Technical Data Sheet

Mini Top View LEDs

65-21/T2C-FV1W2E/2T/EU

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 white LED which was fabricated using a blue LED and a phosphor, and the phosphor is excited by blue light and emits yellow fluorescence.

The mixture of blue light and yellow light results in a white emission.

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 Material	Emitted Color	Resin Color
InGaN	White	Yellowish

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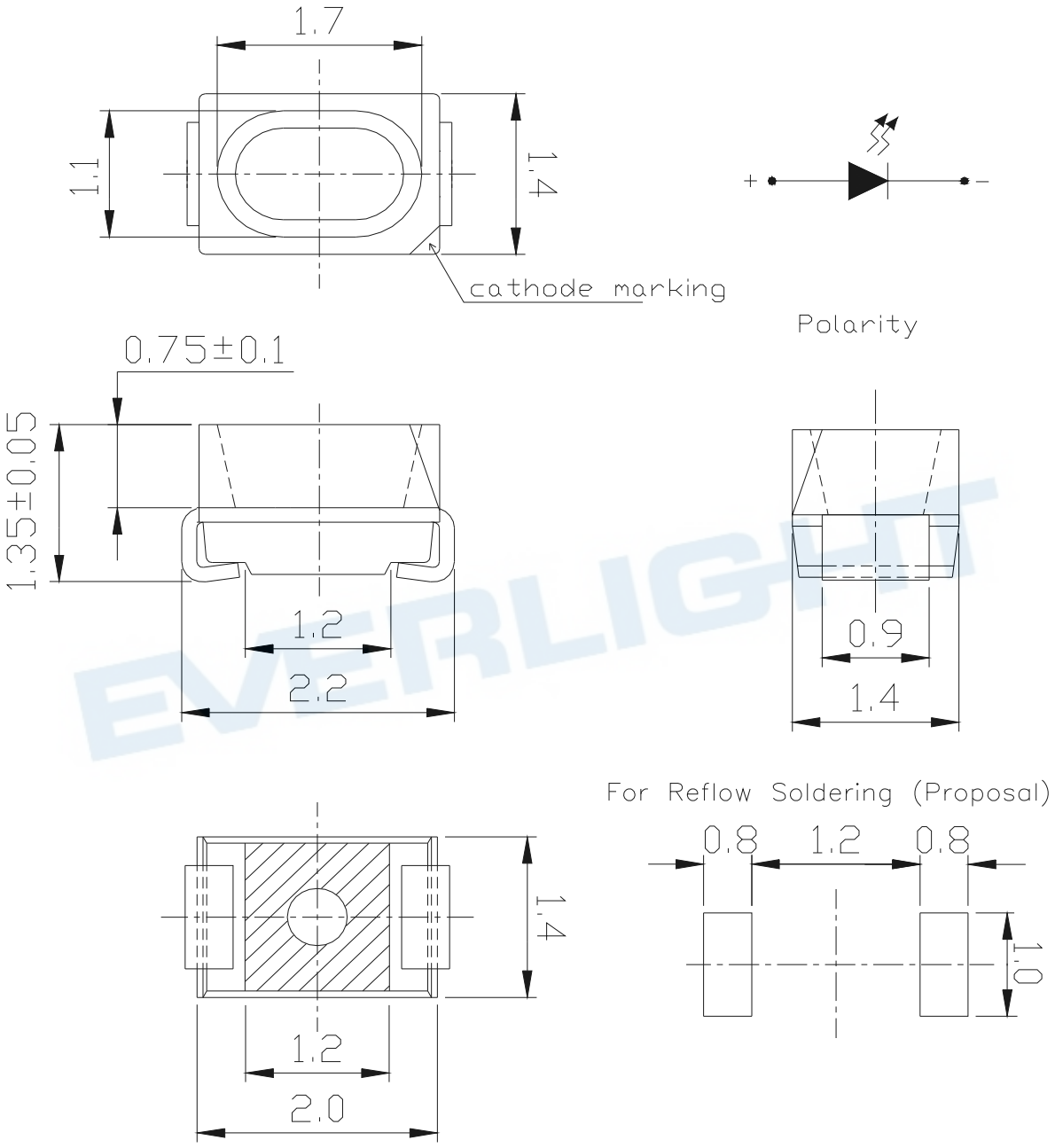
Package Outline Dimensions



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

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Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	30	mA
Power Dissipation	Pd	100	mW
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	110	mA
Electrostatic Discharge (HBM)	ESD	1000	V
Operating Temperature	Topr	-40 ~ +85	℃
Storage Temperature	Tstg	-40 ~ +90	℃
Soldering Temperature	Tsol	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	715	-----	1800	mcd	I_F=20mA
Viewing Angle	2θ 1/2	-----	120	-----	deg	I_F=20mA
Forward Voltage	V_F	2.75	-----	3.65	V	I_F=20mA
Reverse Current	I_R	-----	-----	50	μA	V_R=5V

Notes:

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Forward Voltage: ±0.1V

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Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
V1	715	900	mcd	I_F=20mA
V2	900	1120		
W1	1120	1420		
W2	1420	1800		

Bin Range of Forward Voltage

Group	Bin	Min	Max	Unit	Condition
E	5	2.75	3.05	V	I_F=20mA
	6	3.05	3.35		
	7	3.35	3.65		

Notes:

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Forward Voltage: ±0.1V

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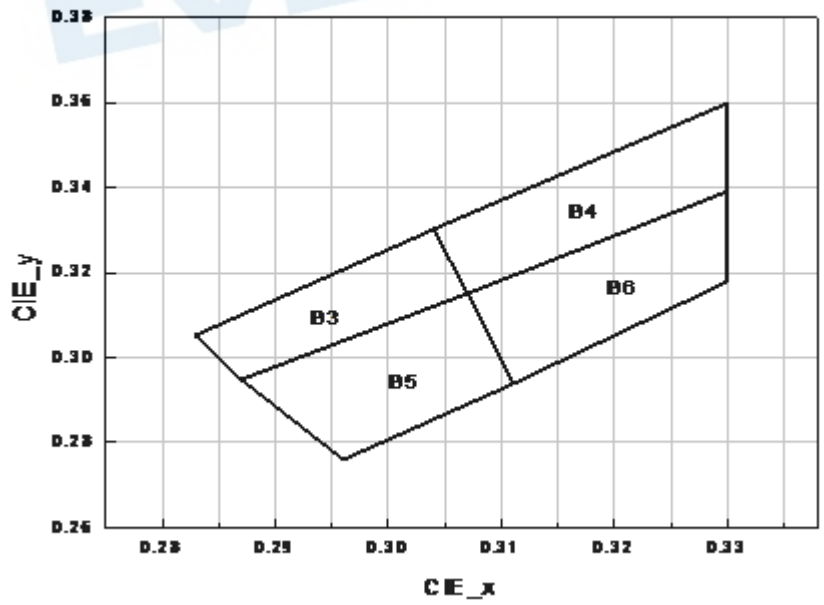
Bin Range of Chromaticity Coordinates **I_F=20mA**

Group	Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
F	B3	0.2870	0.2950	B5	0.2960	0.2760
		0.2830	0.3050		0.2870	0.2950
		0.3040	0.3300		0.3070	0.3150
		0.3070	0.3150		0.3110	0.2940
	B4	0.3070	0.3150	B6	0.3110	0.2940
		0.3040	0.3300		0.3070	0.3150
		0.3300	0.3600		0.3300	0.3390
		0.3300	0.3390		0.3300	0.3180

Notes: Tolerance of Chromaticity Coordinates：±0.01

The C.I.E. 1931 Chromaticity Diagram



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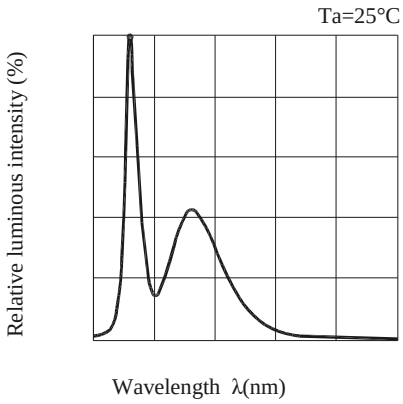
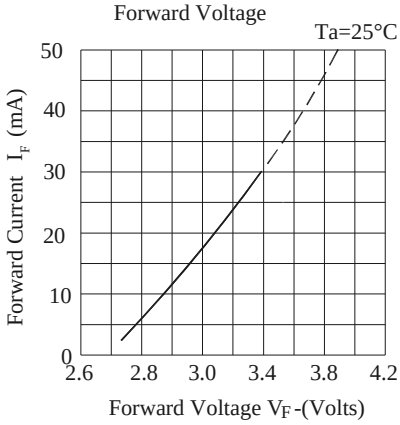
Typical Electro-Optical Characteristics Curves

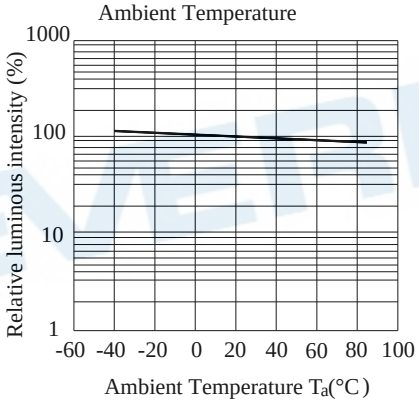
Spectrum Distribution



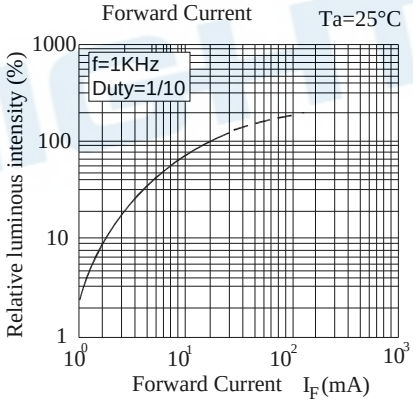
Forward Current vs. Forward Voltage



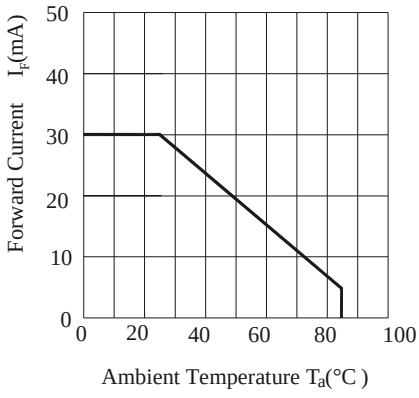
Relative Luminous Intensity vs. Ambient Temperature



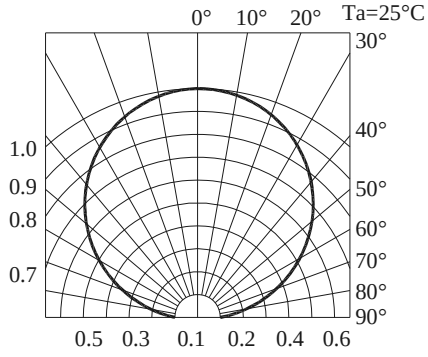
Relative Luminous Intensity vs. Forward Current



Forward Current Derating Curve



Radiation Diagram



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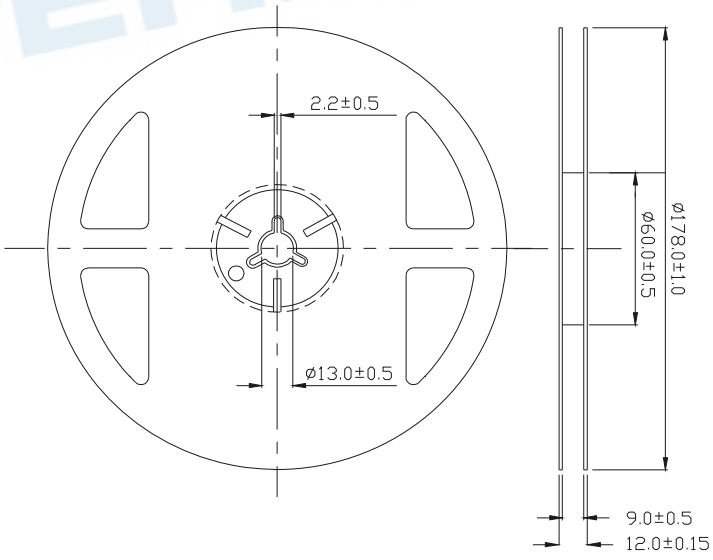
Label Explanation

CAT: Luminous Intensity Rank

HUE: Chromaticity Coordinates

REF: Forward Voltage Rank

Reel Dimensions



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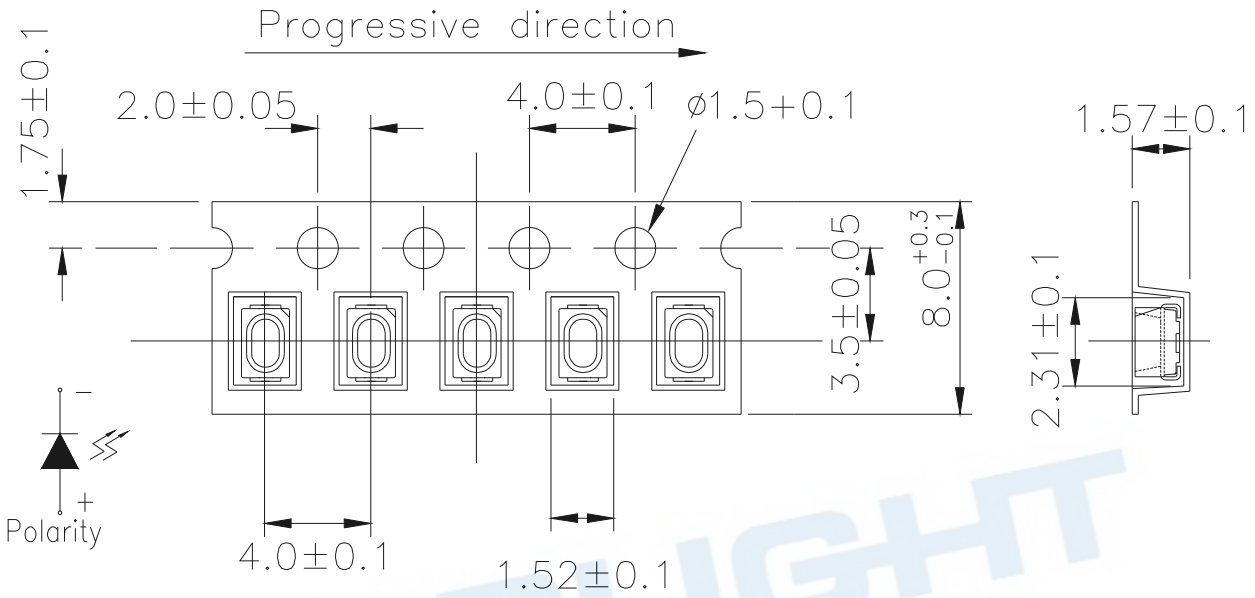
Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel.
Lose unit could be shipped by 250 pcs or roll 50 as the base



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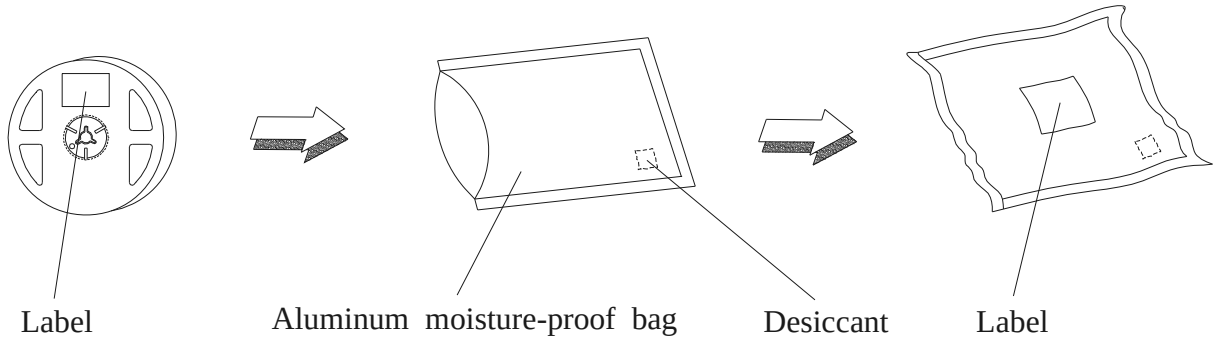
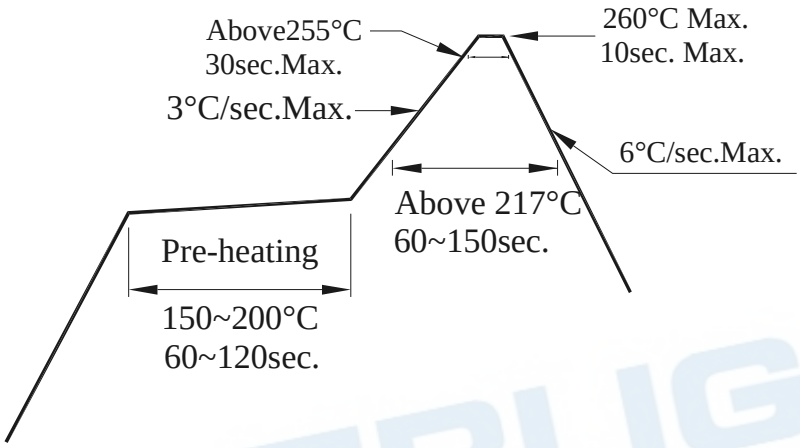
Moisture Resistant Packaging



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℃ 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℃ 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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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.
4. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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6. This product is not intended to be used for military, aircraft, automotive, medical, life sustaining or life saving applications or any other application which can result in human injury or death. Please contact authorized Everlight sales agent for special application request.

Revision History

Rev.	Modified date	File modified contents
1	2016.08.26	New Spec
2	2016.09.19	To add the QR Code
3	2017.02.23	To add the DISCLAIMER

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