

Technical Data Sheet

Full Color Chip LED (0.25mm Height)

18-239B/R6GHBHC-D01/2T

Features

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



Descriptions

- The 18-239B 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.
- Besides, lightweight makes them ideal for miniature applications. etc

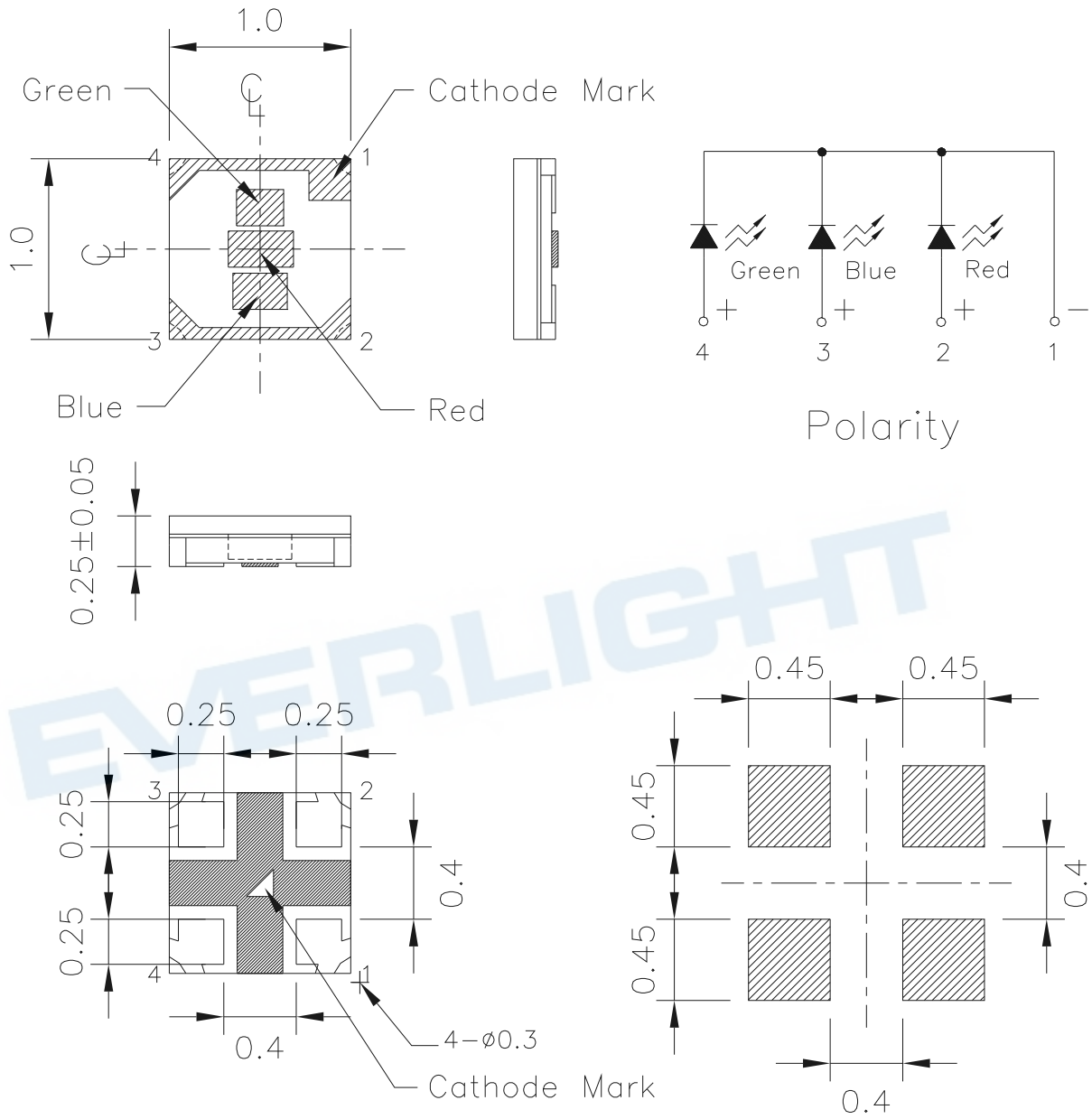
Applications

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

Device Selection Guide

Chip			Resin Color
Type	Material	Emitted Color	
R6	AlGaInP	Brilliant Red	Water Clear
GH	InGaN	Brilliant Green	
BH	InGaN	Blue	

Package Outline Dimensions



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

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V _R	5	V
Forward Current	I _F	R6:25 GH:25 BH:25	mA
Peak Forward Current (Duty 1/10 @1KHz)	I _{FP}	R6:60 GH:100 BH:100	mA
Power Dissipation	P _d	R6:60 GH:95 BH:95	mW
Electrostatic Discharge(HBM)	ESD	R6:2000 GH:150 BH:150	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	R6 Iv GH BH	25 35 16	-----	45 65 24	mcd	If=2mA
Viewing Angle	2θ 1/2	-----	120	-----	deg	
Peak Wavelength	R6 λp GH BH	-----	632 518 465	-----	nm	
Dominant Wavelength	R6 λd GH BH	622 524 465	-----	632 538 475	nm	
Spectrum Radiation Bandwidth	R6 Δ λ GH BH	-----	20 35 25	-----	nm	
Forward Voltage	R6 VF GH BH	1.75 2.75 2.60	-----	2.15 2.95 2.85	V	
Reverse Current	R6 IR GH BH	-----	-----	10 50 50	μA	VR=5V

Note :

- 1.Tolerance of Luminous Intensity $\pm 11\%$
- 2.Tolerance of Dominant Wavelength $\pm 1\text{nm}$
- 3.Tolerance of Forward Voltage $\pm 0.05\text{V}$

Chip : R6**Bin Range Of Luminous Intensity**

Bin	Min	Max	Unit	Condition
A	25	34	mcd	IF=2mA
B	34	45		

Bin Range Of Forward Voltage

Bin	Min	Max	Unit	Condition
1	1.75	2.15	V	IF=2mA

Chip : GH**Bin Range Of Luminous Intensity**

Bin	Min	Max	Unit	Condition
A	35	48	mcd	IF=2mA
B	48	65		

Bin Range Of Dom. Wavelength

Bin	Min	Max	Unit	Condition
A	524	531	nm	IF=2mA
B	531	538		

Bin Range Of Forward Voltage

Bin	Min	Max	Unit	Condition
1	2.75	2.85	V	IF=2mA
2	2.85	2.95		

Chip : BH**Bin Range Of Forward Voltage**

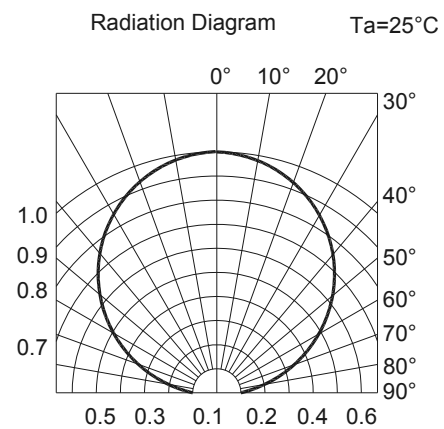
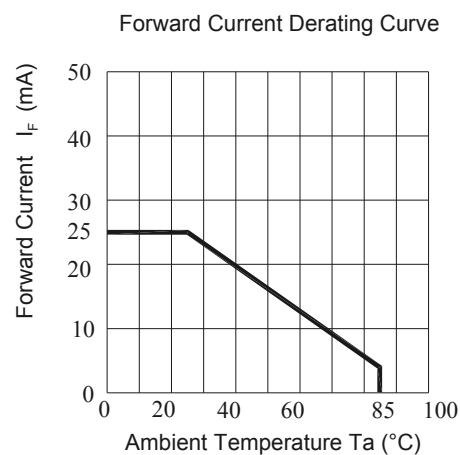
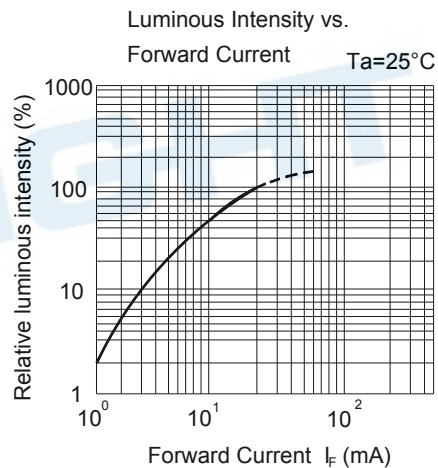
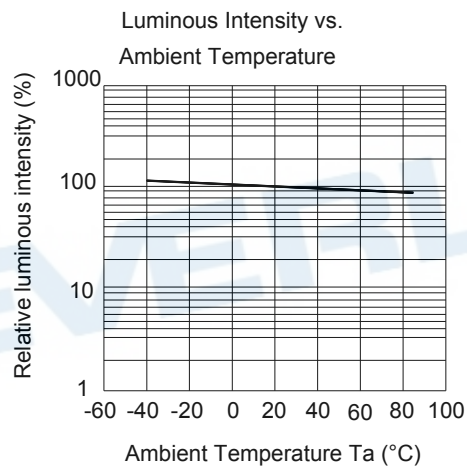
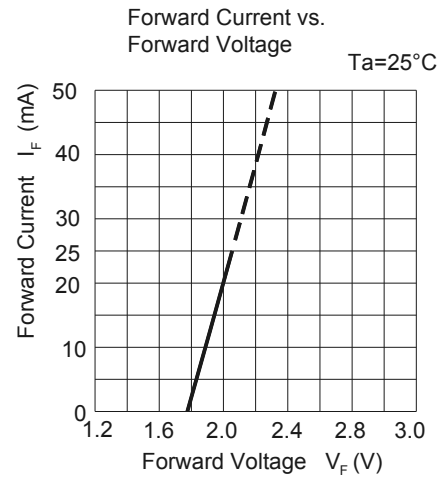
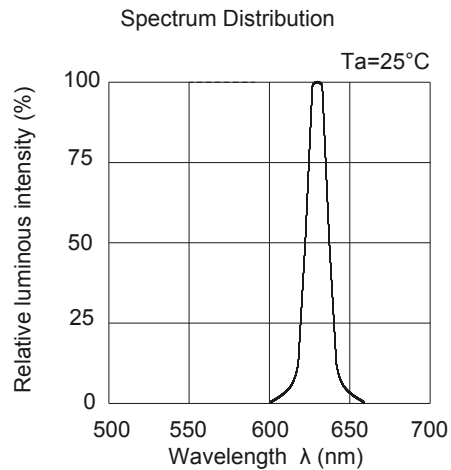
Bin	Min	Max	Unit	Condition
1	2.60	2.70	V	If=2mA
2	2.70	2.80		
3	2.80	2.85		

Note :

- 1.Tolerance of Luminous Intensity $\pm 11\%$**
- 2.Tolerance of Dominant Wavelength $\pm 1\text{nm}$**
- 3.Tolerance of Forward Voltage $\pm 0.05\text{V}$**

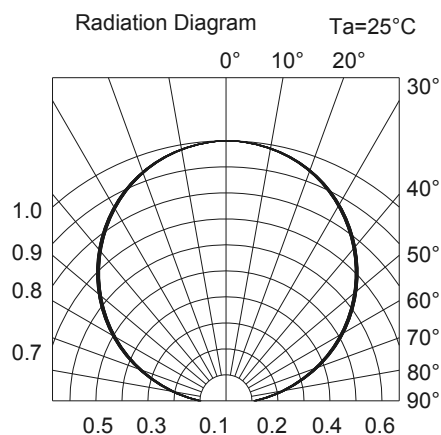
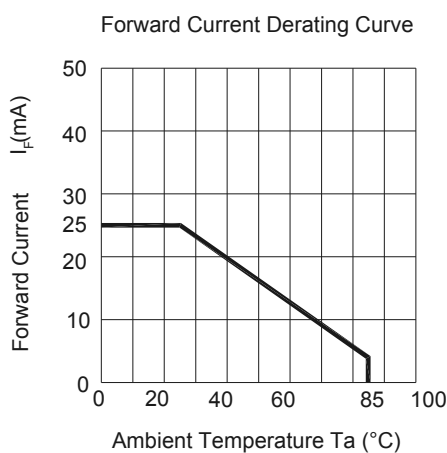
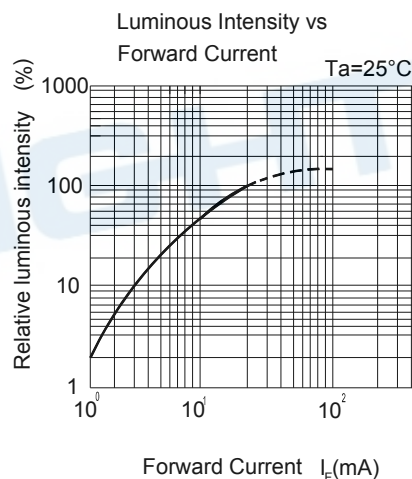
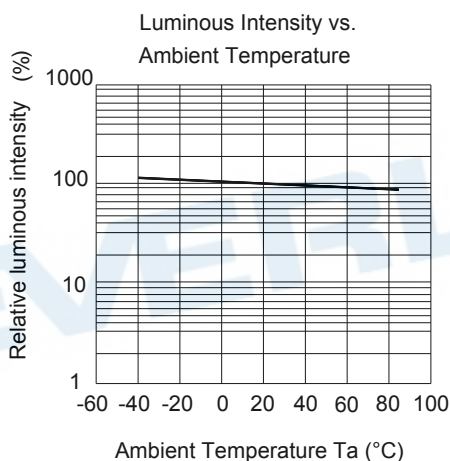
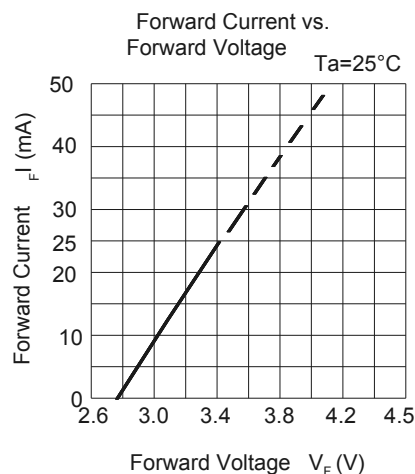
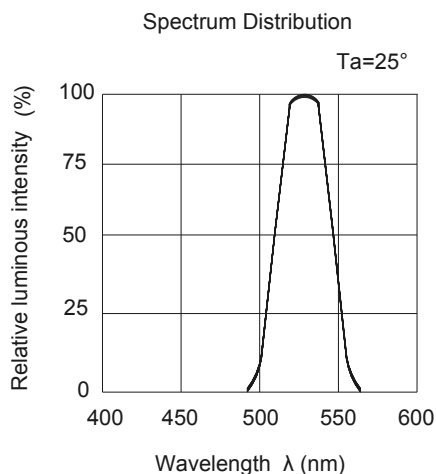
Typical Electro-Optical Characteristics Curves

R6



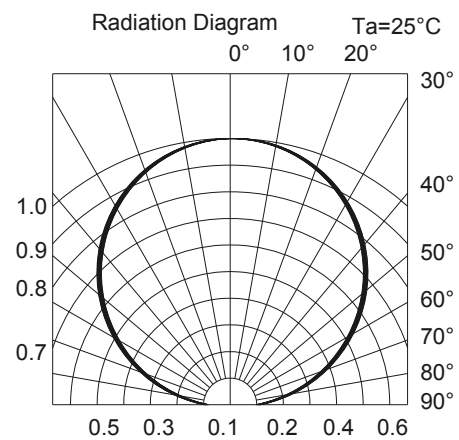
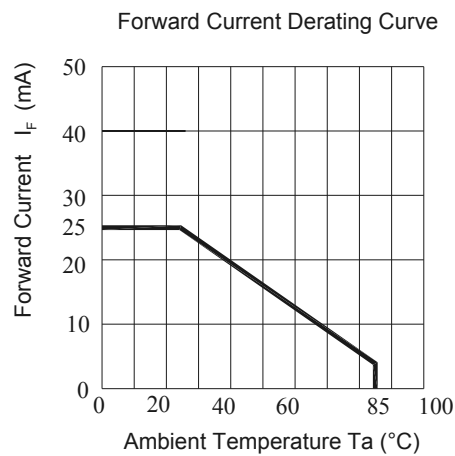
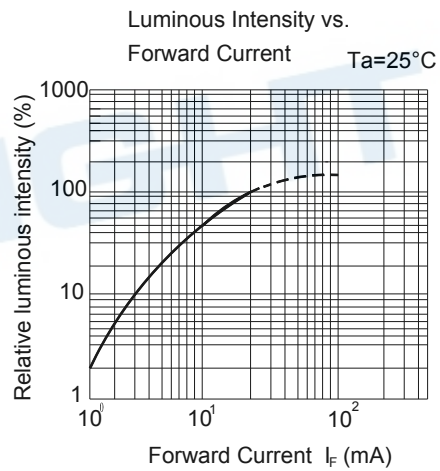
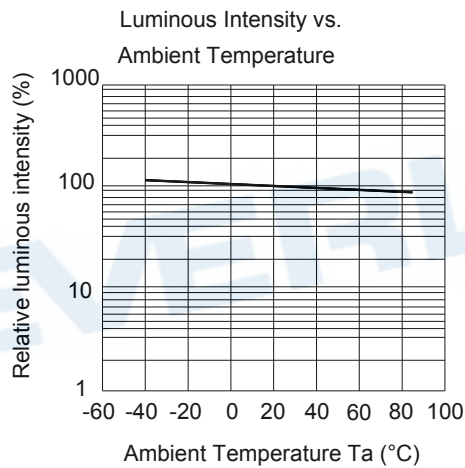
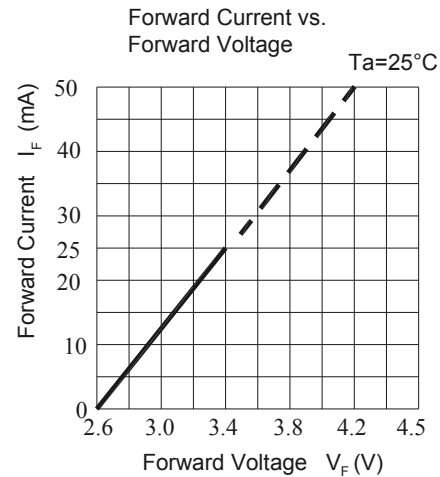
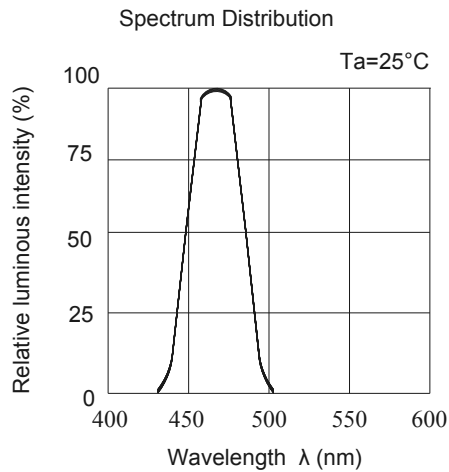
Typical Electro-Optical Characteristics Curves

GH



Typical Electro-Optical Characteristics Curves

BH



Label Explanation

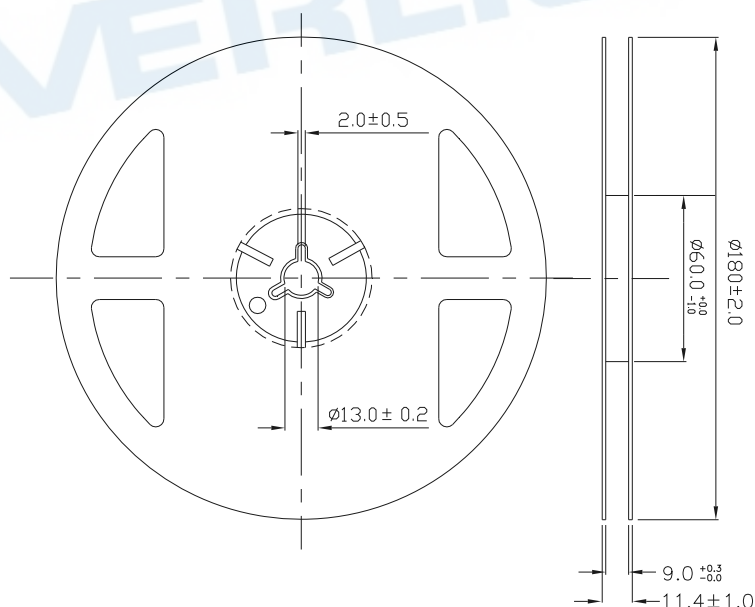
CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank

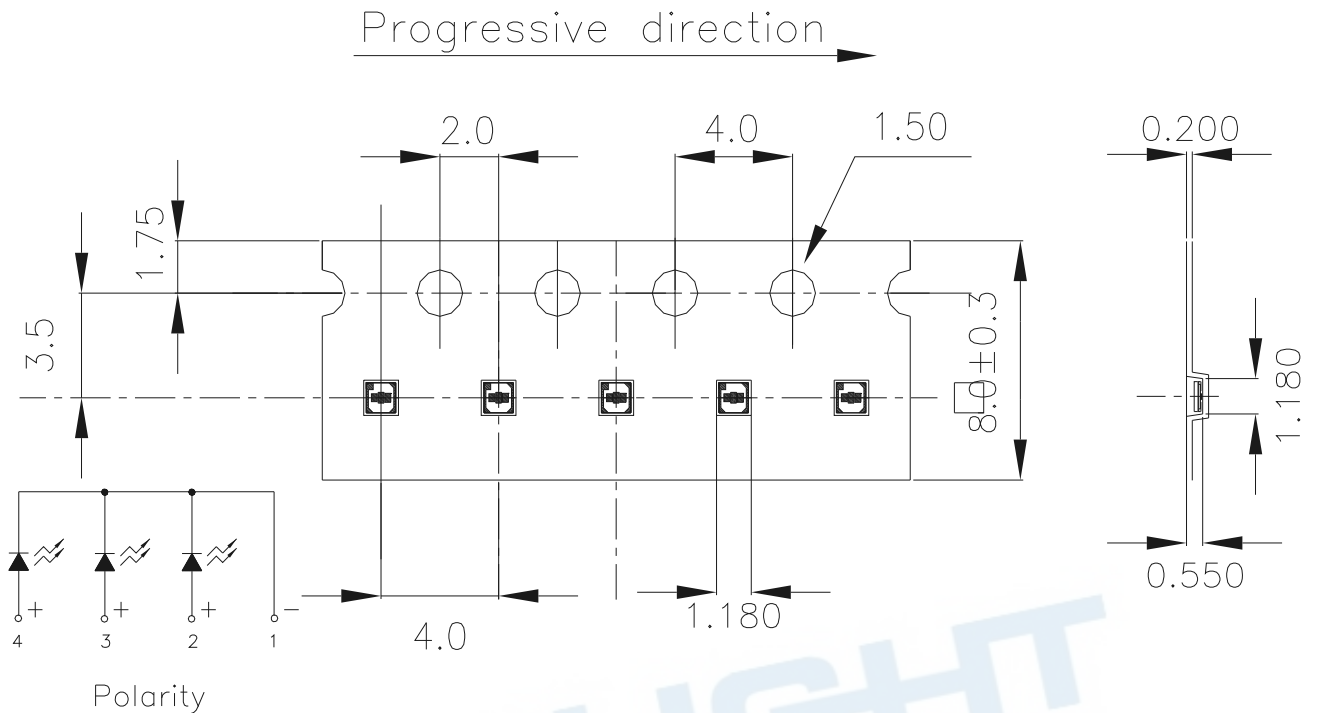


Reel Dimensions



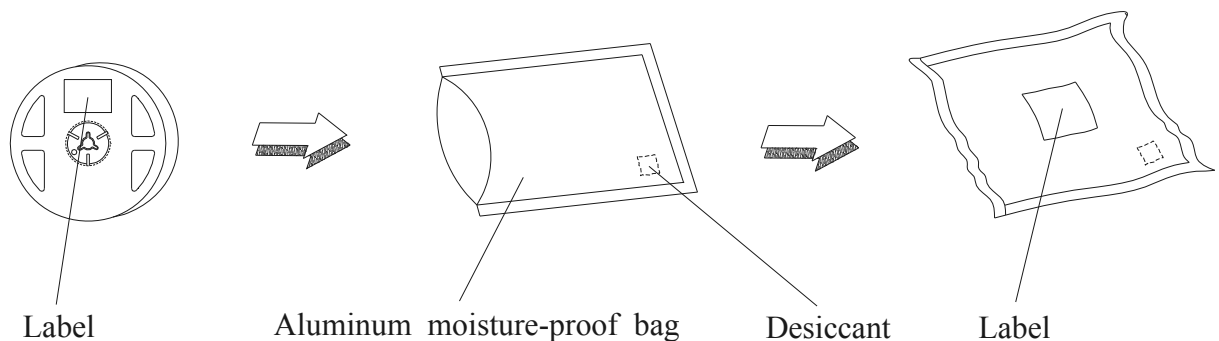
Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit = mm

Carrier Tape Dimensions: Loaded quantity 2000 PCS per reel



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

Moisture Resistant Packaging



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 Max. 10sec.	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	I _F = 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 After opening the package: The LED's floor life is 1 year under 30°C or less and 60% RH or less.

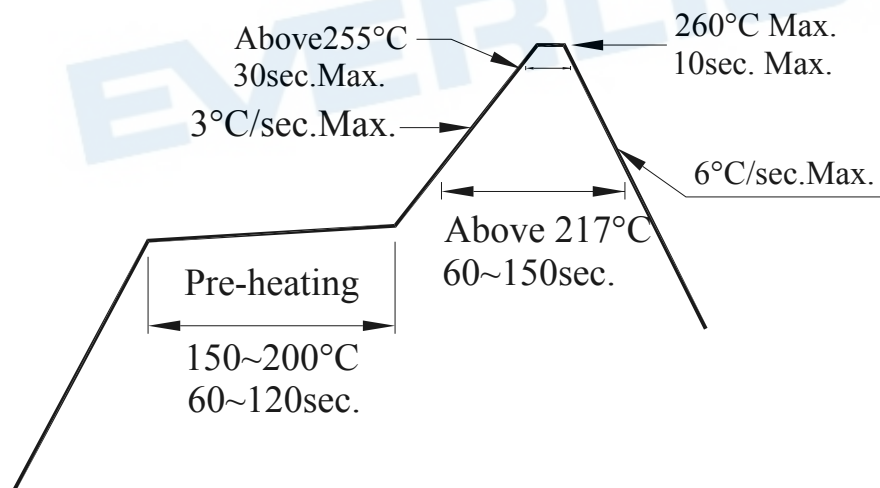
If unused LEDs remain, it should be stored in moisture proof packages.

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.

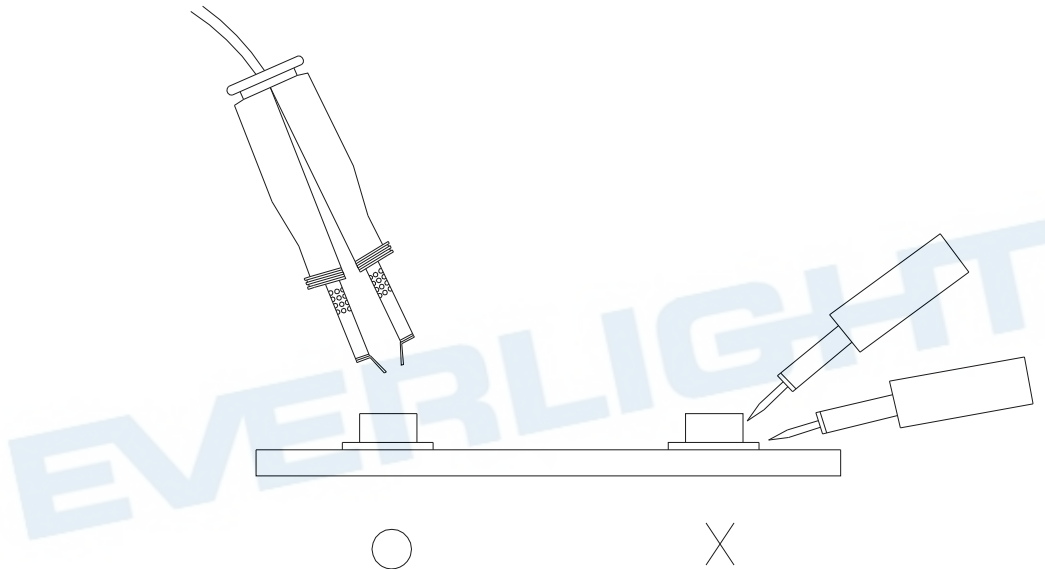
3.4 After soldering, do not warp the circuit board.

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.

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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