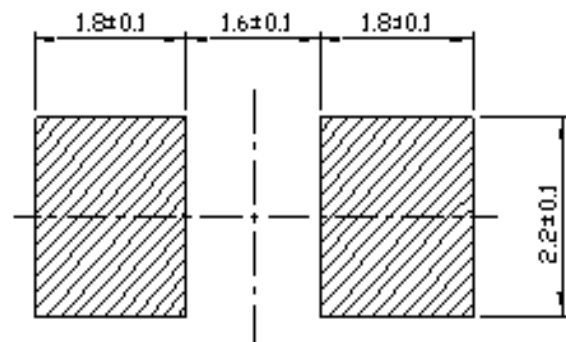
Typical Electro-Optical Characteristics Curves



Package Dimension



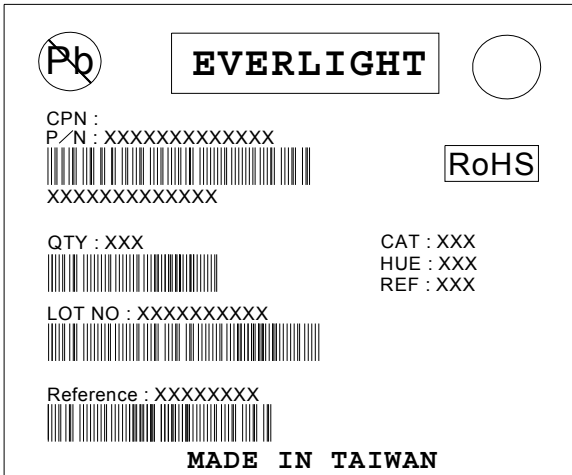
For reflow soldering (propose)



Note: 1.All dimensions are in millimeters
2.Tolerances Unless Dimension = ±0.1mm

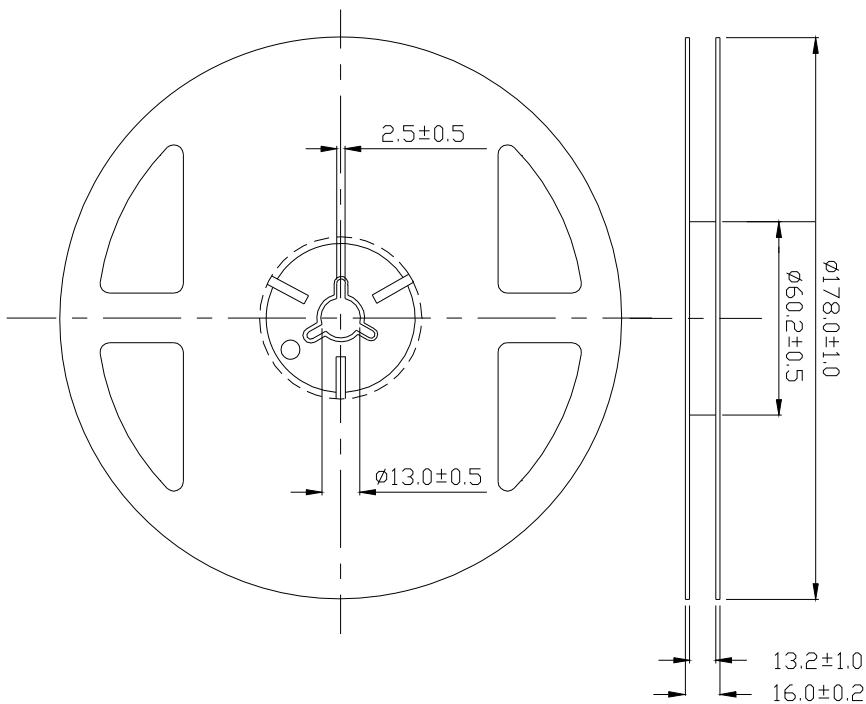
Moisture Resistant Packing Materials

Label Explanation

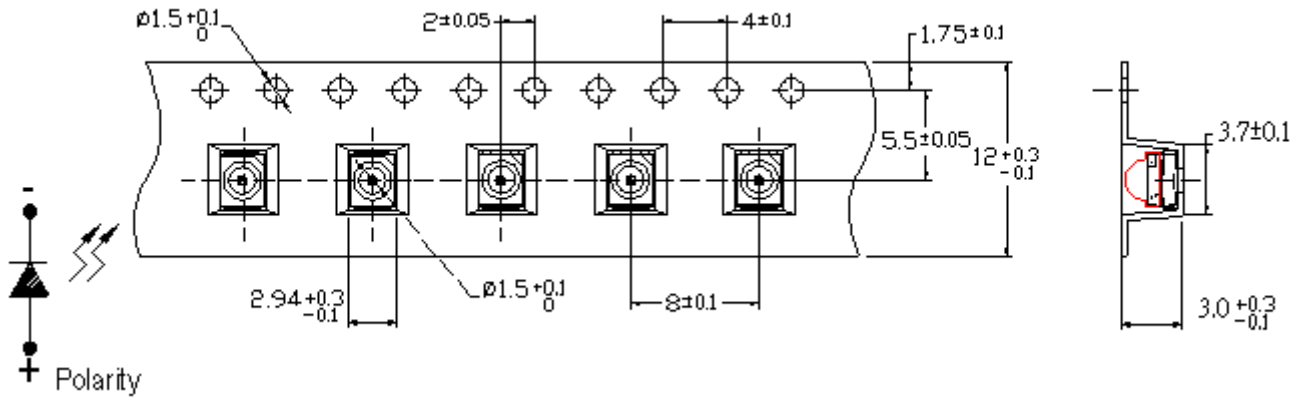


- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions



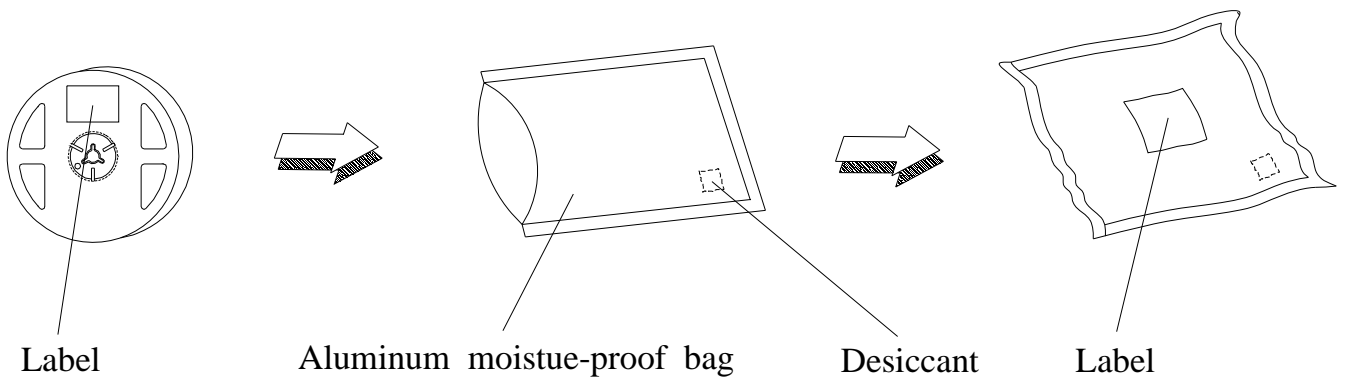
Carrier Tape Dimensions:



Note:

- 1.The tolerances unless mentioned is : ± 0.1 mm, Unit = mm
- 2.Minimum packing amount is 250/500 pcs per reel

Moisture Resistant Packing Process



Note: Tolerances unless mentioned ± 0.1 mm. Unit = mm

Precautions for Use

1. Over-current-proof

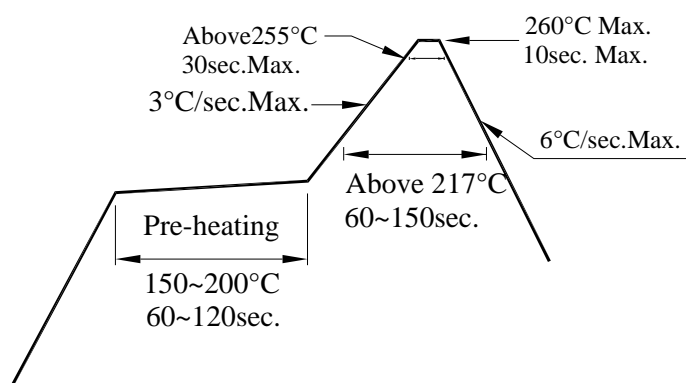
- Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

- Do not open moisture proof bag before the products are ready to use.
- Before opening the package: The LEDs should be kept at 30°C or less and 90%RH or less.
- After opening the package: The LED's floor life is 168Hrs under 30°C or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.
- If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.
Baking treatment : 60±5°C for 24 hours.

3. Soldering Condition

- Pb-free solder temperature profile



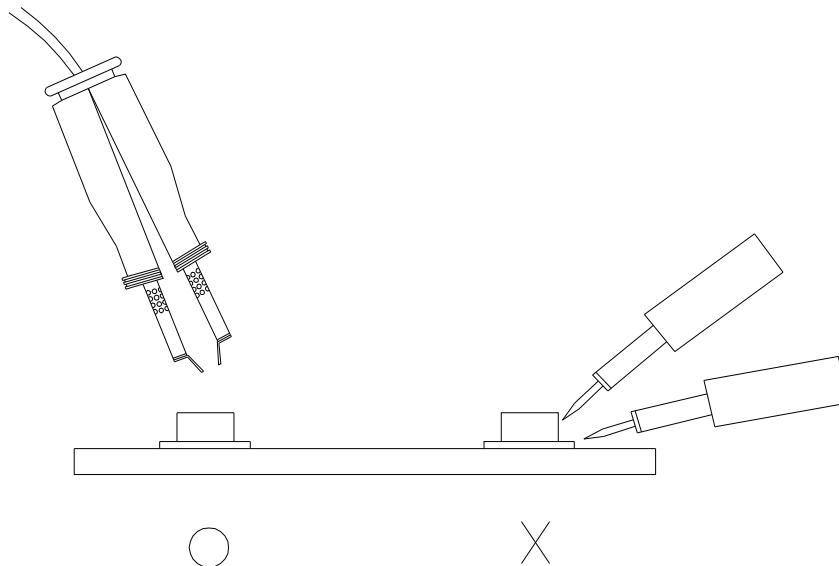
- Reflow soldering should not be done more than two times.
- When soldering, do not put stress on the LEDs during heating.
- After soldering, do not warp the circuit board.

4. Soldering Iron

- Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5.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 beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



6. ESD (Electrostatic Discharge)

- The products are sensitive to static electricity or surge voltage. ESD can damage a die and its reliability.

When handling the products, the following measures against electrostatic discharge are strongly recommended:

Eliminating the charge

Grounded wrist strap, ESD footwear, clothes, and floors

Grounded workstation equipment and tools

ESD table/shelf mat made of conductive materials

- Proper grounding is required for all devices, equipment, and machinery used in product assembly. Surge protection should be considered when designing of commercial products.
- If tools or equipment contain insulating materials such as glass or plastic, the following measures against electrostatic discharge are strongly recommended:
 - Dissipating static charge with conductive materials
 - Preventing charge generation with moisture
 - Neutralizing the charge with ionizers.

7.Directions for use

- The LEDs should be operated with forward bias. The driving circuit must be designed so that the LEDs are not subjected to forward or reverse voltage while it is off. If reverse voltage is continuously applied to the LEDs, it may cause migration resulting in LED damage.