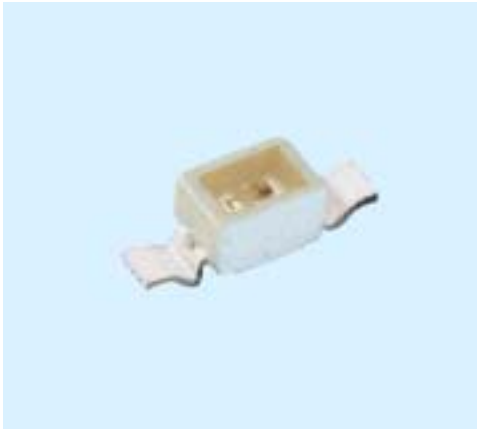
EVERLIGHT ELECTRONICS CO.,LTD.

Technical Data Sheet

Mini TOP LEDs (Reverse Gull Wing) (Preliminary)

65-21/BHC-AP2R1EZ/3AA



Features

- White SMT package.
- Optical indicator.
- Wide viewing angle.
- Soldering methods: IR reflow soldering.
- Available on tape and reel.

Descriptions

- The 65-21 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. Besides, LED is mounted top down and emits through the PCB. This feature makes the SMT TOP LED ideal for light pipe application.

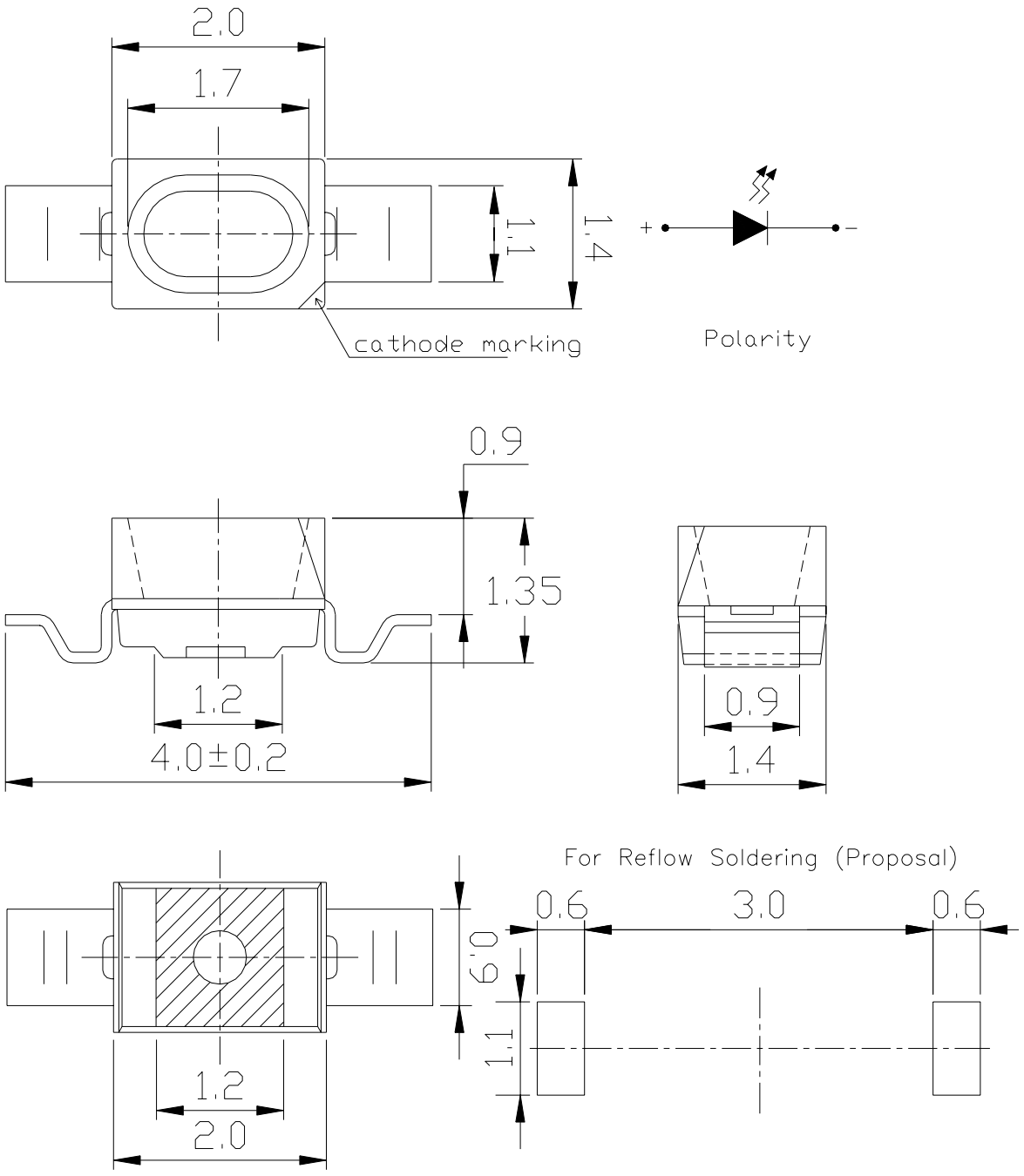
Applications

- 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		Lens Color
Material	**Emitted Color**	
InGaN	Blue	Water Clear

Package Outline Dimensions



Notes: All dimensions are in millimeters.
Tolerances unspecified are ±0.1mm.

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	25	mA
Operating Temperature	Topr	-40 ~ +85	℃
Storage Temperature	Tstg	-40 ~ +100	℃
Soldering Temperature	Tsol	260 (for 5 seconds)	℃
Power Dissipation	Pd	110	mW
Electrostatic Discharge	ESD	150	V
Peak Forward Current (Duty 1/10 @1KHz)	I_F(Peak)	100	mA

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	57.0	-----	112.0	mcd	I_F=10mA
Viewing Angle	2 θ 1/2	-----	120	-----	deg	I_F=10mA
Peak Wavelength	λ p	-----	468	-----	nm	I_F=10mA
Dominant Wavelength	λ d	464.5	-----	476.5	nm	I_F=10mA
Spectrum Radiation Bandwidth	Δ λ	-----	35	-----	nm	I_F=10mA
Forward Voltage	V_F	2.75	-----	3.95	V	I_F=10mA
Reverse Current	I_R	-----	-----	50	μ A	V_R=5V

Bin Range of Luminous Intensity and Dominant Wavelength at I_F= 10mA

Symbol	Bin Code	Min.	Max.	Unit
Iv	P2	57.0	72.0	mcd
	Q1	72.0	90.0	
	Q2	90.0	112.0	
	R1	112.0	140.0	
λd	A9	464.5	467.5	nm
	A10	467.5	470.5	
	A11	470.5	473.5	
	A12	473.5	476.5	
V_F	5	2.75	3.05	V
	6	3.05	3.35	
	7	3.35	3.65	

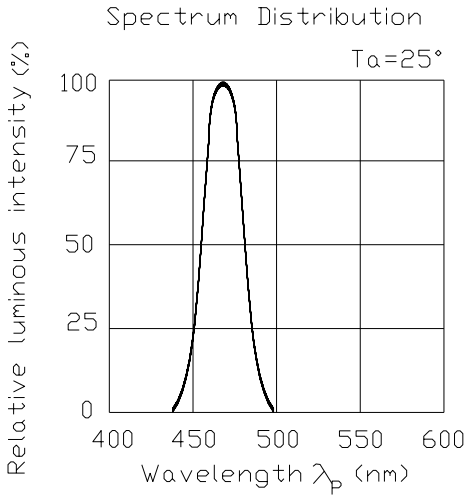
Notes:

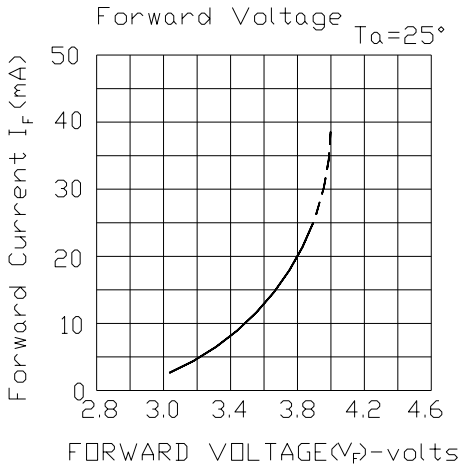
*The luminous intensity data did not including ±15% testing tolerance.

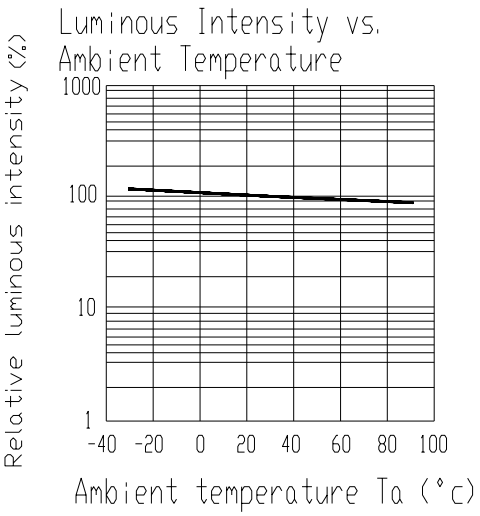
*Tolerance of forward voltage ±0.1V.

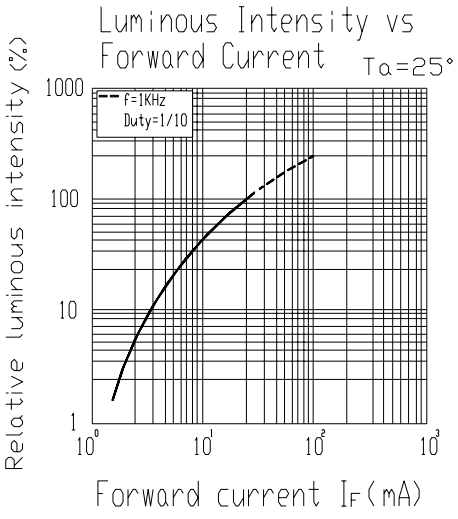
*Tolerance of dominant wavelength ±1nm.

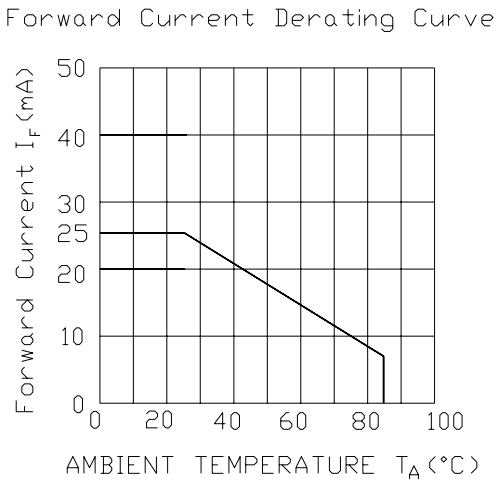
Typical Electro-Optical Characteristics Curves

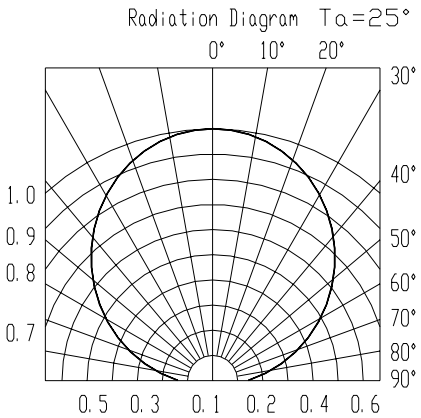












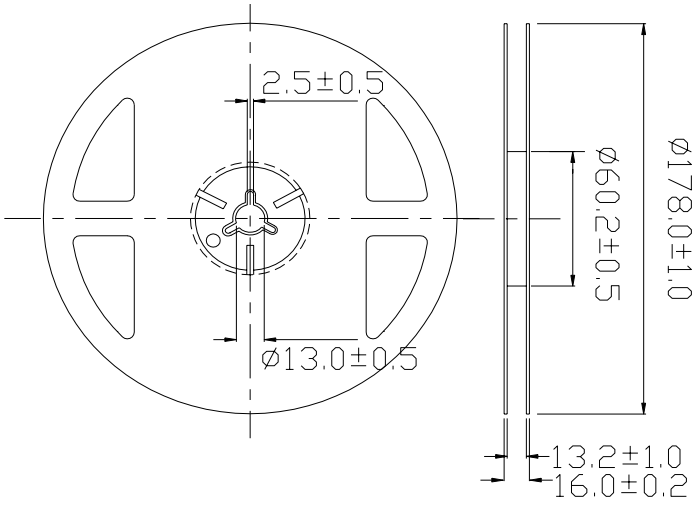
Label explanation

CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank

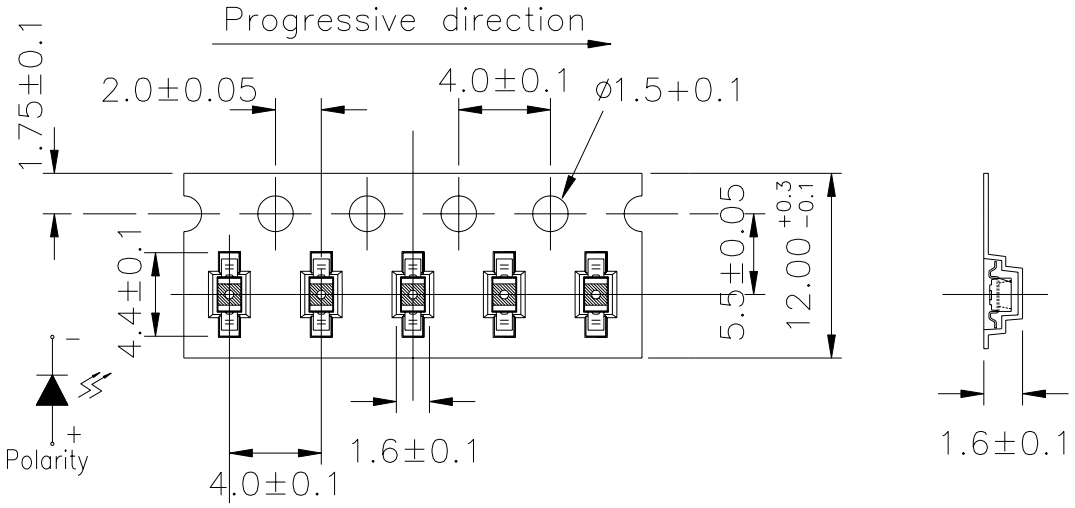
Reel Dimensions



Taping Quantity: 3000pcs

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

Carrier Tape Dimensions



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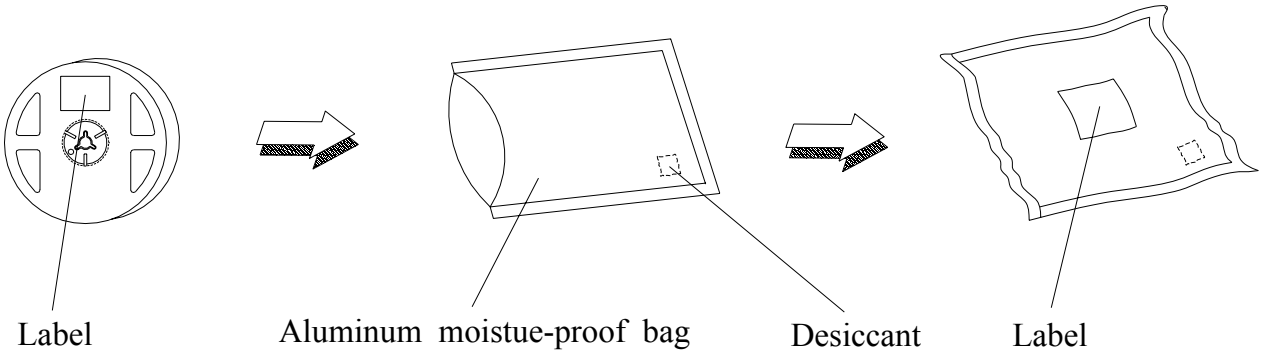
Moisture Resistant Packaging



Note: The tolerances unless mentioned is ±0.1mm ,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 Size	Ac/Re
1	Reflow Soldering	Temp. : 240℃±5℃ 5 Sec.	6Min.	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. : -55℃	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℃/RH85%	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℃ or less and 90%RH or less.

2.3 The LEDs should be used within a year.

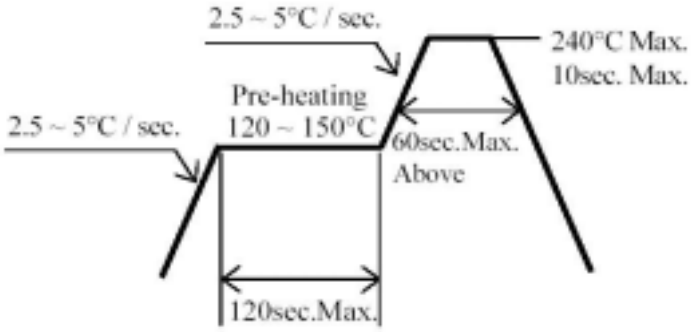
2.4 After opening the package, the LEDs should be kept at 30℃ or less and 70%RH or less.

2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

2.6 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 Lead solder temperature profile



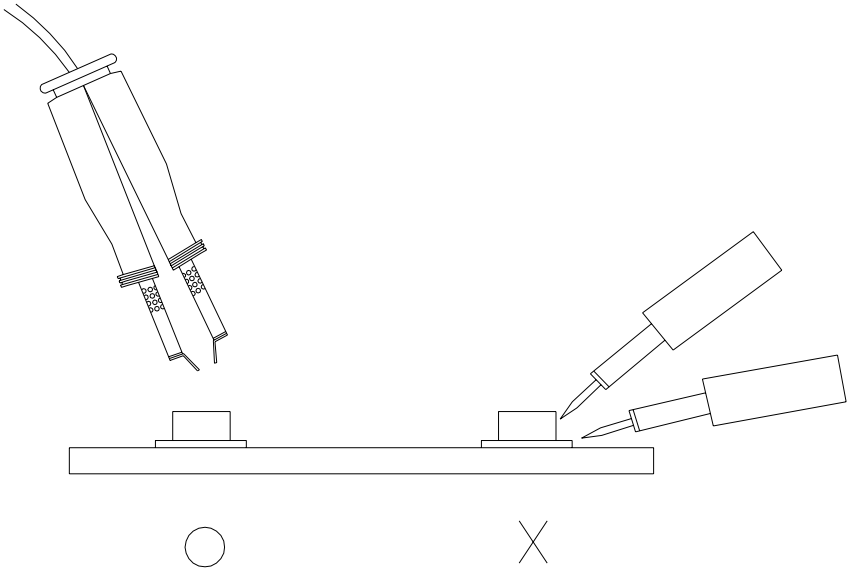
3.2 Reflow soldering should not be done more than two times.
3.3 When soldering, do not put stress on the LEDs during heating.
3.4 After soldering, do not warp the circuit board.

4.Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 280℃ 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.



EVERLIGHT ELECTRONICS CO., LTD.
Office: No 25, Lane 76, Sec 3, Chung Yang Rd,
Tucheng, Taipei 236, Taiwan, R.O.C
Tel: 886-2-2267-2000, 2267-9936
Fax: 886-2267-6244, 2267-6189, 2267-6306
http://www.everlight.com