Technical Data Sheet

Side View Red SMD LEDs

57-21/R6C-AP1Q2B/BF



Features

- ・Fluorescence Type
- High Luminous Intensity
- High Efficiency
- Pb-free.
- The product itself will remain with 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
- Replacement of Conventional Light Bulbs and Fluorescent Lamps

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Device Selection Guide

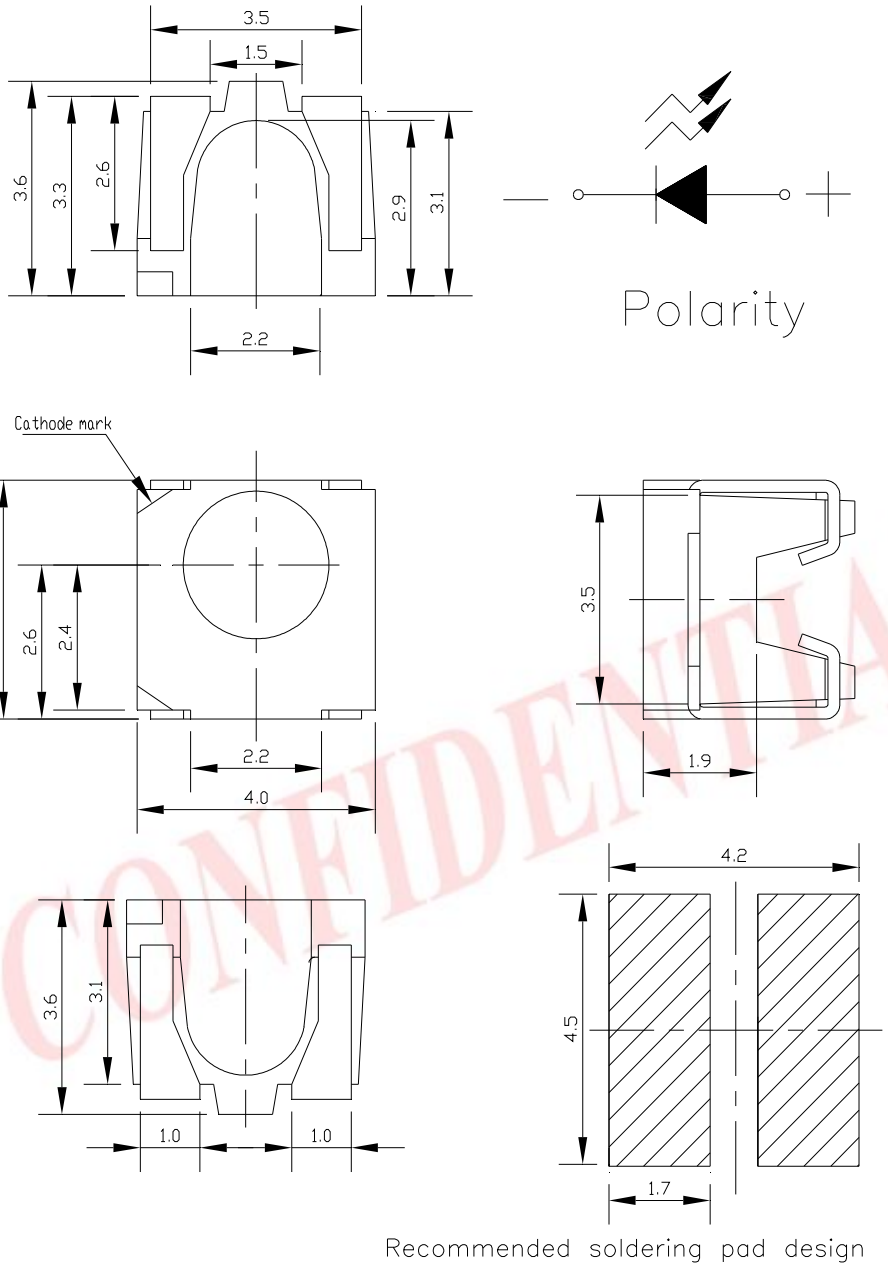
Chip		Lens Color
Material	**Emitted Color**	
AlGaInP	Brilliant Red	Water Clear

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Package Dimensions



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Note: The tolerances unless mentioned is ±0.1mm ,Unit = mm

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Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	25	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	60	mA
Power Dissipation	Pd	60	mW
Electrostatic Discharge(HBM)	ESD	2000	V
Operating Temperature	Topr	-40 ~ +85	℃
Storage Temperature	Tstg	-40 ~+100	℃
Soldering Temperature	Tsol	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	45	-----	112	mcd	I_F=20mA
Viewing Angle	$2\theta_{1/2}$	-----	120	-----	deg	I_F=20mA
Peak Wavelength	λp	-----	632	-----	nm	I_F=20mA
Dominant Wavelength	λd	617.5	-----	633.5	nm	I_F=20mA
Spectrum Radiation Bandwidth	△λ	-----	20	-----	nm	I_F=20mA
Forward Voltage	V_F	1.75	-----	2.35	V	I_F=20mA
Reverse Current	I_R	-----	-----	10	μA	V_R=5V

Notes:

1.Tolerance of Luminous Intensity ±10%

2.Tolerance of Dominant Wavelength ±1nm

3.Tolerance of Forward Voltage ±0.1V

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Revision : 1 Release Date:2009-05-11 22:09:23.0
LifecyclePhase:正式發行 Expired Period: Forever

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Bin Range of Dominant Wavelength

Group	Bin Code	Min.	Max.	Unit	Condition
A	E4	617.5	621.5	nm	IF=20mA
	E5	621.5	625.5		
	E6	625.5	629.5		
	E7	629.5	633.5		

Bin Range of Luminous Intensity

Bin	Min	Max	Unit	Condition
P1	45	57	mcd	IF=20mA
P2	57	72		
Q1	72	90		
Q2	90	112		

Bin Range of Forward Voltage

Group	Bin	Min	Max	Unit	Condition
B	0	1.75	1.95	V	IF=20mA
	1	1.95	2.15		
	2	2.15	2.35		

Notes:

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

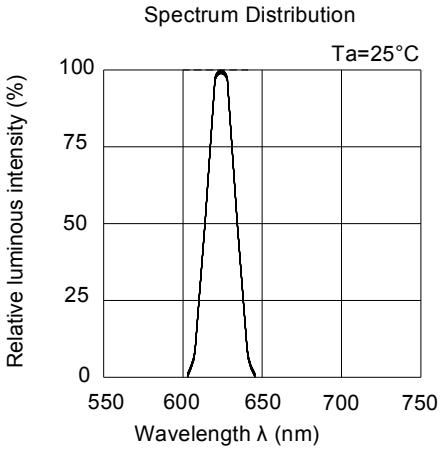
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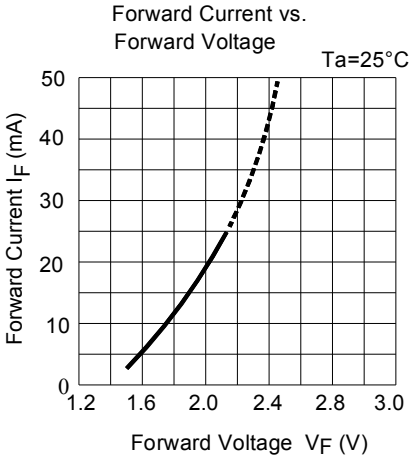
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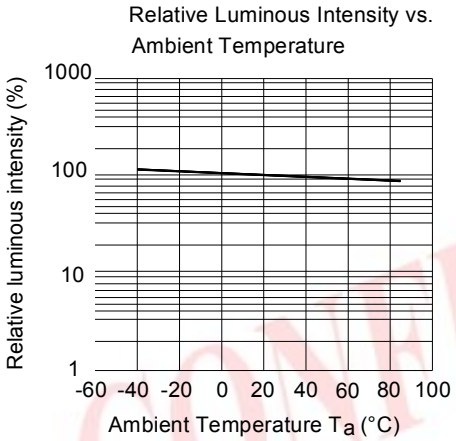
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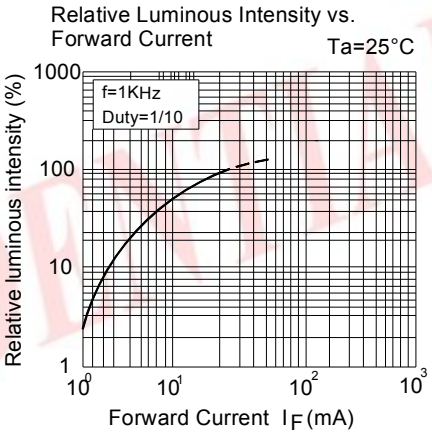
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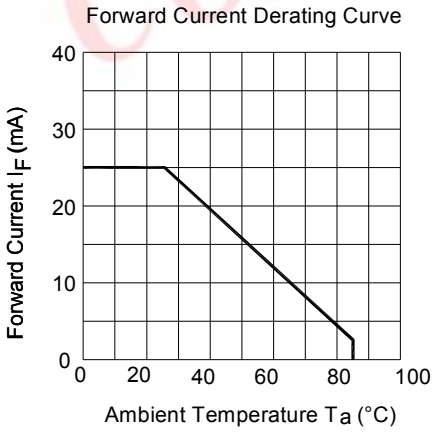
Typical Electro-Optical Characteristics Curves

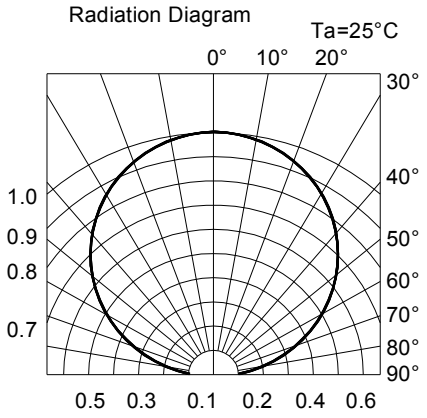












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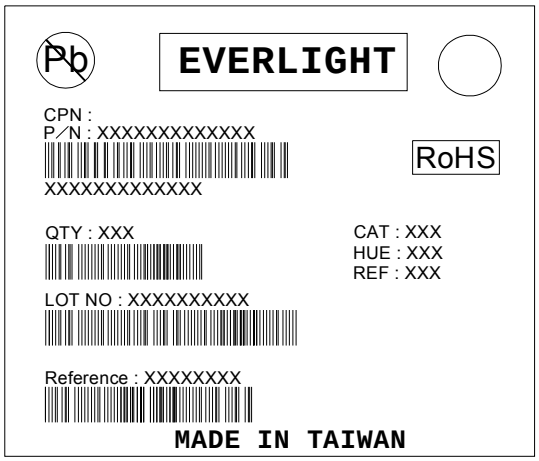
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Label Explanation

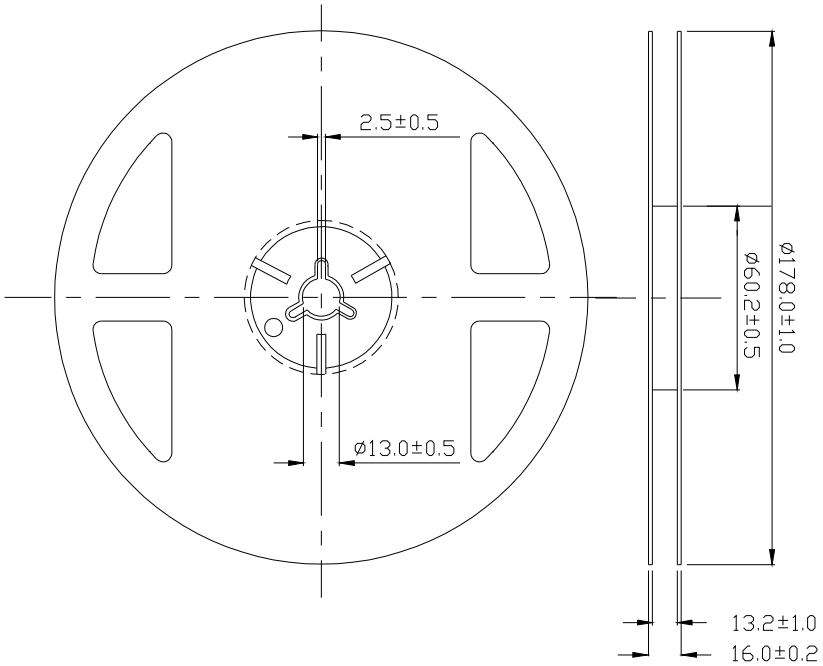
CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank



Reel Dimensions



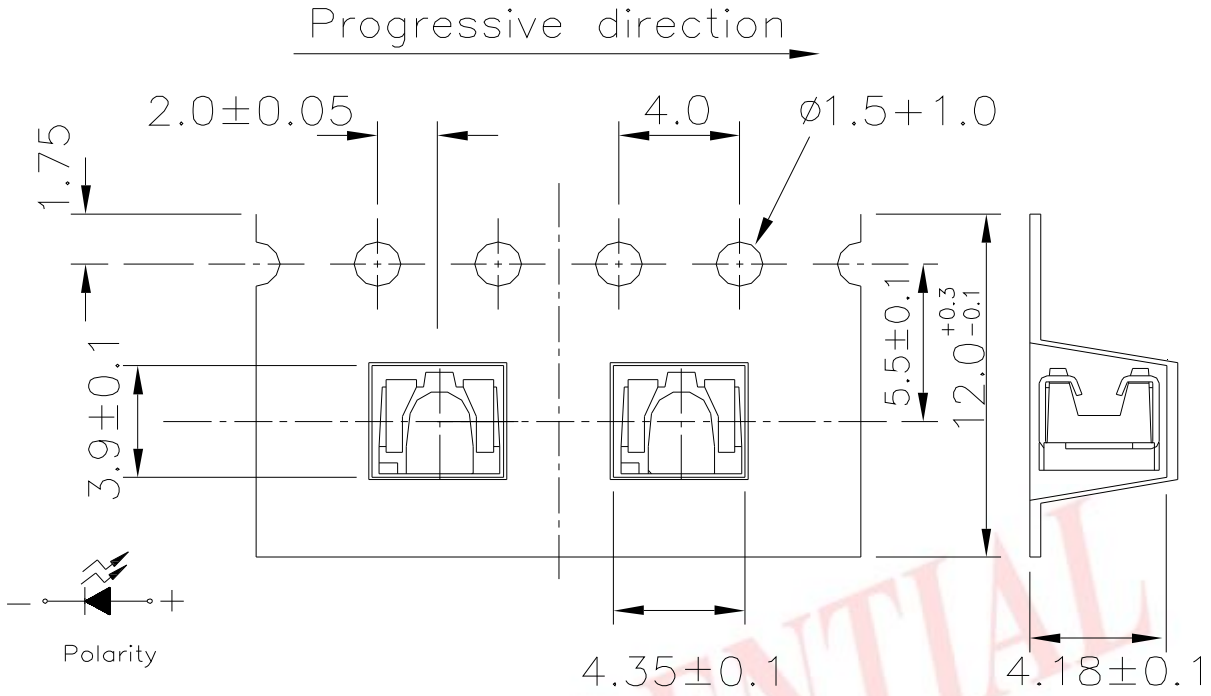
Note: The tolerances unless mentioned is ±0.1mm ,Unit = mm

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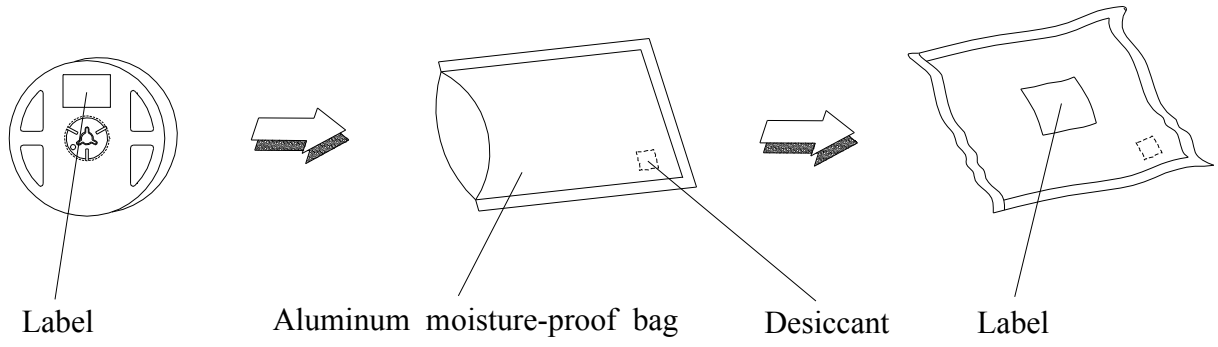
Carrier Tape Dimensions: Loaded Quantity 500 pcs Per Reel.



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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℃±5℃ Min. 5sec.	6 min	22 PCS.	0/1
2	Temperature Cycle	H : +100℃ 15min ∫ 5 min L : -40℃ 15min	300 Cycles	22 PCS.	0/1
3	Thermal Shock	H : +100℃ 5min ∫ 10 sec L : -10℃ 5min	300 Cycles	22 PCS.	0/1
4	High Temperature Storage	Temp. : 100℃	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage	Temp. : -40℃	1000 Hrs.	22 PCS.	0/1
6	DC Operating Life	I_F = 20 mA	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85℃/ 85%RH	1000 Hrs.	22 PCS.	0/1

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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℃ or less and 90%RH or less.

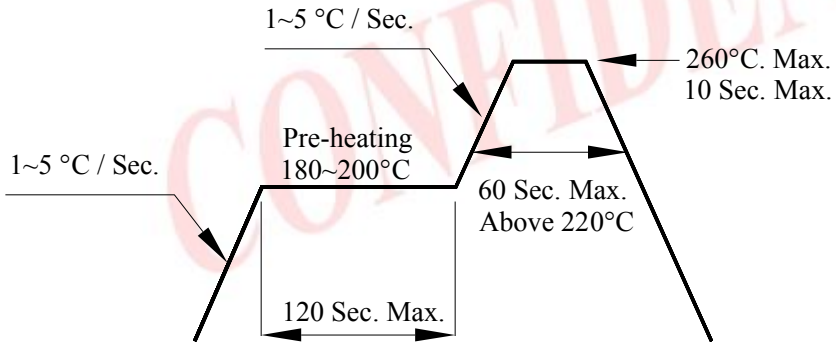
   2.3 After opening the package: The LED's floor life is 48 hours under 30℃ or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

   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℃ 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.

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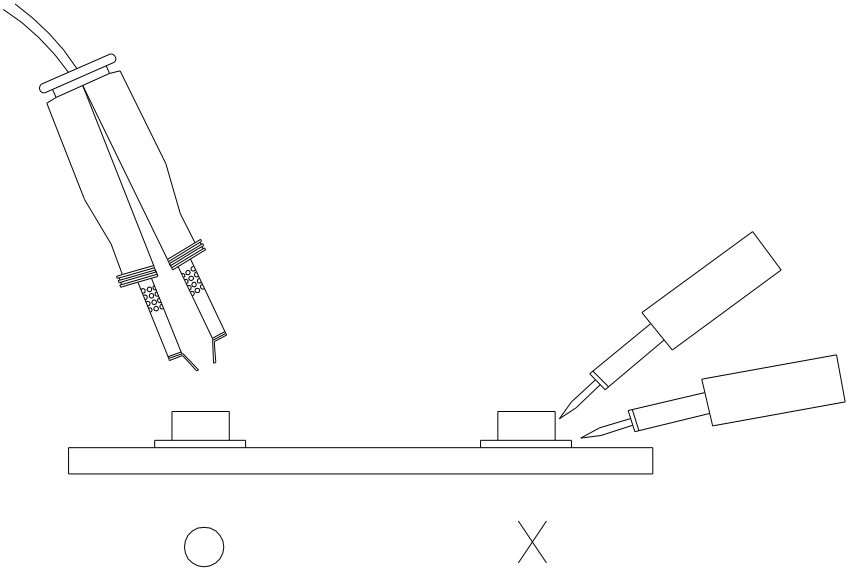
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4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350℃ 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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