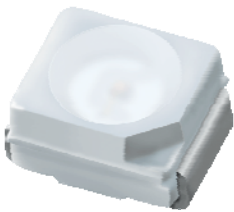


Top View LEDs

67-21/R6C-FR2T1B/2T



Features

- P-LCC-2 package.
- White package.
- Optical indicator.
- Colorless clear window.
- Wide viewing angle.
- Suitable for vapor-phase reflow, Infrared reflow and wave solder processes.
- Computable with automatic placement equipment.
- Available on tape and reel (12mm Tape).
- 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

Descriptions

The 67-21 series 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 the TOP View LEDs 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

- Automotive: backlighting in dashboard and switch.
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- Light pipe application.
- General use.

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Brilliant Red	Water Clear

Absolute Maximum Ratings (Ta=25°C)

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}	50	mA
Power Dissipation	P_d	60	mW
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +90	°C
ESD	ESD_{HBM}	2000	V
Soldering Temperature	T_{sol}	Reflow Soldering : 260 °C for 10 sec. Hand Soldering : 350 °C for 3 sec.	

Note:

*1 Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of this document. Exposure to absolute maximum ratings for extended periods of the time can adversely affect reliability.

*2 LED components are not supposed to be reverse operated.

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I_v	140	---	360	mcd	$I_F = 20mA$
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	
Peak Wavelength	λ_p	---	632	---	nm	
Dominant Wavelength	λ_d	621	-----	631	nm	
Spectrum Radiation Bandwidth	$\Delta \lambda$	---	20	---	nm	
Forward Voltage	V_F	1.75	---	2.35	V	$V_R = 5V$
Reverse Current	I_R	---	---	10	μA	

Note:

1. Tolerance of Luminous Intensity: $\pm 11\%$
2. Tolerance of Dominant Wavelength: $\pm 1nm$
3. Tolerance of Chromaticity Coordinates: ± 0.01
4. Tolerance of Forward Voltage: ± 0.1
5. All reliability item are tested under good thermal management. Dynamic reliability are tested at 20mA.
6. LED components are not supposed to be reverse operated.

Bin Range of Dominant Wavelength

Group	Bin Code	Min.	Max.	Unit	Condition
F	FF1	621	626	nm	IF=20mA
	FF2	626	631		

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

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
R2	140	180	mcd	IF=20mA
S1	180	225		
S2	225	285		
T1	285	360		

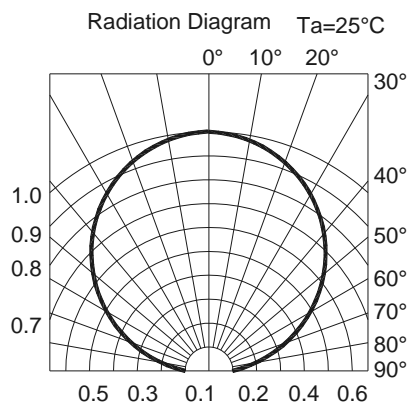
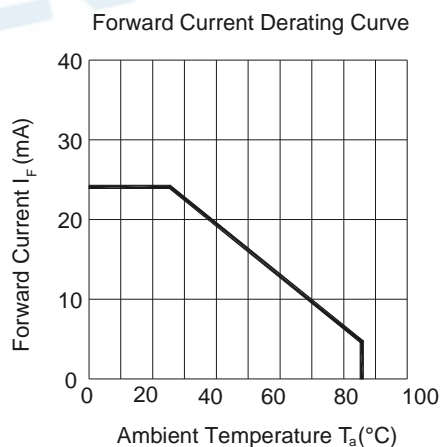
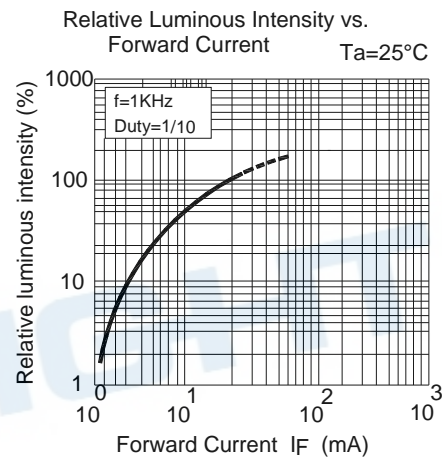
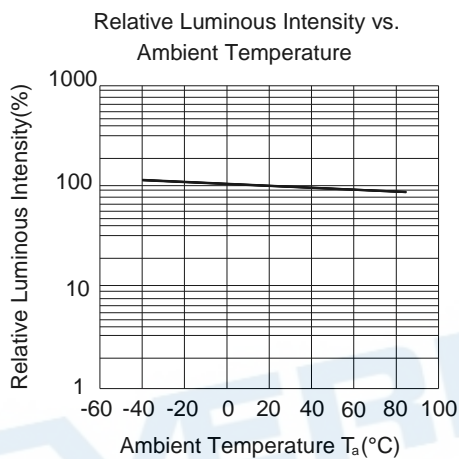
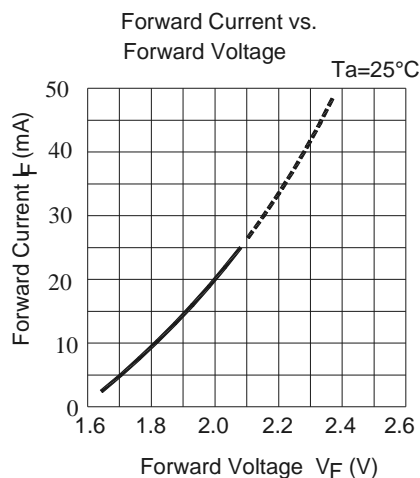
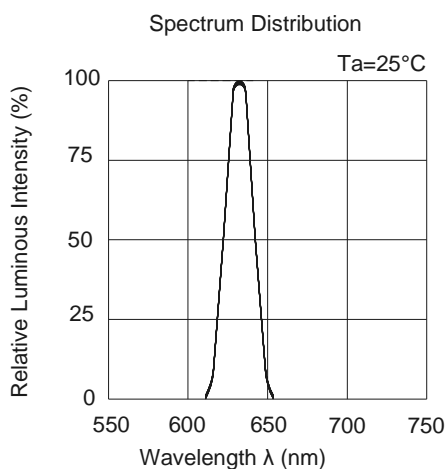
Note:
Tolerance of Luminous Intensity: $\pm 11\%$

Bin Rang of Forward Voltage

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

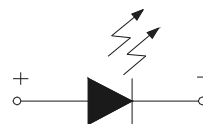
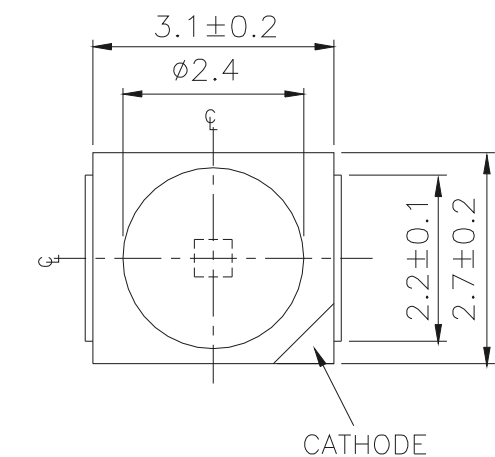
Note:
Tolerance of Forward Voltage $\pm 0.1\text{V}$

Typical Electro-Optical Characteristics Curves

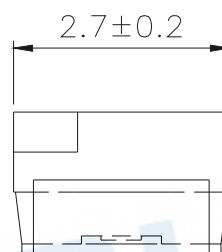
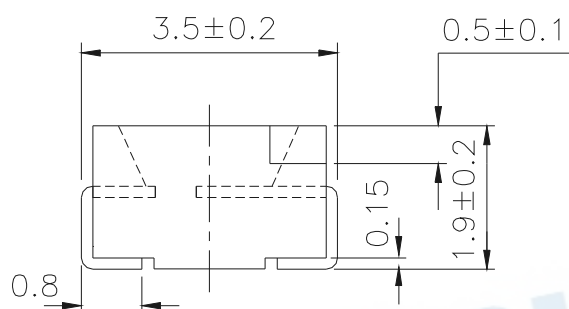


Note: The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.

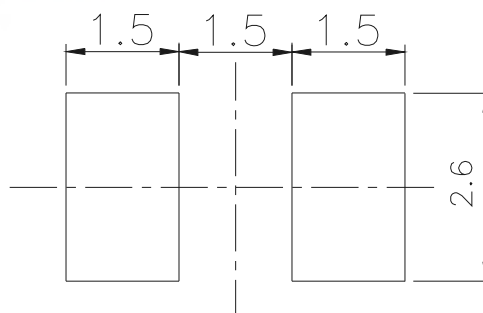
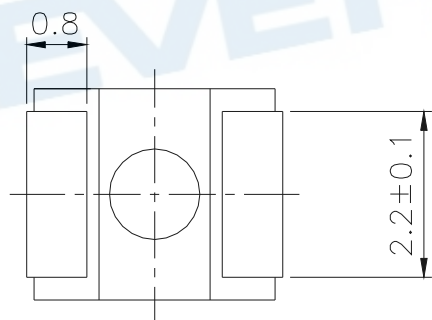
Package Dimension



Polarity



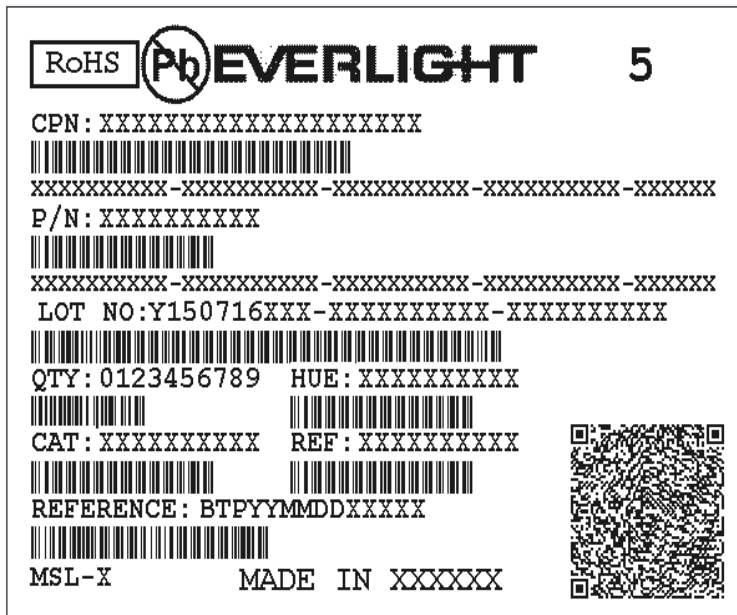
For reflow soldering (Proposal)



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

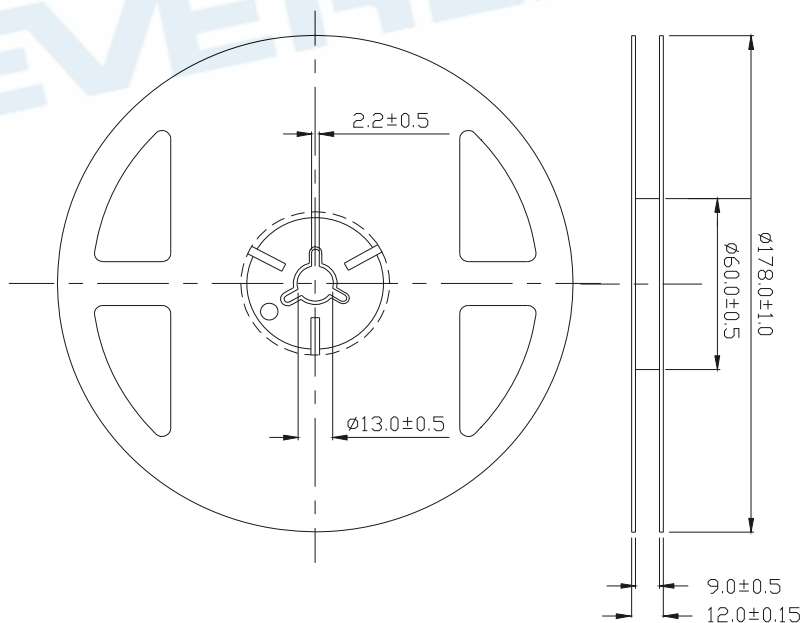
Moisture Resistant Packing Materials

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

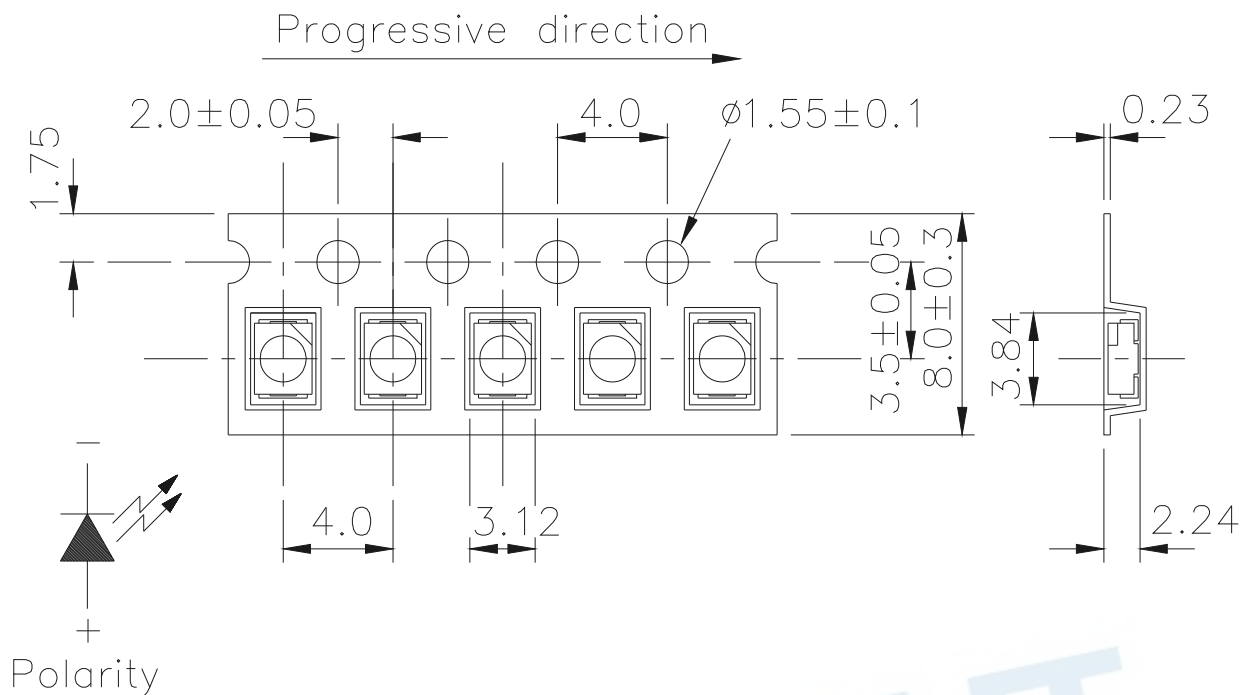
Reel Dimensions



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

Carrier Tape Dimensions: Loaded Quantity 1000/1500/2000 pcs Per Reel

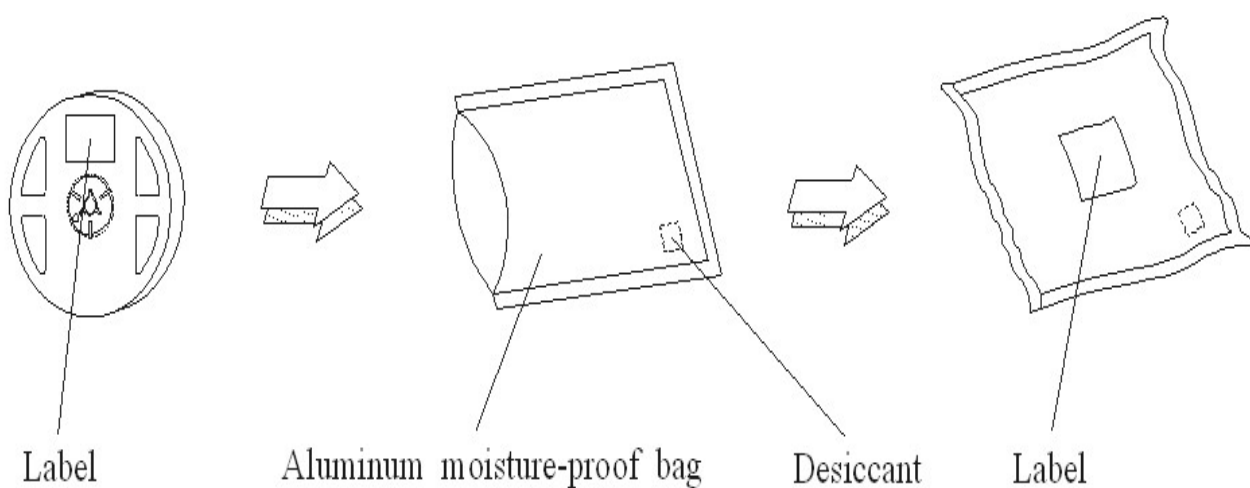
PS: 訂單尾數在 1K~1.5K 之間整百包裝 1.1K/1.2K/1.3K/1.4K



Note:

1. Tolerances unless mentioned ± 0.1 mm. Unit = mm
2. Minimum packing amount is 1000/1500/2000 pcs per reel.

Moisture Resistant Packing Process



Note: Tolerances unless mentioned ± 0.1 mm. 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

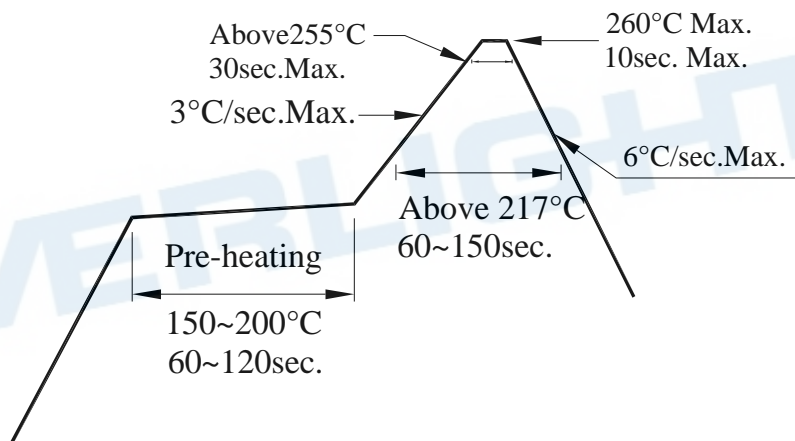
3.2 Reflow soldering should not be done more than two times.

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

3.4 After soldering, do not warp the circuit board.

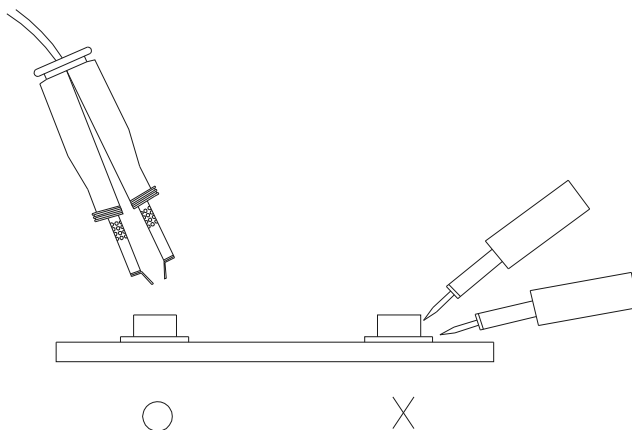
4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds. 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.



ESD Precaution

Proper storage and handling procedures should be followed to prevent ESD damage to the devices especially when they are removed from the Anti-static bag. Electro-Static Sensitive Devices warning labels are on the packing.

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.

DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
5. These specification sheets include materials protected under copyright of EVERLIGHT. Reproduction in any form is prohibited without obtaining EVERLIGHT's prior consent.
6. This product is not intended to be used for military, aircraft, automotive, medical, life sustaining or life saving applications or any other application which can result in human injury or death. Please contact authorized Everlight sales agent for special application request.