產 品 承 認 書

Product Approval Sheet

一.基本內容(INFORMATION)

客戶名稱(Customer Name)：
產品型號(Product Number)：BL-7020A10
料號信息(PN Information)：

客戶料號	參數要求				
	亮度 (mcd)	Φ V(lm)	色溫(CCT)	電壓 (V)	CRI (Ra)
	Min:30000	Min:60	4745~7040K	Max：3.4	70

二.供應商確認欄(SUPPLIER)

核准(Approved/Date)	審核(Check/Date)	製作(Prepared/Date)
張孝嚴 2015-8-13	張喜光 2015-8-13	熊燦芬 2015-8-13

三.客戶批准欄(CUSTOMER)

產品承認書批准處理：□同意 □拒絕 □其它_____

核准(Approved/Date)	審核(Check/Date)	研發/工程(R&D Dept/Date)

說明：請將已簽副本回覆我司
Please return to us one copy “PRODUCT ACKNOWLEDGEMENT SHEET” with your approved signatures!

佰鴻工業股份有限公司
BRIGHT LED ELECTRONICS CORP.
台北縣板橋市和平路 19 號 3 樓
3F., No. 19, Ho Ping Road, Pan Chiao City,
Taipei, Taiwan, R. O. C.
Tel: 886-2-29591090
Fax: 886-2-29547006/29558809
www.brtled.com.

Revision

Rev.	Date	History	Writer	Approved
1.0	2015-8-13	New SPEC	熊燦芬	張喜光

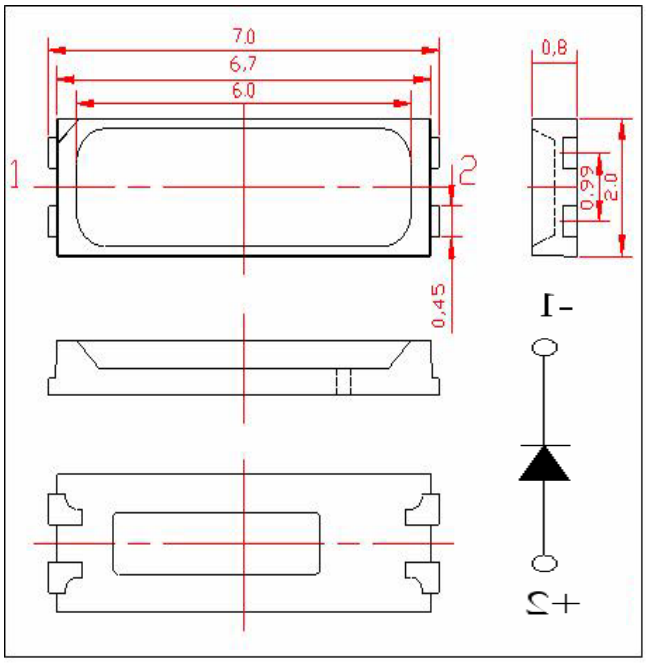
Features:

1. Emitted Color: White..
   CCT: 4745~7040K
2. Lens Appearance: Yellow clear.
3. 7.0*2.0*0.8mm 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	500	mW
Forward Current	I_F	180	mA
*[1]Peak Forward Current	I_{FP}	270	mA
LED Junction Temperature	T_J	115	℃
Operating Temperature	Topr	-30~+80	℃
Storage Temperature	Tstg	-40~+100	℃
Soldering Temperature	Tsol	See Page 9	-

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 =150mA	2.9	-	3.4	V
*3Luminous Intensity	Iv		30000	-	-	mcd
Luminous Flux	Φ_V		60	-	-	lm
*4Chromaticity Coordinates	x		-	0.33	-	-
	y		-	0.33	-	
Color Temperature	CCT		4745	-	7040	K
Color Rendering Index	CRI		-	70	-	
Viewing Angle	$2\theta_{1/2}$		-	120	-	deg

● Typical Electro-Optical Characteristics Curves.

Fig.1 RELATIVE INTENSITY VS. WAVELENGTH
[IF=150mA Ta=25⊥]

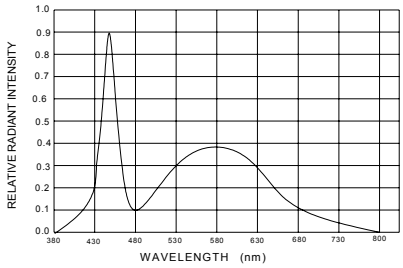


Fig.2 Forward current derating curve
vs. ambient temperature

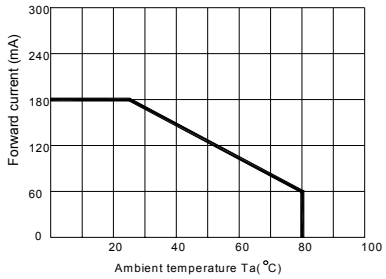


Fig.3 Forward current vs. forward voltage

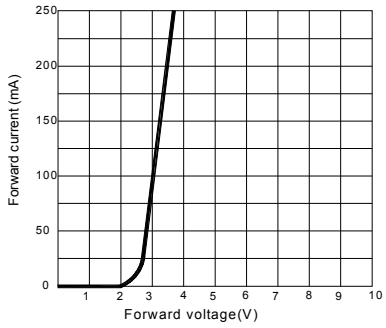


Fig.4 Relative luminous intensity vs.
ambient temperature

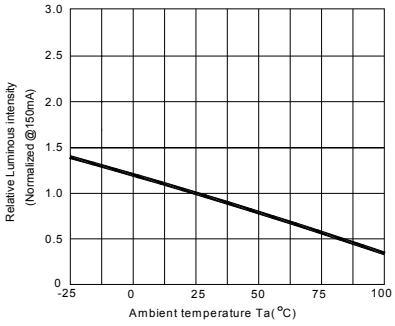


Fig.5 Relative luminous intensity
vs. forward current

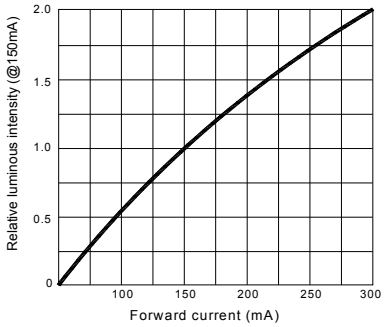
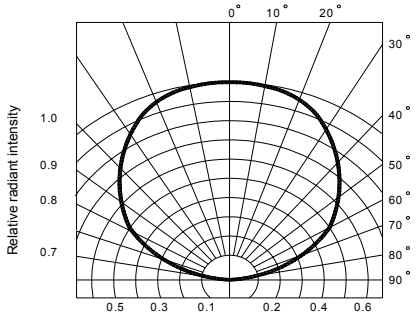
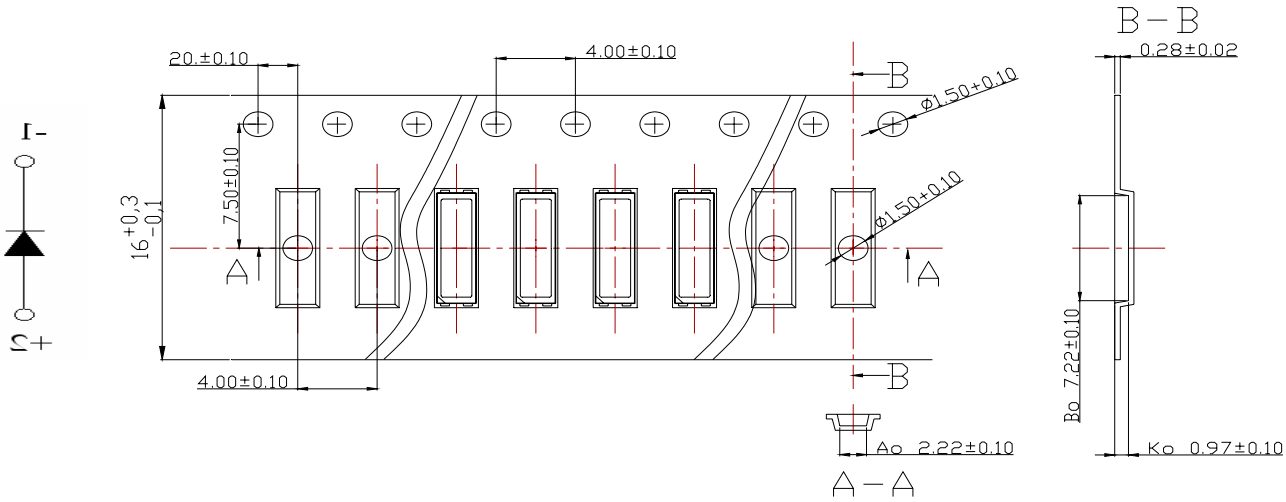


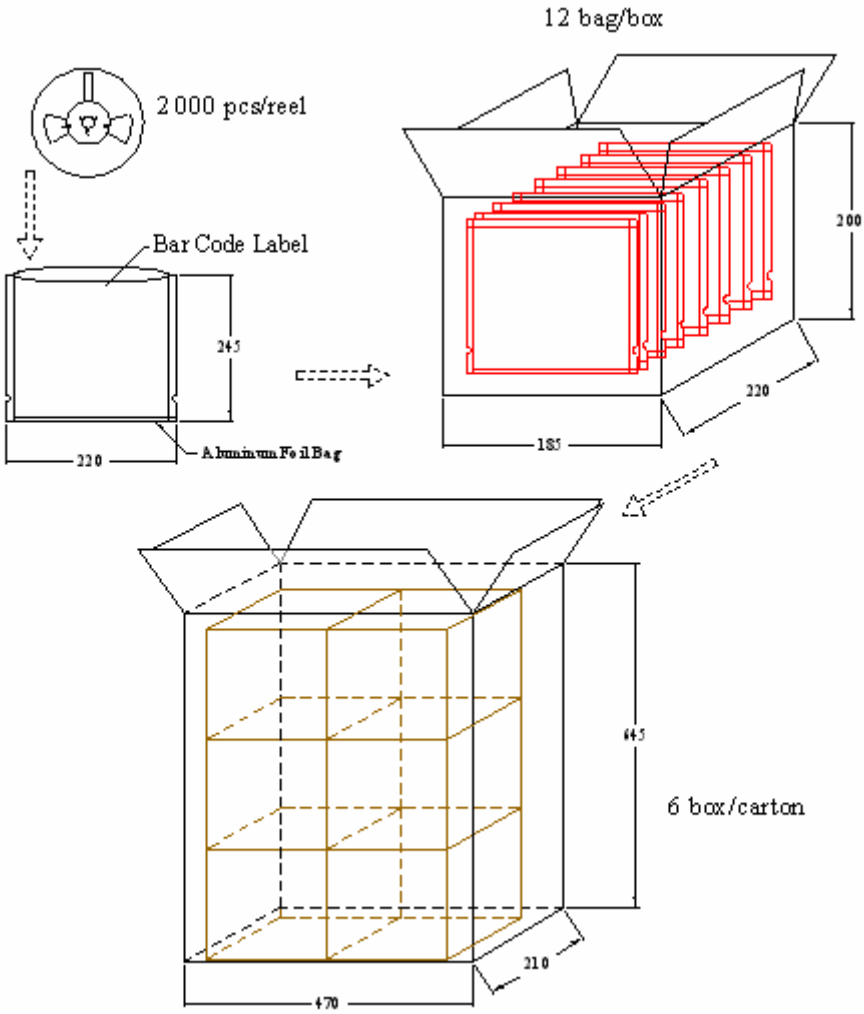
Fig.6 Radiation diagram



● Tapping and packaging specifications(Units: mm)



● Package Method:(unit:mm)



Intensity Bin Limits (At 150 mA)

BIN CODE	Min. (mcd)	Max. (mcd)	Min. (Lm)	Max. (Lm)
R	30000	32500	60	65
S	32500	35000	65	70
T	35000	37500	70	75

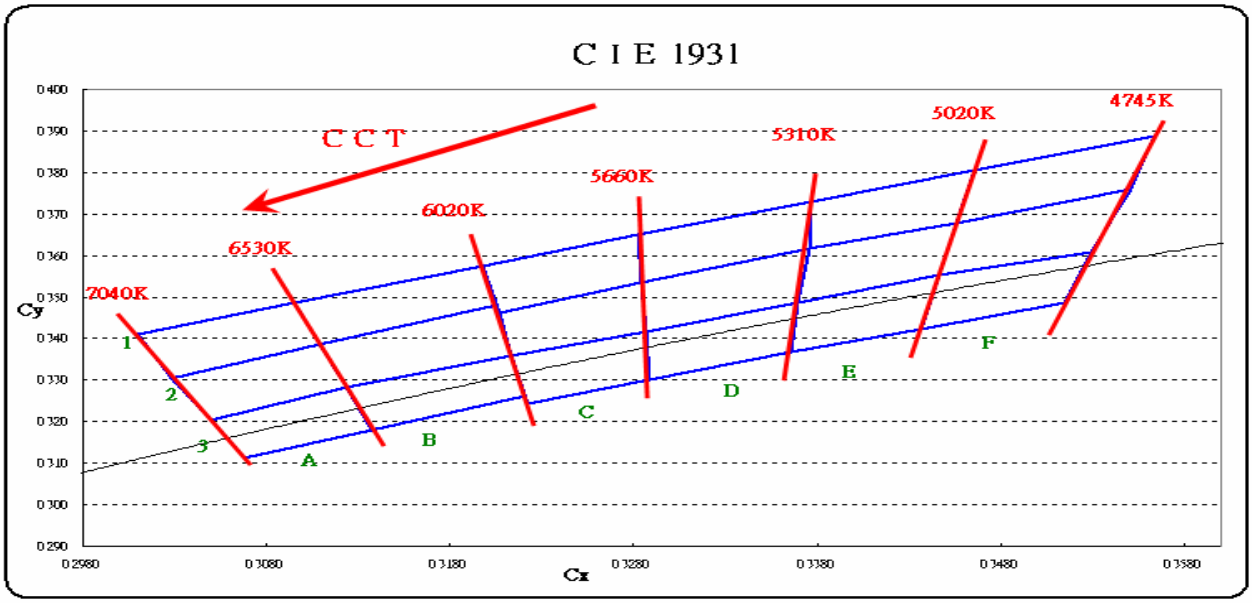
Tolerance for each Bin limit is ±10%.

Forward Voltage Bin Limits (At 150 mA)

BIN CODE	Min.(v)	Max.(v)
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 150mA)

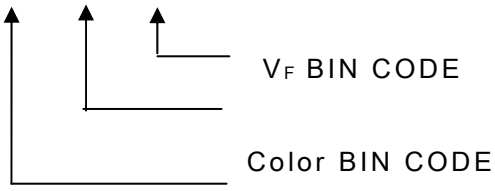


Color Bin Limits (at 150mA)

BIN	CCT(K)		Chromaticity Coordinates					
A-1	6500K (6020-7040K)	6530-7040K	x	0.3109	0.3028	0.3010	0.3095	0.3109
			y	0.3385	0.3304	0.3410	0.3485	0.3385
A-2			x	0.3123	0.3050	0.3028	0.3109	0.3123
			y	0.3283	0.3203	0.3304	0.3385	0.3283
A-3			x	0.3137	0.3068	0.3050	0.3123	0.3137
			y	0.3180	0.3113	0.3203	0.3283	0.3180
B-1		6020-6530K	x	0.3205	0.3109	0.3095	0.3198	0.3205
			y	0.3481	0.3385	0.3485	0.3575	0.3481
B-2			x	0.3213	0.3123	0.3109	0.3205	0.3213
			y	0.3360	0.3282	0.3385	0.3481	0.3360
B-3			x	0.3221	0.3137	0.3123	0.3213	0.3221
			y	0.3261	0.3180	0.3282	0.3360	0.3261

BIN	CCT(K)		Chromaticity Coordinates					
C-1	5700K（5310-6020K）	5660-6020K	x	0.3284	0.3207	0.3198	0.3282	0.3284
			y	0.3535	0.3462	0.3575	0.3650	0.3535
C-2			x	0.3287	0.3213	0.3207	0.3284	0.3287
			y	0.3417	0.3360	0.3462	0.3535	0.3417
C-3			x	0.3289	0.3222	0.3213	0.3287	0.3289
			y	0.3302	0.3243	0.3360	0.3417	0.3302
D-1		5310-5660K	x	0.3376	0.3284	0.3282	0.3377	0.3376
			y	0.3616	0.3535	0.3650	0.3730	0.3616
D-2			x	0.3369	0.3287	0.3284	0.3376	0.3369
			y	0.3485	0.3417	0.3535	0.3616	0.3485
D-3			x	0.3366	0.3289	0.3287	0.3369	0.3366
			y	0.3369	0.3302	0.3417	0.3485	0.3369
E-1	5000K（4745-5310K）	5020-5310K	x	0.3456	0.3376	0.3377	0.3466	0.3456
			y	0.3678	0.3616	0.3730	0.3806	0.3678
E-2			x	0.3447	0.3369	0.3376	0.3456	0.3447
			y	0.3553	0.3485	0.3616	0.3678	0.3553
E-3			x	0.3437	0.3366	0.3369	0.3447	0.3437
			y	0.3424	0.3369	0.3485	0.3553	0.3424
F-1		4745-5020K	x	0.3551	0.3456	0.3466	0.3564	0.3551
			y	0.3760	0.3678	0.3806	0.3888	0.3760
F-2			x	0.3529	0.3447	0.3456	0.3551	0.3529
			y	0.3609	0.3553	0.3678	0.3760	0.3609
F-3			x	0.3515	0.3437	0.3447	0.3529	0.3515
			y	0.3487	0.3424	0.3553	0.3609	0.3487

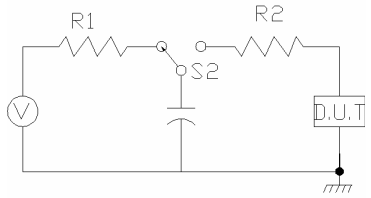
● **BIN : x x x**



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=150mA Ta=60℃	1,000hrs	0/20
Steady State Operating Life	I_F=150mA Ta=25℃	3,000hrs	0/20
Steady State Operating Life Low Temperature Condition1	I_F=150mA Ta=-30℃	1,000hrs	0/20
Steady State Operating Life Of High Humidity Heat	I_F=150mA 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

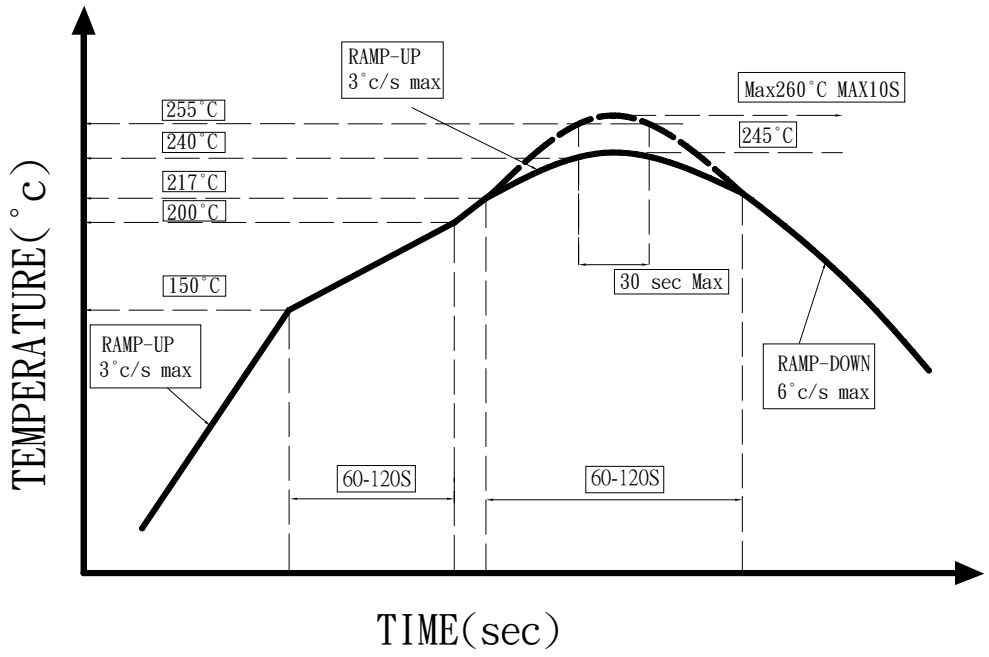
● Judgment criteria of failure for the reliability

Measuring items	Symbol	Measuring conditions	Judgment criteria for failure
Forward voltage	V_F (V)	I_F=150mA	Over U^1x1.2
Reverse current	I_R (uA)	V_R=5V	Over U^1x2
Luminous intensity	Iv (mcd)	I_F=150mA	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**



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

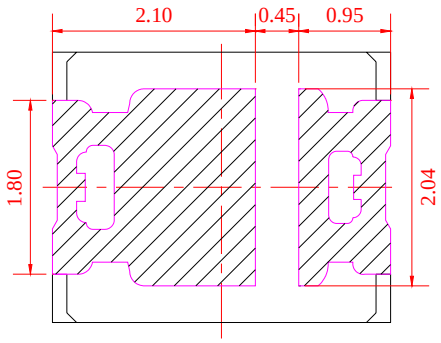
3、Although the soldering condition is recommended above,
soldering at the lowest possible temperature is feasible for the LEDs

●IRON Soldering

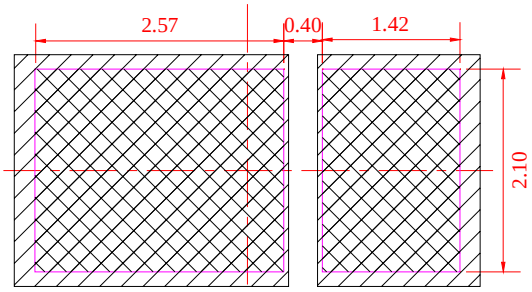
300℃ Within 3 sec, one time only.

● Recommended Soldering Pattern (Unit:mm)

Front View



Solder Pad



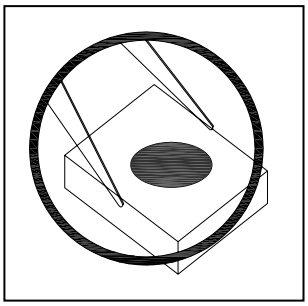
● Handling :

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.

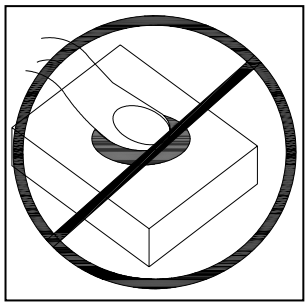
Handling Precautions

Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force.
As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might lead to damage and premature failure of the LED.

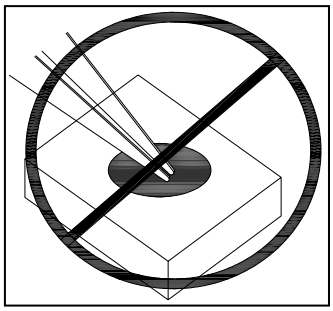
1. Handle the component along the side surfaces by using forceps or appropriate tools.(pic.1)
2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry. (pic.2,pic.3)
3. Do not stack together assembled PCBs, containing exposed LEDs. Impact may scratch the silicone 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 during pickup. (pic.5)
6. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production. (pic.5)



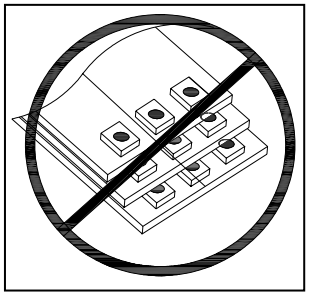
Pic.1



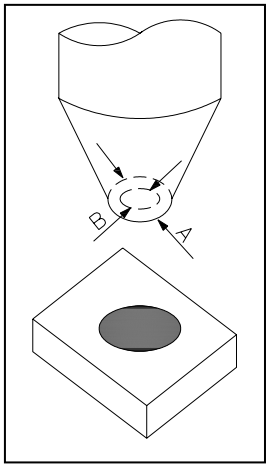
Pic.2



Pic.3



Pic.4



Pic.5

Notes for designing:

Care must be taken to provide the current limiting resistor in the circuit so as to drive the LEDs within the rated figures. Also, caution should be taken not to overload LEDs with instantaneous voltage at the turning ON and OFF of the circuit.

When using the pulse drive care must be taken to keep the average current within the rated figures. Also, the circuit should be designed so as be subjected to reverse voltage when turning off the LEDs.

Storage:

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

If the envelope is still packed, to store it in the environment as following:
(1) Temperature : 5℃-30℃(41℉)Humidity : RH 60% Max.
(2) After this bag is opened, devices that will be applied to infrared reflow, vapor-phase reflow, or equivalent soldering process must be:
a. Completed within 168 hours.
b. Stored at less than 30% RH.
(3) Devices require baking before mounting, if:
2a or 2b is not met.
(4) 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: