

Technical Data Sheet

TOP View LEDs

67-21/GHC-BV1/2T

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 (8mm Tape).
- Pb-free



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 it 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

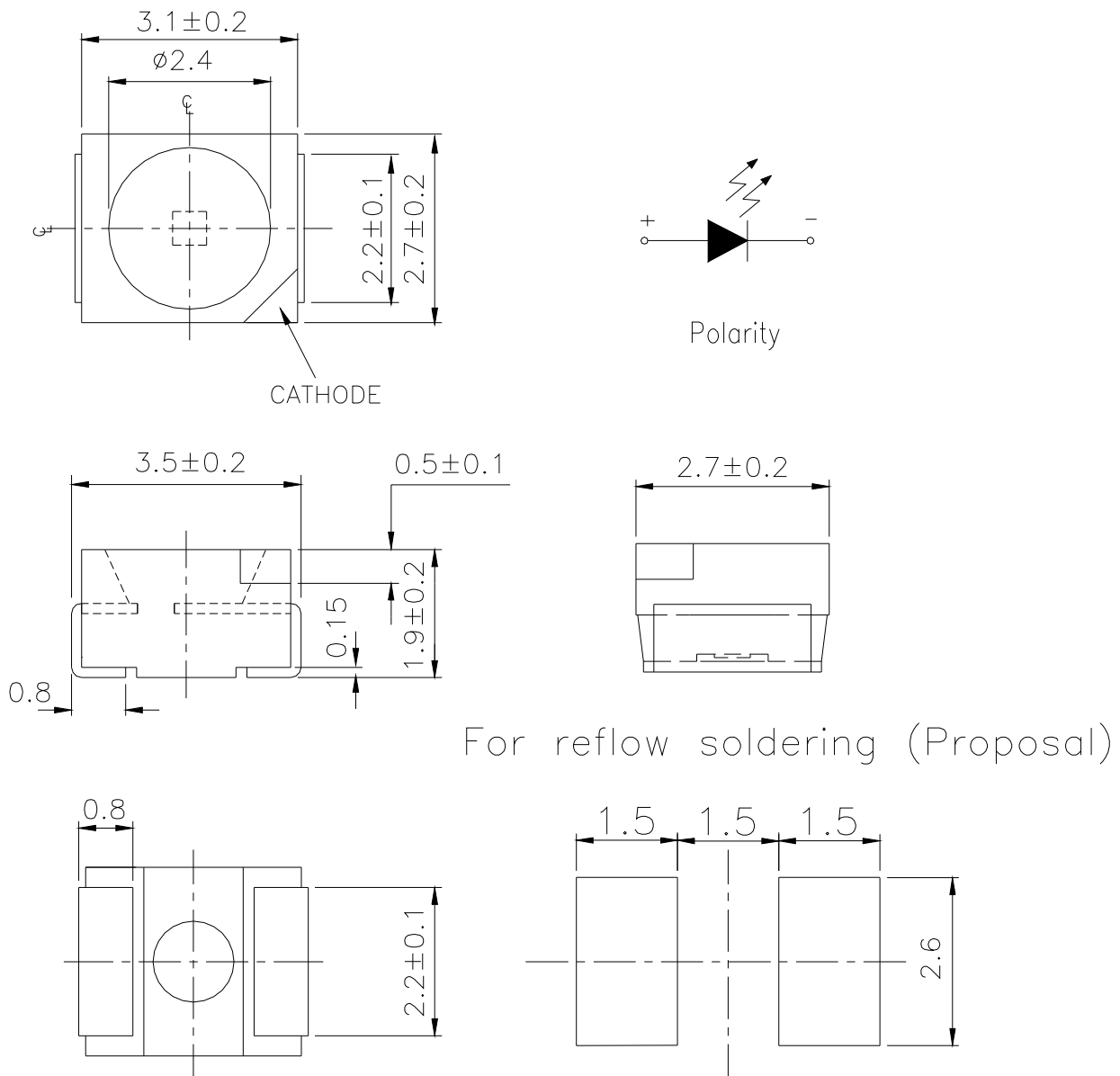
Chip	Emitted Color	Resin Color
Material		
InGaN	Brilliant Green	Water Clear

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Package Dimensions



Note: Tolerance unless mentioned is ± 0.1 mm; 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}	100	mA
Power Dissipation	P_d	110	mW
Electrostatic Discharge	ESD	150	V
Operating Temperature	Topr	-40 ~ +85	
Storage Temperature	Tstg	-40~ +100	
Soldering Temperature	Tsol	Reflow Soldering : 260 Hand Soldering : 350	for 10 sec. for 3 sec.

Electro-Optical Characteristics (Ta=25)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I_V	715	-----	900	mcd	$I_F=20mA$
Viewing Angle	2 θ 1/2	-----	120	-----	deg	$I_F=20mA$
Peak Wavelength	λ_p	-----	518	-----	nm	$I_F=20mA$
Dominant Wavelength	λ_d	523.5	-----	533.5	nm	$I_F=20mA$
Spectrum Radiation Bandwidth	$\Delta\lambda$	-----	35	-----	nm	$I_F=20mA$
Forward Voltage	V_F	2.7	-----	4.3	V	$I_F=20mA$
Reverse Current	I_R	-----	-----	50	μA	$V_R=5V$

Notes:

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

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Bin Rang of Luminous Intensity

Bin	Min	Max	Unit	Condition
V1	715	900	mcd	I _F =20mA

Bin Range of Dominant Wavelength

Group	Bin Code	Min.	Max.	Unit	Condition
B	B13	523.5	525.5	nm	I _F =20mA
	B14	525.5	527.5		
	B15	527.5	529.5		
	B16	529.5	531.5		
	B17	531.5	533.5		

Notes:

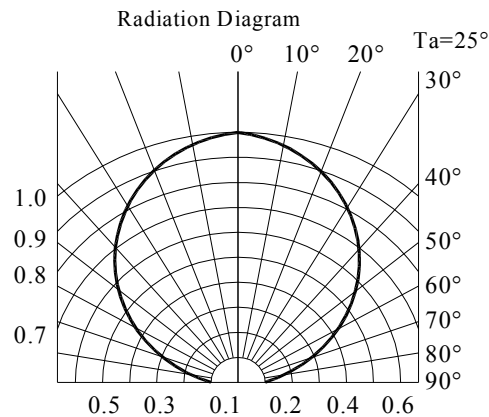
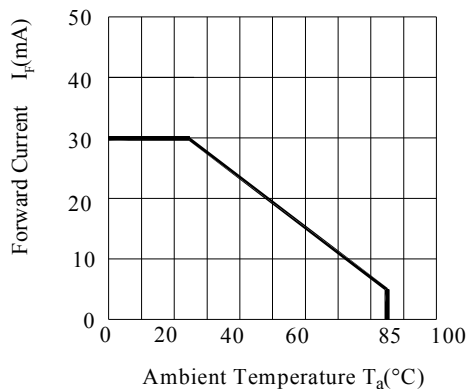
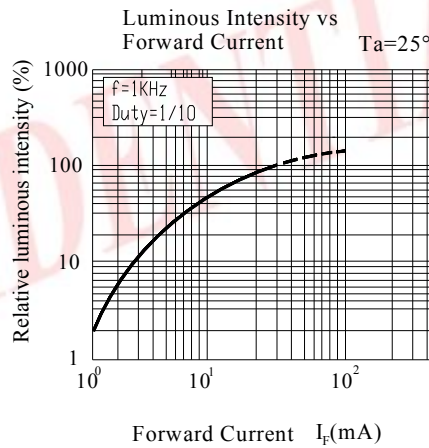
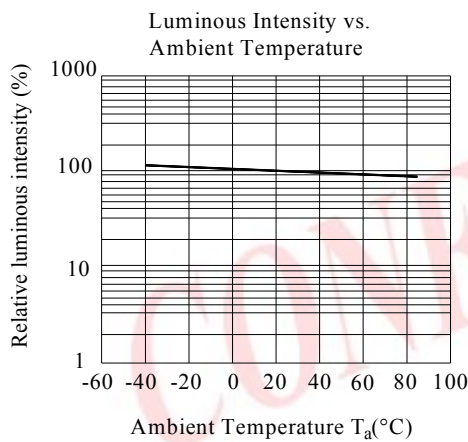
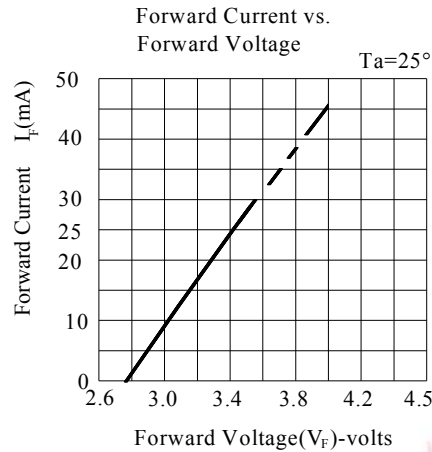
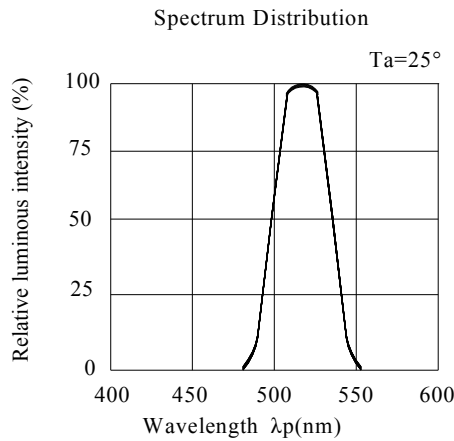
- 1.Tolerance of Luminous Intensity: ±11%
- 2.Tolerance of Dominant Wavelength: ±1nm

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Typical Electro-Optical Characteristics Curves



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Label Explanation

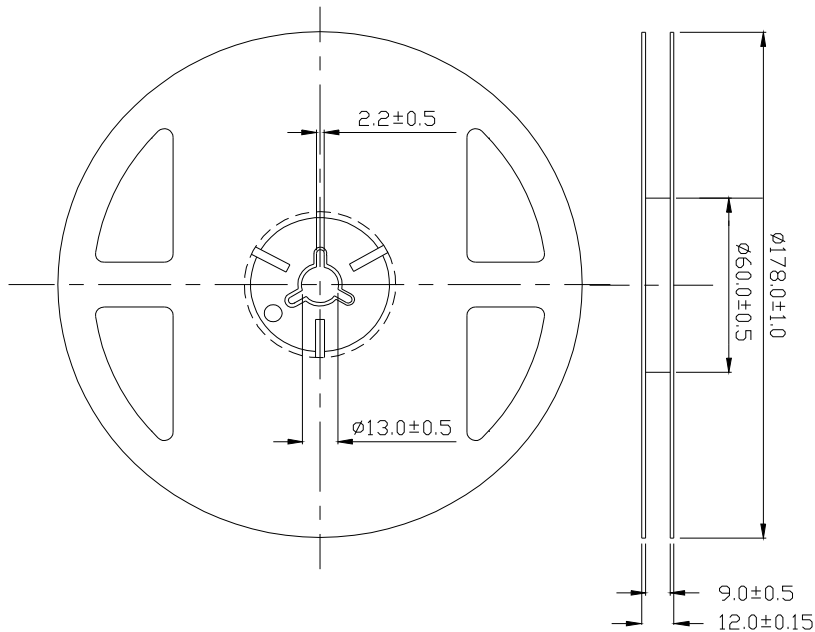
CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank



Reel Dimensions



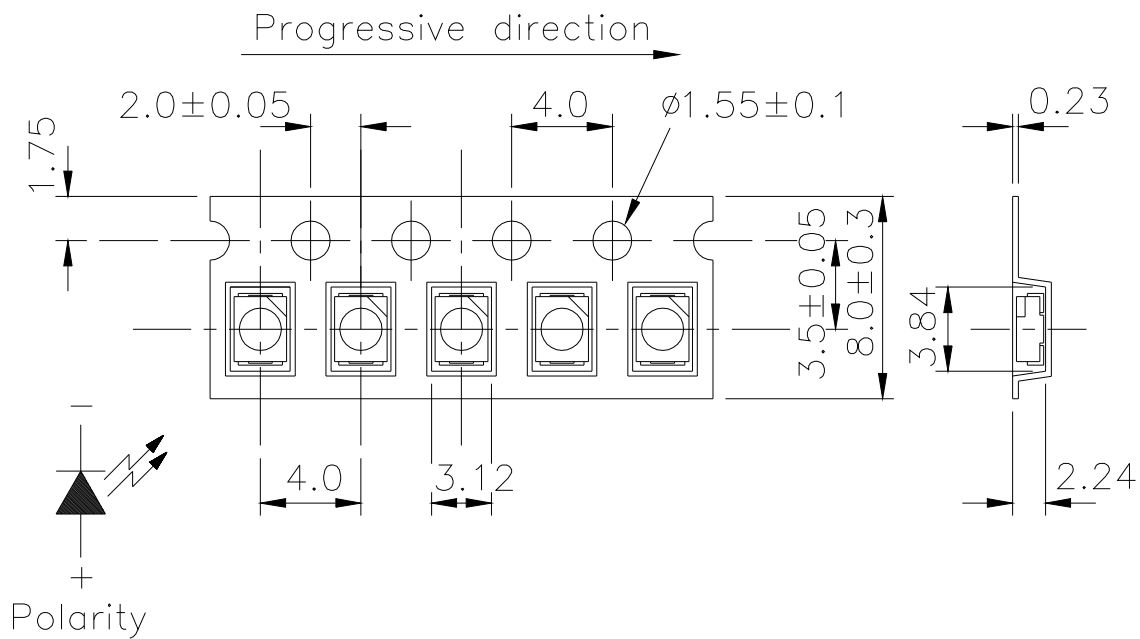
Note: The tolerances unless mentioned is ± 0.1 mm; Unit = mm

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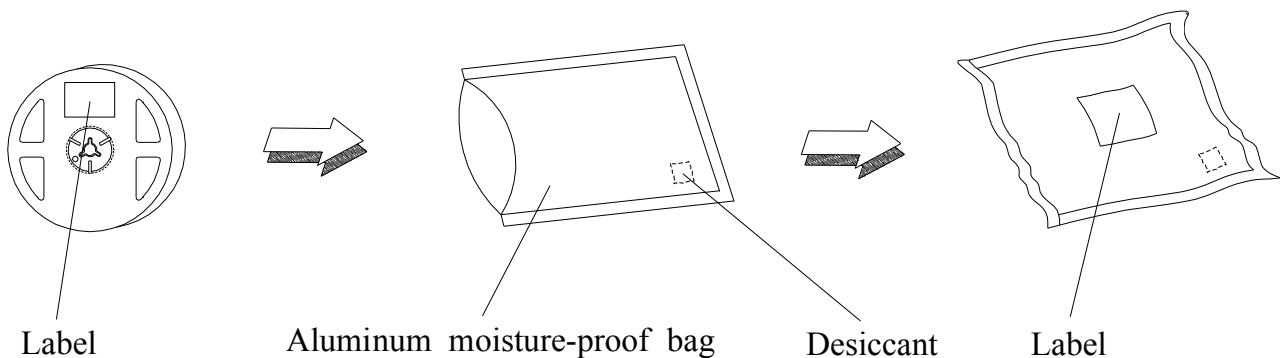
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Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel.



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, 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 ±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.

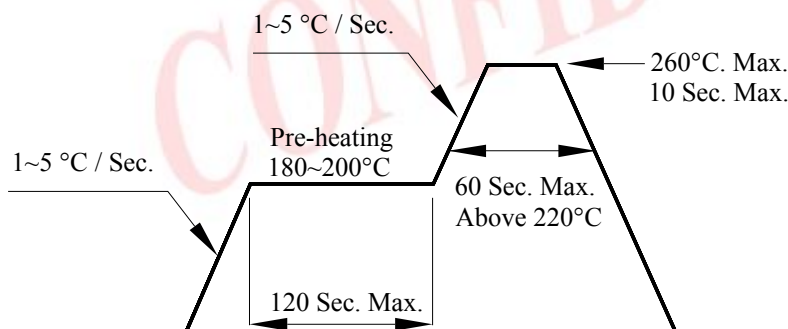
2.3 After opening the package: The LED's floor life are 168 hours under 30 or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

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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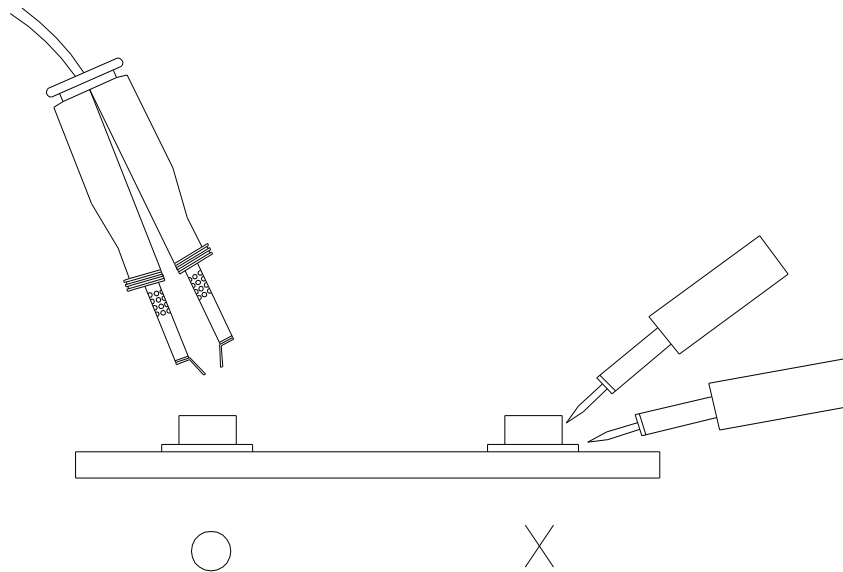
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4. Soldering Iron

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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