

SMD ▪ Side LEDs

57-21/GHC-AT1U2M/BF



### Features

- P-LCC-4 package.
- White package.
- Fluorescence Type
- High Luminous Intensity
- High Efficiency
- Pb-free.
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH
- Compliance Halogen Free .(Br<900ppm,Cl<900ppm,Br+Cl<1500ppm)
- Precondition: Bases on JEDEC J-STD 020D Level 3

### Description

• The 57-21series is available in soft orange, green, blue and yellow. Due to the package design, the LED has wide viewing angle and optimized light coupling by inter reflector. This feature makes 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

- OA equipment
- Backlighting of full color LCD
- Automotive equipment
- Replacement of conventional light bulbs and Fluorescent Lamps

### Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	Brilliant Green	Water Clear

### Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V <sub>R</sub>	5	V
Forward Current	I <sub>F</sub>	25	mA
Peak Forward Current (Duty 1/10 @1KHz)	I <sub>FP</sub>	100	mA
Power Dissipation	P <sub>d</sub>	95	mW
Junction Temperature	T <sub>j</sub>	110	°C
Operating Temperature	T <sub>opr</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +90	°C
ESD	ESD <sub>HBM</sub>	1000	V
Soldering Temperature	T <sub>sol</sub>	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	Iv	285	-----	715	mcd	IF=20mA
Viewing Angle	2θ <sub>1/2</sub>	-----	120	-----	deg	IF=20mA
Peak Wavelength	λ <sub>p</sub>	-----	518	-----	nm	IF=20mA
Dominant Wavelength	λ <sub>d</sub>	517.5	----	535.5	nm	IF=20mA
Spectrum Radiation Bandwidth	Δλ	-----	35	-----	nm	IF=20mA
Forward Voltage	V <sub>F</sub>	2.75	----	3.95	V	IF=20mA
Reverse Current	I <sub>R</sub>	-----	-----	50	μA	V <sub>R</sub> =5V

Note:

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V

### Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
T1	285	360	mcd	IF =20mA
T2	360	450		
U1	450	565		
U2	565	715		

Note:

Tolerance of Luminous Intensity: ±11%

**Bin Range of Dominant Wavelength**

Groups	Bin Code	Min.	Max.	Unit	Condition
A	B10	517.5	519.5	nm	I <sub>F</sub> =20mA
	B11	519.5	521.5		
	B12	521.5	523.5		
	B13	523.5	525.5		
	B14	525.5	527.5		
	B15	527.5	529.5		
	B16	529.5	531.5		
	B17	531.5	533.5		
	B18	533.5	535.5		

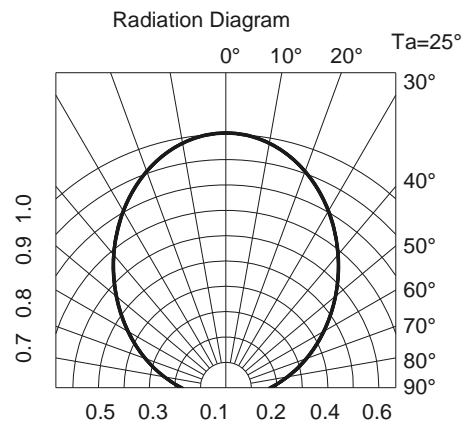
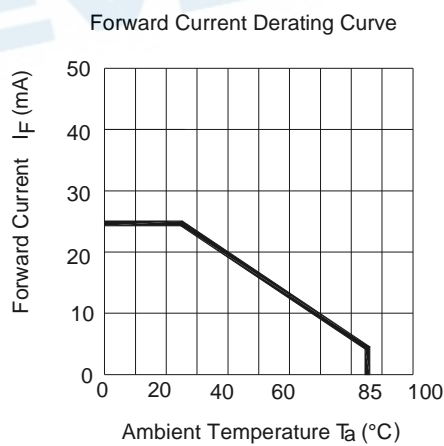
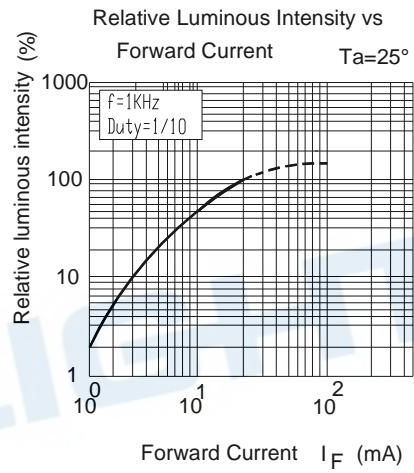
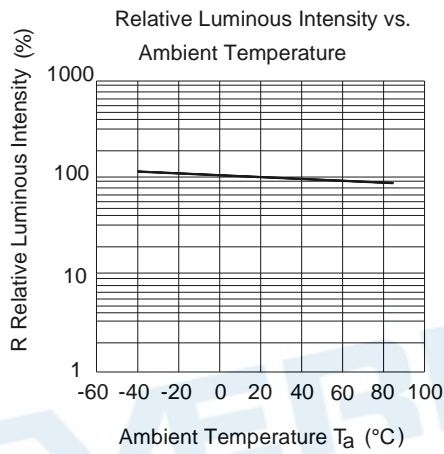
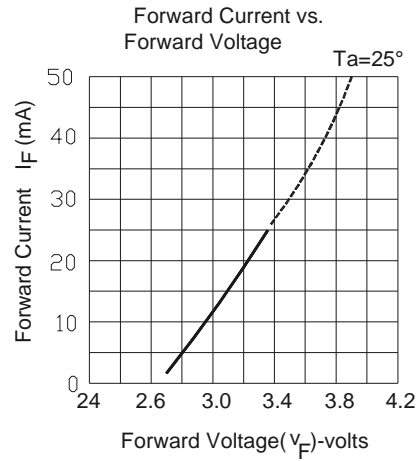
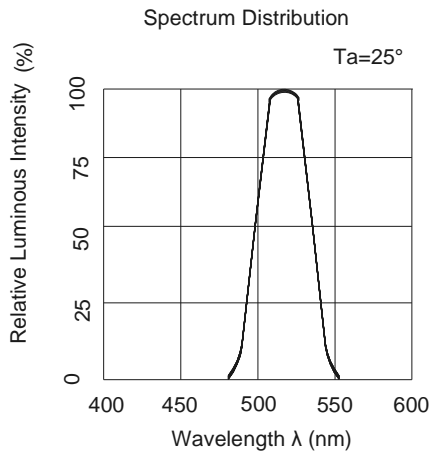
Note:  
 Tolerance of Dominant Wavelength: ±1nm

**Bin Range of Forward Voltage**

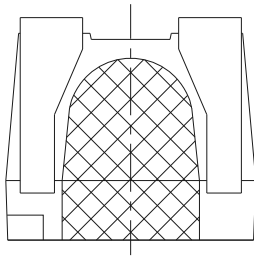
Groups	Bin Code	Min.	Max.	Unit	Condition
M	5	2.75	3.05	V	I <sub>F</sub> =20mA
	6	3.05	3.35		
	7	3.35	3.65		
	8	3.65	3.95		

Note:  
 Tolerance of Forward Voltage: ±0.1V

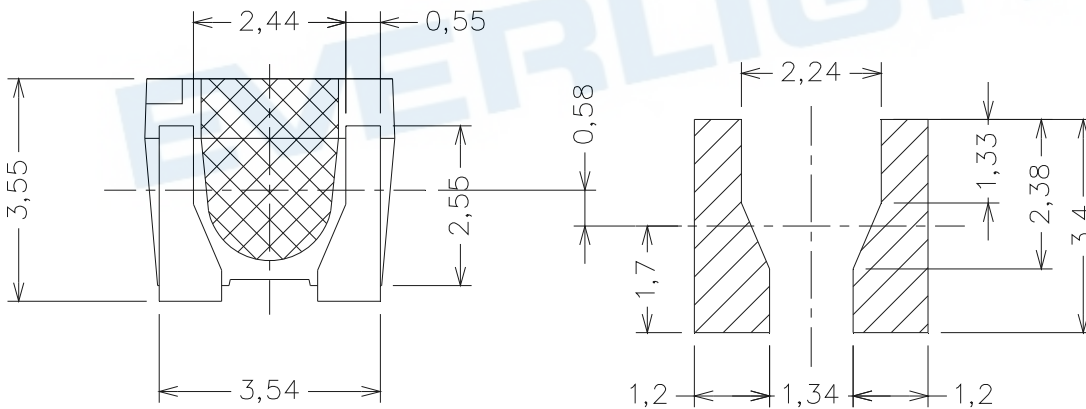
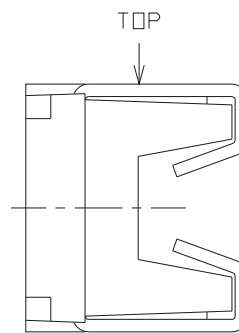
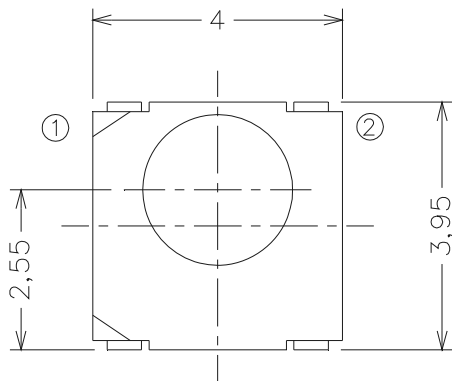
## Typical Electro-Optical Characteristics Curves



Package Dimension



Polarity

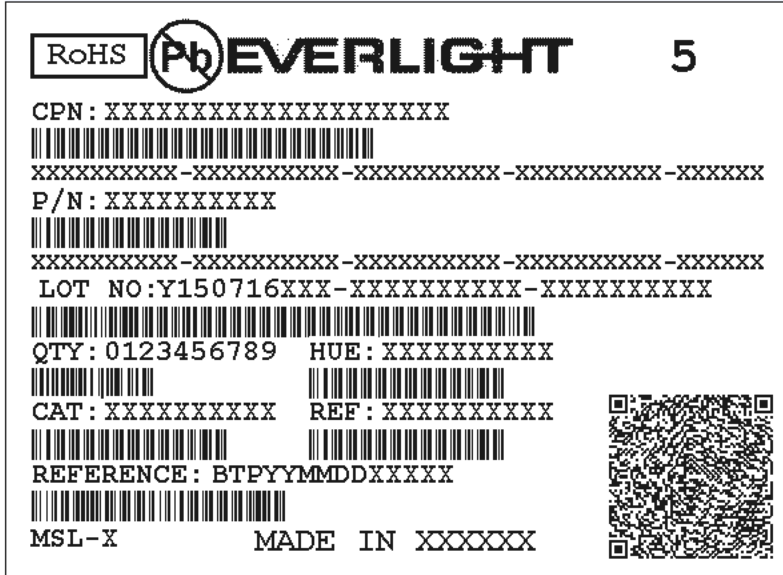


Bot. view

Soldering patterns

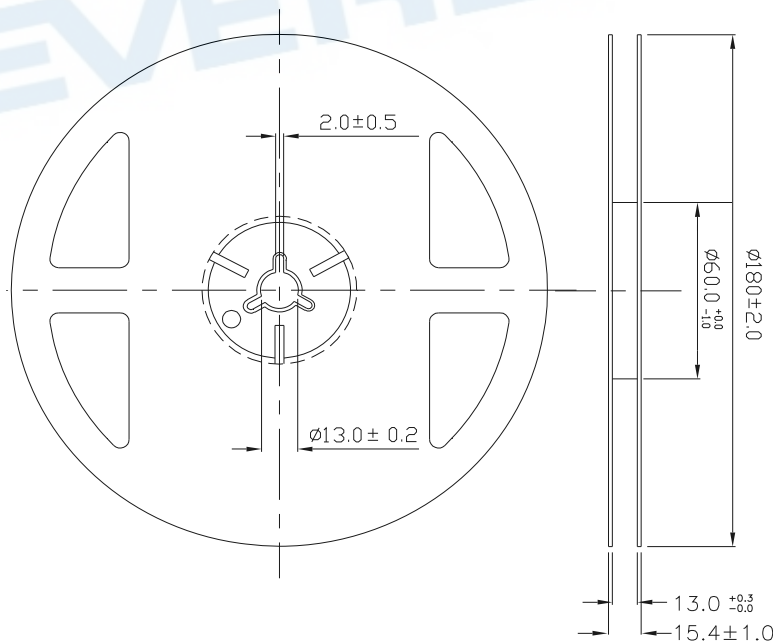
Note: Tolerances unless mentioned  $\pm 0.1\text{mm}$ . Unit = mm

Moisture Resistant Packing Materials  
 Label Explanation



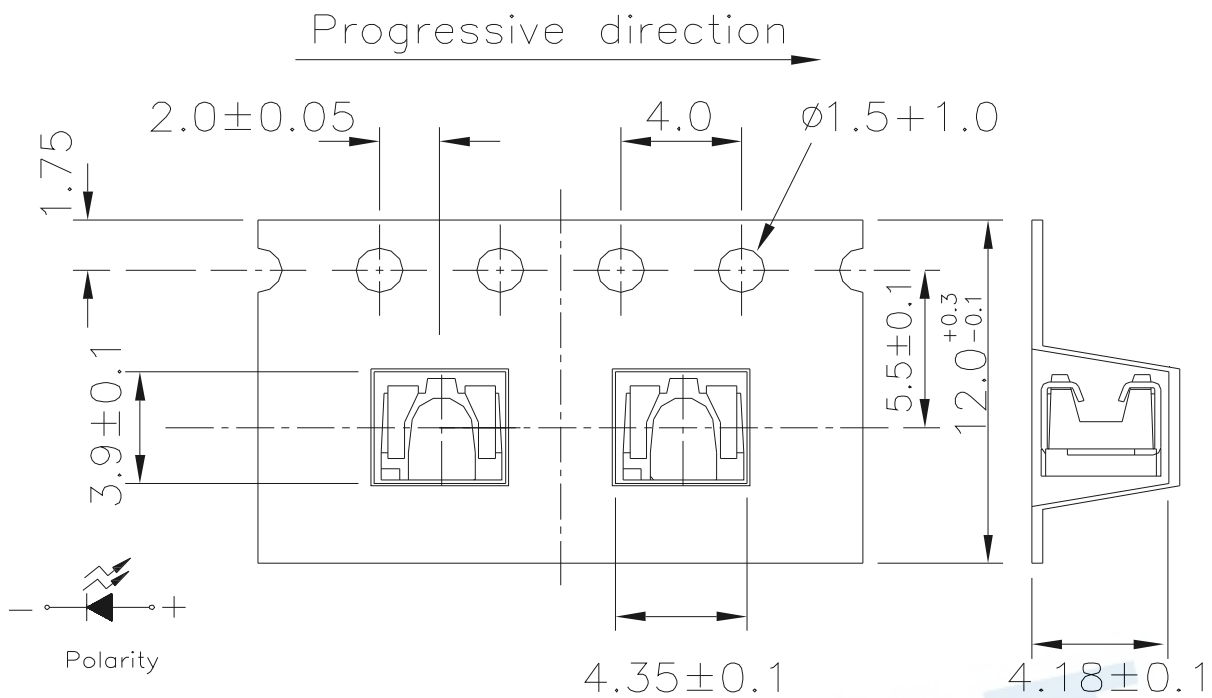
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions



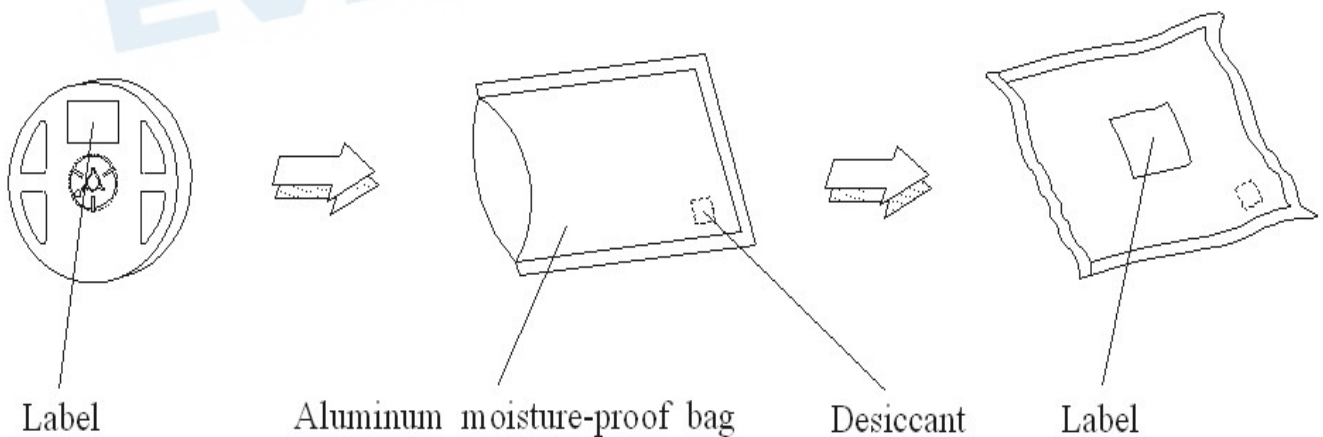
**Note:** The tolerances unless mentioned is  $\pm 0.1$ mm ,Unit = mm

**Carrier Tape Dimensions: Loaded Quantity 500 pcs Per Reel**



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

**Moisture Resistant Packing Process**

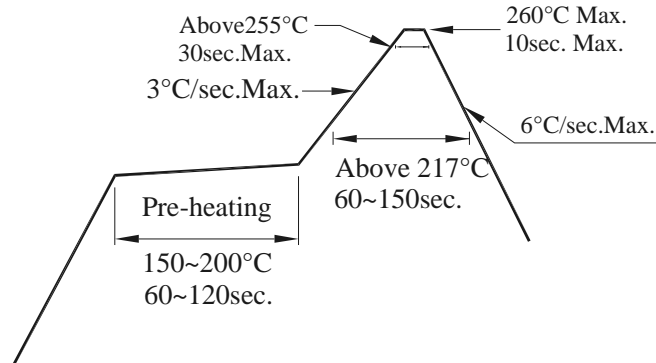


Note: Tolerances unless mentioned ±0.1mm. Unit = mm

## Precautions for Use

### 1. Over-current-proof

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



### 2. Storage

2.1 Moisture proof bag should only be opened immediately prior to usage.

2.2 Environment should be less than 30°C and 60% RH when moisture proof bag is opened.

2.3 After opening the package MSL Conditions stated on page 1 of this spec should not be exceeded.

2.4 If the moisture sensitivity card indicates higher than acceptable moisture, the component should be baked at min. 60deg +/-5deg for 24 hours.

### 3. Soldering Condition

3.1 Pb-free solder temperature profile

3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

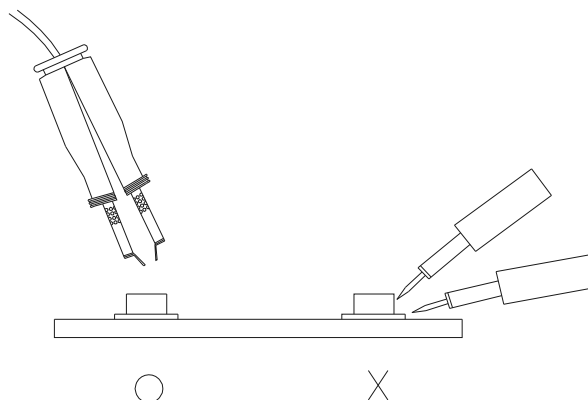
3.4 After soldering, do not warp the circuit board.

### 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.



## Application Restrictions

High reliability applications such as military/aerospace, automotive safety/security systems, and medical equipment may require different product. If you have any concerns, please contact Everlight before using this product in your application. This specification guarantees the quality and performance of the product as an individual component. Do not use this product beyond the specification described in this document.

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