

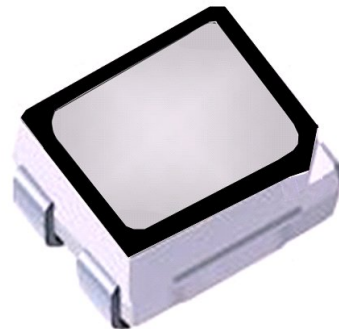
Technical Data Sheet

Full Color Top View LEDs

67-03/REGBB7W-B19/2T

Features

- P-LCC-4 package.
- White package and black surface.
- Optical indicator.
- Ideal for backlight and light pipe application.
- Wide viewing angle.
- Suitable for vapor-phase reflow, Infrared reflow and wave solder processes.
- Computable with automatic placement equipment.
- Available on tape and reel (8mm Tape).
- Pb-free.
- The product itself will remain with RoHS compliant version



Descriptions

- The 67-03 series is available in soft orange, green, blue, and yellow. Due to the package design, the LED has wide viewing angle and optimized light coupling by inter reflector. This feature makes the LED ideal for light pipe application. The low current requirement makes this device ideal for portable equipment or any other application where power is at a premium.

Applications

- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD's, switches and symbols.
- Light pipe application.
- General use.

Device Selection Guide

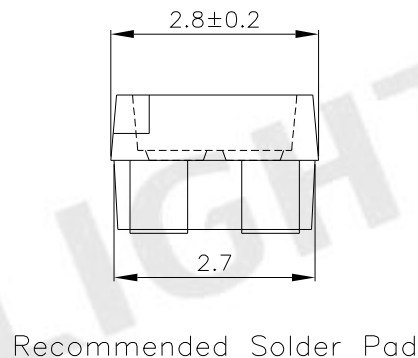
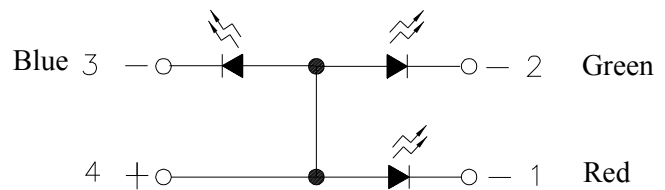
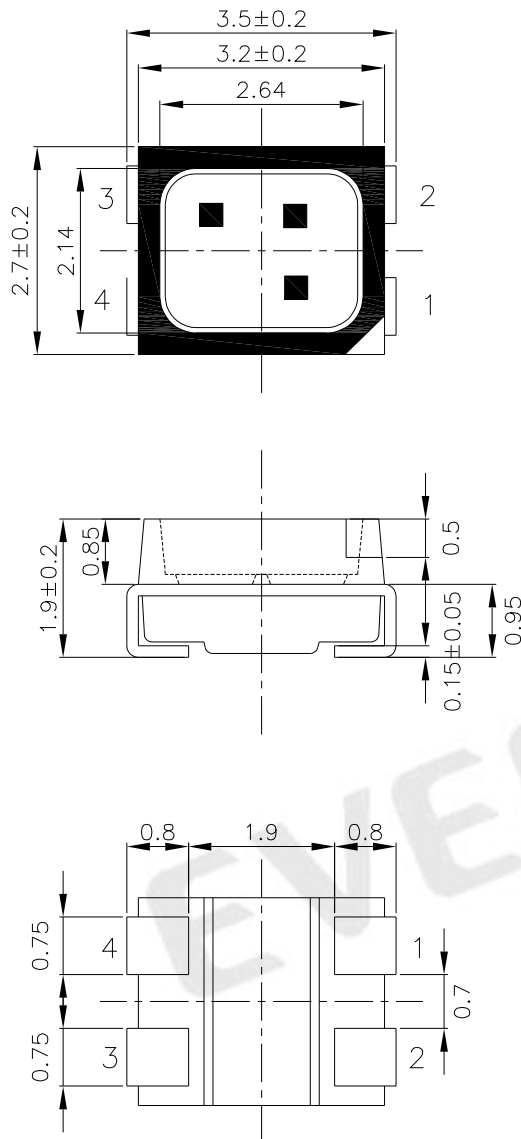
Chip		Emitted Color	Resin Color
Type	Material		
RE	AlGaInP	Brilliant Red	White Diffuse
GB	InGaN	Brilliant Green	
B7	InGaN	Blue	

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Package Outline Dimensions



Notes:

1. All dimensions are in millimeters
2. Tolerance unless mentioned is ± 0.1 mm

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Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating		Unit
Reverse Voltage	V _R	5		V
Forward Current	I _F	RE	50	mA
		GB	30	
		B7	30	
Peak Forward Current (Duty 1/10 @ 1KHz)	I _{FP}	RE	100	mA
		GB	100	
		B7	100	
Power Dissipation	Pd	RE	120	mW
		GB	110	
		B7	110	
Electrostatic Discharge(HBM)	ESD	RE	2000	V
		GB	1000	
		B7	1000	
Operating Temperature	Topr	-40 ~ +85		°C
Storage Temperature	Tstg	-40~ +90		°C
Soldering Temperature	Tsol	Reflow Soldering : 260 °C for 10 sec. Hand Soldering : 350 °C for 3 sec.		

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Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol		Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I _v	RE	360	-----	715	mcd	I _F =20mA
		GB	900	-----	1800		
		B7	225	-----	450		
Peak Wavelength	λ _p	RE	-----	632	-----	nm	I _F =20mA
		GB	-----	518	-----		
		B7	-----	468	-----		
Dominant Wavelength	λ _d	RE	617.5	-----	629.5	nm	I _F =20mA
		GB	520	-----	535		
		B7	468	-----	474		
Spectrum Radiation Bandwidth	Δλ	RE	-----	20	-----	nm	I _F =20mA
		GB	-----	35	-----		
		B7	-----	25	-----		
Forward Voltage	V _F	RE	1.75	-----	2.35	V	I _F =20mA
		GB	2.75	-----	3.65		
		B7	2.75	-----	3.65		
Viewing Angle	201/2		-----	120	-----	deg	I _F =20mA
Reverse Current	I _R	RE	-----	-----	10	μA	V _R =5V
		GB	-----	-----	50		
		B7	-----	-----	50		

Note:

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V

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Bin Range of Luminous Intensity

Symbol		Bin Code	Min.	Max.	Unit	Condition
I _v	RE	T2	360	450	mcd	I _F =20mA
		U1	450	565		
		U2	565	715		
	GB	V2	900	1120		
		W1	1120	1420		
		W2	1420	1800		
	B7	S2	225	285		
		T1	285	360		
		T2	360	450		

Bin Range of Dominant Wavelength

Symbol		Bin Code	Min.	Max.	Unit	Condition
λ _d	RE	E4	617.5	621.5	nm	I _F =20mA
		E5	621.5	625.5		
		E6	625.5	629.5		
	GB	X	520	525		
		Y	525	530		
		Z	530	535		
	B7	AA3	468	470		
		AA4	470	472		
		AA5	472	474		

Note:

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm

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Bin Range of Forward Voltage

Symbol		Bin Code	Min.	Max.	Unit	Condition
V _F	RE	0	1.75	1.95	V	I _F =20mA
		1	1.95	2.15		
		2	2.15	2.35		
	GB	5	2.75	3.05		
		6	3.05	3.35		
		7	3.35	3.65		
	B7	5	2.75	3.05		
		6	3.05	3.35		
		7	3.35	3.65		

Note:

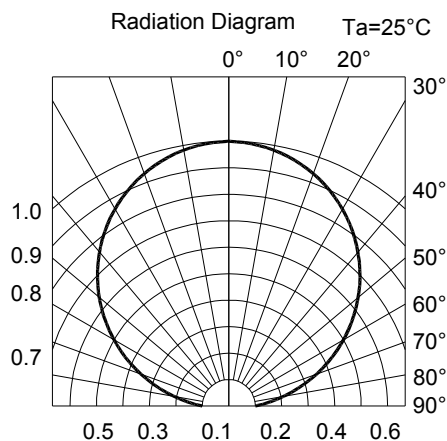
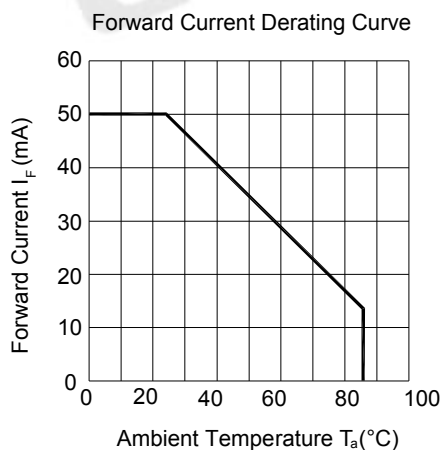
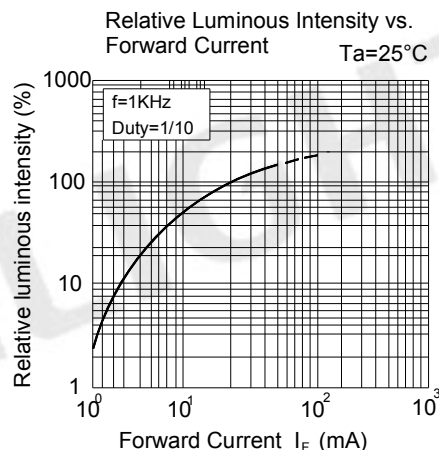
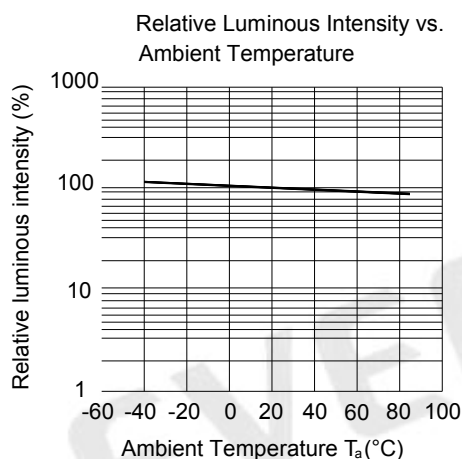
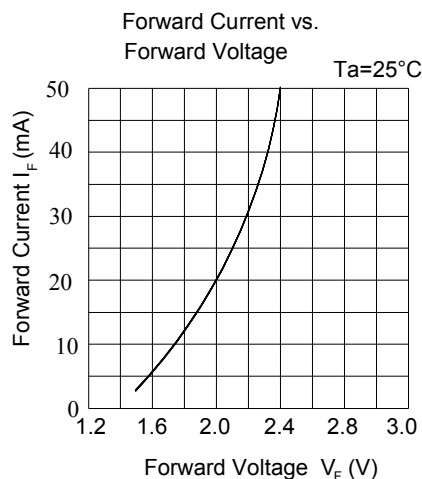
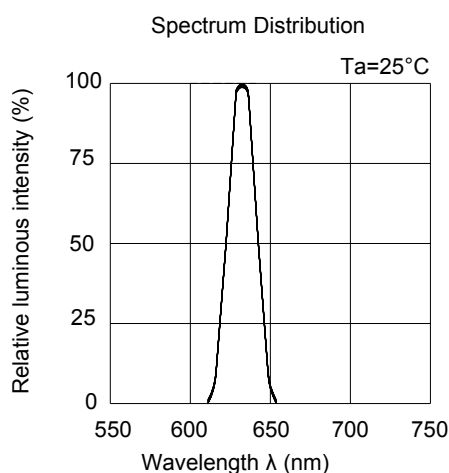
1. Tolerance of Forward Voltage: $\pm 0.1V$

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Typical Electro-Optical Characteristics Curves (RE)

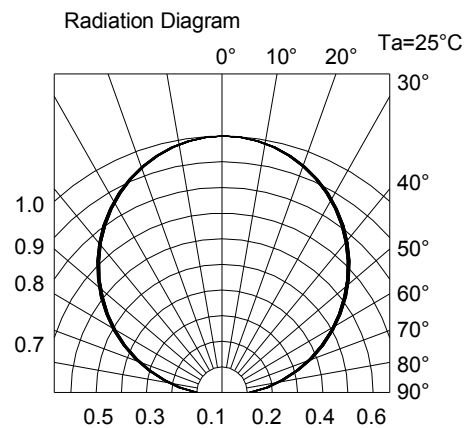
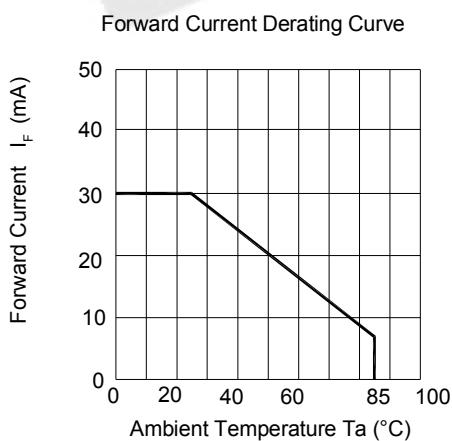
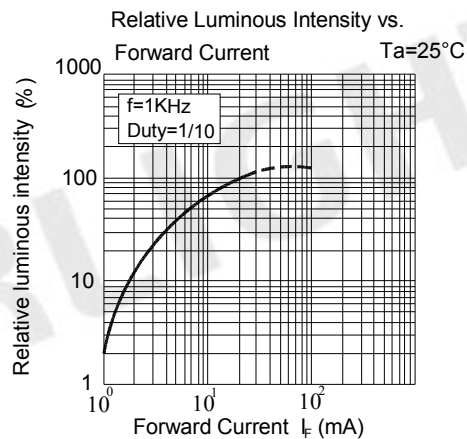
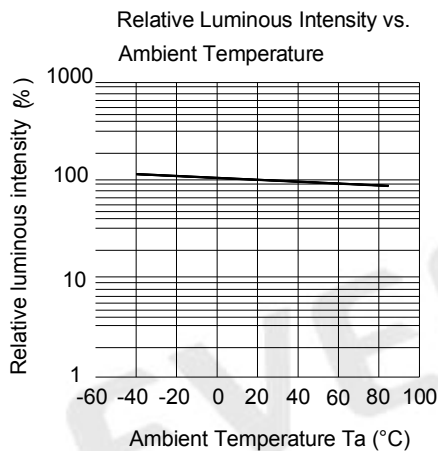
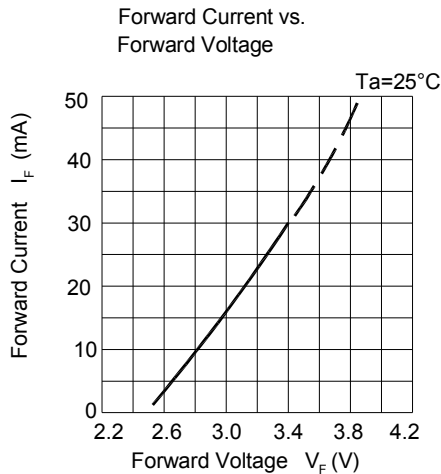
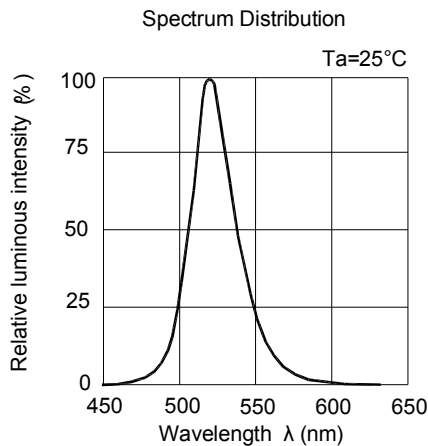


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Typical Electro-Optical Characteristics Curves (GB)

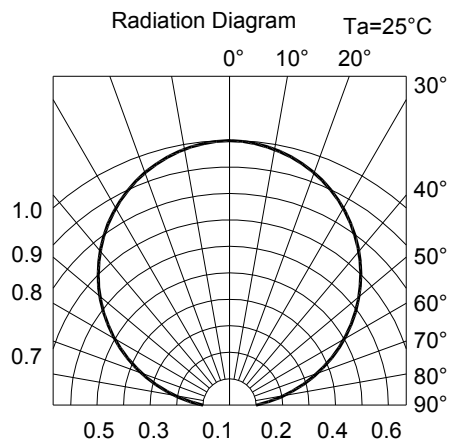
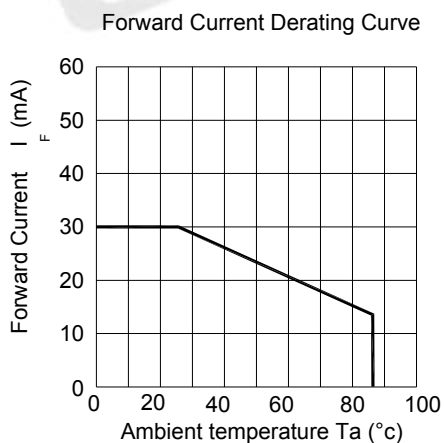
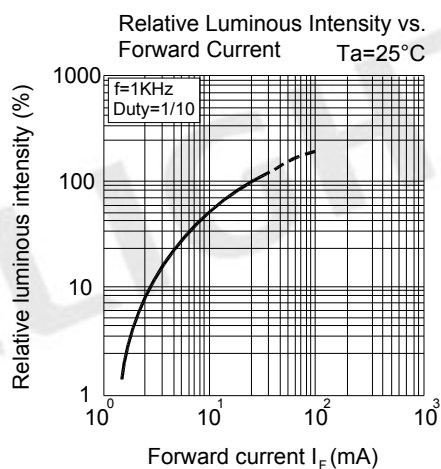
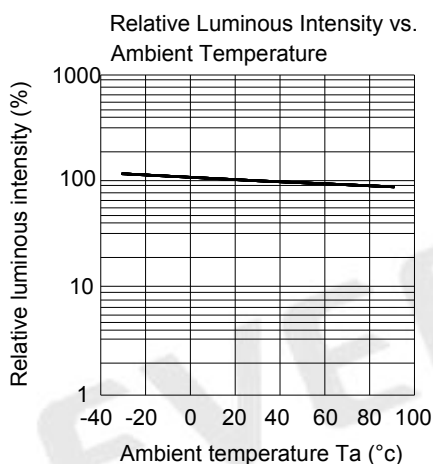
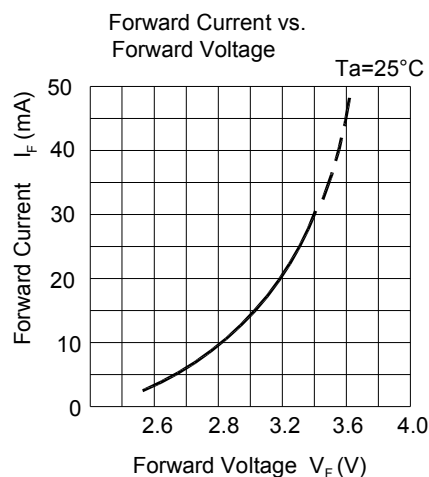
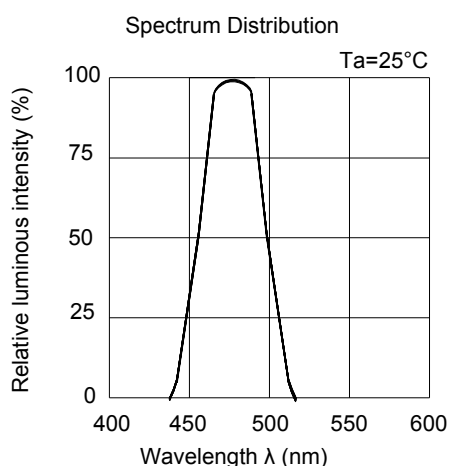


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Full Color Top View LEDs

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Typical Electro-Optical Characteristics Curves (B7)



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Label Explanation

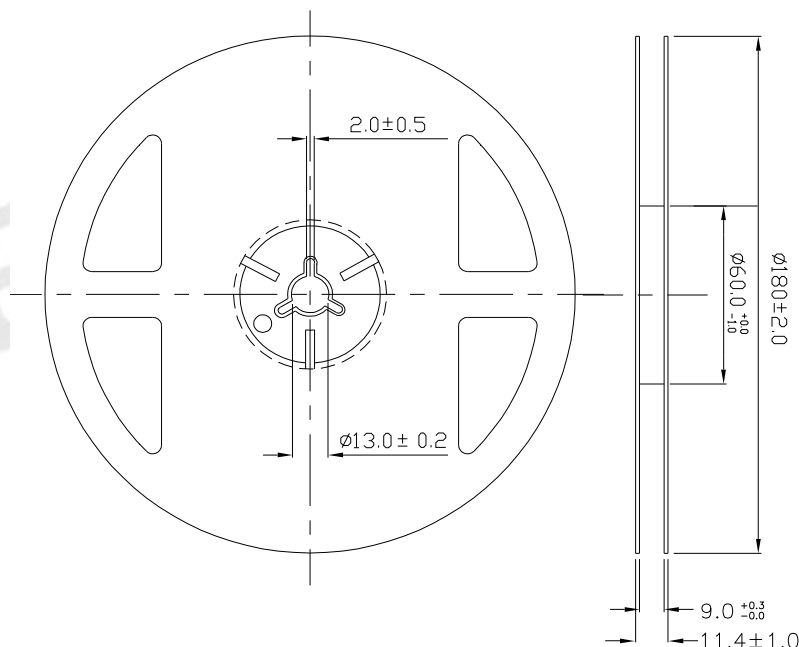
CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank



Reel Dimensions



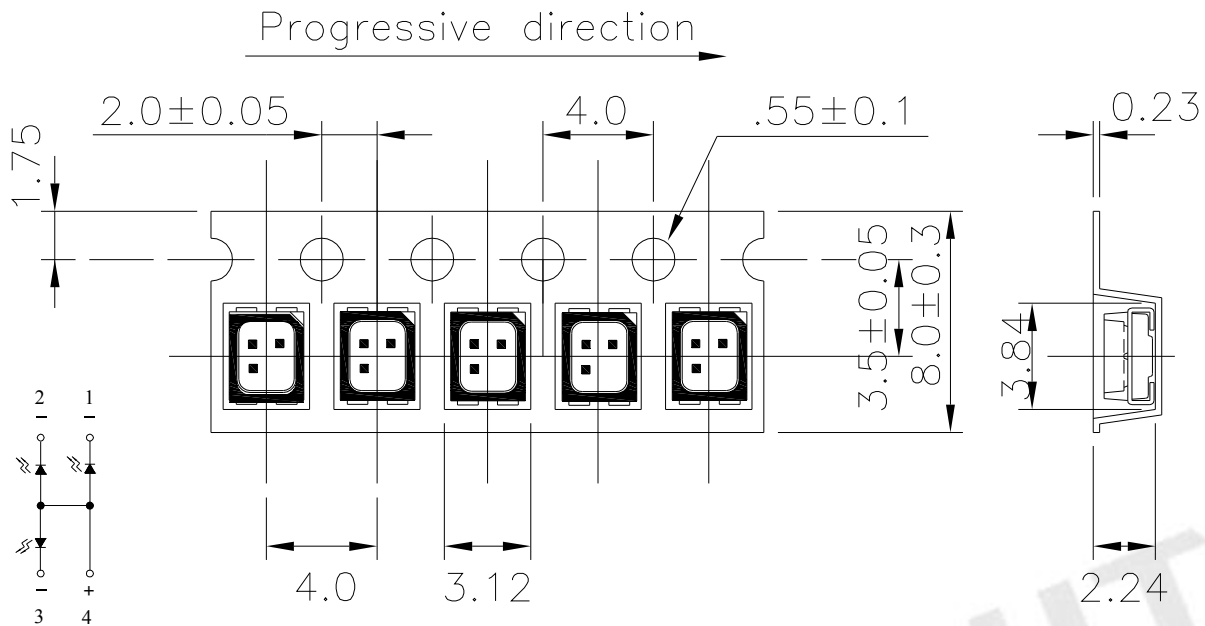
Note: Tolerance unless mentioned is ± 0.1 mm; Unit = mm

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Full Color Top View LEDs

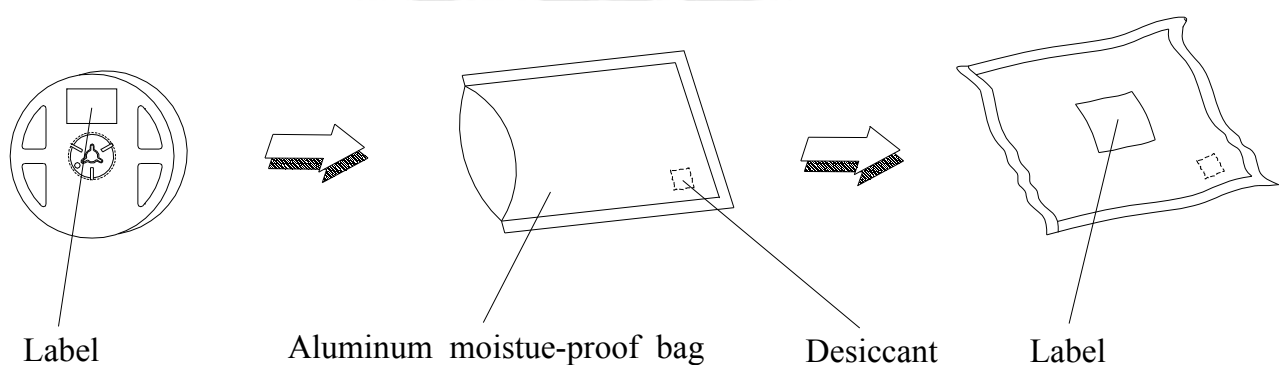
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Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel.



Note: Tolerance unless mentioned is ± 0.1 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 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

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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.

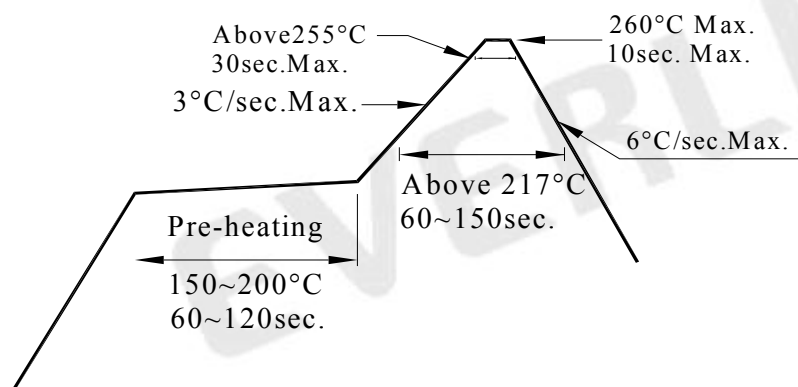
2.3 After opening the package: The LED's floor life is 168 hours under 30°C or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

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.

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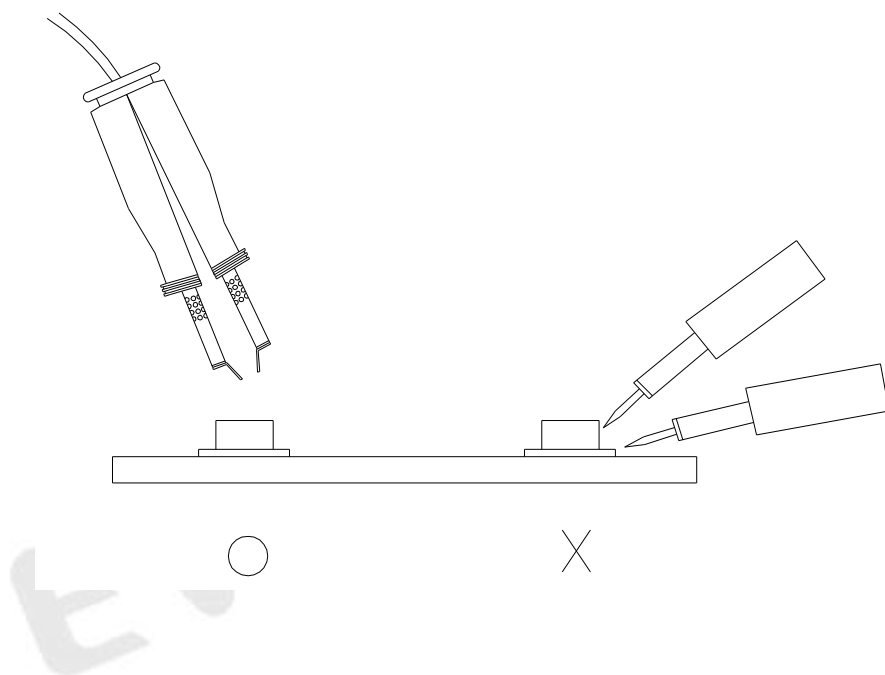
67-03/REGBB7W-B19/2T

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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