EVERLIGHT ELECTRONICS CO.,LTD.

Technical Data Sheet(Preliminary)

Luminosity Full Color LED

61-23 /R6GHBHC-B01/ET

Features

- Super-luminosity chip LED.
- White SMT package.
- Built in Red, Green, and Blue chips.
- Lead frame package with individual 6 pins.
- Wide viewing angle.
- Soldering methods: IR reflow soldering.
- Pb-free.

Descriptions

- Due to the package design, 61-23 has wide viewing angle , low power consumption and adjusting each color is possible thanks to serial connection by 6 terminal connection (Individual driving by each terminal) in case of using several number of LED. And makes it ideal for light pipe application.

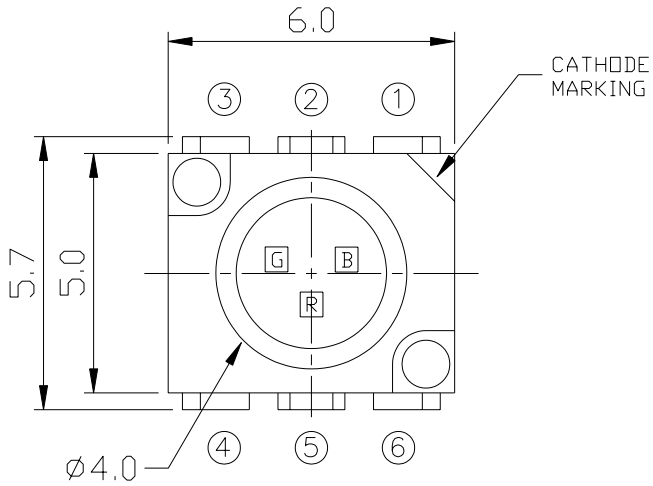
Applications

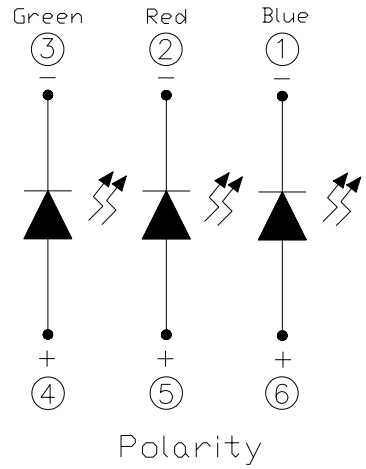
- Amusement equipment.
- Information boards.
- Flashlight for digital camera of cellular phone.

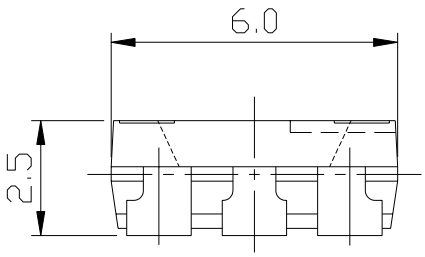
Device Selection Guide

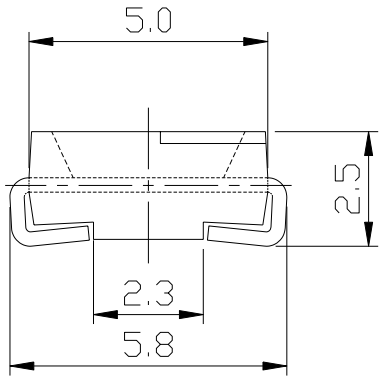
Chip			Lens Color
Type	Material	Emitted Color	
R6	AlGaInP	Brilliant Red	Water Clear
GH	InGaN	Brilliant Green	
BH	InGaN	Blue	

Package Outline Dimensions

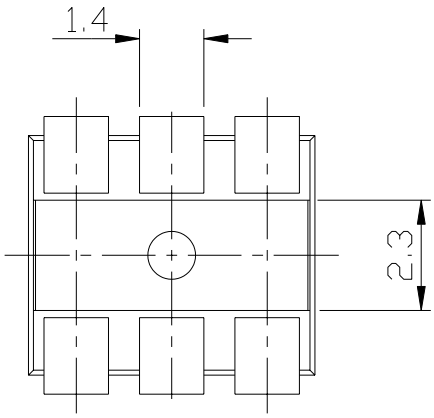


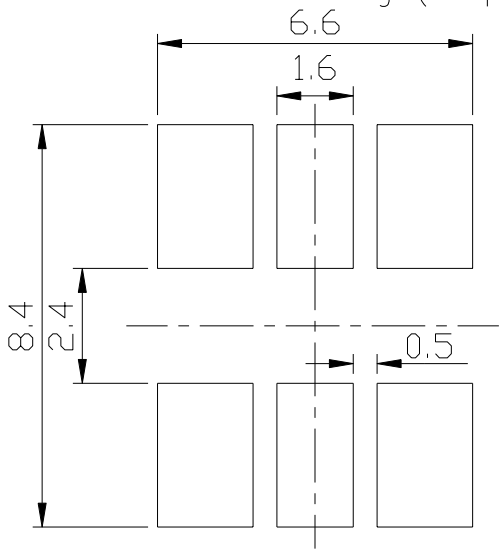






For Reflow Soldering (Proposal)





Notes: 1.All dimensions are in millimeters. 2.Tolerances unspecified are ±0.1mm.

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Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating		Unit
Reverse Voltage	V_R	5		V
Operating Temperature	Topr	-40 ~ +85		℃
Storage Temperature	Tstg	-40~ +100		℃
Soldering Temperature	Tsol	260 (for 5 second)		℃
Electrostatic Discharge	ESD	R6	2000	V
		GH	150	
		BH	150	
Power Dissipation	Pd	R6	120	mW
		GH	110	
		BH	110	
Forward Current	I_F	R6	50	mA
		GH	25	
		BH	25	
Peak Forward Current(Duty 1/10 @ 1KHz)	I_{FP}	R6	100	mA
		GH	100	
		BH	100	

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Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol		Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	R6	112	-----	450	mcd	I_F=20mA
		GH	285	-----	1120		I_F=20mA
		BH	112	-----	450		I_F=20mA
Viewing Angle	$2\theta_{1/2}$		-----	120	-----	deg	I_F=20mA
Peak Wavelength	λp	R6	-----	632	-----	nm	I_F=20mA
		GH	-----	518	-----		
		BH	-----	468	-----		
Dominant Wavelength	λd	R6	621	-----	631	nm	I_F=20mA
		GH	520	-----	530		
		BH	465	-----	470		
Spectrum Radiation Bandwidth	△λ	R6	-----	20	-----	nm	I_F=20mA
		GH	-----	35	-----		
		BH	-----	35	-----		
Forward Voltage	V_F	R6	-----	2.0	2.4	V	I_F=20mA
		GH	-----	3.5	4.0		
		BH	-----	3.5	4.0		
Reverse Current	I_R	R6	-----	-----	10	μA	V_R=5V
		GH	-----	-----	50		
		BH	-----	-----	50		

Notes:

1. **Tolerance of Luminous Intensity ±10%**
2. **Tolerance of Dominant Wavelength ±1 nm**

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Bin Range Of Luminous Intensity

Symbol		Bin Code	Min.	Max.	Unit	Condition
Iv	R6	R	112	180	mcd	I_F =20mA
		S	180	285		
		T	285	450		
	GH	T	285	450		
		U	450	715		
		V	715	1120		
	BH	R	112	180		
		S	180	285		
		T	360	450		

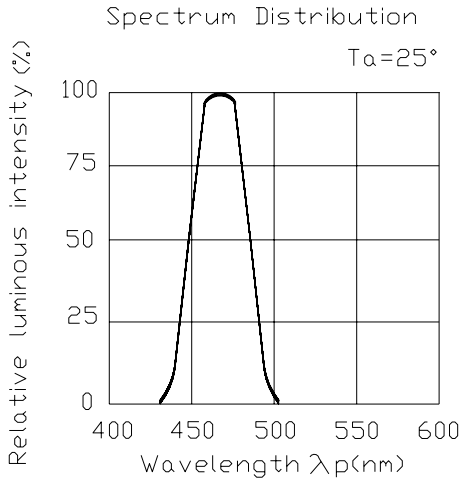
Bin Range Of Dominant Wavelength

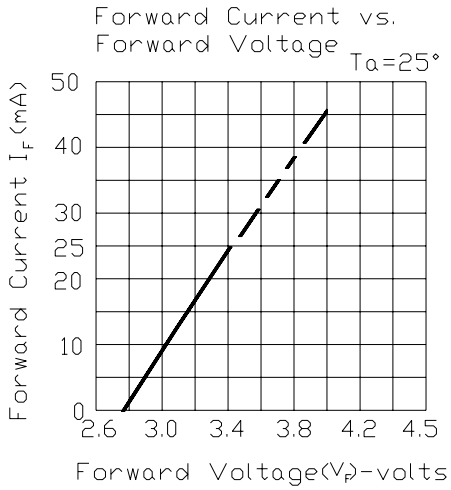
Symbol		Bin Code	Min.	Max.	Unit	Condition
λ d	R6	FF1	621	626	nm	I_F =20mA
		FF2	626	631		
	GH	X	520	525		
		Y	525	530		
	BH	X	465	470		

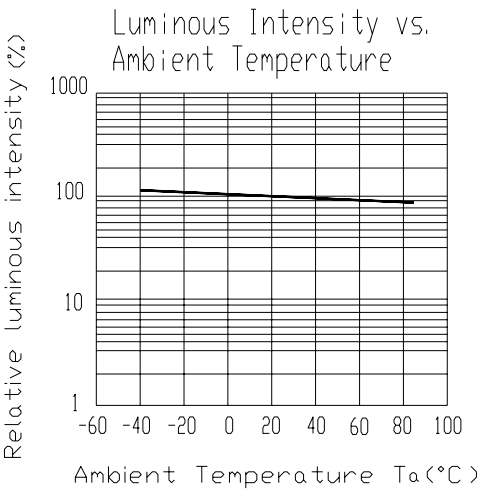
Notes:

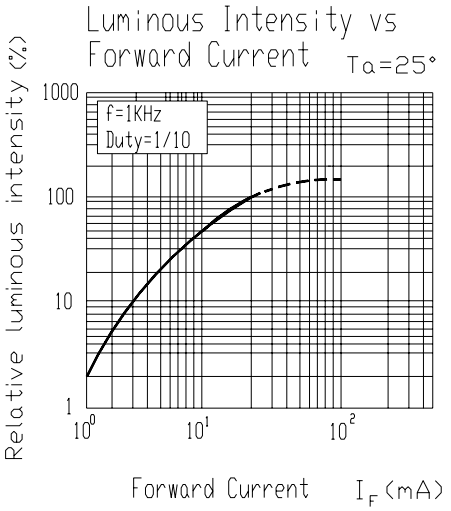
1. **Tolerance of Luminous Intensity ±10%**
2. **Tolerance of Dominant Wavelength ±1 nm**

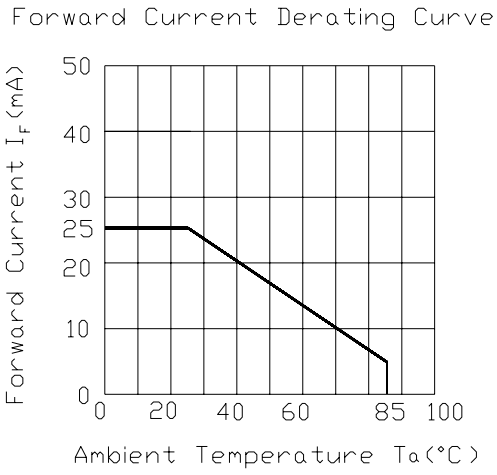
Typical Electro-Optical Characteristics Curves (BH)

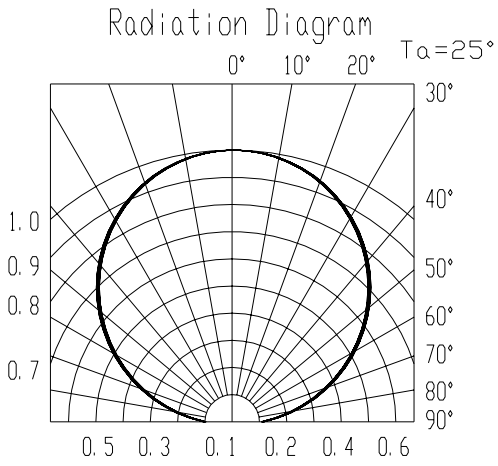












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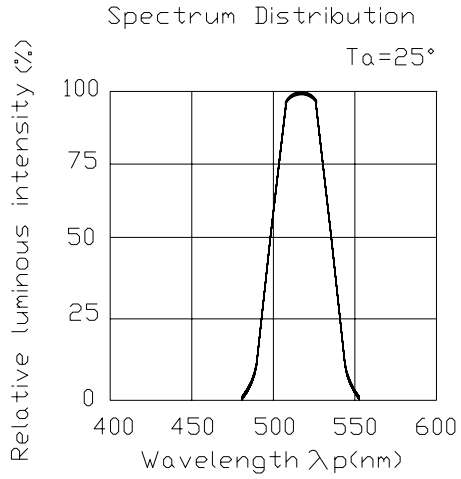
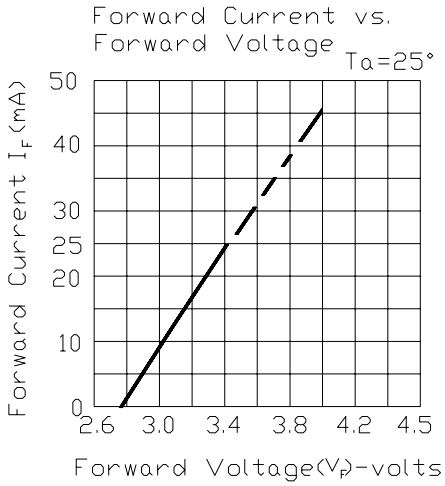
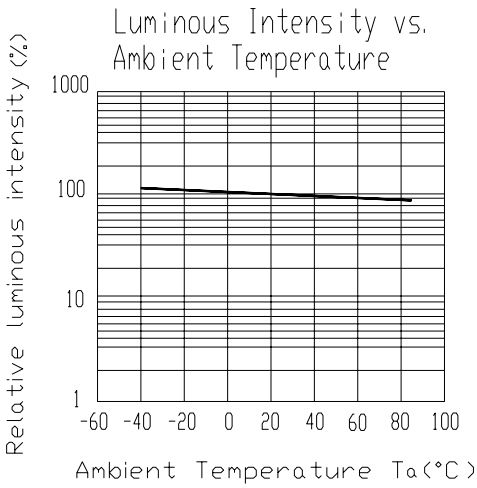
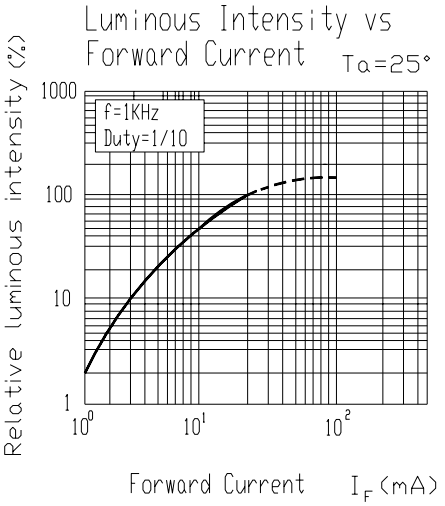
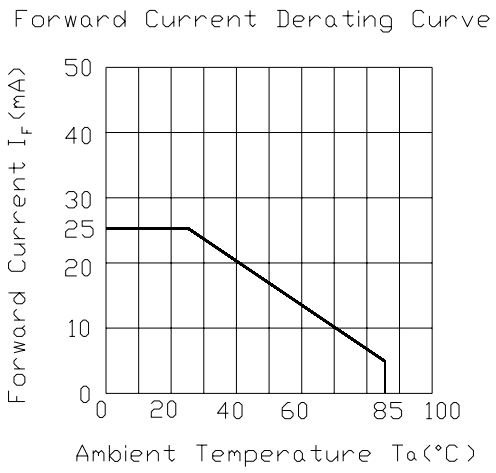
Typical Electro-Optical Characteristics Curves (GH)

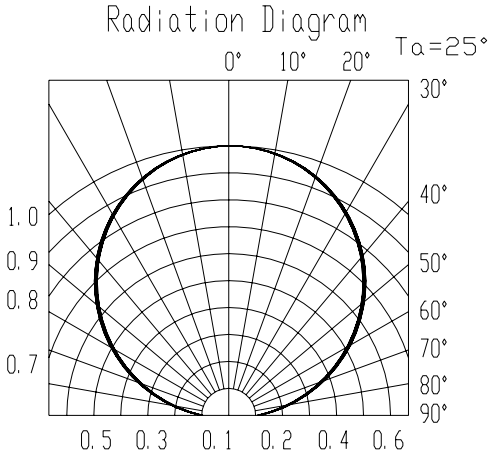












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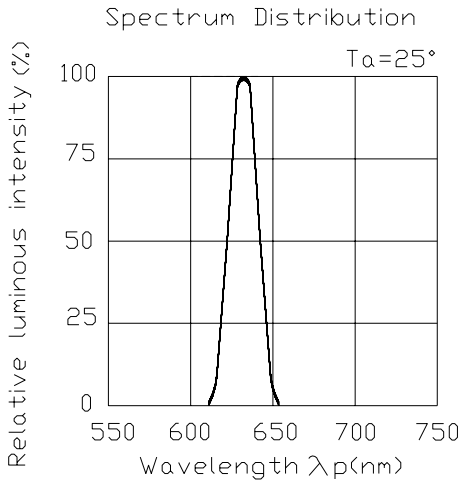
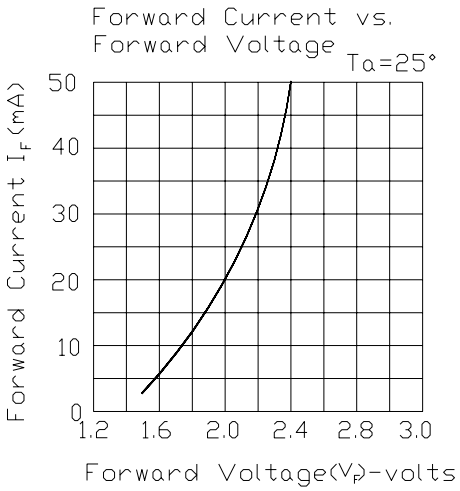
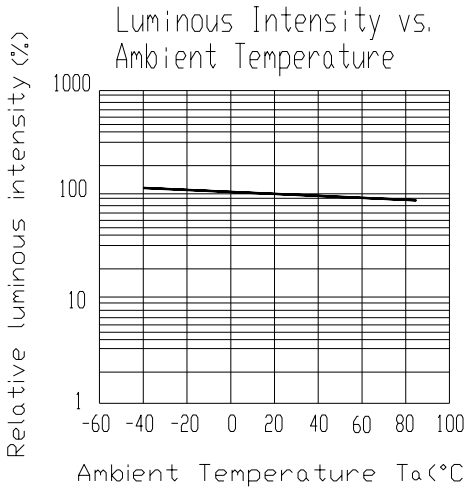
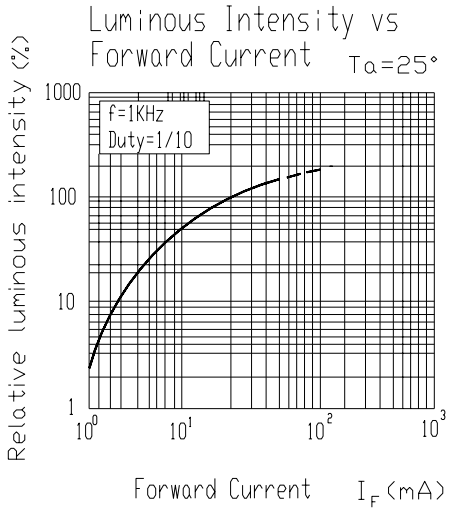
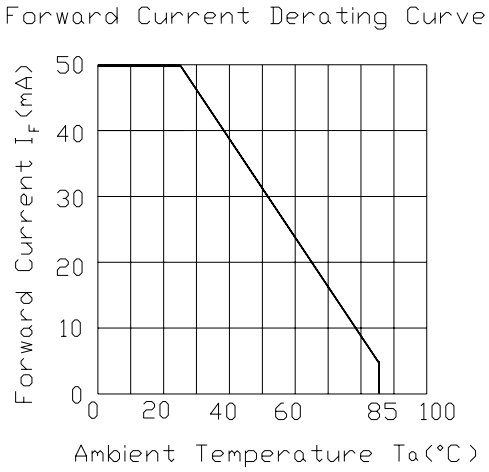
Typical Electro-Optical Characteristics Curves (R6)

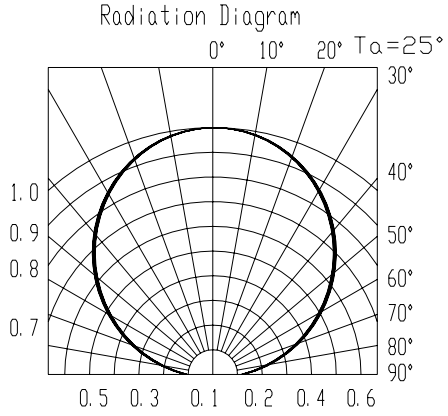










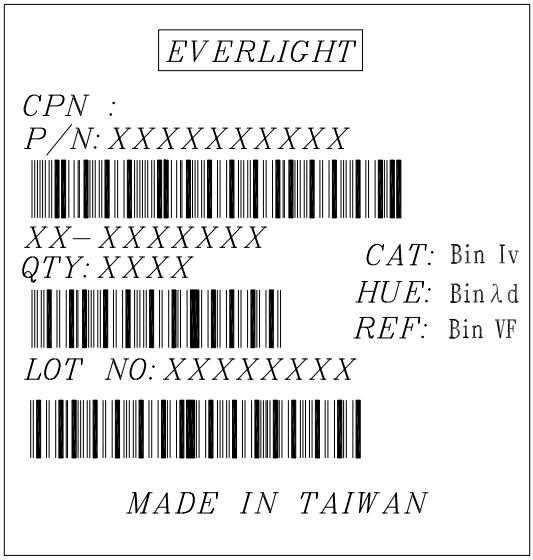


Label explanation

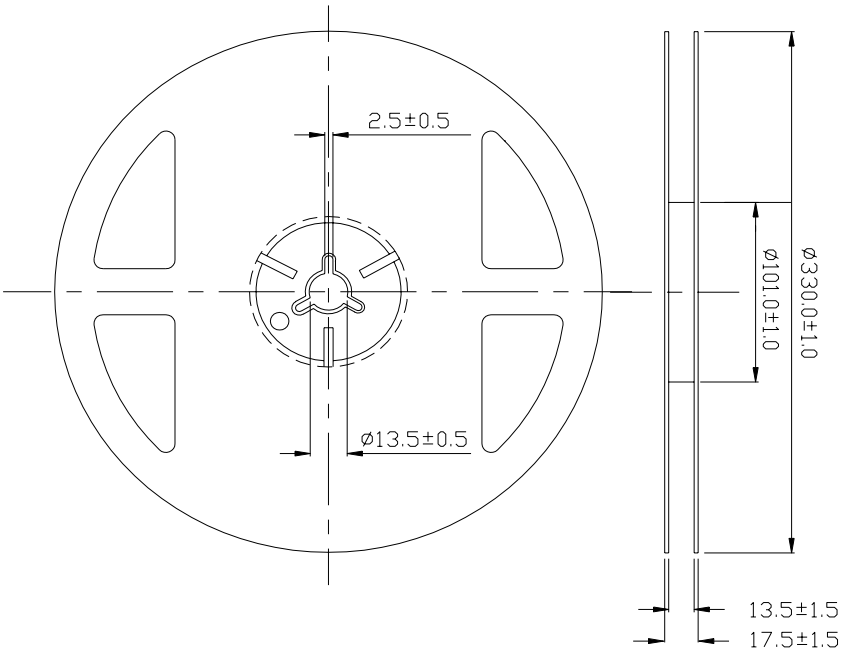
CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank



Reel Dimensions



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

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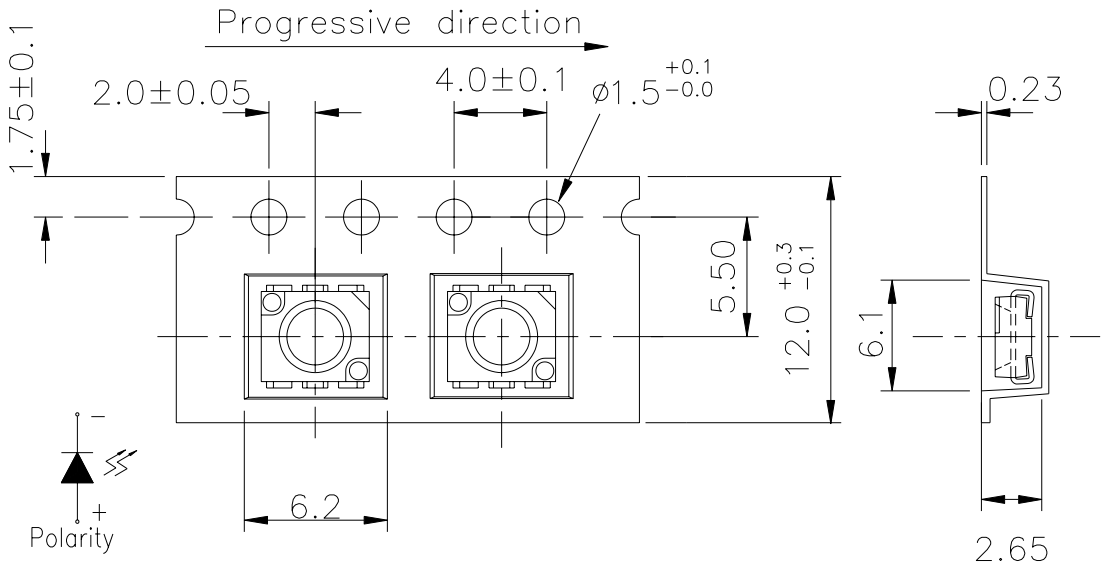
Loaded quantity per reel 800 PCS/reel



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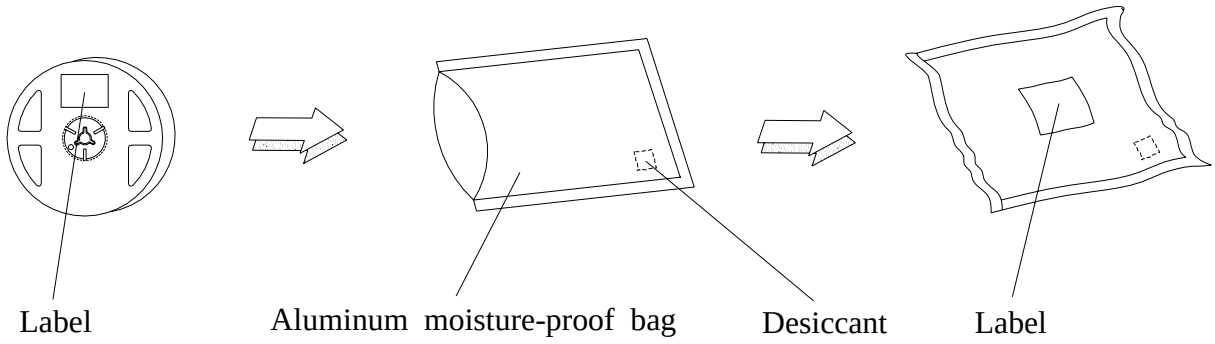
Moisture Resistant Packaging



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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℃±5℃ Min. 5sec.	6 Min.	22 PCS.	0/1
2	Temperature Cycle	H : +100℃ 15min ∫ 5 min L : -40℃ 15min	300 Cycles	22 PCS.	0/1
3	Thermal Shock	H : +100℃ 5min ∫ 10 sec L : -10℃ 5min	300 Cycles	22 PCS.	0/1
4	High Temperature Storage	Temp. : 100℃	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage	Temp. : -40℃	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℃/ 85%RH	1000 Hrs.	22 PCS.	0/1

* For each die

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℃ 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℃ or less and 70%RH or less.

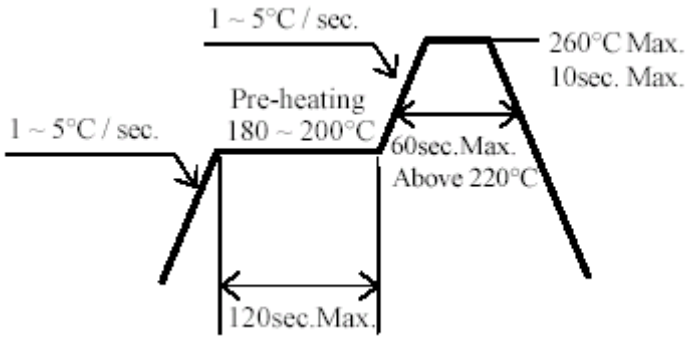
   2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

   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℃ 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.

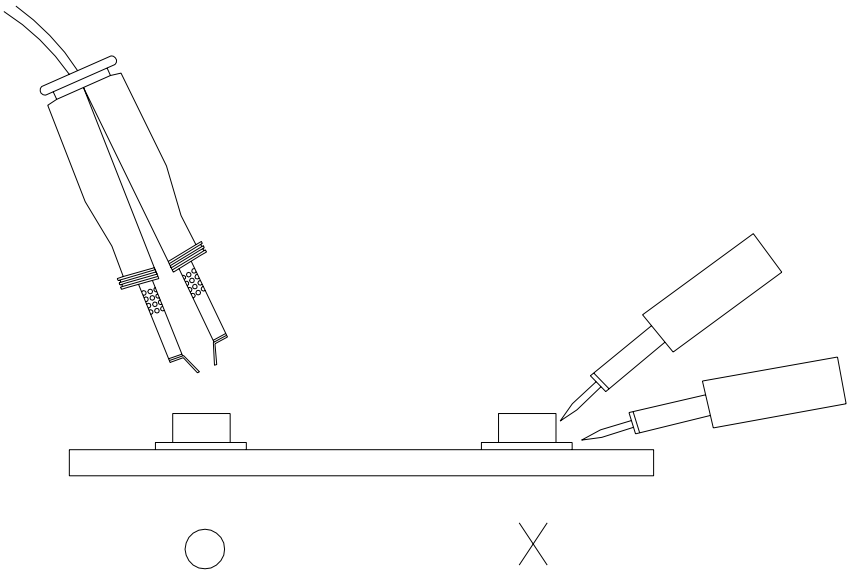
3.4 After soldering, do not warp the circuit board.

4.Soldering Iron

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