

Mini Top View LEDs

65-21/GVC-AK2M1Z/3T



Features

- White SMT package.
- Optical indicator.
- Wide viewing angle.
- Soldering methods: IR reflow soldering
- Available on tape and reel (8mm Tape).
- Pb-free.
- The product itself will remain within RoHS compliant version.

Descriptions

The 65-21 series is available in soft orange, green, blue, and yellow. Due to the package design, the LED has a wide viewing angle and optimized light coupling by an internal reflector. Besides, the LED is mounted top down and emits through the PCB. This feature makes the LED ideal for light pipe applications.

Applications

- Optical indicators.
- Coupling into light guides.
- Backlighting (LCD, cellular phones, switches, keys, displays, illuminated advertising, general lighting).
- Coupling into light guides; Interior automotive lighting (e.g. dashboard backlighting, etc.).

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Green	Water Clear

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	VR	5	V
Forward Current	IF	25	mA
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +100	°C
Power Dissipation	Pd	60	mW
Electrostatic Discharge(HBM)	ESD	2000	V
Peak Forward Current (Duty 1/10 @1KHz)	IFP	60	mA
Soldering Temperature	Tsol	Reflow Soldering : 260 °C for 30 sec. Hand Soldering : 350 °C for 3 sec.	

Note:

1. Tolerance of Luminous Intensity: ±10%
2. Tolerance of Dominant Wavelength: ±1nm

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I _v	9.0	-----	22.5	mcd	I _F =10mA
Viewing Angle	2θ _{1/2}	-----	120	-----	deg	I _F =10mA
Peak Wavelength	λ _p	-----	568	-----	nm	I _F =10mA
Dominant Wavelength	λ _d	563.5	----	571.5	nm	I _F =10mA
Spectrum Radiation Bandwidth	Δλ	-----	20	-----	nm	I _F =10mA
Forward Voltage	V _F	-----	2.0	2.4	V	I _F =10mA
Reverse Current	I _R	-----	-----	10	μA	V _R =5V

Note:

1. Tolerance of Luminous Intensity: ±10%
2. Tolerance of Dominant Wavelength: ±1nm

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
C13	563.5	565.5	nm	I _F =10mA
C14	565.5	567.5		
C15	567.5	569.5		
C16	569.5	571.5		

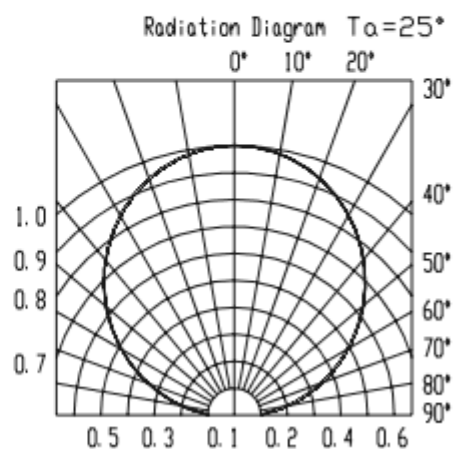
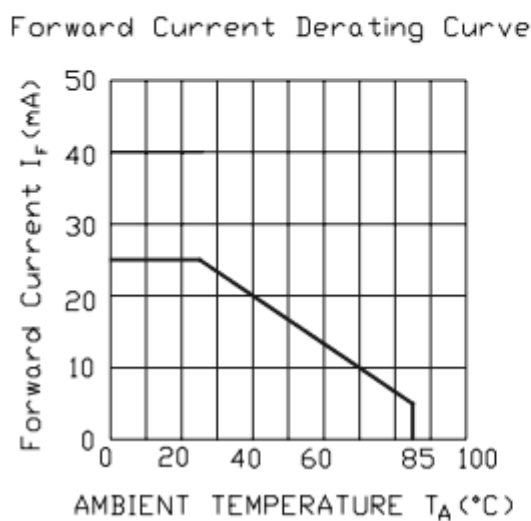
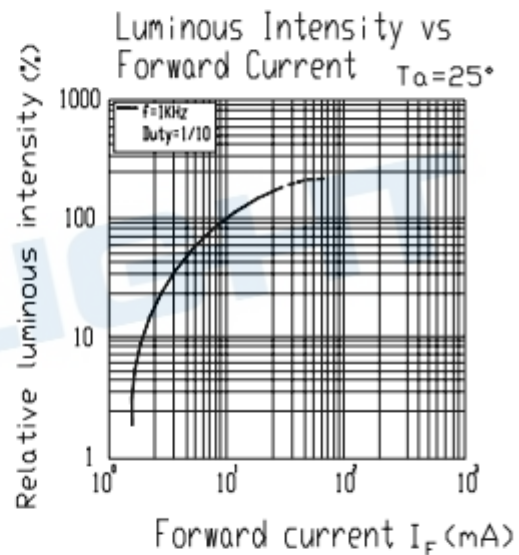
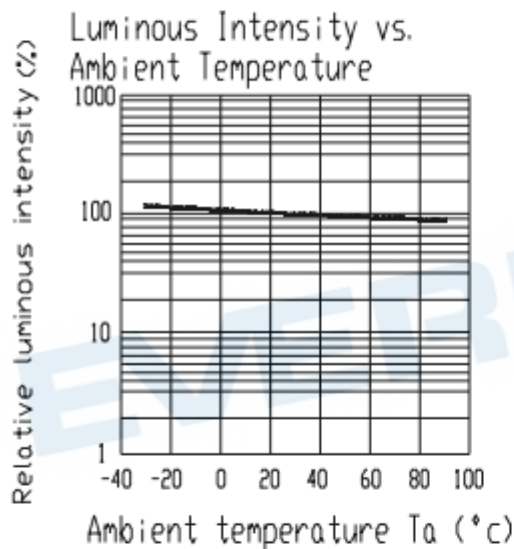
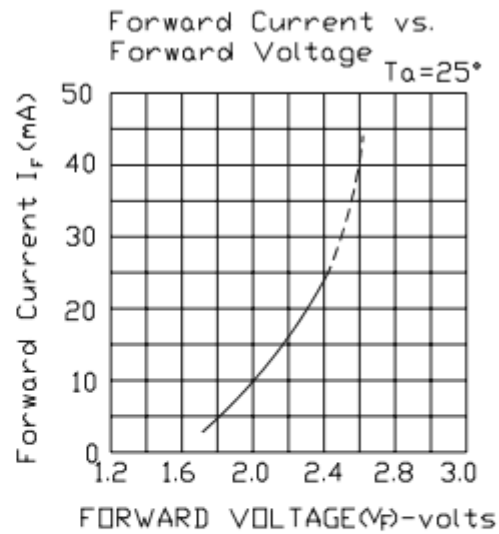
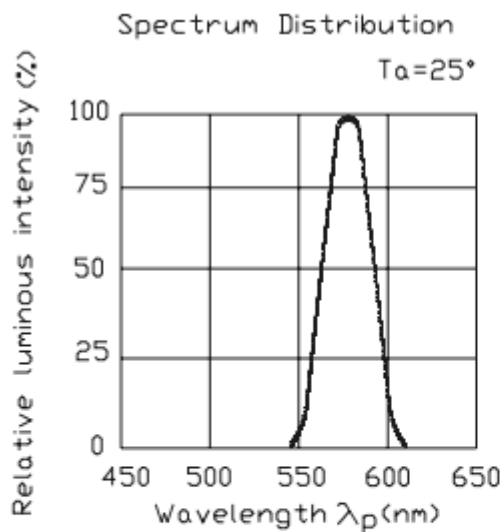
Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
K2	9.0	11.5	mcd	I _F =10mA
L1	11.5	14.5		
L2	14.5	18.0		
M1	18.0	22.5		

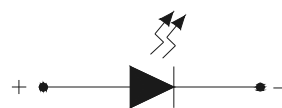
Note:

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2. Tolerance of Dominant Wavelength: ±1nm

Typical Electro-Optical Characteristics Curves



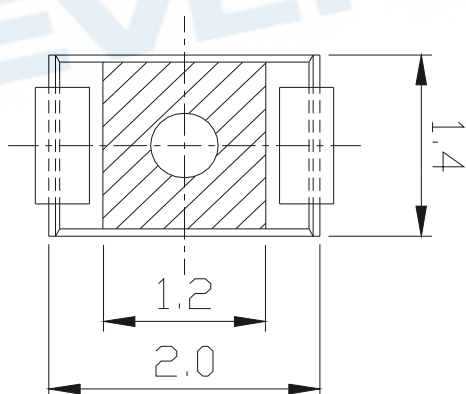
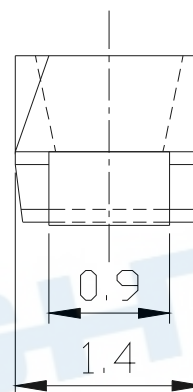
Technical drawing of a cathode marking on a rectangular component. The drawing shows a top-down view with dimensions: 1.7 (width), 1.1 (height), and 1.4 (height of the outer frame). A dashed line indicates the center. A label 'cathode marking' points to a small feature on the right side.



Technical drawing of a mechanical part, likely a bracket or support, showing dimensions in millimeters (mm). The drawing includes a side view and a top view.

Dimensions shown:

- Overall height: 1.35 ± 0.05 mm
- Top surface thickness: 0.75 ± 0.1 mm
- Inner width (between mounting holes): 1.2 mm
- Overall width: 2.2 mm

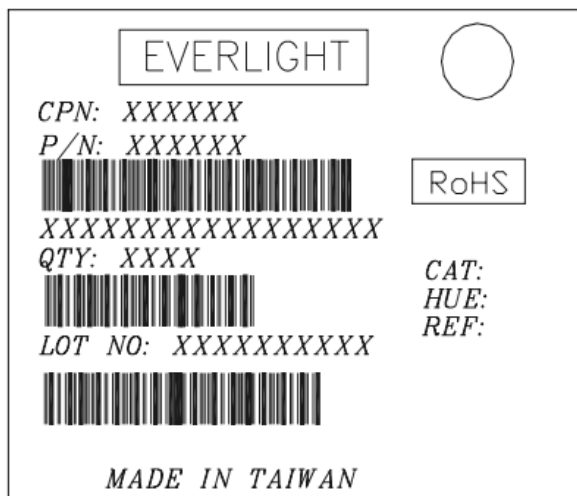


Technical drawing of a mechanical part showing dimensions: 0.8, 1.2, and 0.8.

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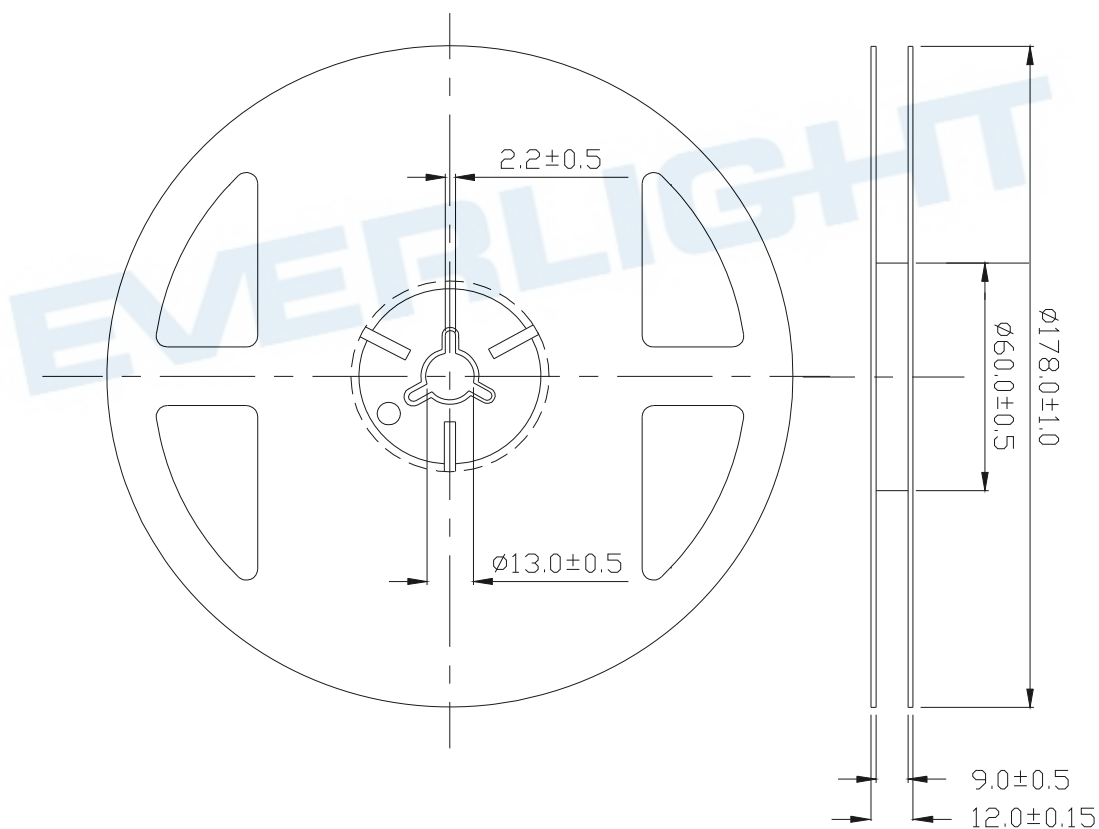
Moisture Resistant Packing Materials

Label Explanation



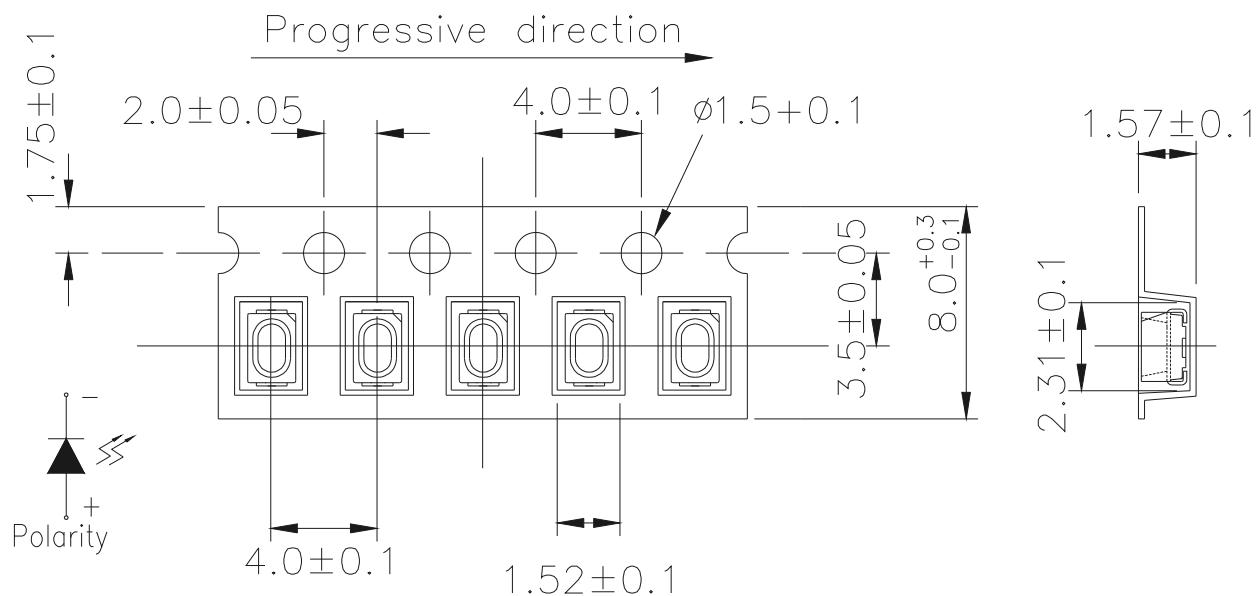
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions



Note: Tolerance unless mentioned is ± 0.1 mm; Unit = mm

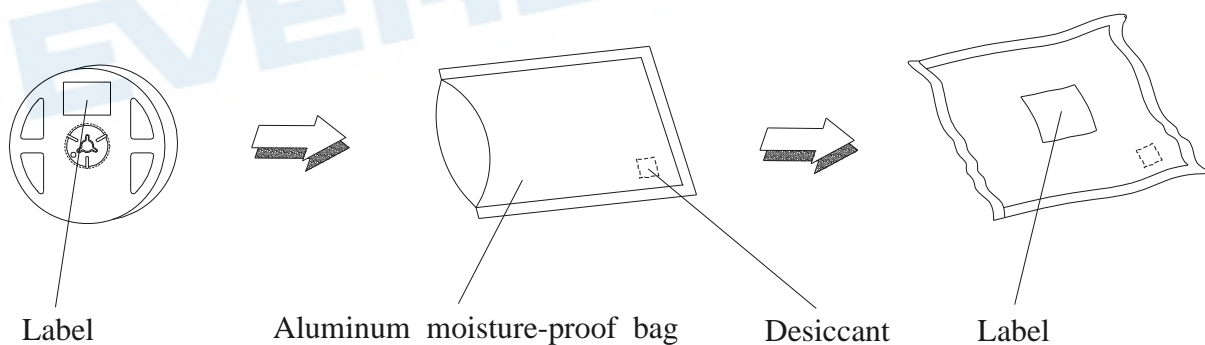
Carrier Tape Dimensions: Loaded Quantity 3000 pcs Per Reel



Notes:

1. Tolerances unless mentioned ± 0.1 mm. Unit = mm

Moisture Resistant Packing Process



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

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 Qty	Ac/Re
1	Reflow Soldering	Temp.: $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Max:10 sec.	6Min.	22 pcs.	0/1
2	Temperature Cycle	H: $+100^{\circ}\text{C}$ 15min. J 5min. L: -40°C 15min.	300 cycles	22 pcs.	0/1
3	Thermal Shock	H: $+100^{\circ}\text{C}$ 5min. J 10min. L: -10°C 5min.	300 cycles	22 pcs.	0/1
4	High Temperature Storage	Temp.: $100^{\circ}\text{C} \pm 5^{\circ}\text{C}$	1000 hrs.	22 pcs.	0/1
5	Low Temperature Storage	Temp.: $-40^{\circ}\text{C} \pm 5^{\circ}\text{C}$	1000 hrs.	22 pcs.	0/1
6	DC Operating Life	$I_F=20\text{mA}/25^{\circ}\text{C}$	1000 hrs.	22 pcs.	0/1
7	High Temperature/High Humidity	$85^{\circ}\text{C} \pm 5^{\circ}\text{C}/85\%\text{RH}$	1000 hrs.	22 pcs.	0/1

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.

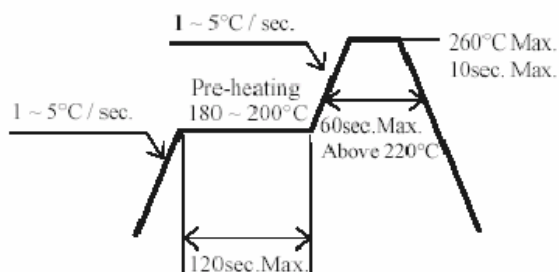
2.3 After opening the package: The LED's floor life is 1 year under 30 deg C or less and 60%RH or less. If unused LEDs remain, it should be stored in moisture proof package.

2.4 If the moisture absorbent material (silicagel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment: 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.

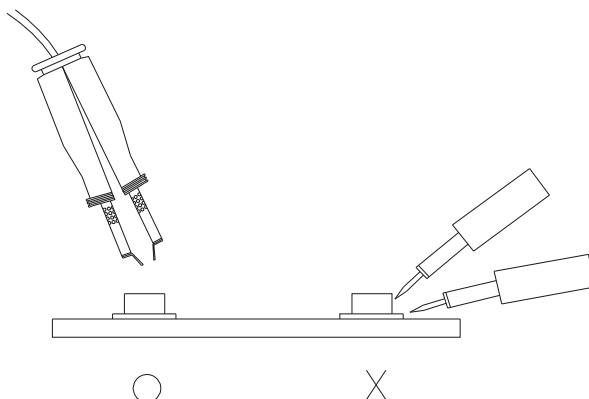
3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

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



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.
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