



# Technical Data Sheet

## Mini TOP View LED (Preliminary)

### 65-21/Y2C-AR1S2B/2T

#### Features

- White SMT package.
- Optical indicator.
- Wide viewing angle.
- Soldering methods: 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. This feature makes the ideal for light pipe application.

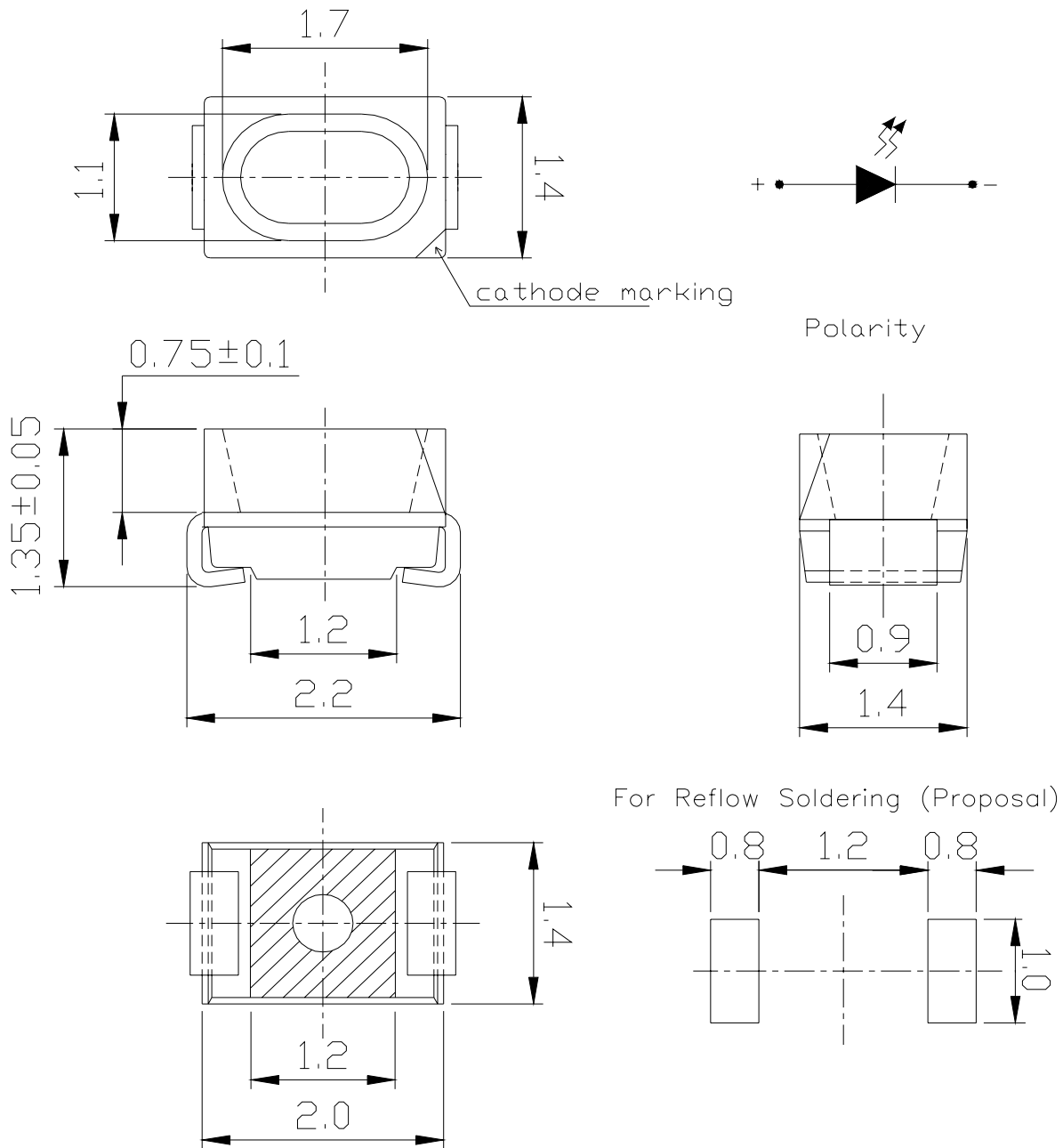
#### Applications

- 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	
AlGaInP	Brilliant Yellow	Water Clear

**Package Outline Dimensions**



**Notes:** All dimensions are in millimeters. Tolerances unspecified are  $\pm 0.1$ mm.

**65-21/Y2C-AR1S2B/2T**
**Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Rating	Unit
Reverse Voltage	$V_R$	5	V
Forward Current	$I_F$	25	mA
Power Dissipation	$P_d$	60	mW
Peak Forward Current (Duty 1/10 @1KHz)	$I_{FP}$	60	mA
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	$I_v$	112	-----	285	mcd	$I_F=20mA$
Viewing Angle	$2\theta 1/2$	-----	120	-----	deg	$I_F=20mA$
Peak Wavelength	$\lambda_p$	-----	591	-----	nm	$I_F=20mA$
Dominant Wavelength	$\lambda_d$	587	-----	595	nm	$I_F=20mA$
Spectrum Radiation Bandwidth	$\Delta\lambda$	-----	15	-----	nm	$I_F=20mA$
Forward Voltage	$V_F$	1.75	-----	2.35	V	$I_F=20mA$
Reverse Current	$I_R$	-----	-----	10	$\mu A$	$V_R=5V$

**Notes:**

- 1.Tolerance of Luminous Intensity  $\pm 10\%$**
- 2.Tolerance of Dominant Wavelength  $\pm 1nm$**
- 3.Tolerance of Forward Voltage  $\pm 0.1V$**

**65-21/Y2C-AR1S2B/2T****Bin Range Of Luminous intensity:**

Bin	Minimum (mcd)	Maximum (mcd)	Condition
R1	112	140	IF=20mA
R2	140	180	
S1	180	225	
S2	225	285	

**Bin Range Of Dominate Wavelength:**

Group	Minimum (nm)	Maximum (nm)	Condition
DD2	587	591	IF=20mA
DD3	589	593	
DD4	591	595	

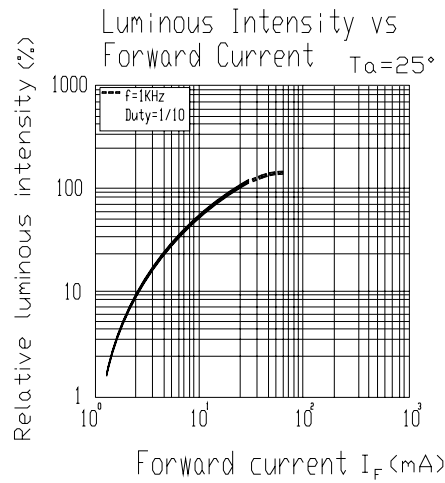
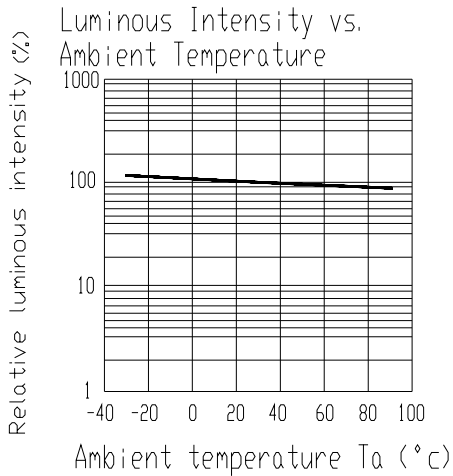
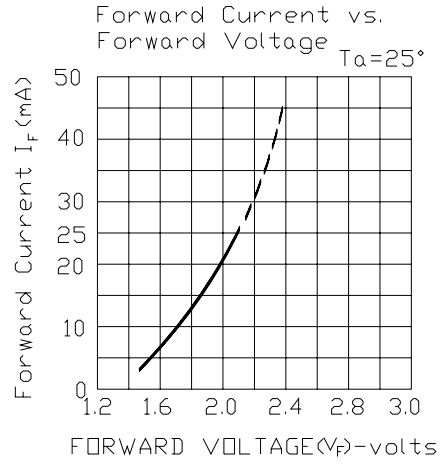
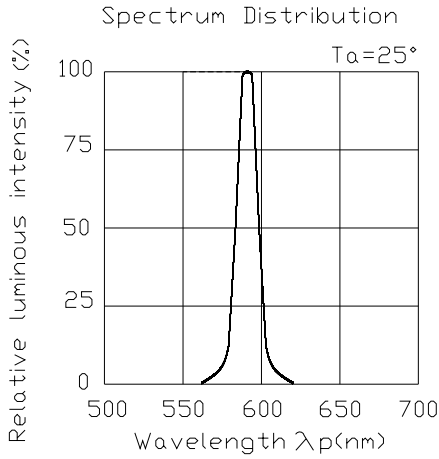
**Bin Rang Of Forward Voltage**

Bin	Min	Max	Unit	Condition
0	1.75	1.95	V	IF=20mA
1	1.95	2.15		
2	2.15	2.35		

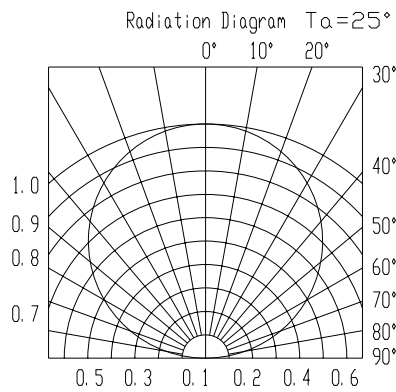
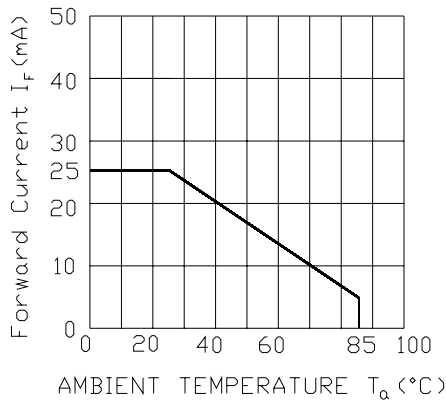
**Notes:**

- 1.Tolerance of Luminous Intensity  $\pm 10\%$**
- 2.Tolerance of Dominant Wavelength  $\pm 1\text{nm}$**
- 3.Tolerance of Forward Voltage  $\pm 0.1\text{V}$**

**Typical Electro-Optical Characteristics Curves**



Forward Current Derating Curve

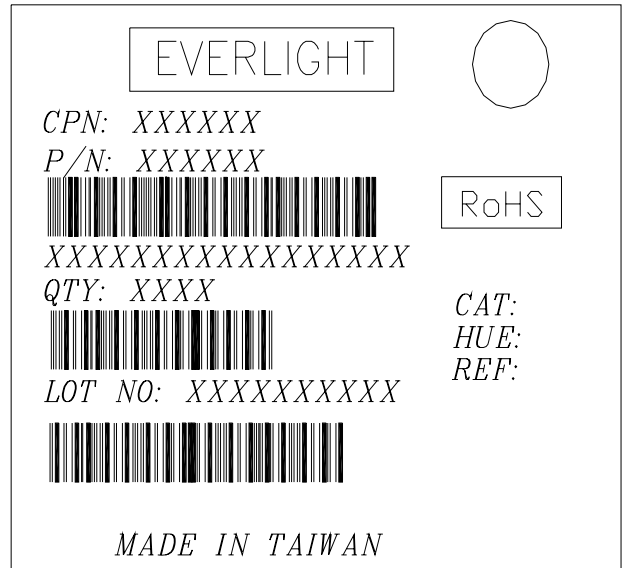


**Label explanation**

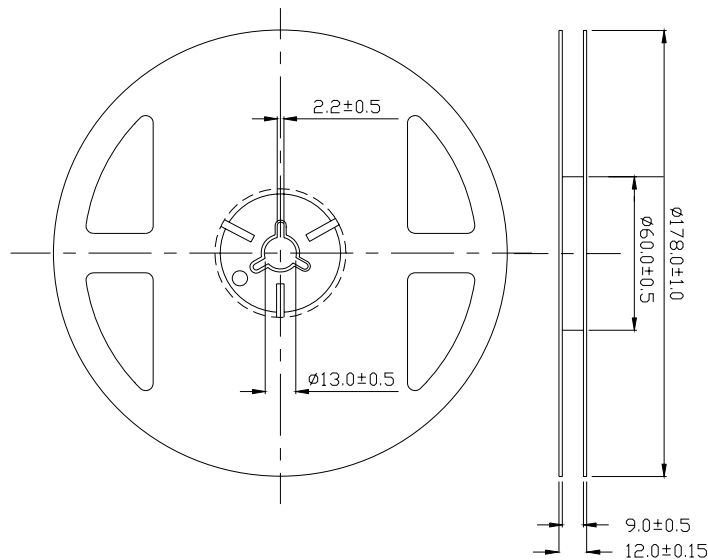
**CAT: Luminous Intensity Rank**

**HUE: Dom. Wavelength Rank**

**REF: Forward Voltage Rank**



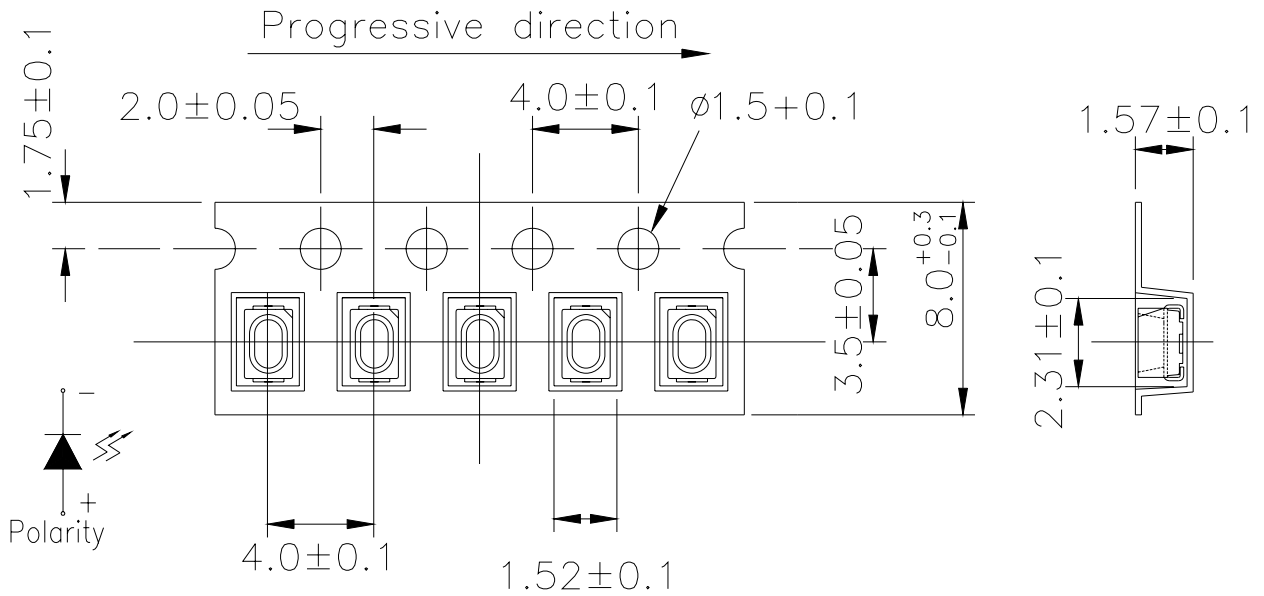
**Reel Dimensions**



**Note:** The tolerances unless mentioned is  $\pm 0.1\text{mm}$  , Angle $\pm 0.5^\circ$  ,Unit = mm

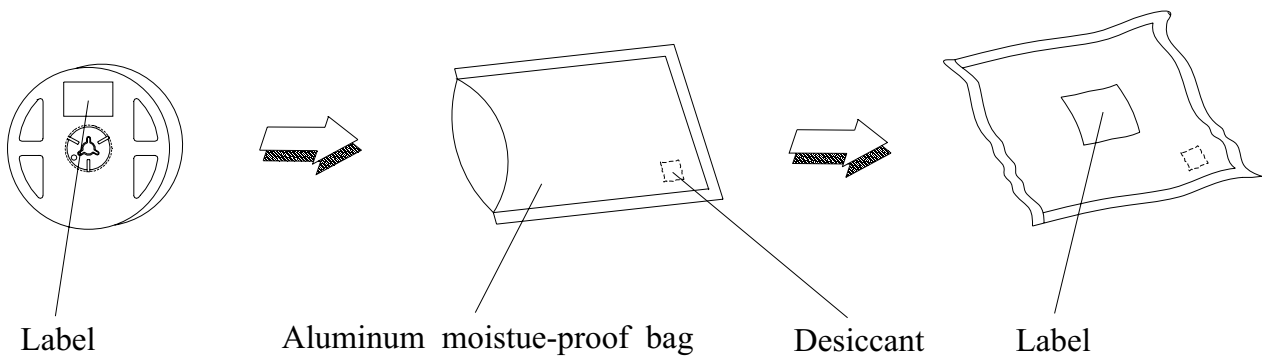
**65-21/Y2C-AR1S2B/2T**

**Carrier Tape Dimensions: Loaded quantity 2000 PCS per reel.**



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

**Moisture Resistant Packaging**



**65-21/Y2C-AR1S2B/2T****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. 5sec.	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	IF = 20 mA	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85°C/ 85%RH	1000 Hrs.	22 PCS.	0/1



**65-21/Y2C-AR1S2B/2T****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 The LEDs should be used within a year.

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

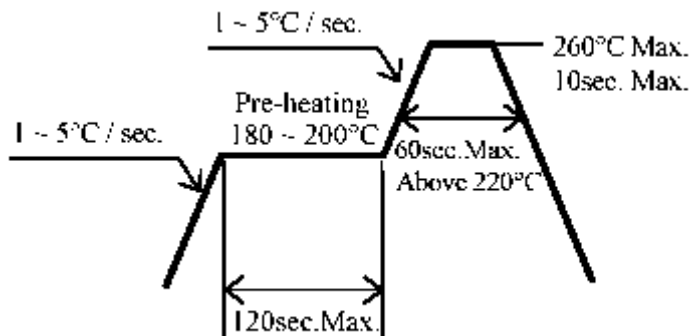
2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

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°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.

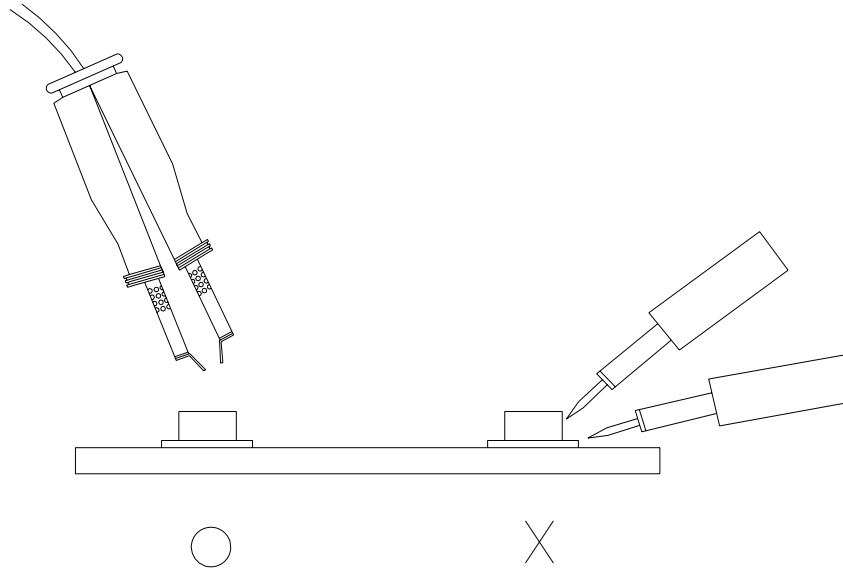
3.4 After soldering, do not warp the circuit board.

## 4. Soldering Iron

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



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