

**Technical Data Sheet****Mini Top View LEDs****65-21/R6C-AQ1R2B/2T****Features**

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

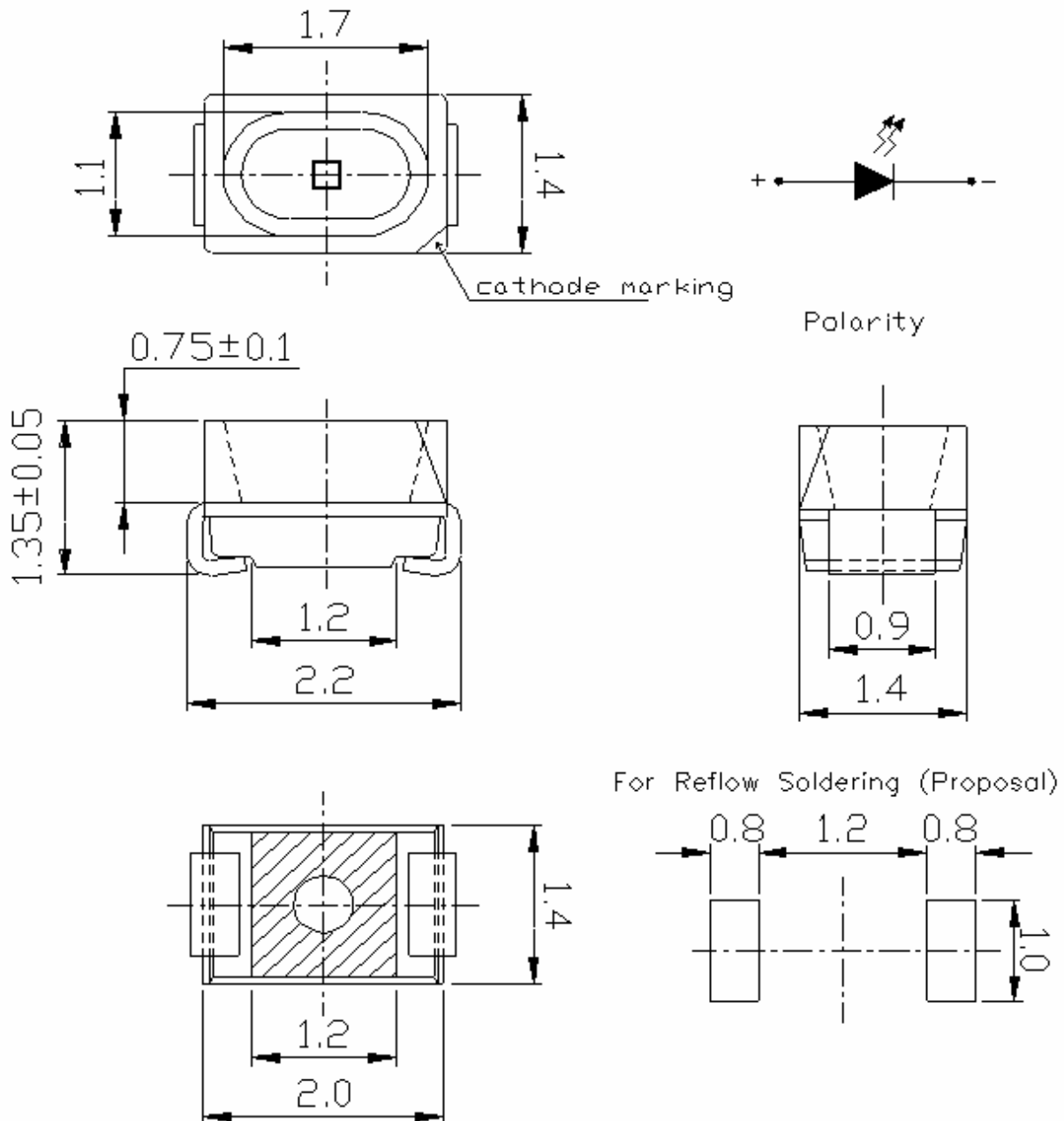
Chip	Emitted Color	Resin Color
Material		
AlGaInP	Brilliant Red	Water Clear

Technical Data Sheet

Mini Top View LEDs

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Package Outline Dimensions



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

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**Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Rating	Unit
Reverse Voltage	$V_R$	5	V
Forward Current	$I_F$	50	mA
Peak Forward Current (Duty 1/10 @1KHz)	$I_{FP}$	100	mA
Power Dissipation	$P_d$	110	mW
Electrostatic Discharge (HBM)	ESD	2000	V
Operating Temperature	$T_{opr}$	-40 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +90	°C
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	$I_v$	72	-----	180	mcd	$I_F=20mA$
Viewing Angle	$2\theta$ 1/2	-----	120	-----	deg	
Peak Wavelength	$\lambda_p$	-----	632	-----	nm	
Dominant Wavelength	$\lambda_d$	616.5	-----	634.5	nm	
Spectrum Radiation Bandwidth	$\Delta\lambda$	-----	20	-----	nm	
Forward Voltage	$V_F$	1.75	-----	2.35	V	
Reverse Current	$I_R$	-----	-----	10	$\mu A$	$V_R=5V$

**Notes:**

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



## Technical Data Sheet

## Mini Top View LEDs

**65-21/R6C-AQ1R2B/2T****Bin Range of Dominant Wavelength**

Group	Bin	Min	Max	Unit	Condition
A	E4	616.5	622.5	nm	I <sub>F</sub> =20mA
	E5	620.5	626.5		
	E6	624.5	630.5		
	E7	628.5	634.5		

**Bin Range of Luminous Intensity**

Bin	Min	Max	Unit	Condition
Q1	72	90	mcd	I <sub>F</sub> =20mA
Q2	90	112		
R1	112	140		
R2	140	180		

**Bin Range of Forward Voltage**

Group	Bin	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		

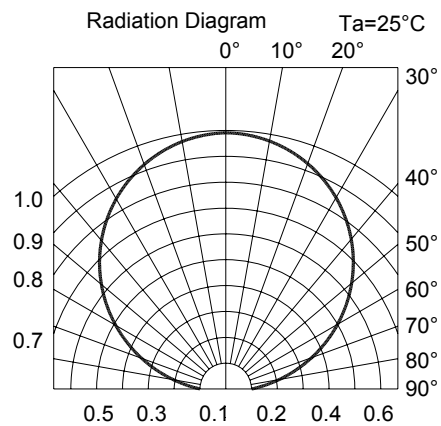
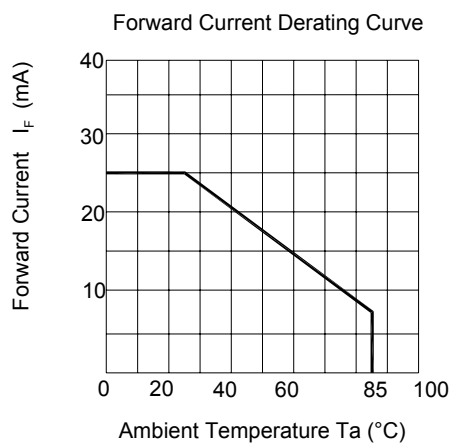
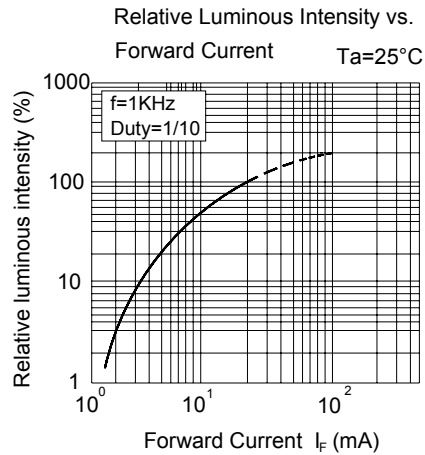
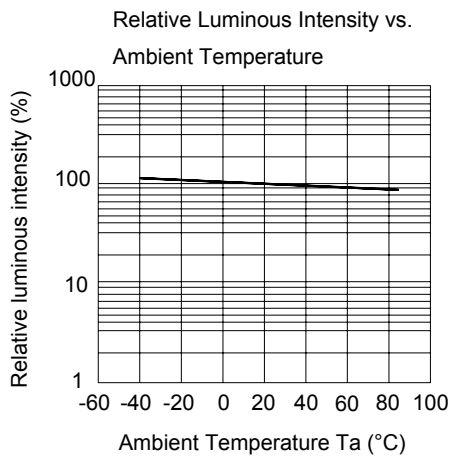
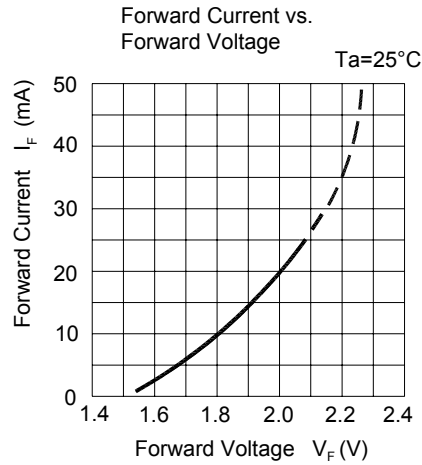
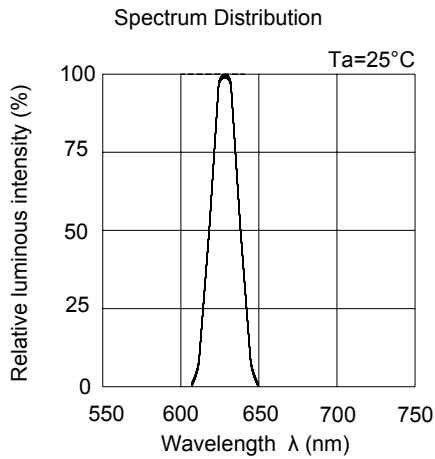
**Notes:**

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**  
**Mini Top View LEDs**

**65-21/R6C-AQ1R2B/2T**

**Typical Electro-Optical Characteristics Curves**





# Technical Data Sheet

## Mini Top View LEDs

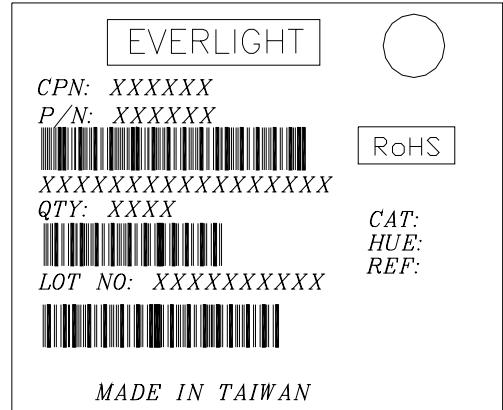
**65-21/R6C-AQ1R2B/2T**

### Label Explanation

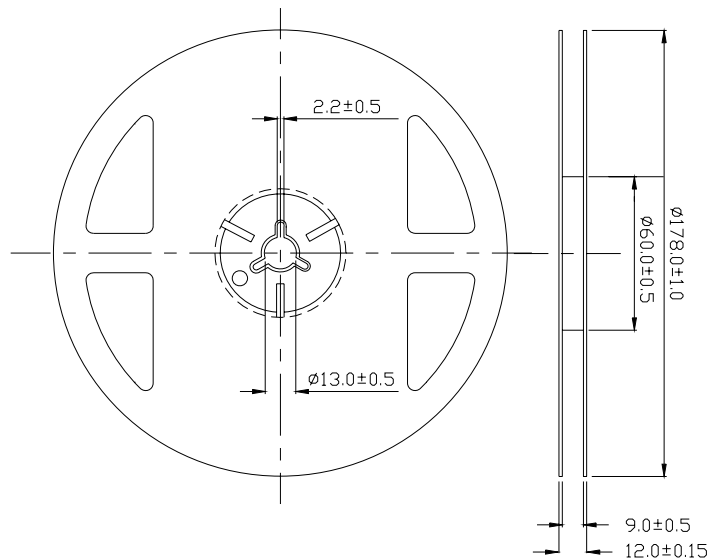
**CAT: Luminous Intensity Rank**

**HUE: Dom. Wavelength Rank**

**REF: Forward Voltage Rank**



### Reel Dimensions

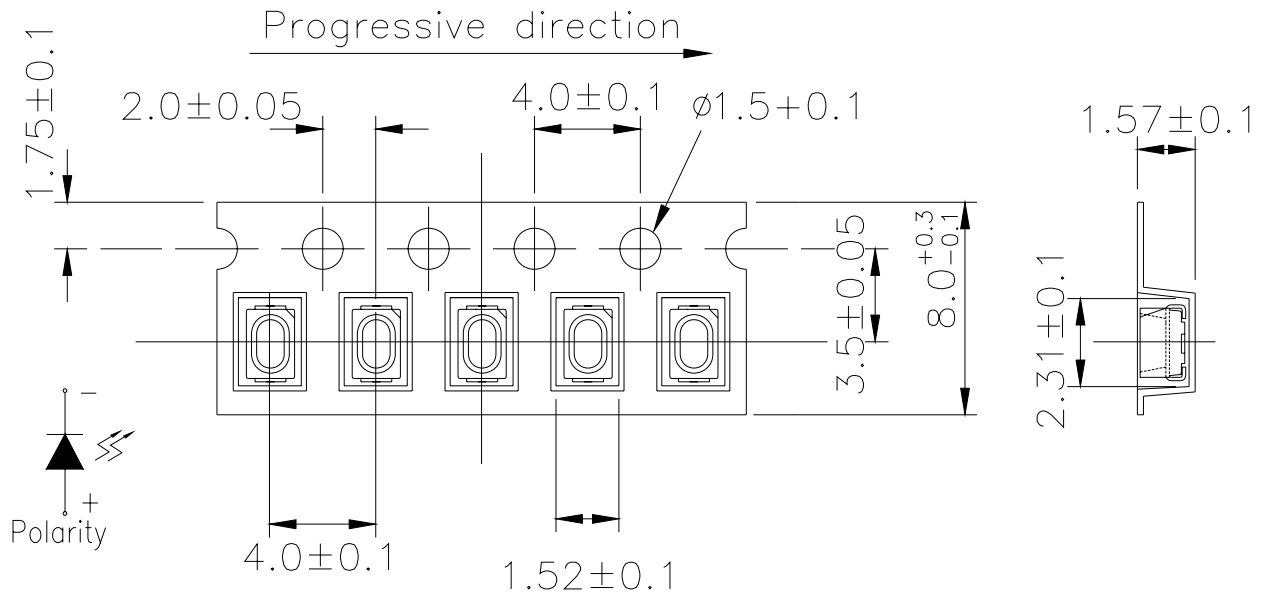


**Note:** The tolerances unless mentioned is  $\pm 0.1$ mm; Unit = mm

**Technical Data Sheet**  
**Mini Top View LEDs**

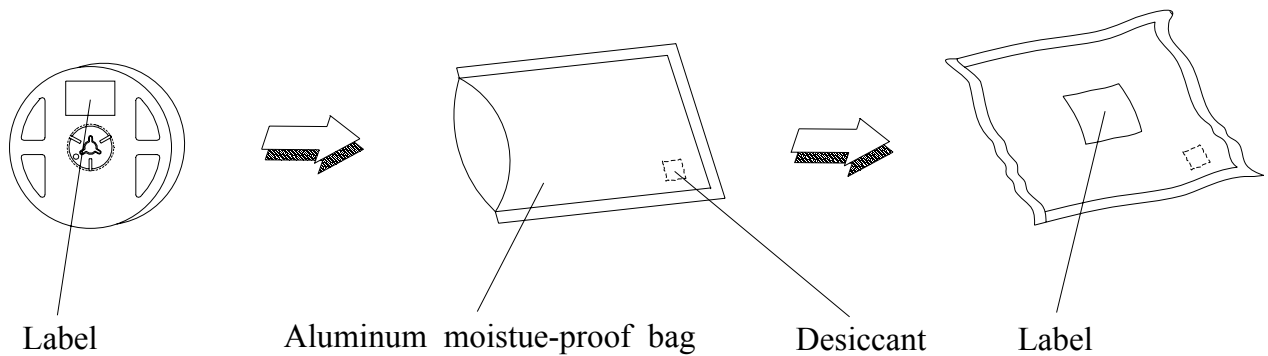
**65-21/R6C-AQ1R2B/2T**

**Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel.**



**Note:** The tolerances unless mentioned is  $\pm 0.1$ mm; Unit = mm

**Moisture Resistant Packaging**



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## 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°C or less and 60% RH or less.

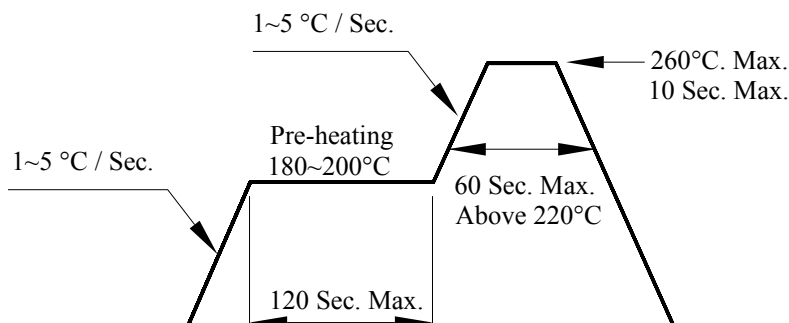
If unused LEDs remain, it should be stored in moisture proof packages.

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

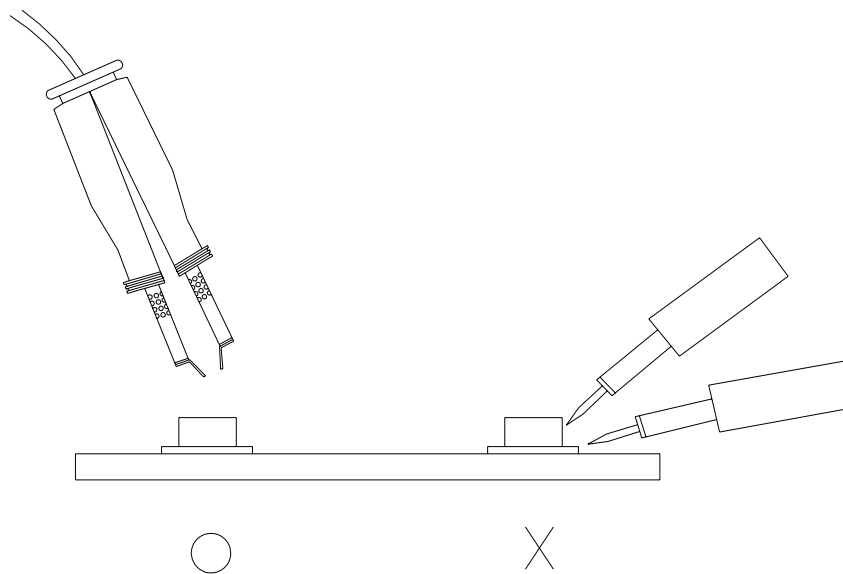
Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of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