

### Mini Top View LEDs 65-21/R7C-AP2Q2B/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.
- . Precondition: Bases on JEDEC J-STD 020D Level 3
- . Compliance with EU REACH.
- . Compliance Halogen Free .(Br<900ppm,Cl<900ppm,Br+Cl<1500ppm).

#### Description

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 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 Materials	Emitted Color	Resin Color
AlGaInP	Dark- 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)	$I_{FP}$	60	mA
Power Dissipation	$P_d$	60	mW
Junction Temperature	$T_j$	115	°C
Operating Temperature	$T_{opr}$	-40 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +90	°C
Electrostatic Discharge (HBM)	ESD	2000	V
Soldering Temperature	$T_{sol}$	Reflow Soldering : 260 °C for 10 sec. Hand Soldering : 350 °C for 3 sec.	

## Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	$I_v$	57	-----	112	mcd	$I_F=20mA$
Viewing Angle	$2\theta_{1/2}$	-----	120	-----	deg	
Peak Wavelength	$\lambda_p$	-----	639	-----	nm	
Dominant Wavelength	$\lambda_d$	625.5	-----	637.5	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	$\mu A$	

Note:

1. Tolerance of Luminous Intensity:  $\pm 11\%$
2. Tolerance of Forward Voltage:  $\pm 0.1V$
3. Tolerance of dominant wavelength  $\pm 1nm$ .

### Bin Range of Dom. Wavelength

Group	Bin Code	Min.	Max.	Unit	Condition
A	E6	625.5	629.5	nm	I <sub>F</sub> =20mA
	E7	629.5	633.5		
	E8	633.5	637.5		

### Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
P2	57	72	mcd	I <sub>F</sub> =20mA
Q1	72	90		
Q2	90	112		

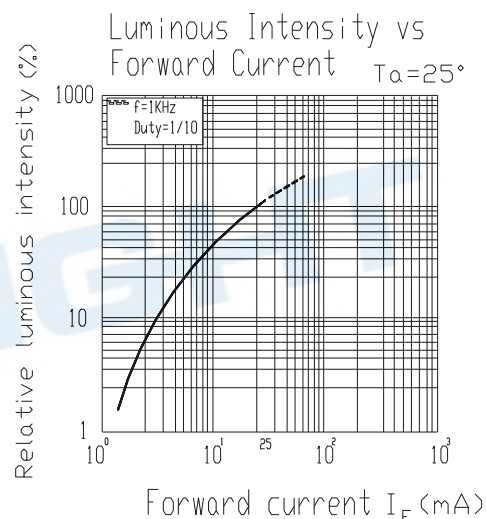
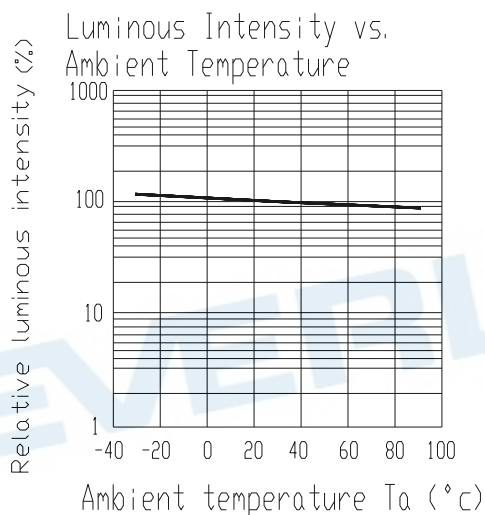
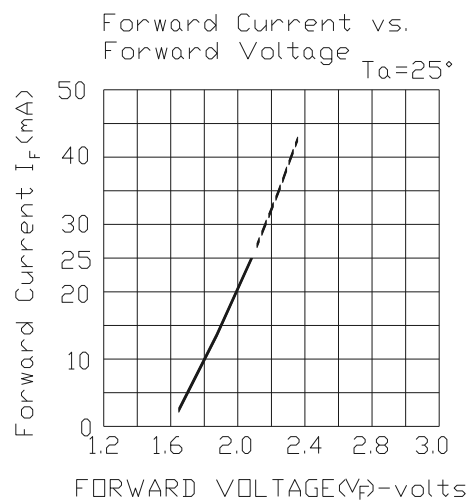
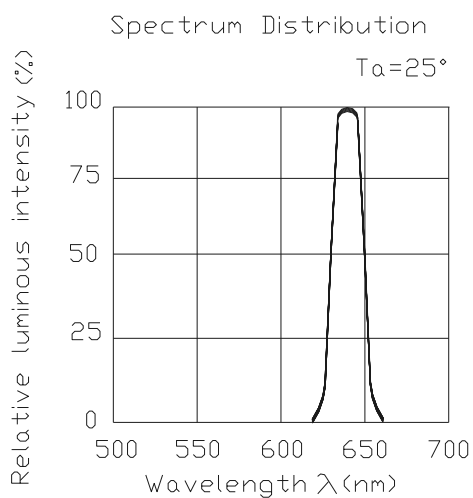
### Bin Range of Forward Voltage

Group	Bin Code	Min.	Max.	Unit	Condition
B	0	1.75	1.95	V	I <sub>F</sub> =20mA
	1	1.95	2.15		
	2	2.15	2.35		

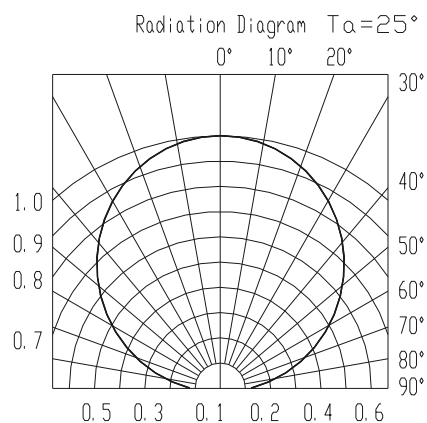
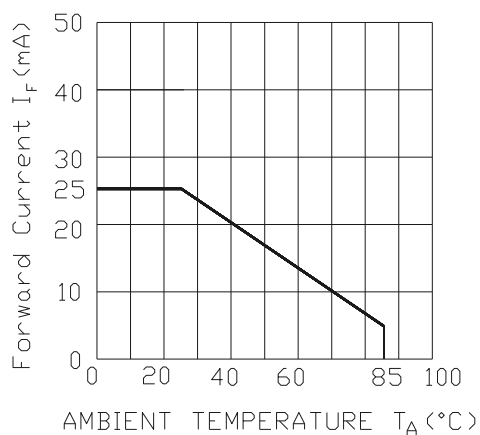
Note:

1. Tolerance of Luminous Intensity:  $\pm 11\%$
2. Tolerance of Forward Voltage:  $\pm 0.1V$
3. Tolerance of dominant wavelength  $\pm 1nm$ .

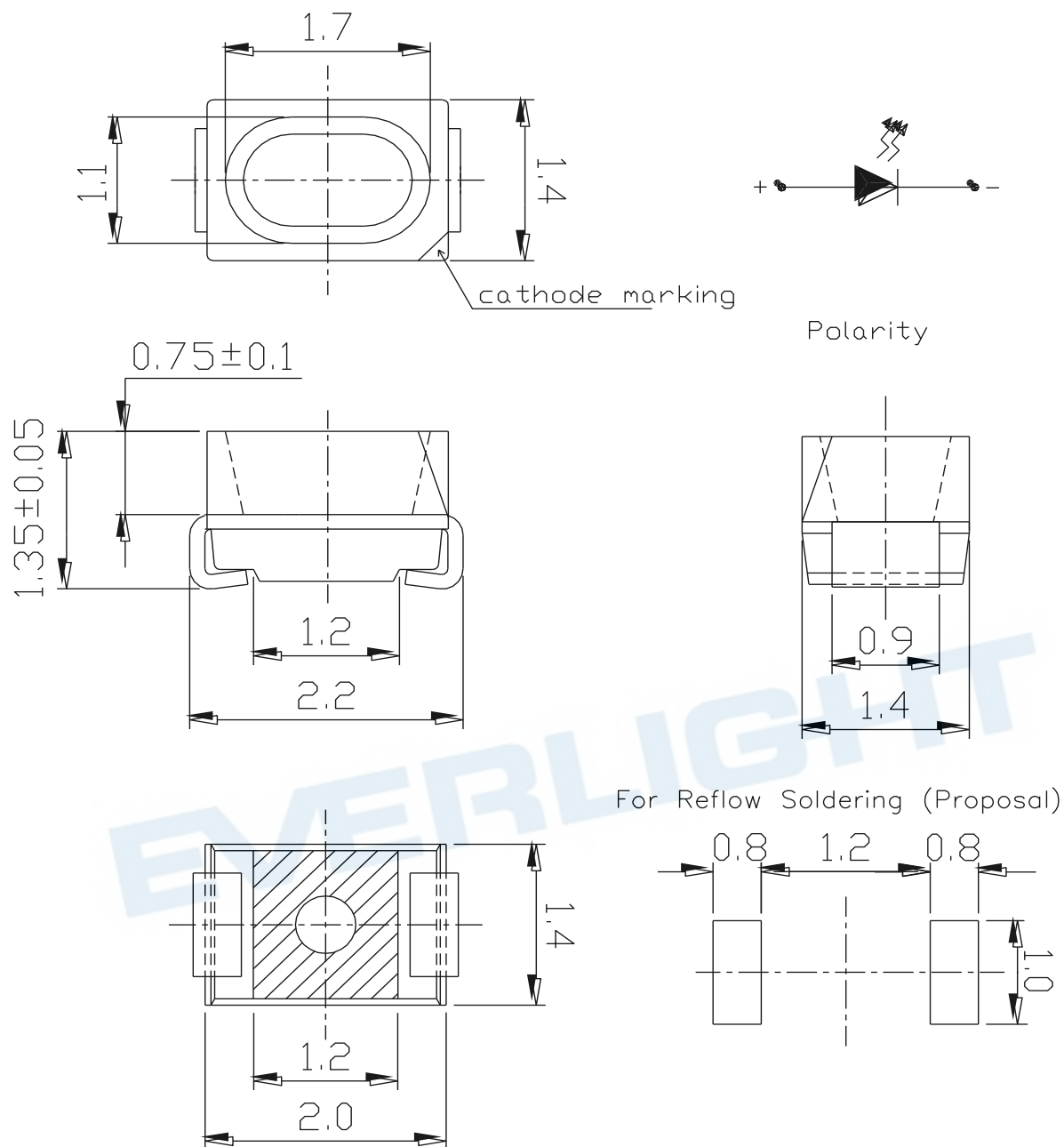
## Typical Electro-Optical Characteristics Curves



Forward Current Derating Curve



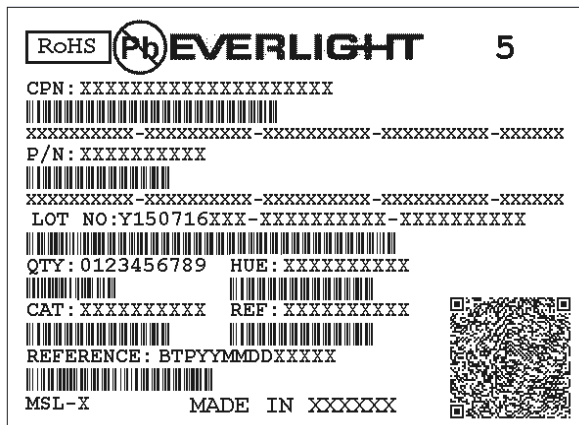
## Package Dimension



Note: Tolerances unless mentioned  $\pm 0.1$  mm. Unit = mm

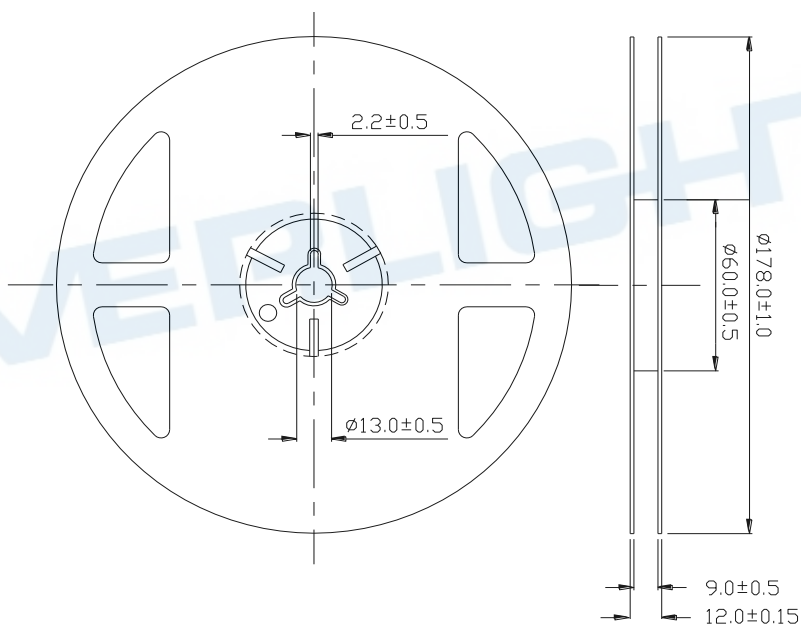
## Moisture Resistant Packing Materials

### Label Explanation



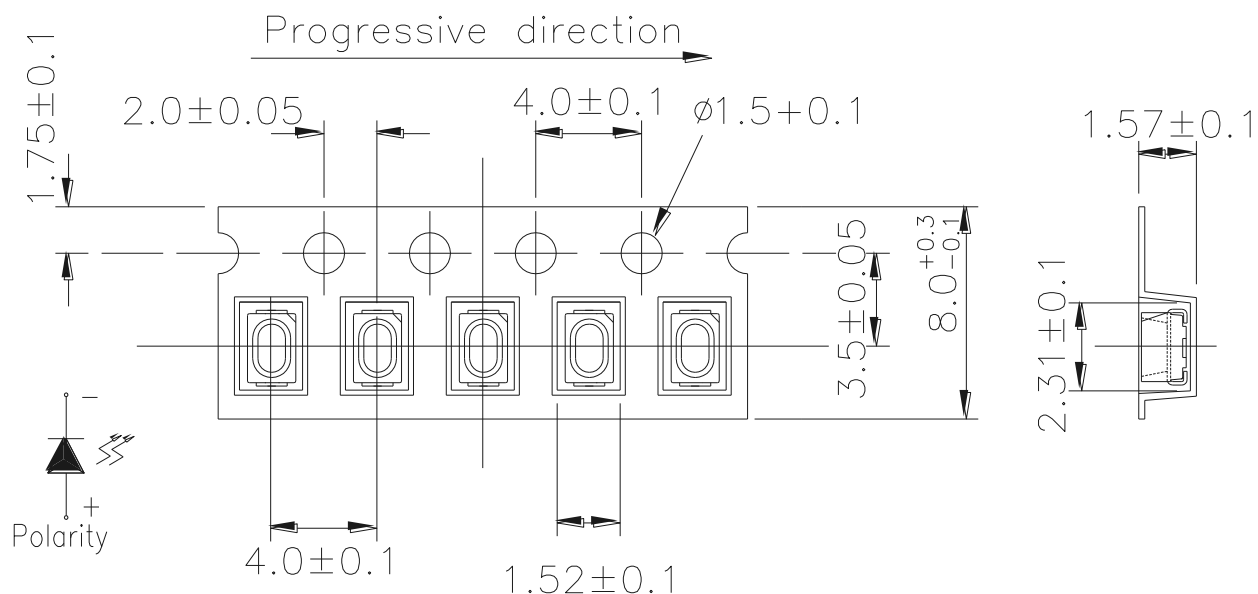
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

### Reel Dimensions



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

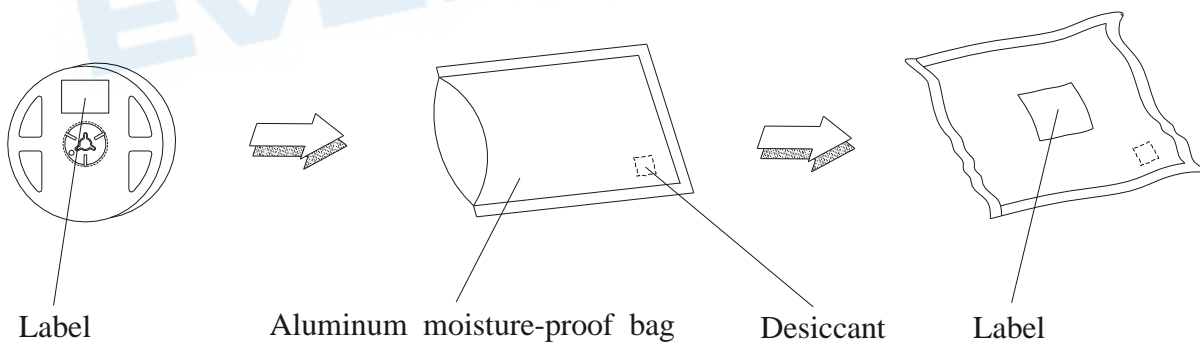
## Carrier Tape Dimensions: Loaded Quantity 3000 pcs Per Reel



### Notes:

1. Tolerances unless mentioned  $\pm 0.1$  mm. Unit = mm
2. Minimum packing amount is 250/500/1000/2000/2500 pcs per reel

## Moisture Resistant Packing Process

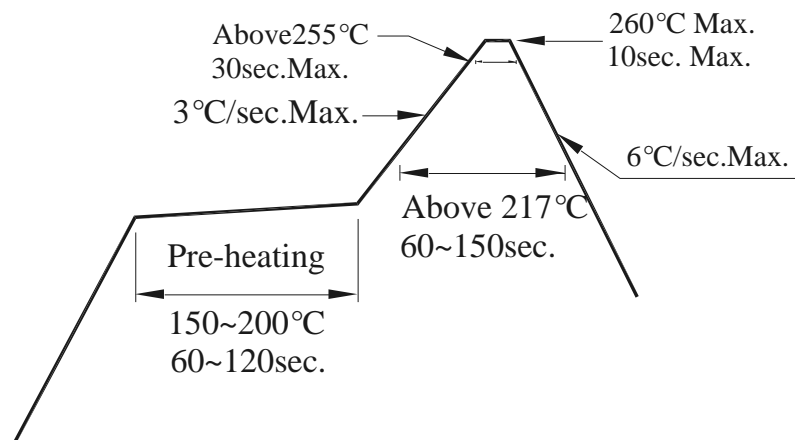


Note: Tolerances unless mentioned  $\pm 0.1$  mm. Unit = mm

## 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.

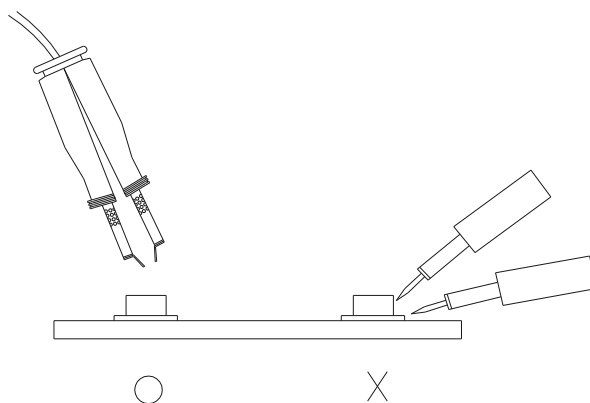
3.4 After soldering, do not warp the circuit board.

### 4. Soldering Iron

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

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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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