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## Technical Data Sheet

### Power Top View LEDs with Lens

**67-31H/GBC-AZ0Z2EZ3/BT**

#### Features

- P-LCC-3 package.
- High flux output.
- High current capability.
- White package.
- Optical indicator.
- Colorless clear window.
- Ideal for backlight and light pipe application.
- Inter reflector.
- Suitable for automatic placement equipment.
- Suitable for reflow and wave solder processes.
- Available on tape and reel (12mm Tape).
- Pb-free.
- The product itself will remain within RoHS compliant version.



#### Descriptions

- The 67-31H series is available in soft orange, red and yellow. Due to the package design, the LED has wide viewing angle and optimized light coupling by inter reflector. This feature makes the 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

- Indicator and backlight for audio and video equipment.
- Indicator and backlight in office and family equipment.
- Flat backlight for LCD's, switches and symbols.
- Light pipe application.
- General use.

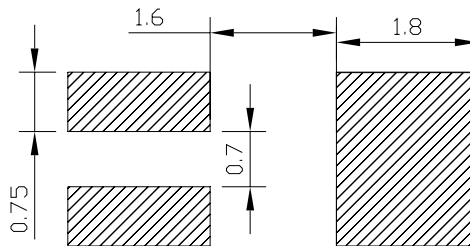
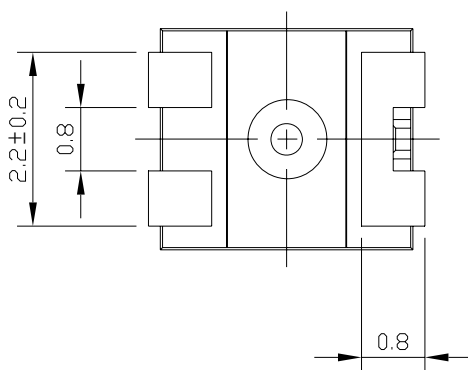
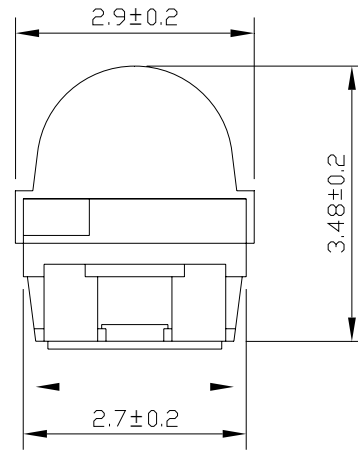
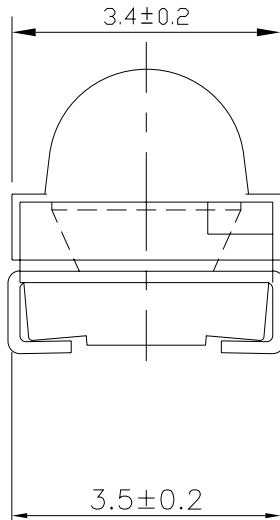
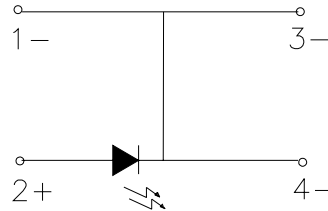
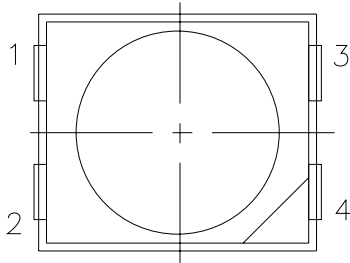
#### Device Selection Guide

Chip	Emitted Color	Resin Color
Material		
InGaN	Brilliant Green	Water White

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**Package Dimensions**



**Note:** Tolerance unless mentioned is  $\pm 0.1\text{mm}$ ; Unit = mm

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**Absolute Maximum Ratings ( $T_a=25^{\circ}\text{C}$ )**

Parameter	Symbol	Rating	Unit
Reverse Voltage	$V_R$	5	V
Forward Current	$I_F$	30	mA
Peak Forward Current (Duty 1/10 @1KHz)	$I_{FP}$	100	mA
Power Dissipation	$P_d$	120	mW
Electrostatic Discharge(HBM)	ESD	2000	V
Operating Temperature	$T_{opr}$	-40 ~ +85	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-40 ~ +90	$^{\circ}\text{C}$
Soldering Temperature	$T_{sol}$	Reflow Soldering : 260 $^{\circ}\text{C}$ for 10 sec. Hand Soldering : 350 $^{\circ}\text{C}$ for 3 sec.	

**Electronic Optical Characteristics**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	$I_V$	4500	-----	18000	mcd	$I_F=30\text{mA}$
Viewing Angle	$2\theta_{1/2}$	-----	30	-----	deg	$I_F=30\text{mA}$
Peak Wavelength	$\lambda_P$	-----	518	-----	nm	$I_F=30\text{mA}$
Dominant Wavelength	$\lambda_d$	517.5	-----	535.5	nm	$I_F=30\text{mA}$
Spectrum Radiation Bandwidth	$\Delta\lambda$	-----	35	-----	nm	$I_F=30\text{mA}$
Forward Voltage	$V_F$	2.75	-----	3.65	V	$I_F=30\text{mA}$
Reverse Current	$I_R$	-----	-----	10	$\mu\text{A}$	$V_R=3\text{V}$

**Notes:**

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



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**Bin Range of Luminous Intensity**

Bin	Min	Max	Unit	Condition
Z01	4500	5700	mcd	I <sub>F</sub> =30mA
Z02	5700	7200		
Z11	7200	9100		
Z12	9100	11500		
Z21	11500	14400		
Z22	14400	18000		

**Bin Range of Dominant Wavelengths**

Bin Code	Min.	Max.	Unit	Condition
B10	517.5	519.5	nm	I <sub>F</sub> =30mA
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		

**Bin Range of Forward Voltage**

Bin	Min	Max	Unit	Condition
5	2.75	3.05	V	I <sub>F</sub> =30mA
6	3.05	3.35		
7	3.35	3.65		

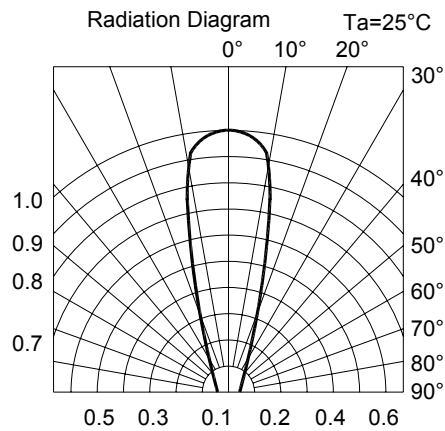
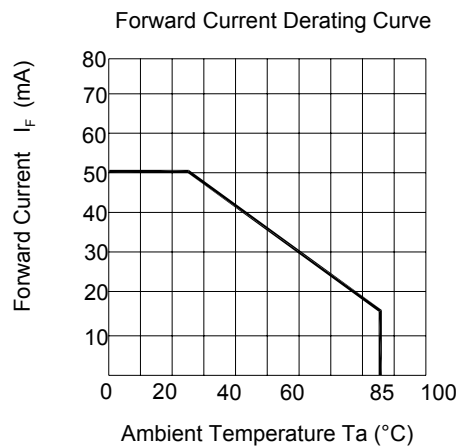
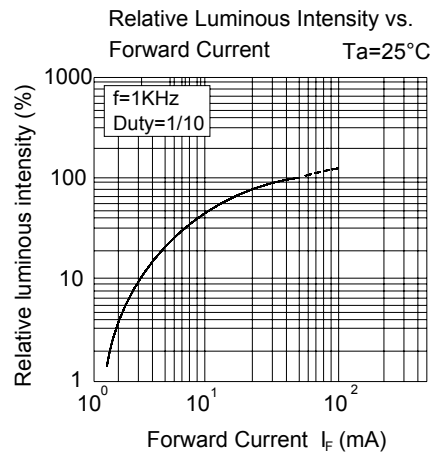
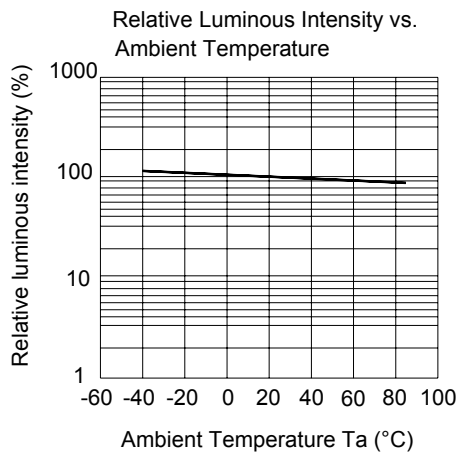
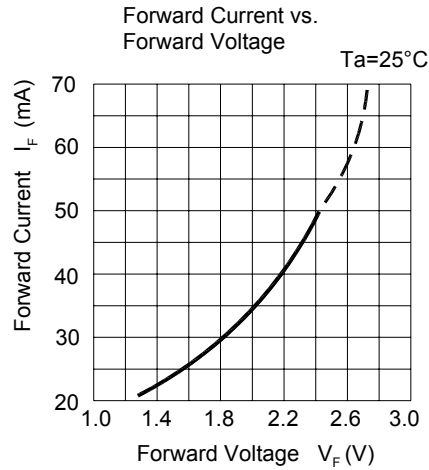
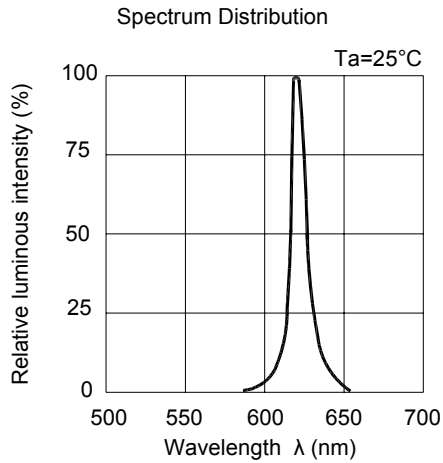
**Notes:**

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**  
**Power Top View LEDs with Lens**

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**Typical Electro-Optical Characteristic Curves**



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**Label Explanation**

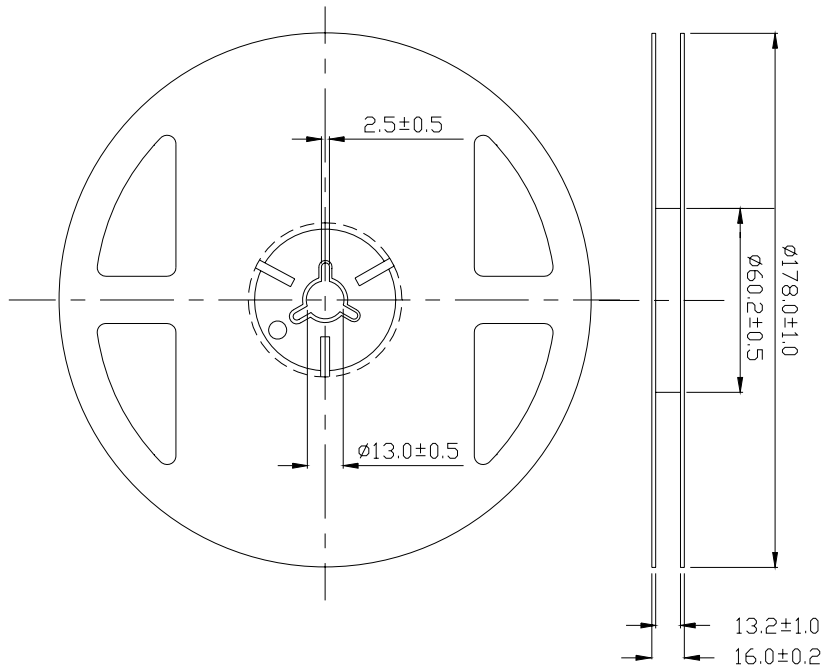
CAT: Luminous Intensity Rank

HUE: Chromaticity Coordinates

REF: Forward Voltage Rank



**Reel Dimensions**

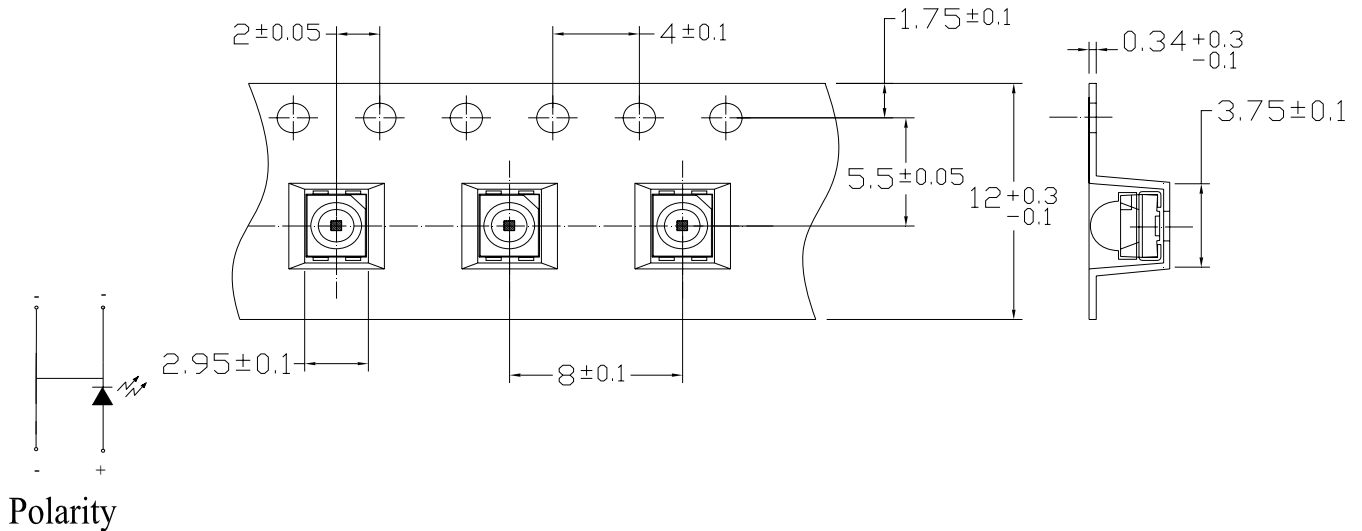


**Note:** Tolerance unless mentioned is  $\pm 0.1$ mm, Unit = mm

**Technical Data Sheet**  
**Power Top View LEDs with Lens**

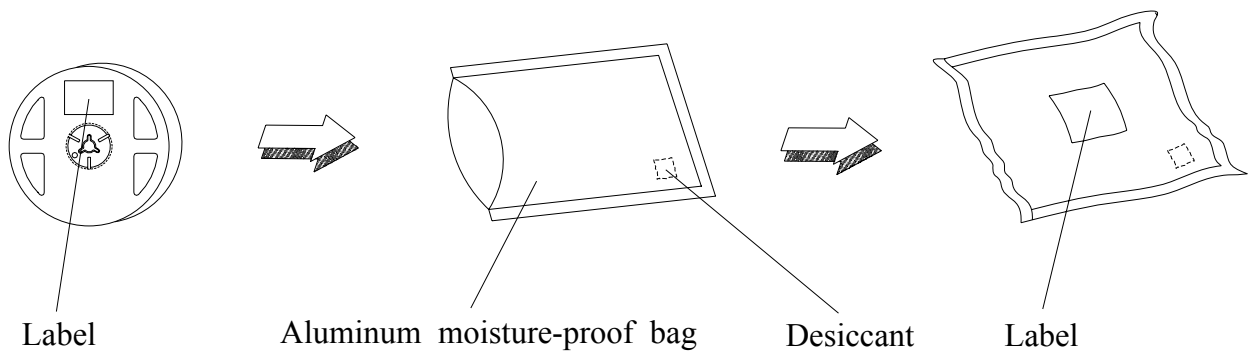
**67-31H/GBC-AZ0Z2EZ3/BT**

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



**Note :** Tolerance unless mentioned is  $\pm 0.1\text{mm}$ ; Unit = mm

**Moisture Resistant Packing**





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**Power Top View LEDs with Lens**
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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. 5 sec.	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> = 30 mA / 25°C	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85°C/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°C or less and 90%RH or less.

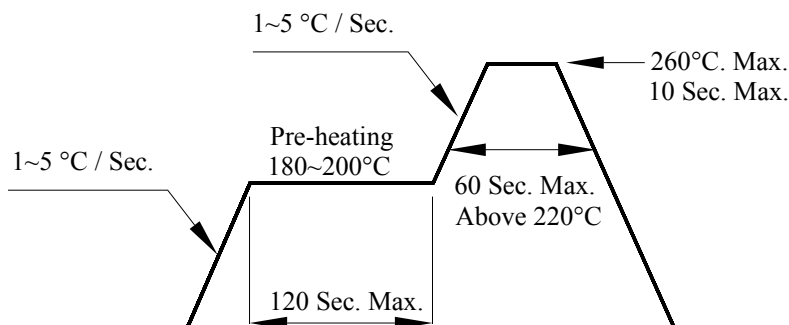
2.3 After opening the package: The LED's floor life are 72 hours under 30°C or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

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.

#### 4. Soldering Iron

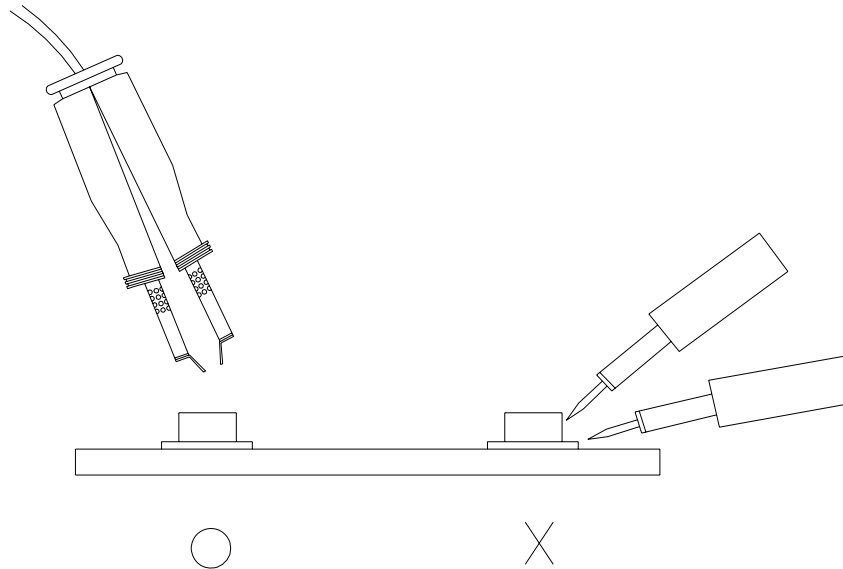
Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

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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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