



LIGHTING FOREVER

# Technical Data Sheet

## Side View LED

### 57-21/G6C-AM1P2BZ/EF

#### Features

- Fluorescence Type
- High Luminous Intensity
- High Efficiency
- Pb-free
- The product itself will remain within RoHS compliant version.



#### Descriptions

- 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

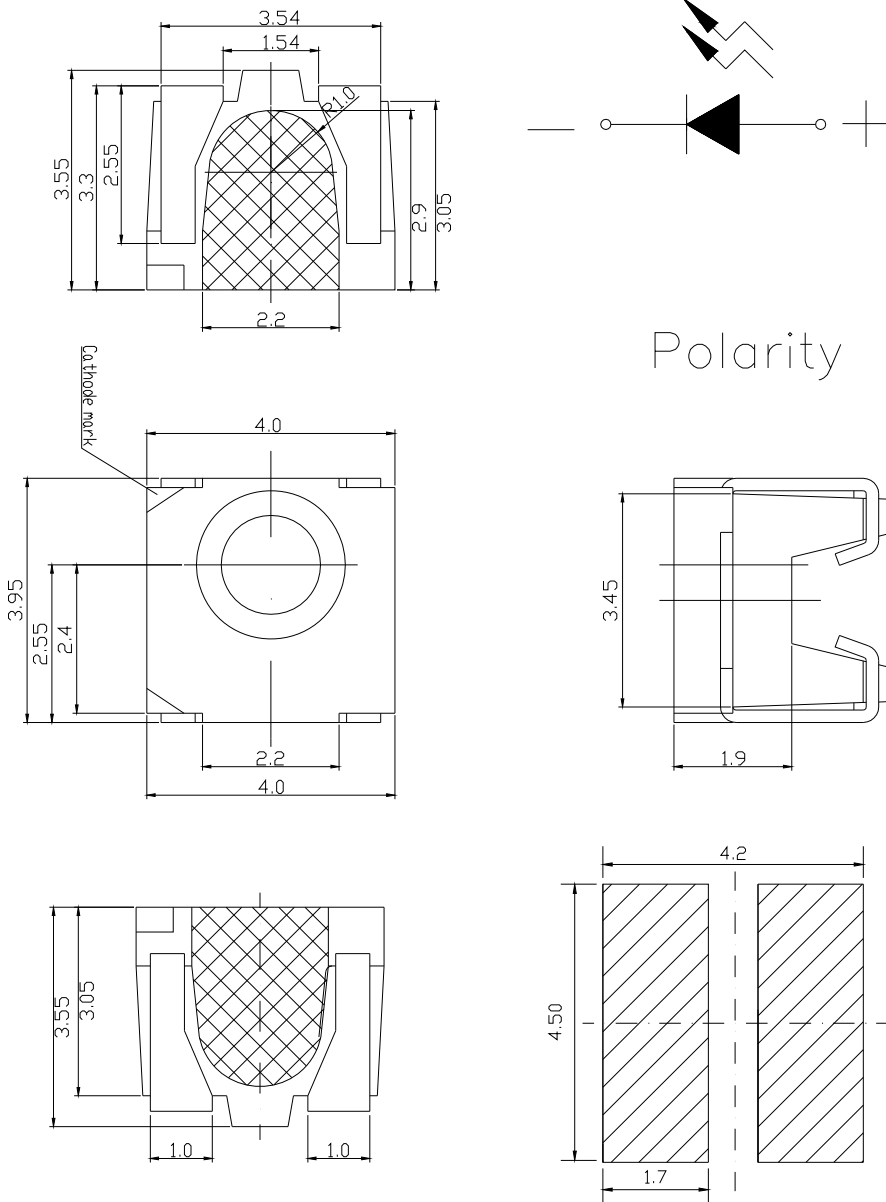
Chip	Emitted Color	Resin Color
Material		
AlGaInP	Brilliant Yellow Green	Water Clear

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**Package Outline Dimensions**



Recommended soldering pad design

**Note:** Tolerances unless mentioned are  $\pm 0.1$  mm, unit = mm.

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**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>	60	mA
Power Dissipation	P <sub>d</sub>	60	mW
Electrostatic Discharge(HBM)	ESD	1000	V
Operating Temperature	T <sub>opr</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +90	°C
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	I <sub>v</sub>	18	----	72	mcd	I <sub>F</sub> =10mA
Viewing Angle	2θ <sub>1/2</sub>	----	120	----	deg	
Peak Wavelength	λ <sub>p</sub>	----	575	----	nm	
Dominant Wavelength	λ <sub>d</sub>	569.5	----	577.5	nm	
Spectrum Radiation Bandwidth	Δλ	----	20	----	nm	
Forward Voltage	V <sub>F</sub>	1.75	----	2.35	V	
Reverse Current	I <sub>R</sub>	----	----	50	μA	V <sub>R</sub> =5V

**Notes:**

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.05V

**Technical Data Sheet****Side View LED****57-21/G6C-AM1P2BZ/EF****Bin Range of Dominant Wavelength**

Groups	Bin	Min	Max	Unit	Condition
A	C16	569.5	571.5	nm	I <sub>F</sub> =10mA
	C17	571.5	573.5		
	C18	573.5	575.5		
	C19	575.5	577.5		

**Bin Range of Luminous Intensity**

Bin Code	Min.	Max.	Unit	Conduction
M1	18.0	22.5	mcd	I <sub>F</sub> =10mA
M2	22.5	28.5		
N1	28.5	36.0		
N2	36.0	45.0		
P1	45.0	57.0		
P2	57.0	72.0		

**Bin Range of Forward Voltage**

Groups	Bin	Min	Max	Unit	Condition
B	0	1.75	1.95	volt	I <sub>F</sub> =10mA
	1	1.95	2.15		
	2	2.15	2.35		

**Notes:**

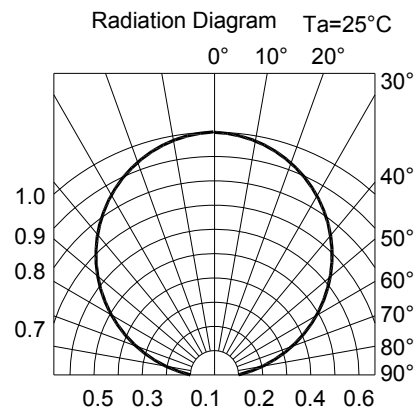
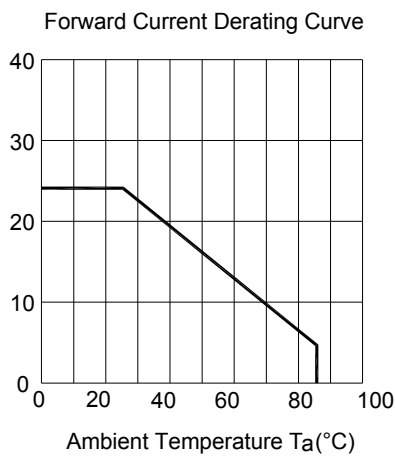
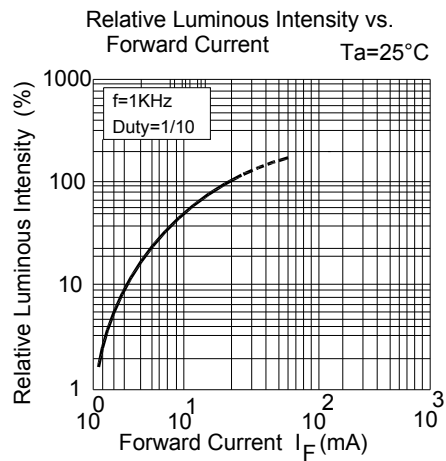
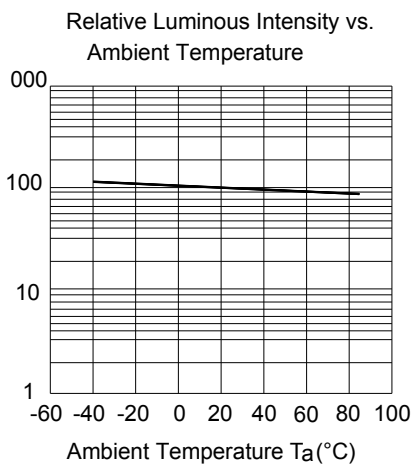
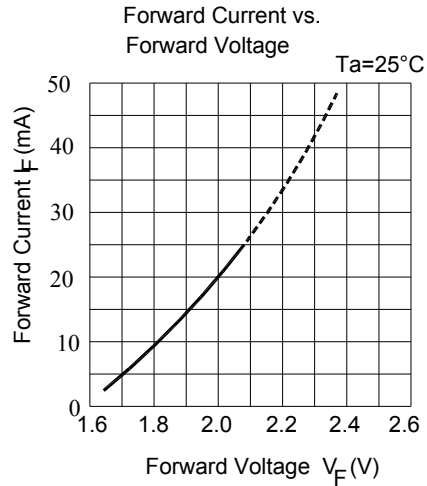
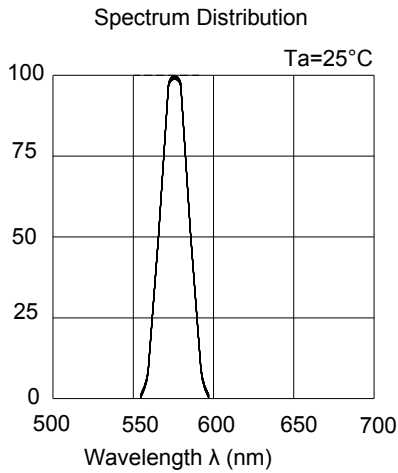
1. Tolerance of Luminous Intensity:  $\pm 11\%$
2. Tolerance of Dominant Wavelength:  $\pm 1\text{nm}$
3. Tolerance of Forward Voltage:  $\pm 0.1\text{V}$

**Technical Data Sheet**

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**Typical Electro-Optical Characteristics Curves**





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Label Explanation

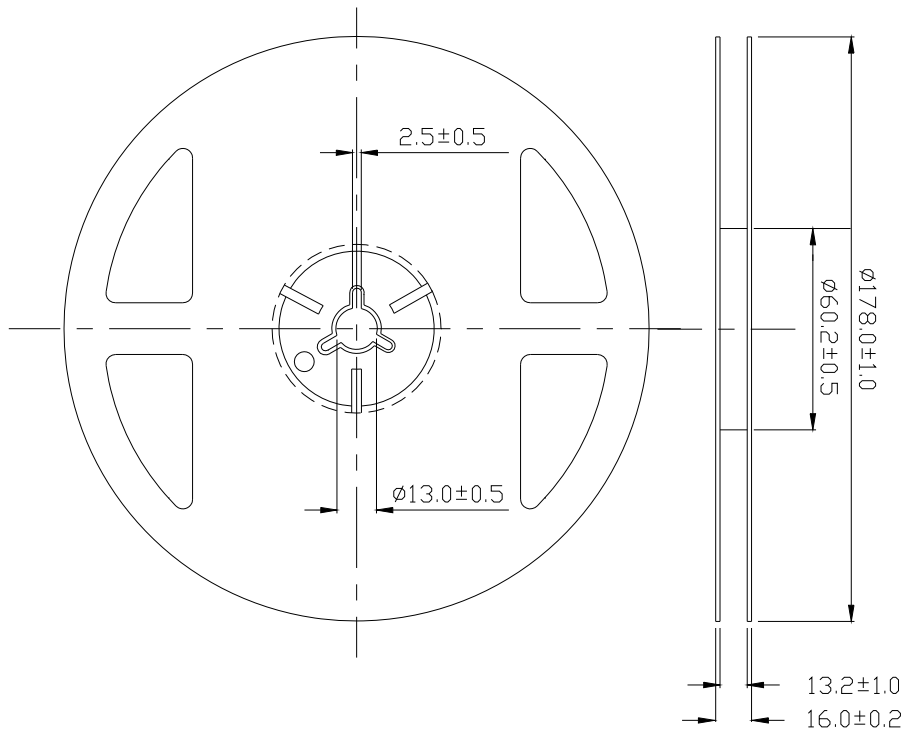
CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank



Reel Dimensions



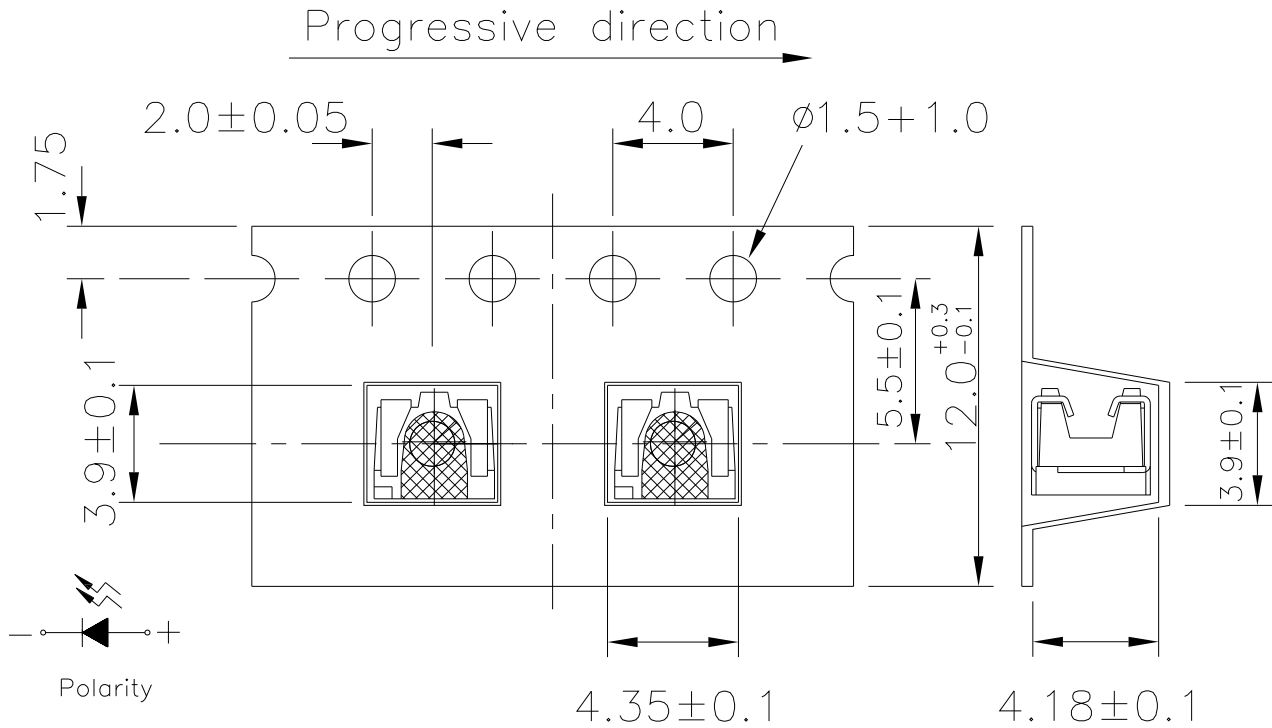
Note: Tolerance unless mentioned is ±0.1mm, unit = mm.

**Technical Data Sheet**

**Side View LED**

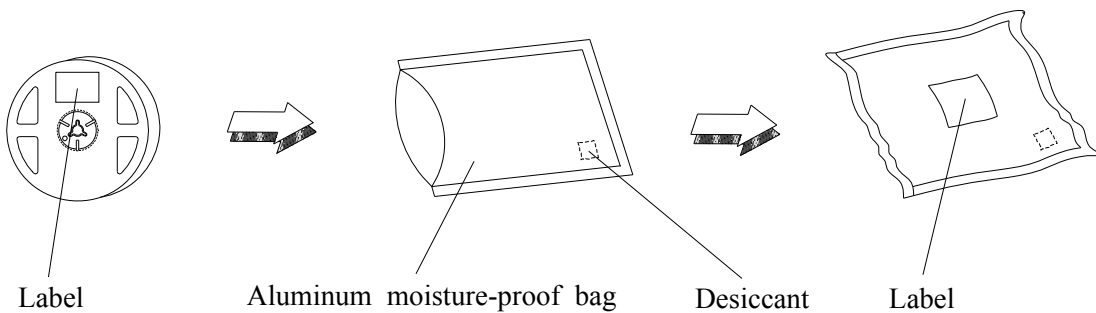
**57-21/G6C-AM1P2BZ/EF**

**Carrier Tape Dimensions: Loaded Quantity 800 pcs. Per Reel**



**Note:** Tolerance unless mentioned is  $\pm 0.1$ mm, unit = mm.

**Moisture Resistant Packaging**





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**Reliability Test Items and Conditions**

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD : 10%

No.	Items	Test Condition	Test Hours/Cycles	Sample Size	Ac/Re
1	Reflow Soldering	Temp. : 260°C±5°C Min. 5sec.	6 Min.	22 pcs.	0/1
2	Temperature Cycle	H : +100°C 15min ∫ 5 min L : -40°C 15min	300 Cycles	22 pcs.	0/1
3	Thermal Shock	H : +100°C 5min ∫ 10 sec L : -10°C 5min	300 Cycles	22 pcs.	0/1
4	High Temperature Storage	Temp. : 100°C	1000 Hrs.	22 pcs.	0/1
5	Low Temperature Storage	Temp. : -40°C	1000 Hrs.	22 pcs.	0/1
6	DC Operating Life	I <sub>F</sub> = 20 mA	1000 Hrs.	22 pcs.	0/1
7	High Temperature / High Humidity	85°C / 85%RH	1000 Hrs.	22 pcs.	0/1



**Technical Data Sheet****Side View LED****57-21/G6C-AM1P2BZ/EF****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

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package: The LEDs should be kept at 30°C or less and 90%RH or less.

2.3 After opening the package: The LED's floor life is 168 hours under 30°C or less and 60% RH or less.

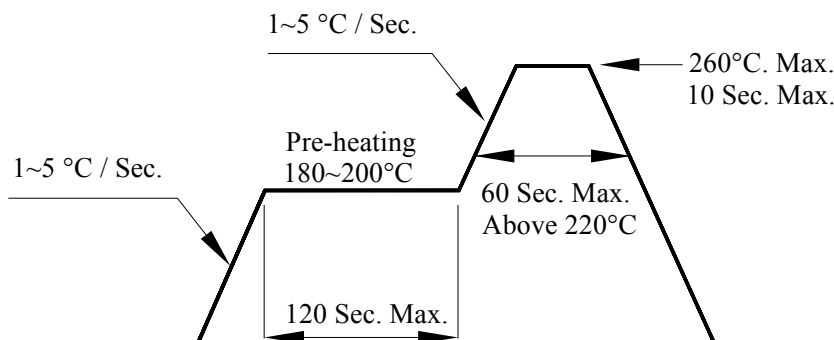
If unused LEDs remain, it should be stored in moisture proof packages.

2.4 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

## 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.

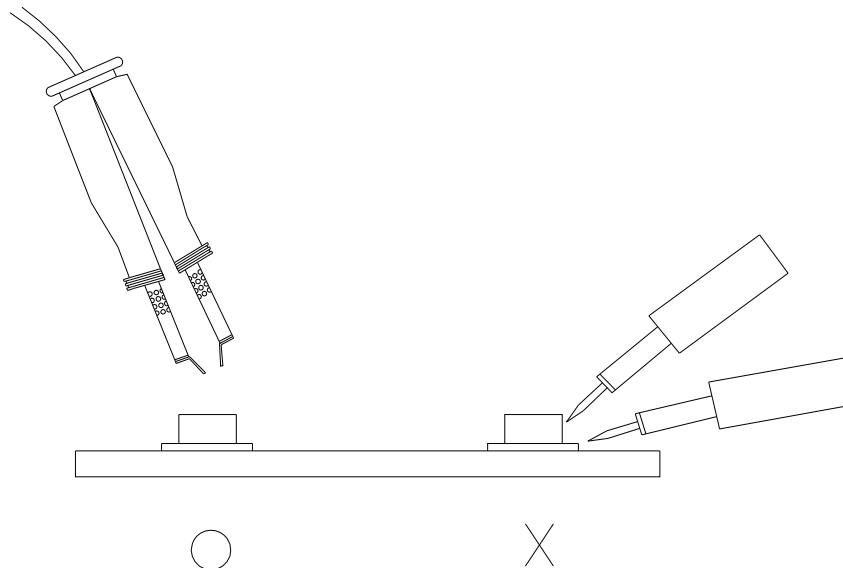
3.4 After soldering, do not warp the circuit board.

**Technical Data Sheet****Side View LED****57-21/G6C-AM1P2BZ/EF****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.

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