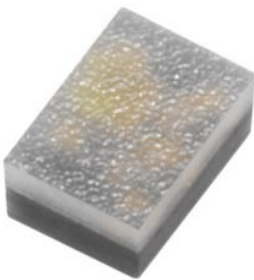


SMD ■

19-047T/T8GABDR6X1-S01/4T

**Features**

- Package in 8mm tape on 7" diameter reel
- Compatible with automatic placement equipment
- Compatible with infrared and vapor phase reflow
- Solder process
- Full-color type
- Pb-free
- Component solderable surface finish is Gold
- Component weight is 1.5 mg
- The Product itself will remain within RoHS compliant version
- Compliance with EU REACH
- Compliance Halogen Free.(Br<900ppm,Cl<900ppm,Br+Cl<1500ppm)

Description

- The 19-047T SMD LED 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.
- Moreover, with its black PCB, the 19-047T possess an ideal solution for high-contrast and high-resolution indoor signage display.

Applications

- Indoor signage display applications
- Indoor decorating and entertainment design
- Flat backlight for LCD, switch and symbol
- Indicator and backlighting for all consumer electronics

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Brilliant Red	White Surface Diffused
InGaN	Brilliant Green	
InGaN	Brilliant Blue	
InGaN	Brilliant White	

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Forward Current	I_F	R6:10 GA:10 BD:10 T8: 10	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	R6:15 GA:15 BD:15 T8: 15	mA
Power Dissipation	P_d	R6:19 GA:29 BD:29 T8:29	mW
Junction Temperature	T_j	100	°C
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +90	°C
ESD (Classification acc. AEC Q101)	ESD_{HBM}	R:2000 G:150 B:150 W:150	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	Iv	R6	3	----	5	mcd	I _F =1mA
		GA	25	----	40		
		BD	5	----	9		
		T8	10	----	17		
Viewing Angle	2θ _{1/2}		-----	120	-----	deg	I _F =1mA
Dominant Wavelength Color Temp.	λ _d CT	R6	616	-----	628	nm	I _F =1mA
		GA	523	-----	538		
		BD	463	-----	478		
		T8	5000	-----	8000	K	
Forward Voltage	V _F	R6	1.6	-----	1.9	V	I _F =1mA
		GA	2.7	-----	2.9		
		BD	2.7	-----	2.9		
		T8	2.7	-----	2.9		
Reverse Current ⁴	I _R		-----	-----	10	nA	V _R =9V

Note:

1. Tolerance of Luminous Intensity: ±10%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V
4. Only for Electronic test

Floating Bin(R6) Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
RA	3.0	5.0	mcd	$I_F = 1\text{mA}$

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
R1	616	628	nm	$I_F = 1\text{mA}$

Bin Range of Dominant Voltage

Bin Code	Min.	Max.	Unit	Condition
R1	1.6	1.9	v	$I_F = 1\text{mA}$

Note:

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

Floating Bin(GA) Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
GA	25.0	40.0	mcd	$I_F = 1\text{mA}$

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
G1	523	538	nm	$I_F = 1\text{mA}$

Bin Range of Dominant Voltage

Bin Code	Min.	Max.	Unit	Condition
G1	2.7	2.9	v	$I_F = 1\text{mA}$

Note:

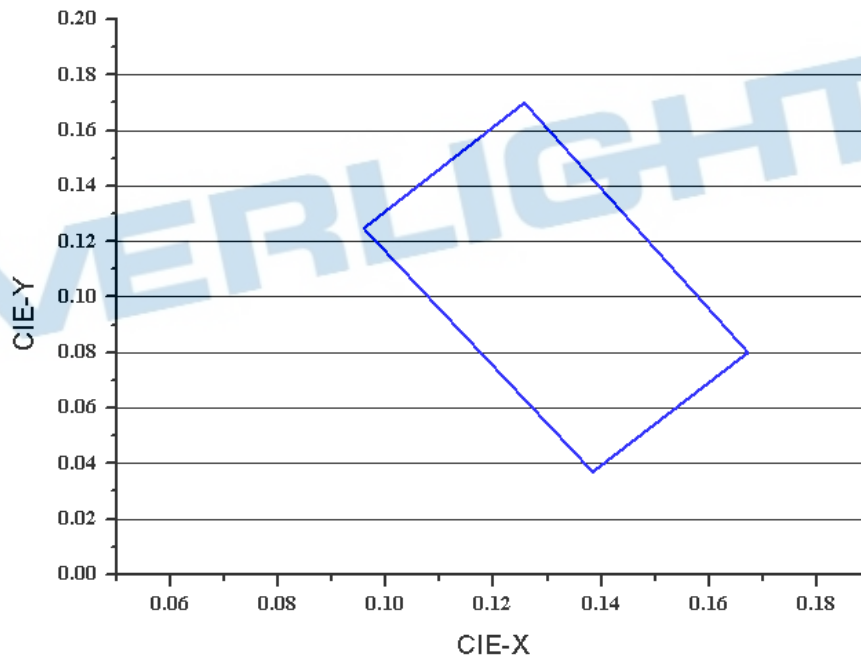
1. Tolerance of Luminous Intensity: $\pm 10\%$
2. Tolerance of Dominant Wavelength: $\pm 1\text{nm}$
3. Tolerance of Forward Voltage: $\pm 0.1\text{V}$

Floating Bin(BD)
Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
BA	5.0	9.0	mcd	$I_F = 1\text{mA}$

Bin Range of CIE

Bin Code	X	Y.	Condition
B1	0.1384	0.0370	$I_F = 1\text{mA}$
	0.0959	0.1248	
	0.1257	0.1700	
	0.1672	0.0800	



Bin Range of Dominant Voltage

Bin Code	Min.	Max.	Unit	Condition
B1	2.7	2.9	v	$I_F = 1\text{mA}$

Note:

1. Tolerance of Luminous Intensity: $\pm 10\%$
2. Tolerance of Color coordinates: ± 0.01
3. Tolerance of Forward Voltage: $\pm 0.1\text{V}$

Floating Bin(T8)
Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
TA	10.0	17.0	mcd	$I_F = 1\text{mA}$

Bin Range of Dominant Voltage

Bin Code	Min.	Max.	Unit	Condition
T1	2.7	2.9	v	$I_F = 1\text{mA}$

Note:

1. Tolerance of Luminous Intensity: $\pm 10\%$
2. Tolerance of Forward Voltage: $\pm 0.1\text{V}$

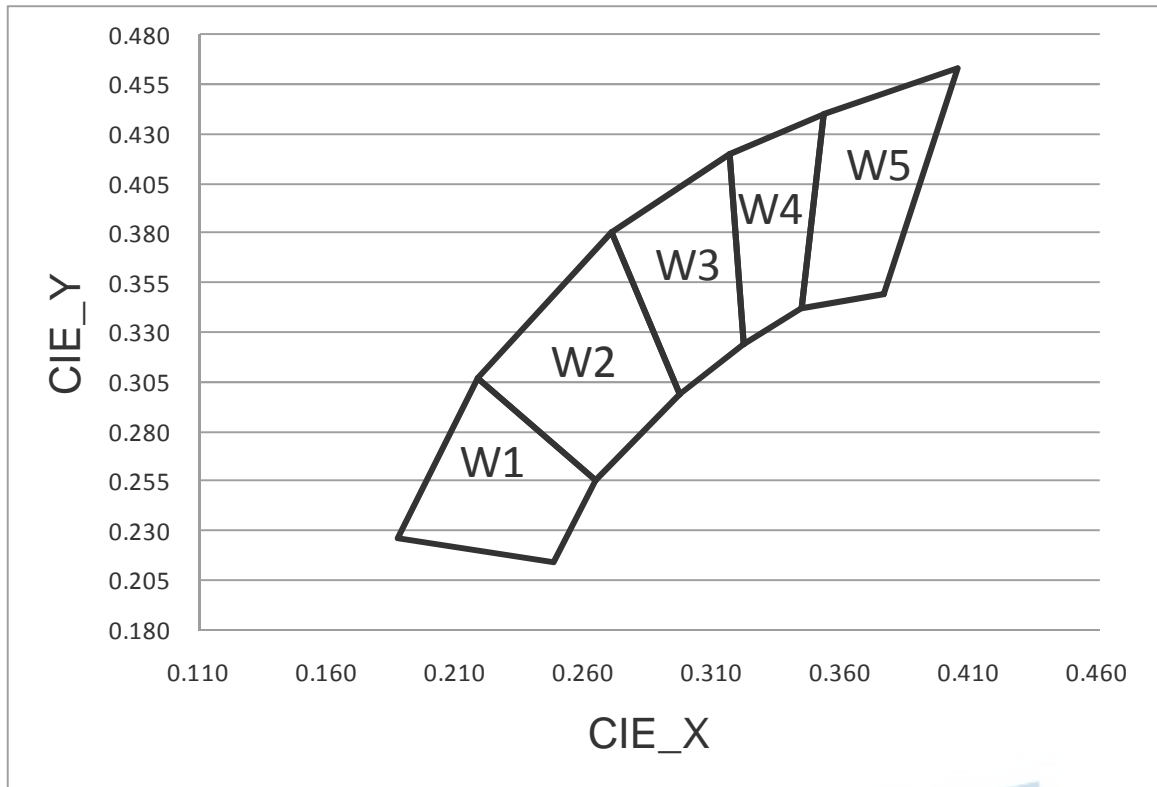
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Bin Range of CIE

Bin Code	X	Y.	Condition
W1	0.264	0.256	I _F =1mA
	0.218	0.307	
	0.187	0.226	
	0.248	0.214	
W2	0.297	0.299	
	0.270	0.380	
	0.218	0.307	
	0.264	0.256	
W3	0.297	0.299	
	0.270	0.380	
	0.316	0.420	
	0.322	0.324	
W4	0.322	0.324	
	0.316	0.420	
	0.353	0.440	
	0.344	0.342	
W5	0.377	0.349	
	0.405	0.463	
	0.353	0.440	
	0.344	0.342	

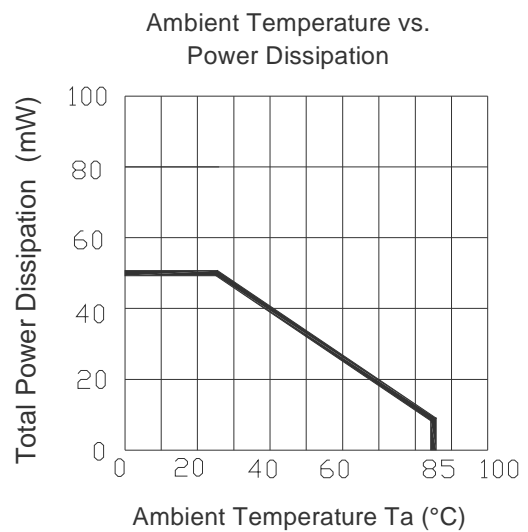
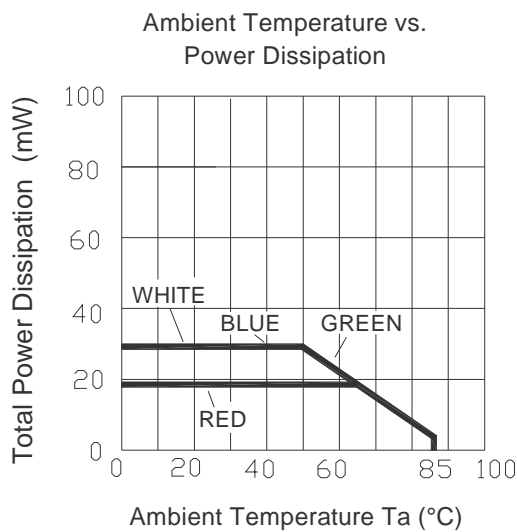
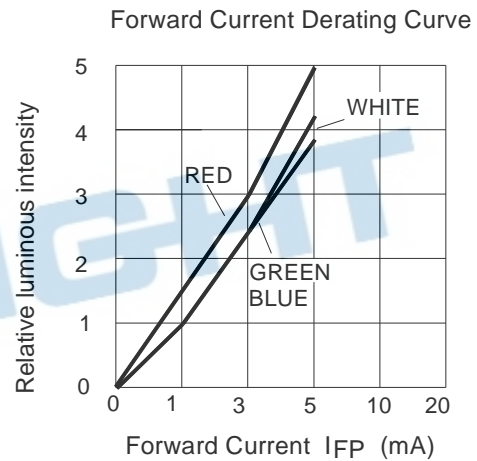
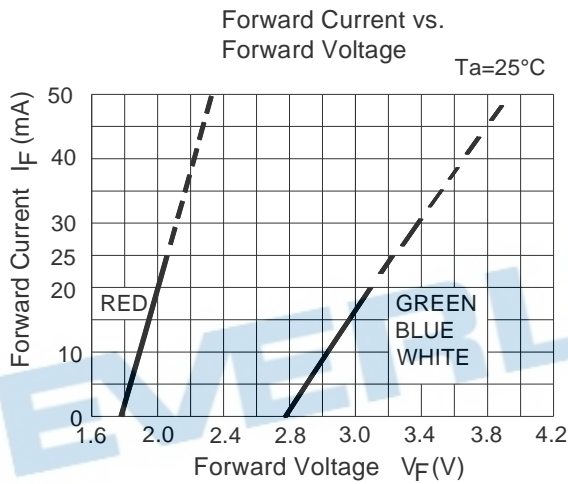
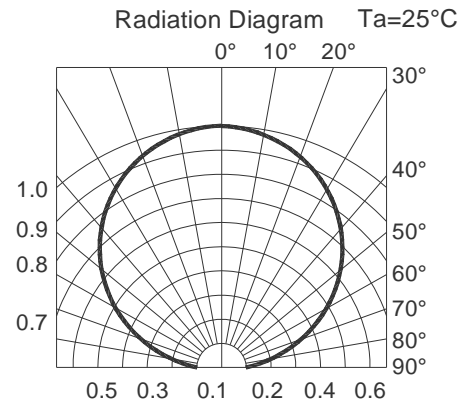
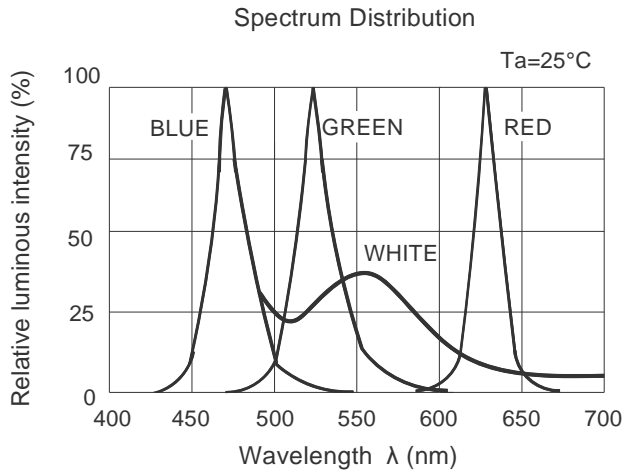
Note:

1.Tolerance of Color coordinates: ±0.01

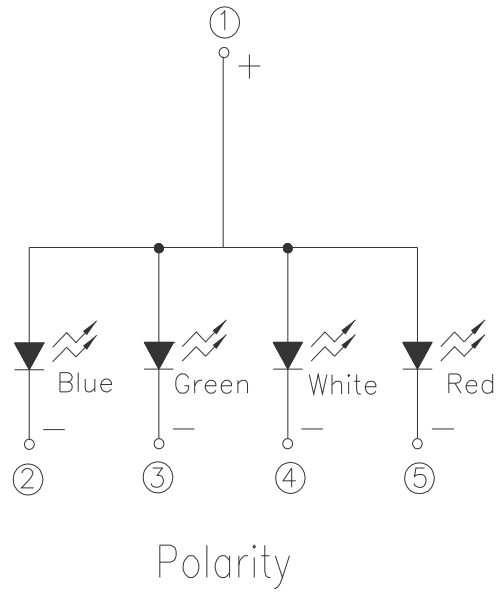
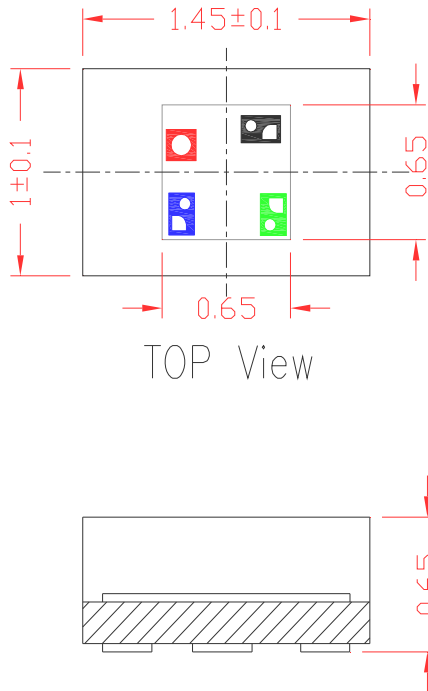


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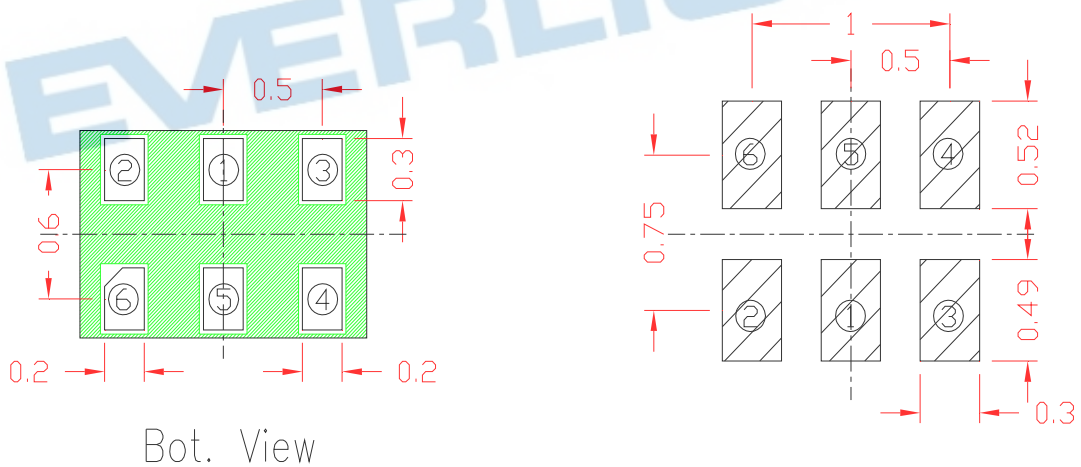
Typical Electro-Optical Characteristics Curves



Package Dimension



Recommend Soldering Pad

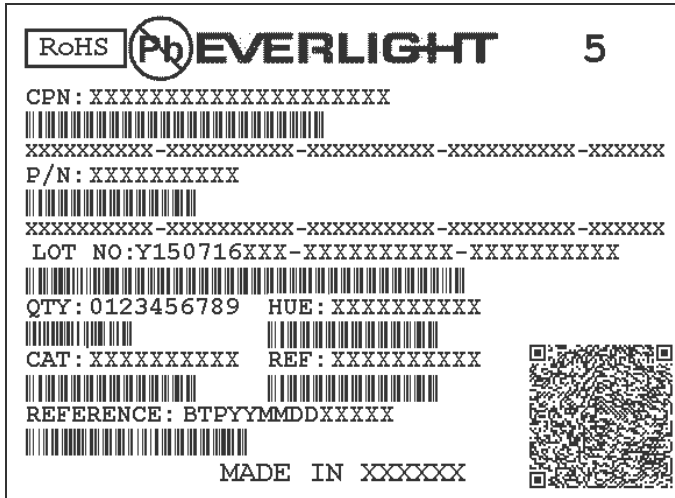


單位：mm 公差：±0.05

Note: Tolerances unless mentioned ± 0.1 mm. Unit = mm

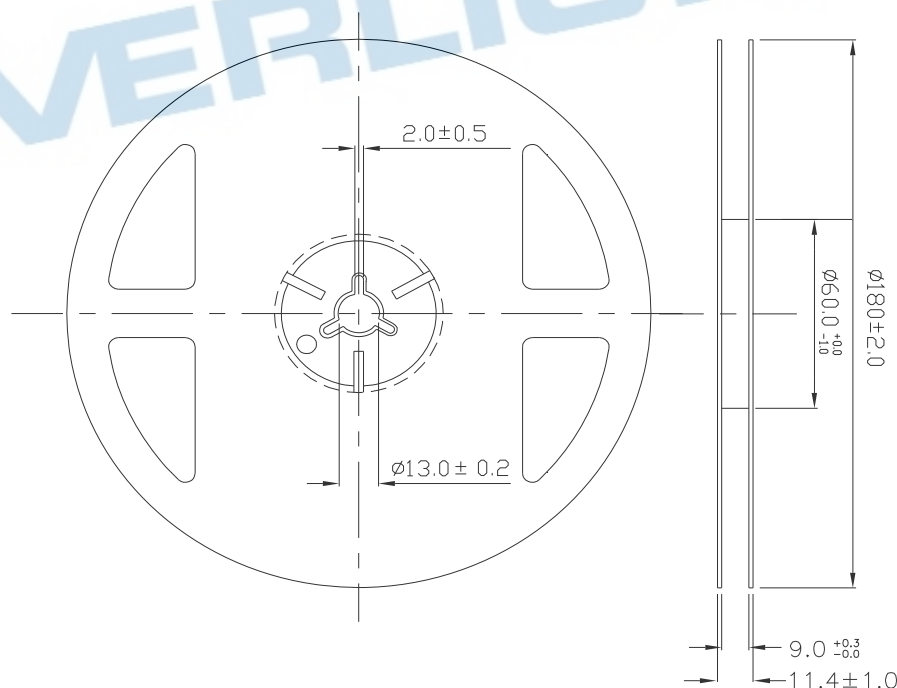
Moisture Resistant Packing Materials

Label Explanation



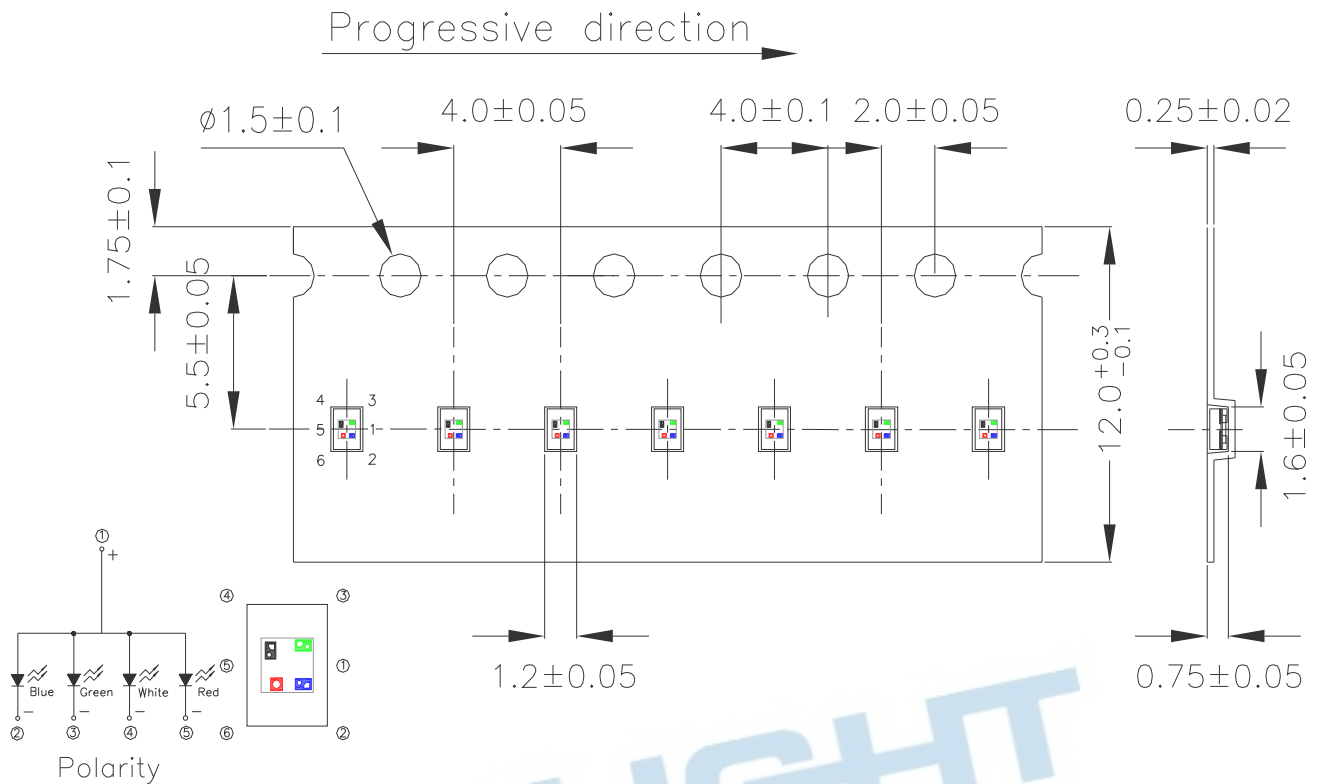
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions



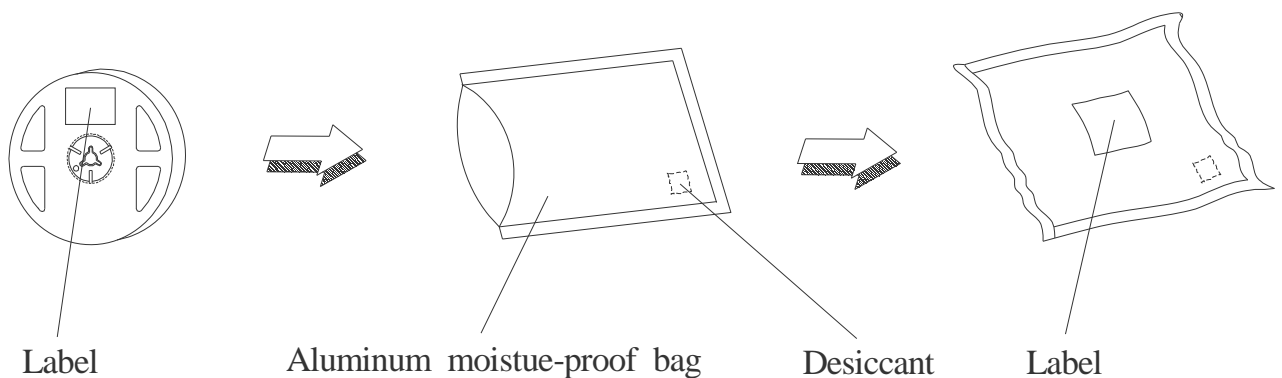
Carrier Tape Dimensions:

Minimum packing amount is 4000 pcs per reel



Note: Tolerances unless mentioned ± 0.1 mm. Unit = mm

Moisture Resistant Packing Process



Note: Tolerances unless mentioned ± 0.1 mm. Unit = mm

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.

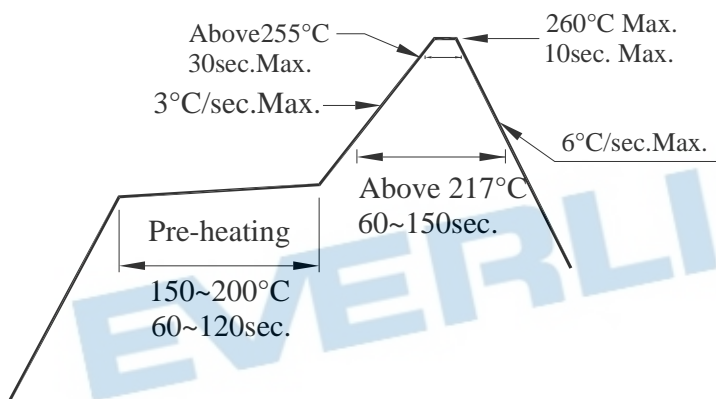
2.3 After opening the package: The LED's floor life is 168Hrs under 30°C or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded 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.

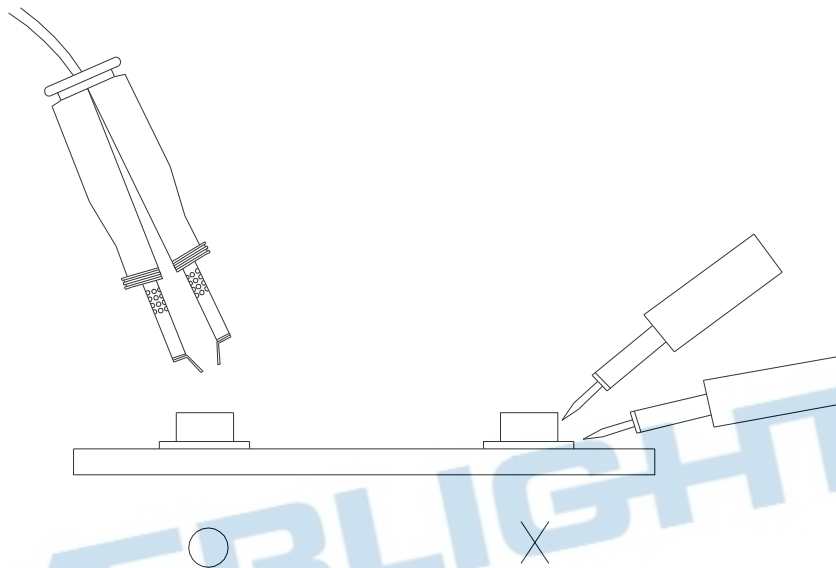
3.4 After soldering, do not warp the circuit board.

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.

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.



6.Directions for use

The LEDs should be operated with forward bias. The driving circuit must be designed so that the LEDs are not subjected to forward or reverse voltage while it is off. If reverse voltage is continuously applied to the LEDs, It may cause migration resulting in LED damage.

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3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
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