Date Sheet

Customer: _____

Part No: CL-SP1615BGR-02

Sample No: _____

Description: _____

Item No: _____

Customer			
Check	Inspection	Approval	Date

Features

- 1.6*1.5 *0.6mm package

. Top view
. Compatible with infrared and vapor phase reflow solder process.
. Wide viewing angle
. Pb-free
. RoHS compliant

Description

. The Ciellight 1615 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

. General lighting
. Decorative and Entertainment Lighting
. Indicators
. Automotive Telecommunication
. Switch lights

Device Selection Guide

Chip Material		Emitted Color	Resin Color
R6	AlGaInP	Brilliant Red	Water Claer
GH	InGaN	Green	
B1	InGaN	Blue	

Absolute Maximum Ratings (Ta=25℃)

Parameter	Blue	Green	Red	Units
Power dissipation	75	75	50	mW
DC Forward Current	24	24	24	mA
Peak Forward Current [1]	135	135	80	mA
Reverse Voltage	5	5	5	V
Operating/Storage Temperature	-40°C To +85°C			

Note:

1/10 Duty Cycle, 0.1ms Pulse Width.

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol		Min.	Typ.	Max.	Unit	Condition
Reverse Current	I_R		---	---	10	μA	V_R=5V
Viewing Angle	$2\theta_{1/2}$		---	120	---	deg	I_F=20mA
Forward Voltage	V_F	R6	1.8	---	2.2	V	I_F=20mA
		GH	2.8	---	3.2		
		B1	2.8	---	3.2		
Luminous Intensity	Iv	R6	100	---	200	mcd	I_F=20mA
		GH	400	---	600		
		B1	200	---	300		
Doninant Wavelength	λd	R6	615	---	630	nm	I_F=20mA
		GH	515	---	530		
		B1	455	---	470		

Notes:

1.Tolerance of Luminous Intensity ±10%.
2.Tolerance of Forward Voltage : ±0.1V.
3.Tolerance of Dominant Wavelength: ±1nm

Luminous Intensity Bin Limits

BIN Code	Test Condition @20mA	
UHR	Vfmin(v)	Vfmax (v)
1	1.8	2.0
2	2.0	2.2
DLG	Vfmin(v)	Vfmax (v)
1	2.8	3.0
2	3.0	3.2
DNB	Vfmin(v)	Vfmax (v)
1	2.8	3.0
2	3.0	3.2

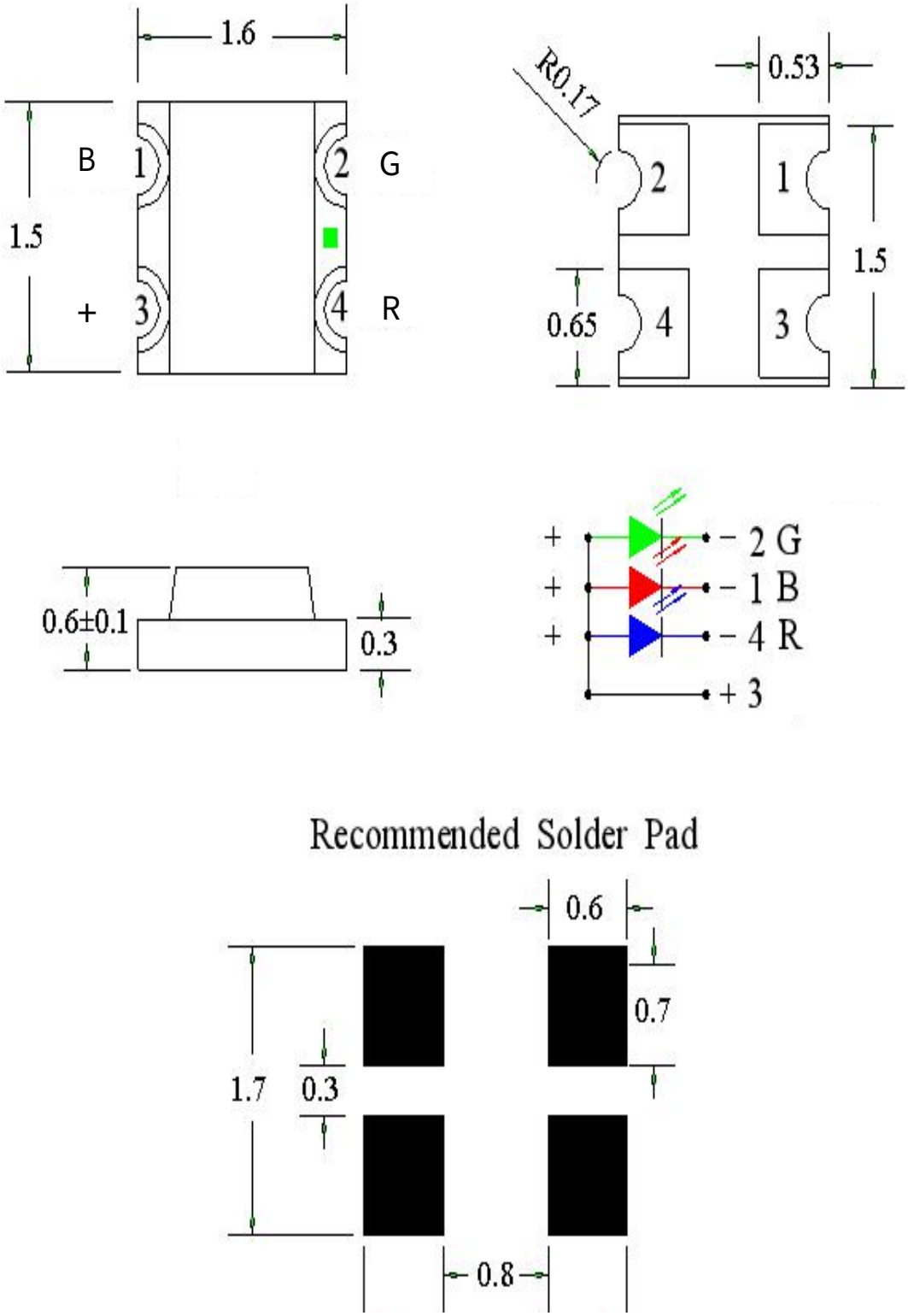
Dominant Wavelength BIN Limits

BIN Code	Test condition: @20mA	
UHR	λ_{dmin} (nm)	λ_{dmax} (nm)
1	615	620
2	620	625
3	625	630
DLG	λ_{dmin} (nm)	λ_{dmax} (nm)
1	515	520
2	520	525
3	525	530
DNB	λ_{dmin} (nm)	λ_{dmax} (nm)
1	455	460
2	460	465
3	465	470

Forward Voltage Bin Limits

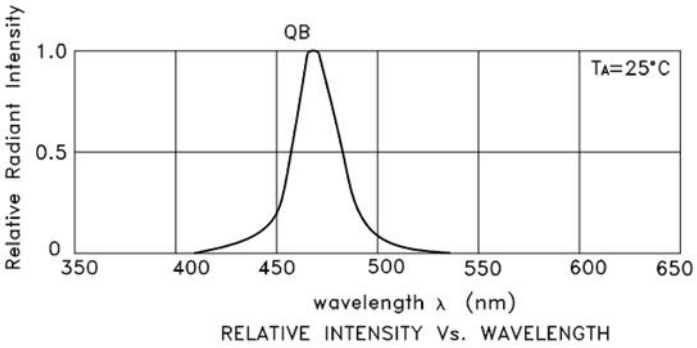
BIN Code	Test condition: @20mA	
UHR	IVmin(mcd)	IVmax (mcd)
R1	100	200
DLG	IVmin(mcd)	IVmax (mcd)
G1	400	600
DNB	IVmin(mcd)	IVmax (mcd)
B1	200	300

Package Dimensions

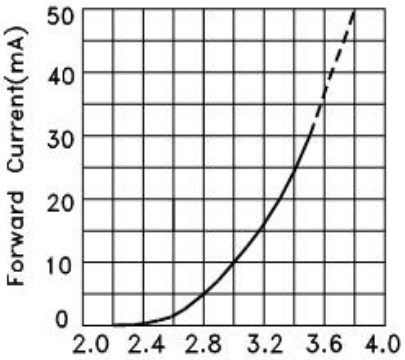


Note: Tolerance unless mentioned is ±0.1mm,Unit = mm.

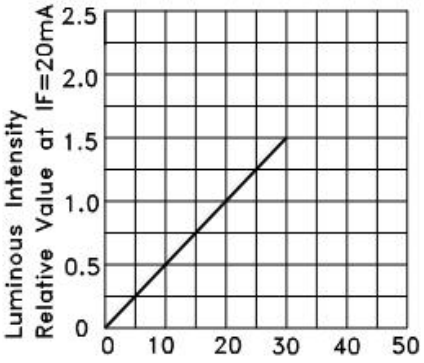
Blue



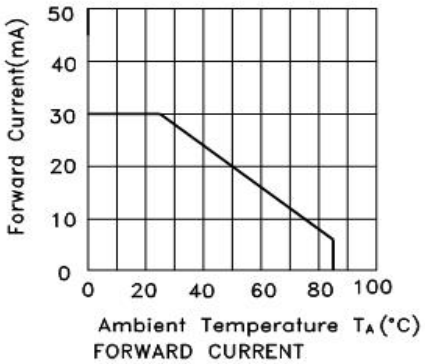
RELATIVE INTENSITY Vs. WAVELENGTH



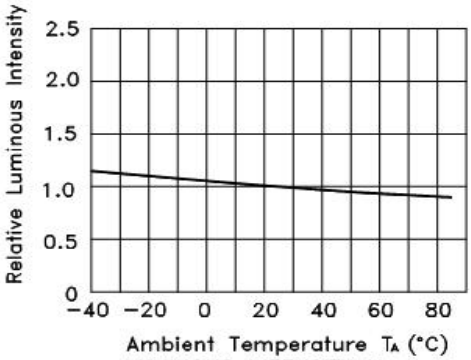
FORWARD CURRENT Vs.
FORWARD VOLTAGE



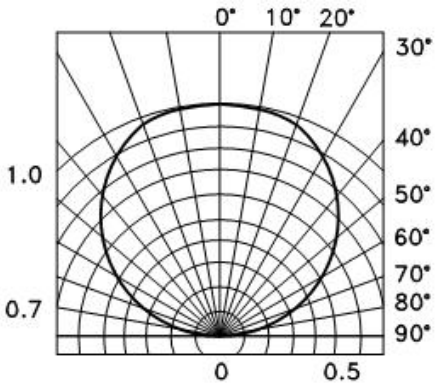
LUMINOUS INTENSITY Vs.
FORWARD CURRENT



FORWARD CURRENT
DERATING CURVE

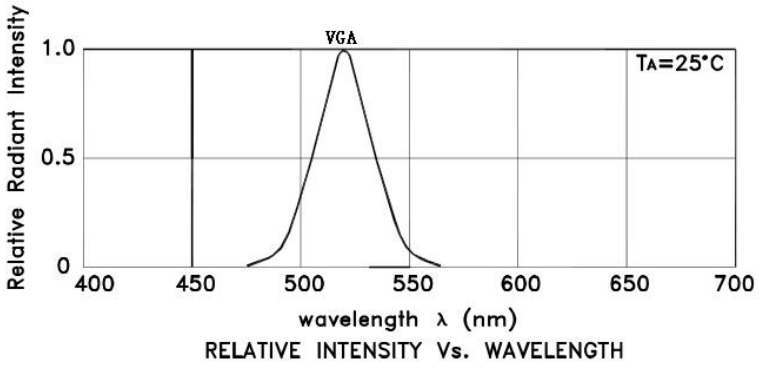


LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE

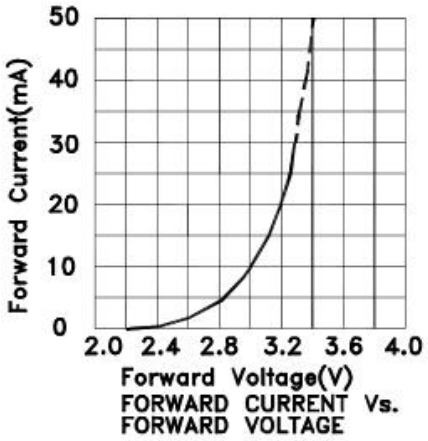


SPATIAL DISTRIBUTION

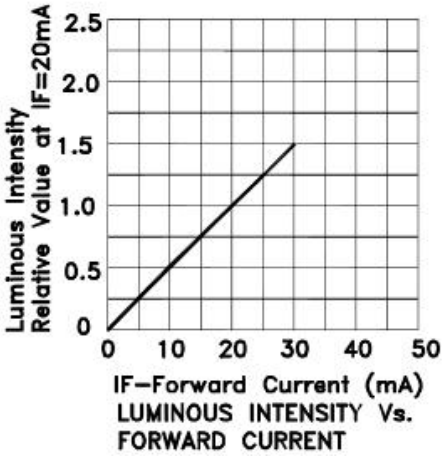
Green



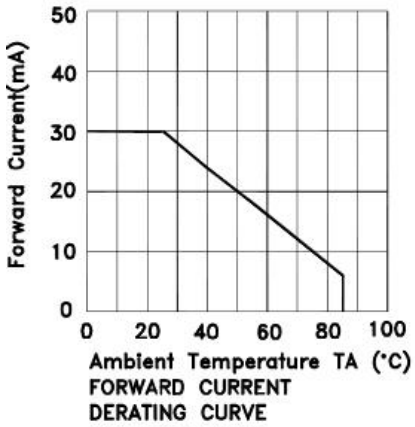
RELATIVE INTENSITY Vs. WAVELENGTH



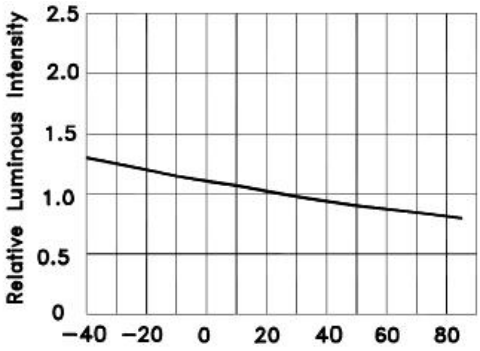
FORWARD CURRENT Vs. FORWARD VOLTAGE



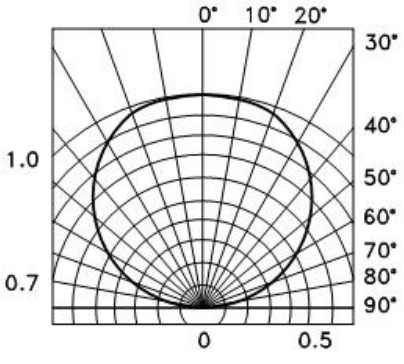
LUMINOUS INTENSITY Vs. FORWARD CURRENT



FORWARD CURRENT DERATING CURVE

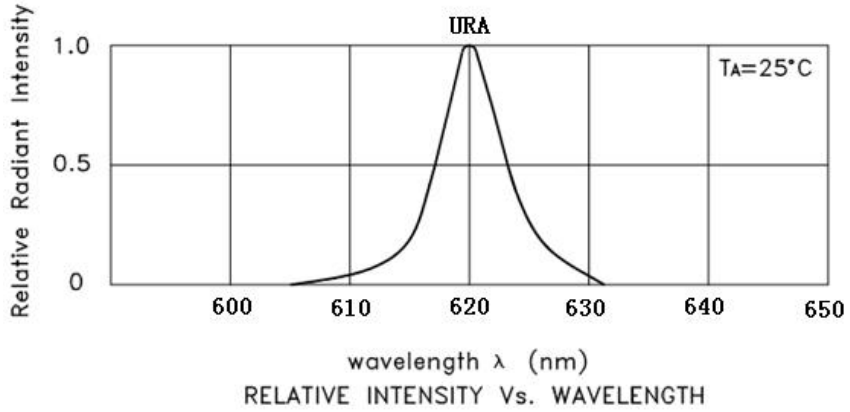


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

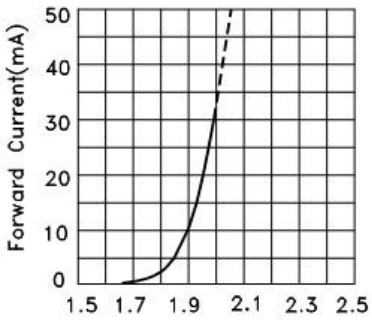


SPATIAL DISTRIBUTION

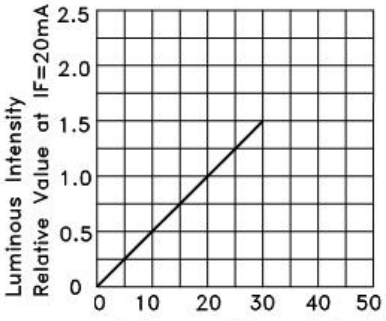
Red



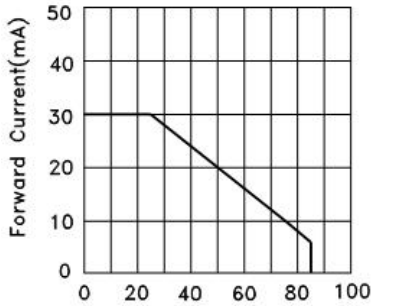
RELATIVE INTENSITY Vs. WAVELENGTH



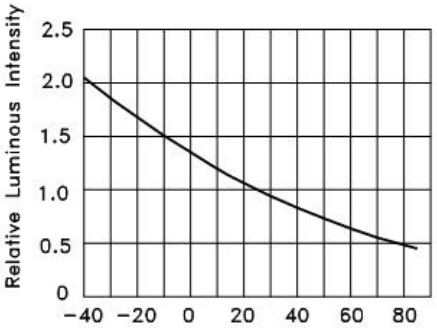
FORWARD CURRENT Vs.
FORWARD VOLTAGE



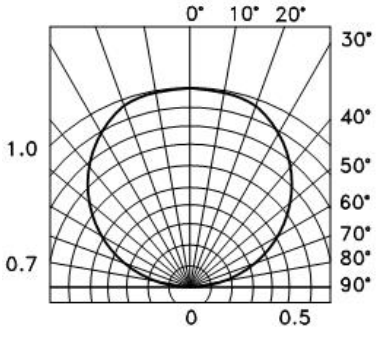
LUMINOUS INTENSITY Vs.
FORWARD CURRENT



FORWARD CURRENT
DERATING CURVE



LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE

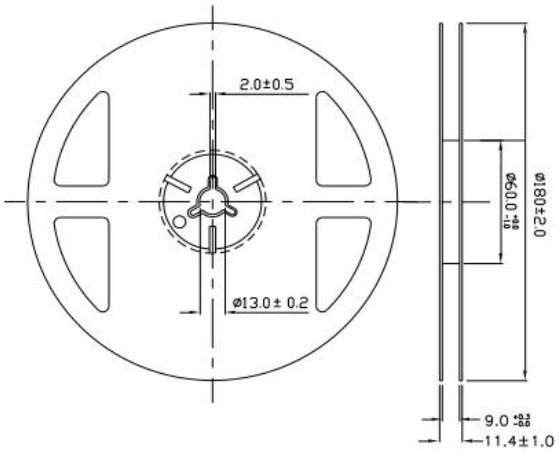


SPATIAL DISTRIBUTION

Label Form Specification

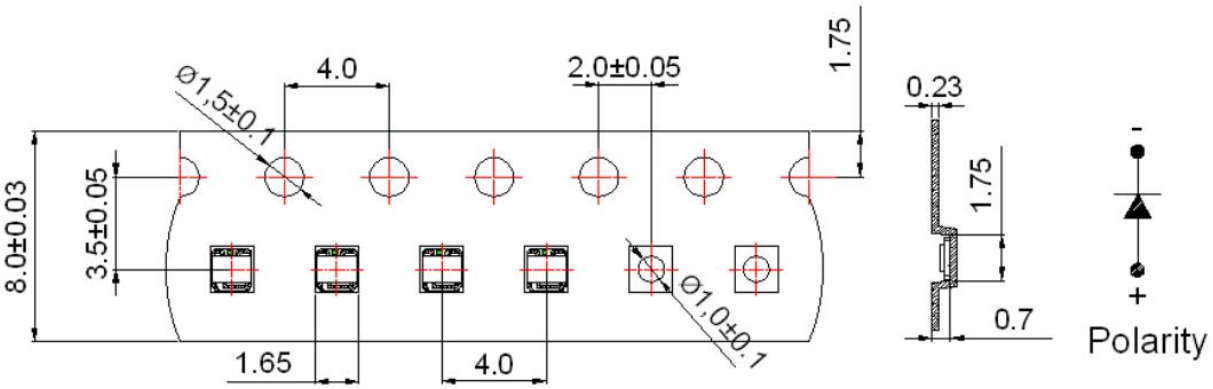
CPN: Customer's Production Number
P/N : Production Number
QTY: Packing Quantity
CAT: Ranks
HUE: Peak Wavelength
REF: Reference
LOT No: Lot Number

Reel Dimensions



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

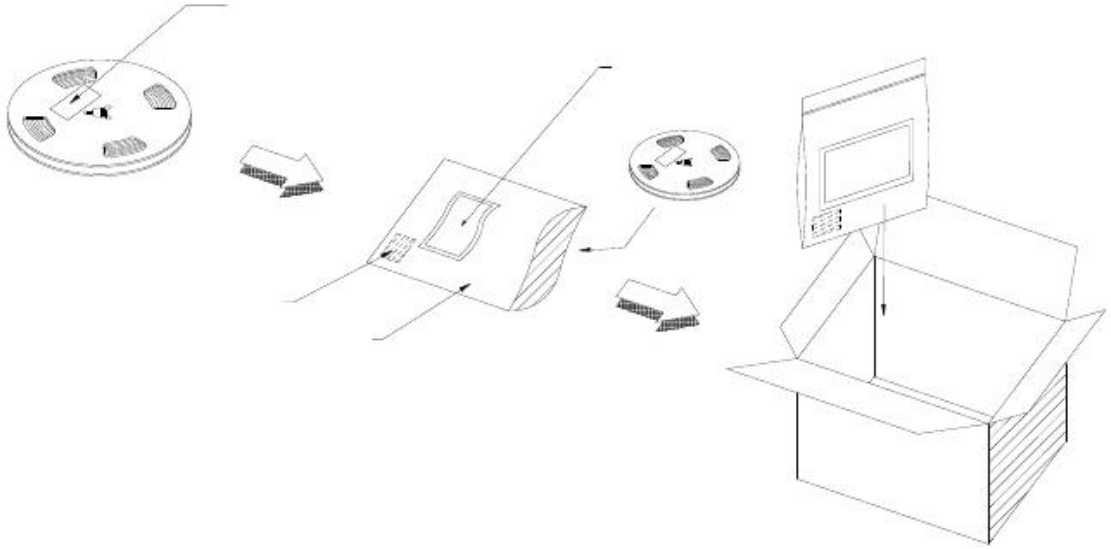
Carrier Tape Dimensions:(Quantity: 4000pcs/reel)



Note:

1.Tolerance unless mentioned is ±0.1mm,Unit = mm.
2.Minimum packing amount is 1000/2000 pcs per reel.

Moisture Resistant Packing Process



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℃/10sec.	6 Min	22 PCS	0/1
2	Thermal Shock	H : +100℃ 5min ∫ 10 sec L : -10℃ 5min	300 Cycles	22 PCS	0/1
3	Temperature Cycle	H : +100℃ 15min ∫ 5 min L : -40℃ 15min	300 Cycles	22 PCS	0/1
4	High Temperature/Humidity Reverse Bias	Ta=85℃,85%RH	1000 Hrs.	22 PCS	0/1
5	Low Temperature Storage	Ta=-40℃	1000 Hrs.	22 PCS	0/1
6	High Temperature Storage	Ta=100℃	1000 Hrs.	22 PCS	0/1
7	DC Operation Life	Ta=25℃ IF = 20 mA	1000 Hrs.	22 PCS	0/1

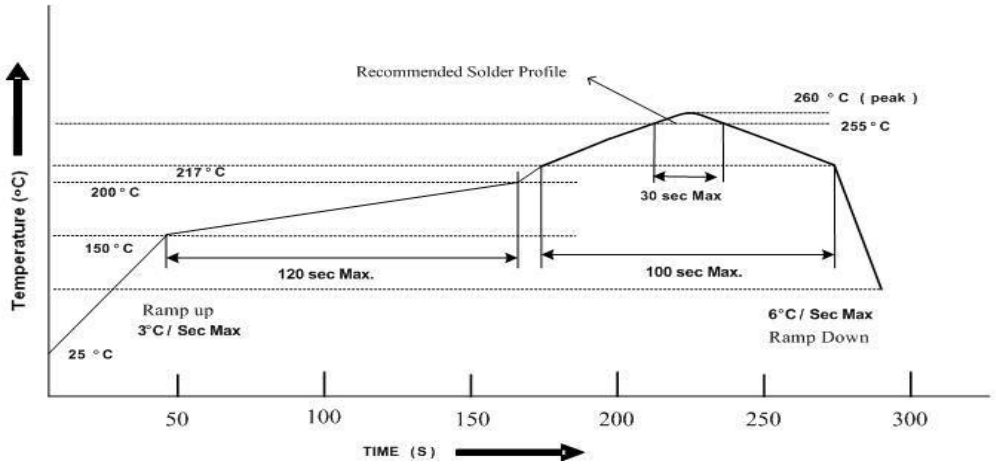
Precautions For Use

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 40℃ 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 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 J-STD-33 Standard.

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℃ 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.