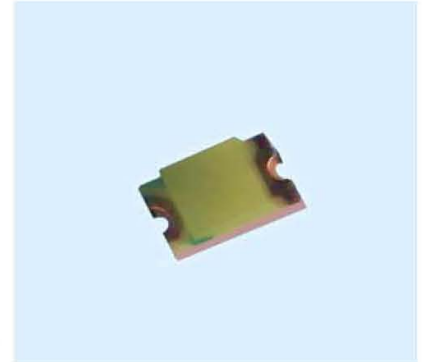


17-21/T1D

Features

- Package in 8mm tape on 7" diameter reel.
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow solder process.
- Mono-color type.
- Pb-free
- The product itself will remain within RoHS compliant version

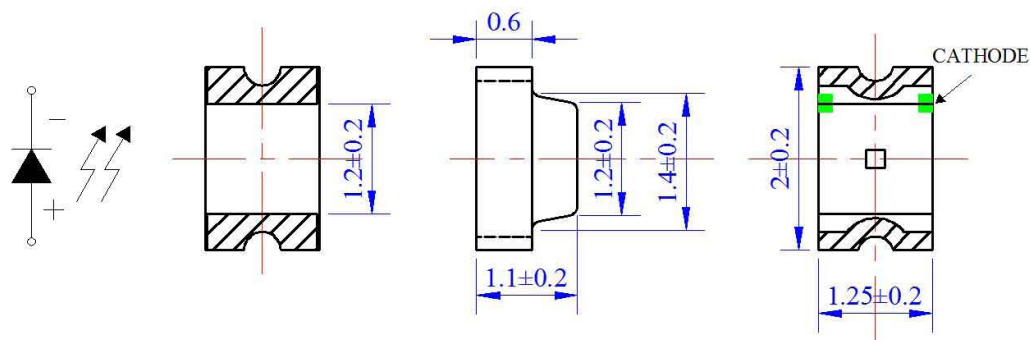


Descriptions

- The 17-21 SMD Taping is much smaller than lead frame type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- Besides, lightweight makes them ideal for miniature applications. etc.

Applications

- Backlighting in dashboard and switch.
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- General use.



Device Selection Guide

Part No.	Chip		Lens Color
	Material	Emitted Color	
17-21/T1D	InGaN	Warm White	Yellow Diffused

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Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V _R	5	V
Forward Current	I _F	25	mA
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +90	°C
Electrostatic Discharge(HBM)	ESD	150	V
Power Dissipation	P _d	110	mW
Peak Forward Current (Duty 1/10 @1KHz)	I _{FP}	100	mA
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	Condition	Min	Tpy	Max	Unit
Luminous Intensity	I _v	IF = 20mA	----	600	----	mcd
Forward Voltage	V _F		2.6	3.2	3.6	V
Reverse Current	I _R	V _R = 5V	----	----	10	μ A
Color Temperature	T _c	IF = 20mA	----	7000	----	K
View Angle	2θ 1/2		----	120	----	deg
Dominant Wavelength	X		----	0.294	----	
	Y	----	0.2735	----		

Notes:

- 1.Tolerance of Luminous Intensity ±10%
- 2.Tolerance of Forward Voltage ±0.1V

Bin Range Of Luminous Intensity

Bin	Min	Max	Unit	Condition
....	mcd	IF=20mA
Ta	420	500		
Tb	500	600		
Ua	600	720		
Ub	720	800		
....		

Bin Range Of Luminous Voltage

BIN	MIN	MAX	Unit	condition
F	2.8	3.0	V	IF=20mA
G	3.0	3.2		
H	3.2	3.4		
I	3.4	3.6		

Notes:

- 1.Tolerance of Luminous Intensity $\pm 10\%$
- 2.Tolerance of Forward Voltage $\pm 0.1V$

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Chromaticity Coordinates Specifications for Bin Grading

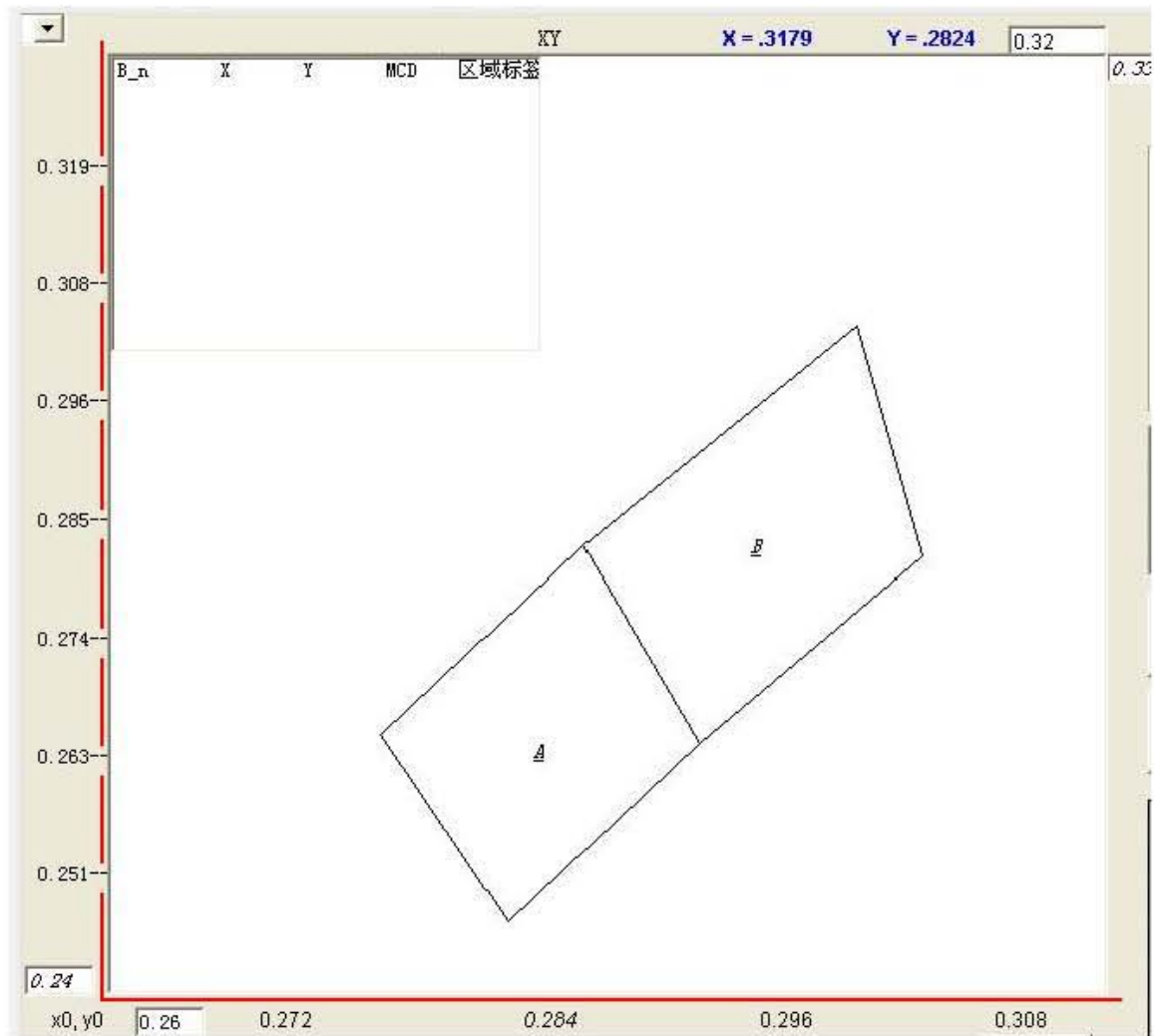
$I_F = 20\text{mA}$

		Bottom	Left	Top	Right
A	X	0.2763	0.2885	0.2955	0.284
	Y	0.2648	0.2830	0.264	0.2468
B	X	0.2885	0.3050	0.3090	0.2955
	Y	0.283	0.3040	0.2820	0.264

Notes:

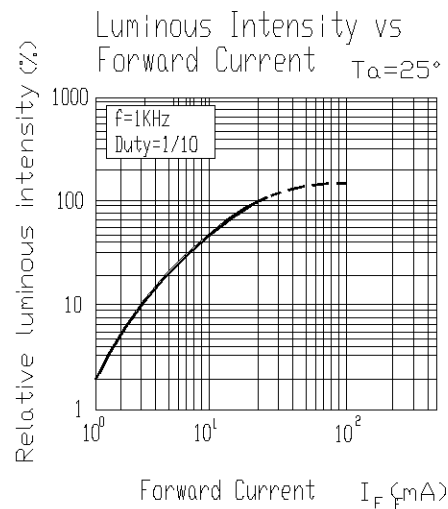
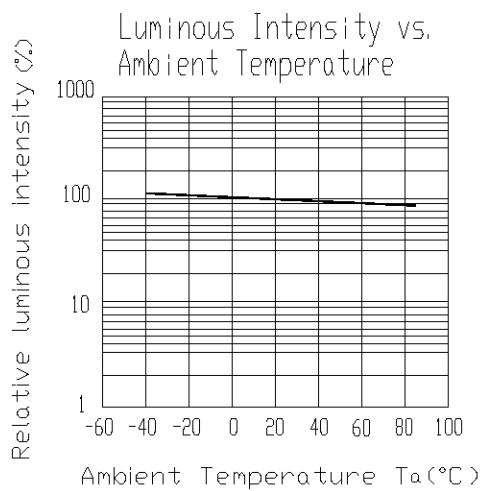
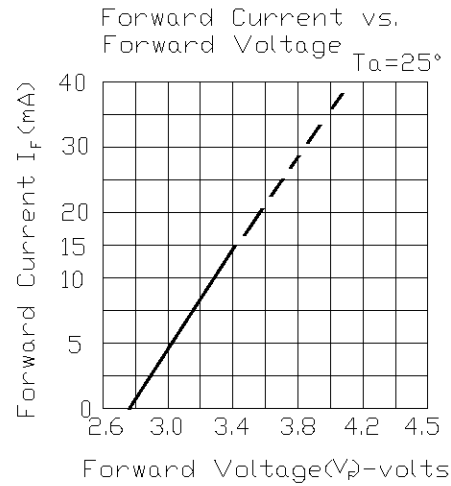
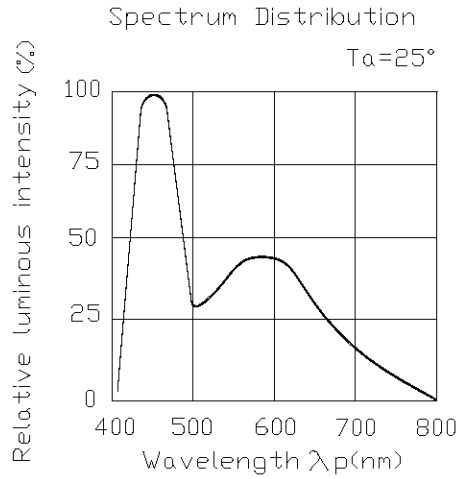
- 1.The C.I.E. 1931 chromaticity diagram (Tolerance ± 0.01).
- 2.The products are sensitive to static electricity and care must be fully taken when handling products.

CIE Chromaticity Diagram

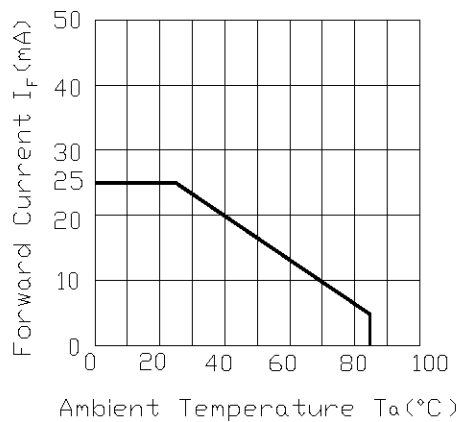


17-21/T1D

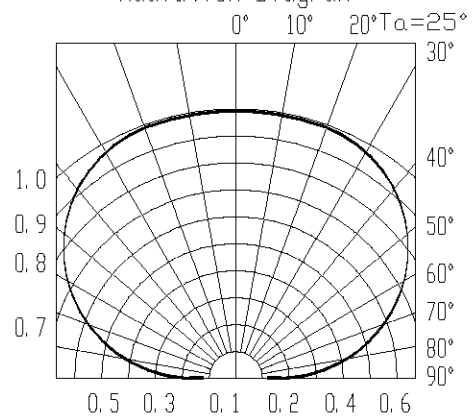
Typical Electro-Optical Characteristics Curves



Forward Current Derating Curve



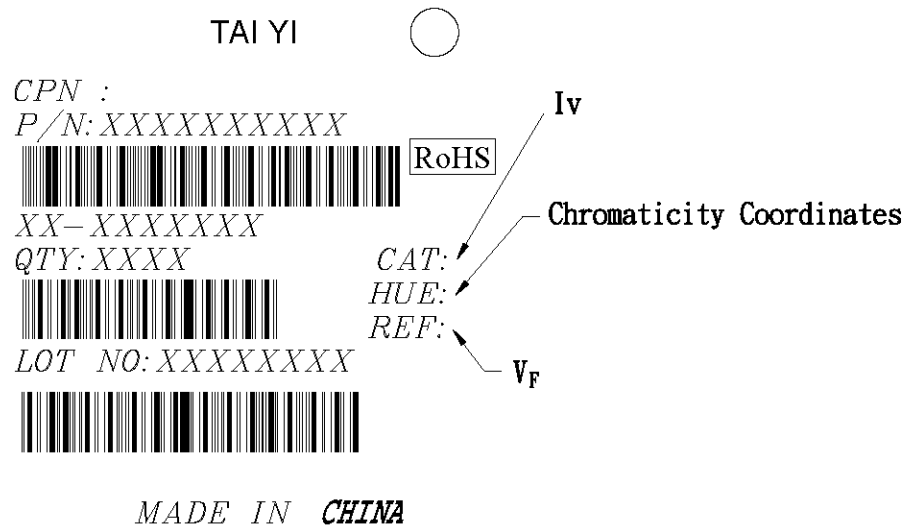
Radiation Diagram



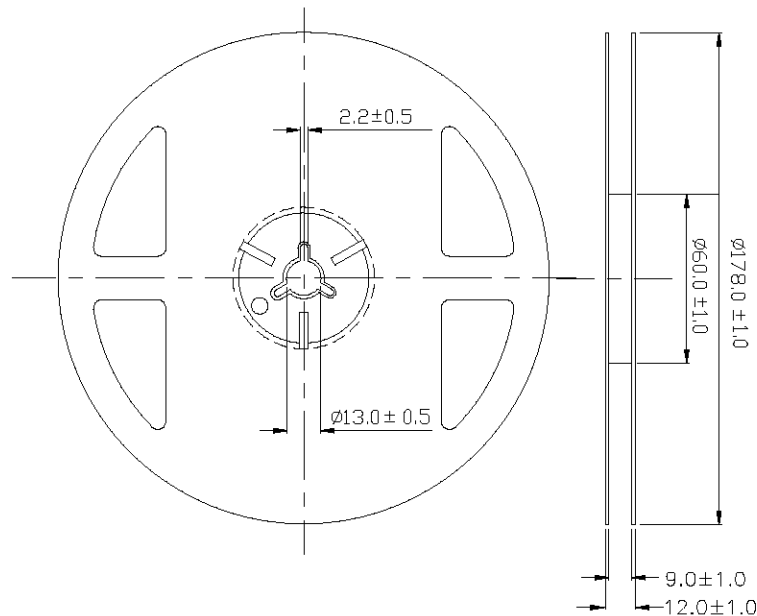
17-21/T1D

Label explanation

CAT: Luminous Intensity Rank HUE: Chromaticity Coordinates REF: Forward Voltage Rank

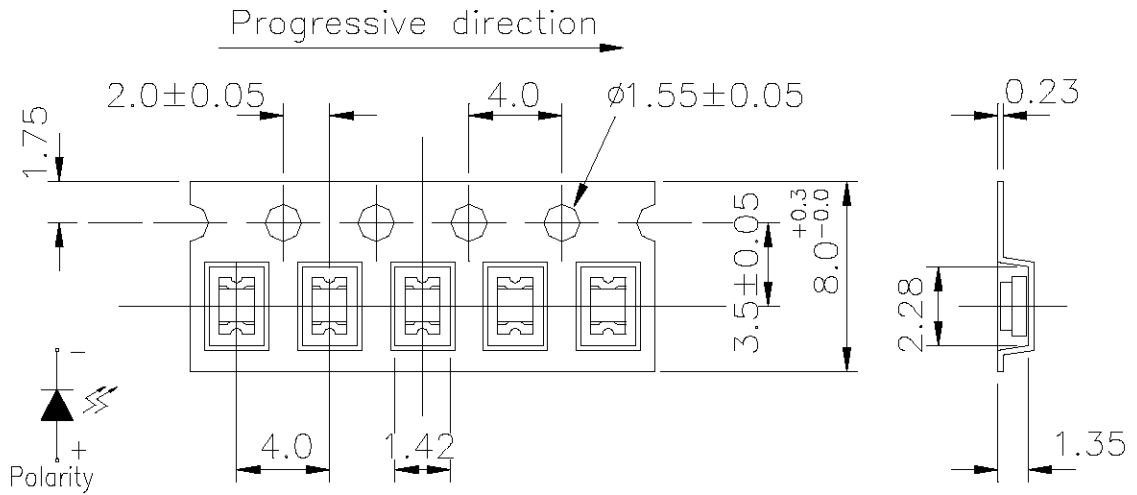


Reel Dimensions



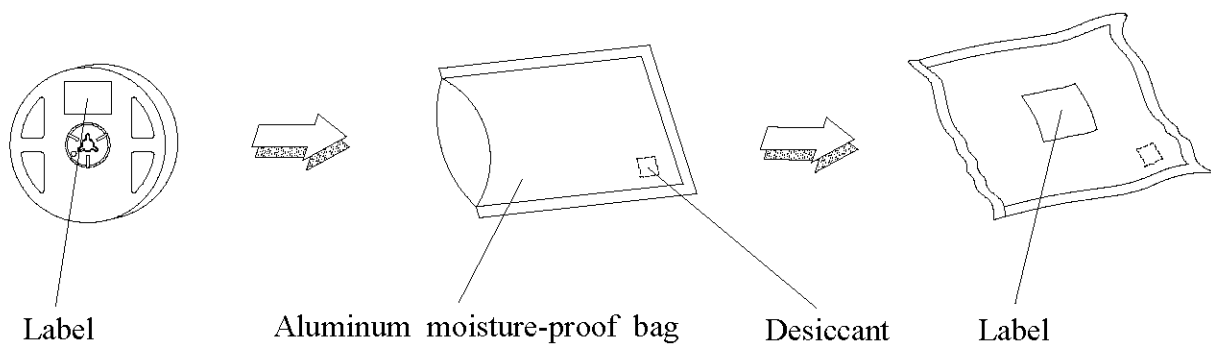
Note: The tolerances unless mentioned is ±0.1mm, Unit = mm

Carrier Tape Dimensions: Loaded quantity 3000 PCS per reel



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit = mm

Moisture Resistant Packaging



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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

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 60%RH or less.

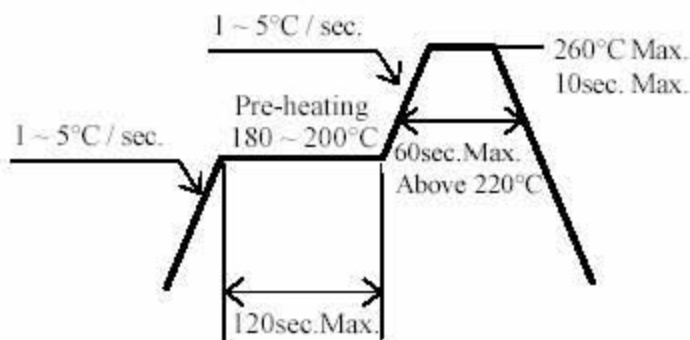
2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

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.

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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.

