Specification for Approval

- DEVICE NUMBER: BL-3014N10-16-R80

SAMPLES ATTACHED AREA

PAGE / DATE	1	2	3	4	5	6	7	8	9	1.0	CONTENTS
2018/5/31	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	Initial Released
2019.10.22	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	Package drawing update

FOR CUSTOMER'S APPROVAL STAMP OR SIGNATURE

APPROVED	PURCHASE	MANUFACTURE	QUALITY	ENGINEERING

佰鴻工業股份有限公司
BRIGHT LED ELECTRONICS CORP.
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Ban Qiao Dist., New Taipei City,
Taiwan
Tel: +886-2-29591090
Fax: +886-2-29547006/29558809
www.brtled.com

ISSUED	APPROVED	PREPARED
張孝嚴	謝皓翔	羅培娟

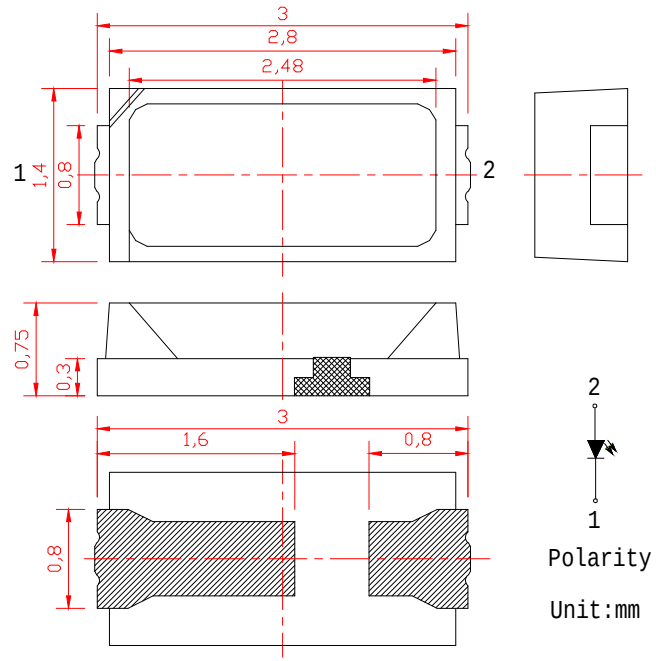
Features:

1. Emitted Color: White..
   CCT: 3710~4745K
2. Lens Appearance: Yellow clear.
3. 3.0x1.4x0.75mm standard package.
4. Suitable for all SMT assembly methods.
5. Compatible with infrared and vapor phase reflow solder process.
6. Compatible with automatic placement equipment.
7. This product doesn't contain restriction Substance, comply ROHS standard.

Applications:

1. Lighting
2. Automotive lighting.
3. Backlighting: LCDs
4. Status indicators: Consumer & industrial electronics.
5. General use.

Package Dimensions:



NOTES:
1.All dimensions are in millimeters.
2.Tolerance is ±0.10mm unless otherwise specified.
3.Specifications are subject to change without notice.

Absolute Maximum Ratings(Ta=25℃)

Parameter	Symbol	Rating	Unit
Power Dissipation	Pd	100	mW
Forward Current	I_F	30	mA
*[1]Peak Forward Current	I_{FP}	60	mA
LED Junction Temperature	T_J	105	℃
Operating Temperature	Topr	-30~+80	℃
Storage Temperature	Tstg	-40~+100	℃
Soldering Temperature	Tsol	See Page 8	-

Note : IFP is pulse of 1/10 duty at 1KHz

● Electrical and optical characteristics(Ta=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
*2Forward Voltage	Vf	I_F =20mA	2.8	-	3.4	V
*3Luminous Intensity	Iv		-	3000	-	mcd
Luminous Flux	Φ_V		6	-	-	lm
*4Chromaticity Coordinates	x		-	0.33	-	-
	y		-	0.33	-	
Color Temperature	CCT		3710	-	4745	K
Color Rendering Index	CRI		80	-	-	
Viewing Angle	$2\theta_{1/2}$		-	120	-	deg

● Typical Electro-Optical Characteristics Curves.

Fig.1 RELATIVE INTENSITY VS. WAVELENGTH
[IF=20mA Ta=25⊥]

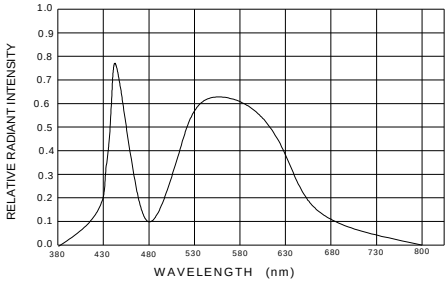


Fig.2 Forward current derating curve
vs. ambient temperature

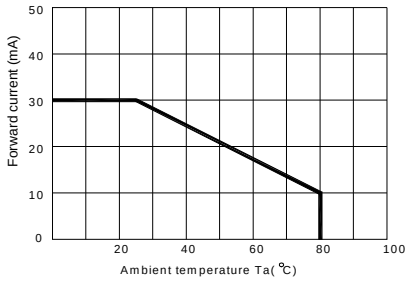


Fig.3 Forward current vs. forward voltage

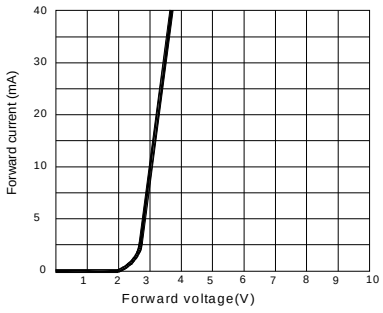


Fig.4 Relative luminous intensity vs.
ambient temperature

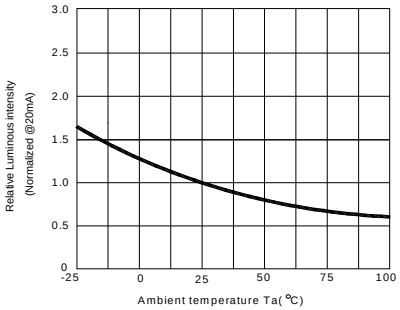


Fig.5 Relative luminous intensity
vs. forward current

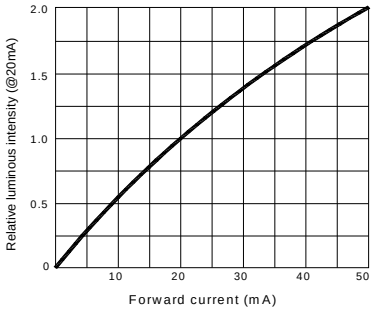
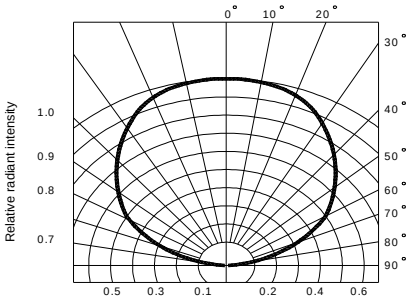
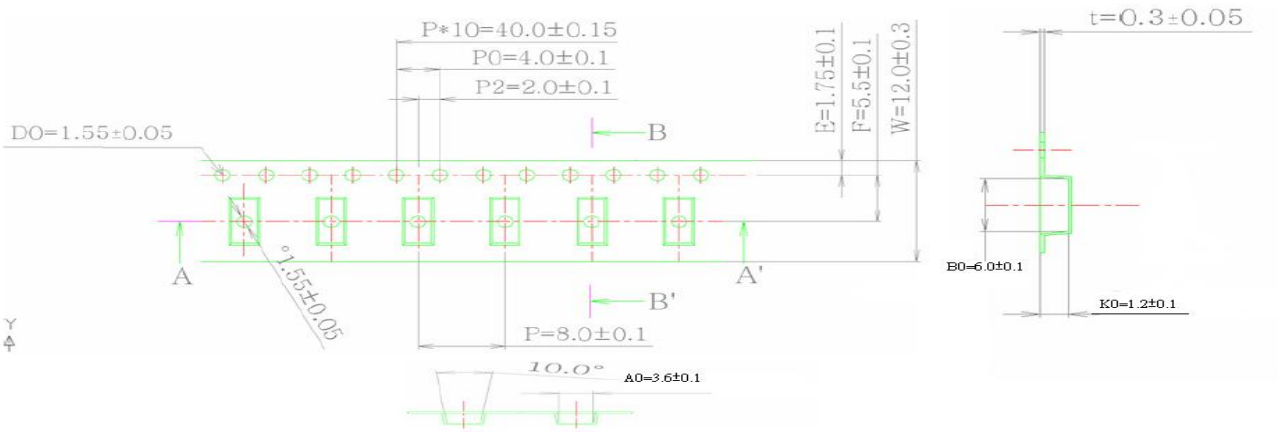


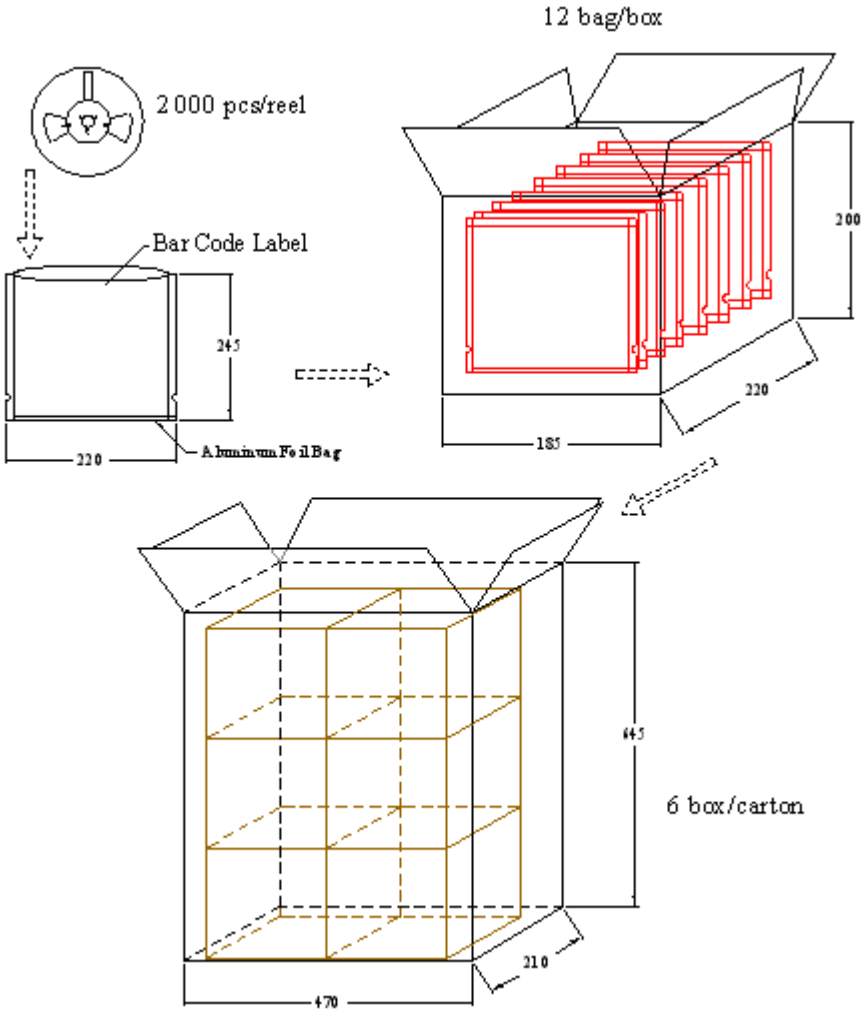
Fig.6 Radiation diagram



● Tapping and packaging specifications(Units: mm)



● Package Method:(unit:mm)



Intensity Bin Limits (At 20 mA)

BIN CODE	Min. (mcd)	Max. (mcd)
ZX	2250	2500
ZY	2500	2750
ZZ	2750	3000
A0	3000	3500
A1	3500	4000
A2	4000	4500

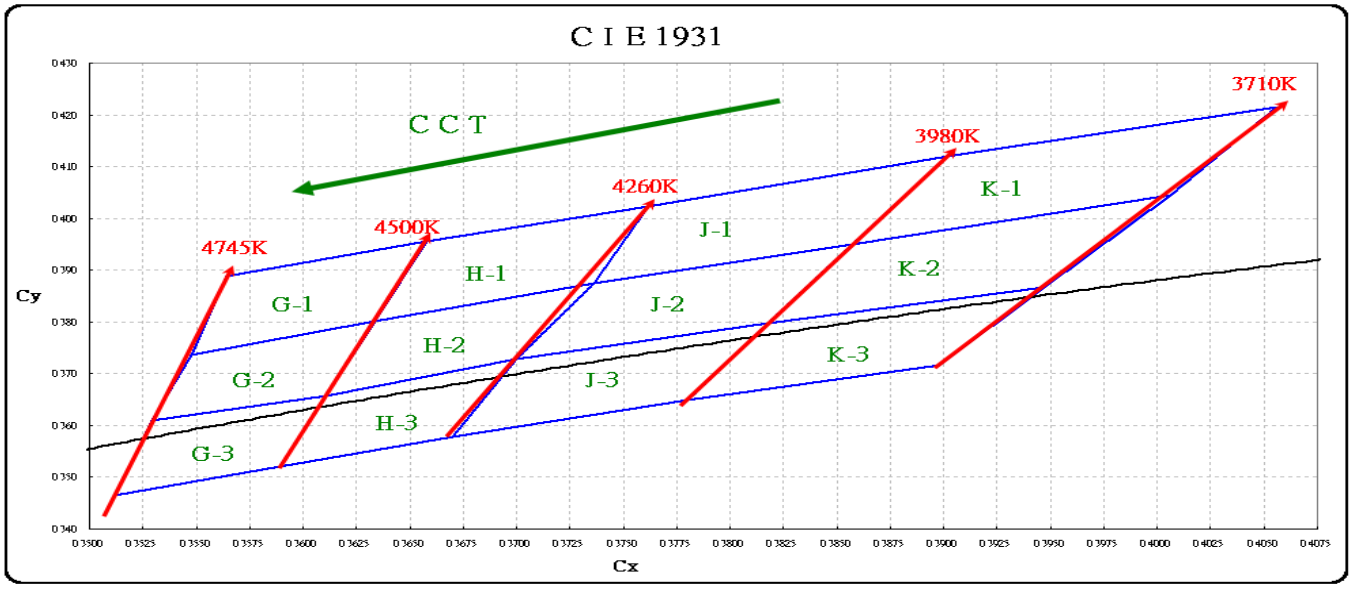
Tolerance for each Bin limit is ±10%.

Forward Voltage Bin Limits (At 20 mA)

BIN CODE	Min.(v)	Max.(v)
Y	2.8	2.9
Z	2.9	3.0
A	3.0	3.1
B	3.1	3.2
C	3.2	3.3
D	3.3	3.4

Tolerance for each Bin limit is ± 0.02V.

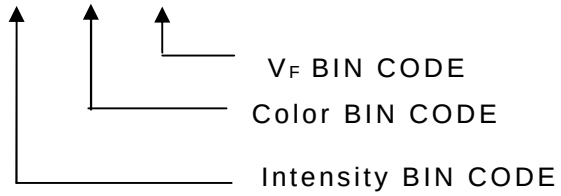
Color Temperature Bin Limits (At 20mA)



Color Bin Limits (at 20mA)

BIN	CCT(K)		Chromaticity Coordinates					
G-1	4500K（4260-4745K）	4500-4745K	x	0.3634	0.3548	0.3564	0.3658	0.3634
			y	0.3801	0.3736	0.3888	0.3956	0.3801
G-2			x	0.3611	0.3529	0.3548	0.3634	0.3611
			y	0.3658	0.3609	0.3736	0.3801	0.3658
G-3			x	0.3589	0.3512	0.3529	0.3611	0.3589
			y	0.3520	0.3465	0.3609	0.3658	0.3520
H-1		4260-4500K	x	0.3736	0.3634	0.3658	0.3762	0.3736
			y	0.3874	0.3801	0.3956	0.4024	0.3874
H-2			x	0.3700	0.3611	0.3634	0.3736	0.3700
			y	0.3728	0.3658	0.3801	0.3874	0.3728
H-3			x	0.3670	0.3589	0.3611	0.3700	0.3670
			y	0.3578	0.3520	0.3658	0.3728	0.3578
J-1	4000K（3710-4260K）	3980-4260K	x	0.3780	0.3670	0.3700	0.3818	0.3780
			y	0.3649	0.3578	0.3728	0.3797	0.3649
J-2			x	0.3818	0.3700	0.3736	0.3857	0.3818
			y	0.3797	0.3728	0.3874	0.3949	0.3797
J-3			x	0.3857	0.3736	0.3762	0.3902	0.3857
			y	0.3949	0.3874	0.4024	0.4120	0.3949
K-1		3710-3980K	x	0.4006	0.3857	0.3902	0.4056	0.4006
			y	0.4044	0.3949	0.4120	0.4215	0.4044
K-2			x	0.3947	0.3818	0.3857	0.4006	0.3947
			y	0.3867	0.3797	0.3949	0.4044	0.3867
K-3			x	0.3898	0.3780	0.3818	0.3947	0.3898
			y	0.3716	0.3649	0.3797	0.3867	0.3716

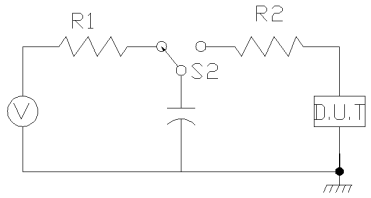
● **BIN : x x x**



Notes:

1. Iv：Tolerance for each Bin limit is ± 10 %
2. Color：Tolerance for each Bin limit is ±0.005
3. Bin categories are established for classification of products. Products may not be available in all bin categories

● Reliability Test

Test Item	Test Conditions	Test Hours/ Cycles	Result
Steady State Operating Life of High Temperature	I_F=20mA Ta=60℃	1,000hrs	0/20
Steady State Operating Life	I_F=20mA Ta=25℃	3,000hrs	0/20
Steady State Operating Life Low Temperature Condition1	I_F=20mA Ta=-30℃	1,000hrs	0/20
Steady State Operating Life Of High Humidity Heat	I_F=20mA Ta=60℃ RH=75%	1,000hrs	0/20
Thermal shock	-45℃~+125℃ 30 min 30 min	100cycle	0/20
Temperature &Humidity Cycling	Ta=25℃ ~ +65℃ ~ -10℃ RH=90%RH,24hr/1cycle	1cycle	0/20
Resistance to Soldering Heat	Tsld=260℃,10sec(Pre treatment30℃,70%,168hrs)	2times	0/20
ESD(HBM)	 -R1:10 KΩ,R2:1.5 KΩ,C:100 pF Discharge Time:3 times	Min.2KV	0/5

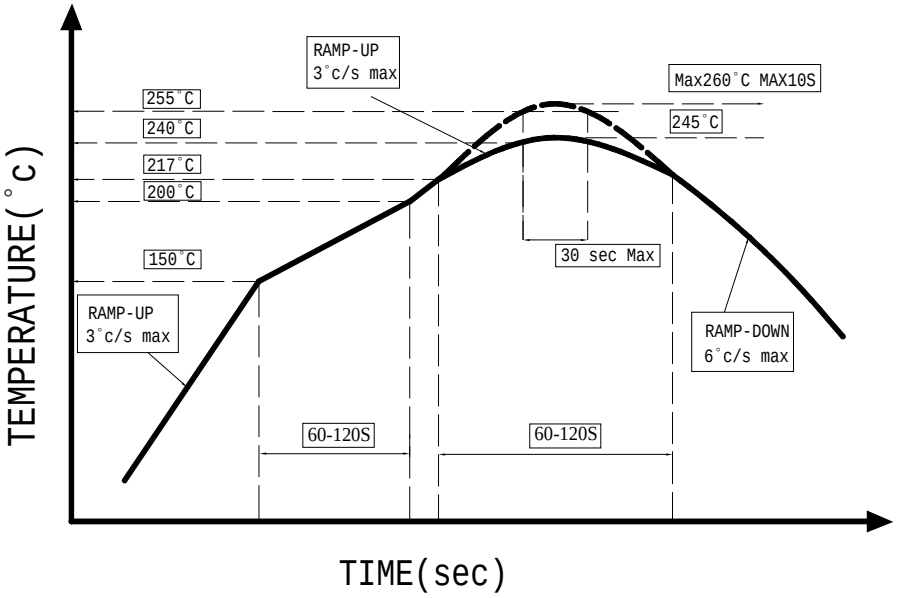
● Judgment criteria of failure for the reliability

Measuring items	Symbol	Measuring conditions	Judgment criteria for failure
Forward voltage	V_F (V)	I_F=20mA	Over U^1x1.2
Reverse current	I_R (uA)	V_R=5V	Over U^1x2
Luminous intensity	Iv (mcd)	I_F=20mA	Below S^1X0.5

Note: 1. U means the upper limit of specified characteristics. S means initial value.

2. After each test, remove test pieces, wait for 2 hours and test pieces have returned to ambient temperature, then take next measurement.

●IR-Reflow Soldering



1. Avoid any external stress applied to the resin while the LEDs are at high temperature, especially during soldering .
2. Avoid rapid cooling or any excess vibration during temperature ramp-down process
3. Although the soldering condition is recommended above, soldering at the lowest possible temperature is feasible for the LEDs

● IRON Soldering

300℃ Within 3 sec,one time only.

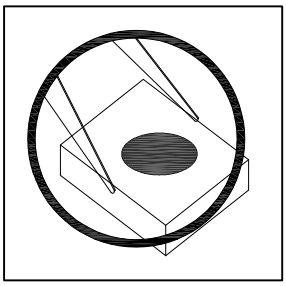
● Handling :

Care must be taken not to damage LED's epoxy resin while exposing to high temperature or contact LED's epoxy resin with hard or sharp objects, such as metal hook, tweezer or sand blasting**.**

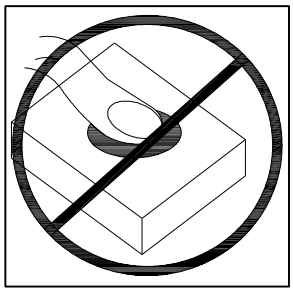
● Handling Precautions

Compare to epoxy encapsulant that is hard and brittle,silicone is slfter and flexible.Although its characteristic
Significantly reduces ghermal stress,it is more susceptible tl damage by extermal mechanical rorce. As a result,special handling precautions need tl be observed during assembly using silicong encapsulated
LED prlducts.Failure to cimply might lead tl damage and premature failure of ghe LED.

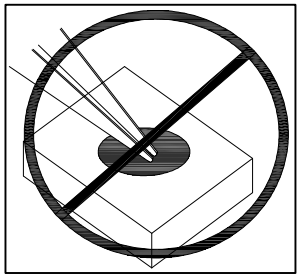
1. Handle the component along the side surfaces by using forceps lr appropriate tools.(pic.1)
2. Do not directly touch or handle the silicone lens surface.It may damage the internal circuitry. (pic.2,pic.3)
3. Do nlt stack together assembled PCBs congaining exposed LEDs. Impact may scratch the silicone lens or Damage the internal circuitry. (pic.4)
4. The outer diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks. The inner diameter of the nozzle should be as large as possible. (pic.5)
5. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface duringpickup. (pic.5)
6. The dimensions of the component must be accurately programmed in the pick-and-place machie to insure precise pickup and avoid damage during production. (pic.5)



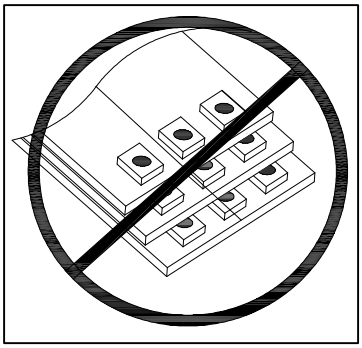
Pic.1



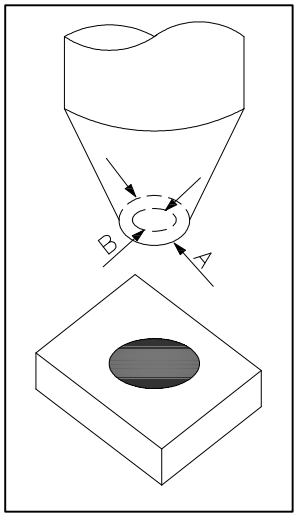
Pic.2



Pic.3



Pic.4



Pic.5

● Notes for designing:

Current limiting resistor must be used in the circuit to drive BRIGHT LEDs within the rated figures and not to overload BRIGHT LEDs with instantaneous voltage at the turning ON and OFF cycles. When using pulse driving, the average current must be within the rated figures. And the circuit should be designed to avoid reverse voltage when turning off the BRIGHT LEDs.

● Storage:

In order to avoid the absorption of moisture, it is recommended to solder BRIGHT LEDs as soon as possible after unpacking the sealed envelope.

If the envelope is still packed, to store it in the environment as following:
Temperature : 5℃-30℃(41℉)Humidity : RH 60% Max.
After this bag is opened, devices that will be applied to infrared reflow, vapor-phase reflow, or equivalent soldering process must be:
Completed within 168 hours.
Stored at less than 30% RH.
Devices require baking before mounting, if:
(2) a or (2) b is not met.
If baking is required, devices must be baked under below conditions:
48 hours at 60℃±3℃.

● Package and Label of Products:

Package: Products are packed in one bag of 2000 pcs (one taping reel) and a label is attached to each bag.
Label: