SPECIFICATIONS

MODEL	BLUE OVAL LAMP LED
PART NO.	LB700D

[Contents]

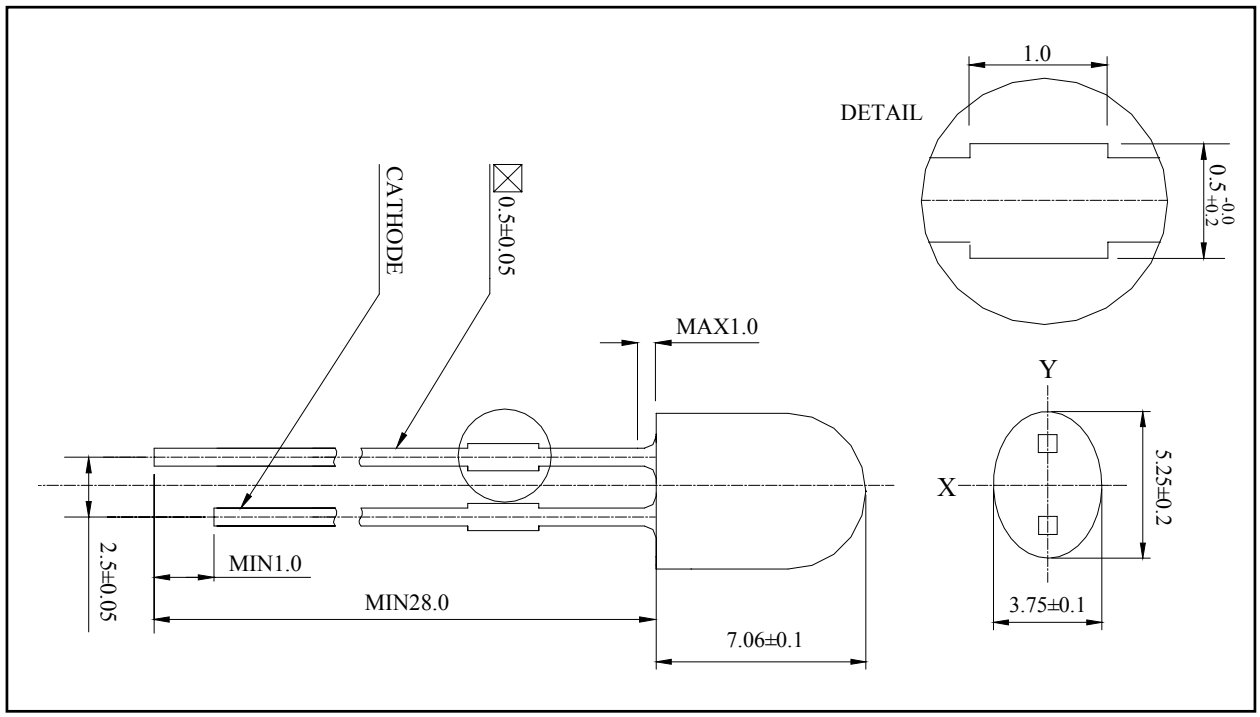
1. Devices ---------- 2
2. Outline Dimensions ---------- 2
3. Absolute Maximum Ratings ---------- 3
4. Electro-Optical Characteristics ---------- 4
5. Reliability Tests ---------- 5
6. Characteristic Diagrams ---------- 6
7. Bin Code Description ---------- 8
8. Packing ---------- 9
9. Soldering Profile ---------- 12
10. Reference ---------- 13
11. Precaution For Use ---------- 14

SEOUL SEMICONDUCTOR CO., LTD.
148-29, Kasan-Dong, Keumchun-Gu, Seoul, Korea
TEL : 82-2-3281-6269 FAX : 82-2-857-5430

1. DEVICES

Part Number	Lens		Source	
	Color	Diffusion	Dice Source	Color
LB700D	Blue	Diffused	InGaN	Blue

2. OUTLINE DEMENSIONS



Notes : 1. All dimensions are in millimeters.

2. Protruded epoxy is 1.0mm maximum.

SEOUL SEMICONDUCTOR CO., LTD.

148-29, Kasan-Dong, Keumchun-Gu, Seoul, Korea

TEL : 82-2-3281-6269 FAX : 82-2-857-5430

3. ABSOLUTE MAXIMUM RATINGS (at T_a = 25ºC)

Item	Symbol	Value	Unit
DC Forward Current	I_F	30	mA
Forward Peak Pulse Current	I_{FP} [1]	100	mA
Reverse Voltage	V_R	5	V
Power Dissipation	P_D	125	mW
Operating Temperature	T_{opr}	-30 ~ 85	ºC
Storage Temperature	T_{stg}	-40 ~ 100	ºC
Solder Temperature	T_S	260 ºC for 10 second [2]	ºC

Notes : 1. $t \leq 0.1$ms, $D = 1/10$
2. 3mm bellow seating plane

SEOUL SEMICONDUCTOR CO., LTD.
148-29, Kasan-Dong, Keumchun-Gu, Seoul, Korea
TEL : 82-2-3281-6269 FAX : 82-2-857-5430

4. ELECTRO-OPTICAL CHARACTERISTICS (at I_F = 20mA, T_a = 25°C)

Item	Symbol	Value			Unit
		Min.	Typ.	Max.	
Luminous Intensity [1]	I_V	300	500	-	Mcd
Dominant Wavelength	λ_d	464	470	476	nm
Forward Voltage	V_F	-	3.6	4.0	V
View Angle	$2\theta_{1/2}$	100/50			deg.
Reverse Current (at V_R = 5V)	I_R	-	-	5	μA

Note : 1. Luminous Intensity Tolerance ± 10%

SEOUL SEMICONDUCTOR CO., LTD.
148-29, Kasan-Dong, Keumchun-Gu, Seoul, Korea
TEL : 82-2-3281-6269 FAX : 82-2-857-5430

5. RELIABILITY TESTS

Item	Condition	Note	Failures
Life Test	T_a = RT, I_F = 30mA	1000hrs	0/22
High Temperature Operating	T_a = 85ºC, I_F = 8mA	1000hrs	0/22
Low Temperature Operating	T_a = -30ºC, I_F = 20mA	1000hrs	0/22
Thermal Shock	T_a = -40ºC (30min) ~ 100º (30min) (Transfer time : 5sec, 1Cycle = 1hr)	100cycles	0/50
Resistance to soldering Heat	T_s = 255 ± 5ºC, t = 10sec	1 time	0/22
ESD (Human Body Model)	1kV, 1.5kΩ ; 100pF	1 time	0/22
High Temperature Storage	T_a = 100ºC	1000hrs	0/22
Low Temperature Storage	T_a = -40ºC	1000hrs	0/22
Temperature Humidity Storage	T_a = 85ºC, RH = 85%	1000hrs	0/22
Temperature Humidity Operating	T_a = 85ºC, RH = 85% I_F = 8mA	100hrs	0/22

< Judging Criteria For Reliability Tests >

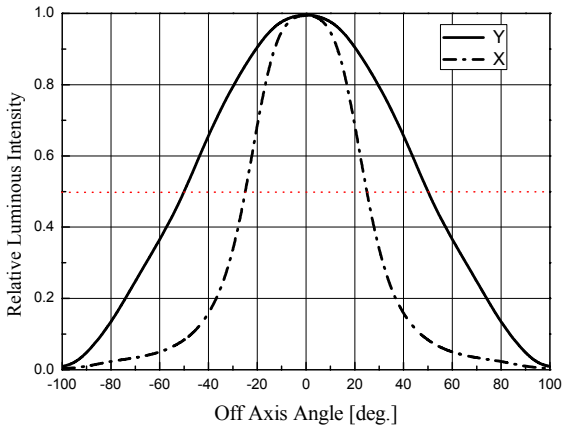
V_F	USL [1] X 1.2
I_R	USL X 2.0
I_V	LSL [2] X 0.5

Notes : 1. USL : Upper Standard Level 2. LSL : Lower Standard Level.

SEOUL SEMICONDUCTOR CO., LTD.
148-29, Kasan-Dong, Keumchun-Gu, Seoul, Korea
TEL : 82-2-3281-6269 FAX : 82-2-857-5430

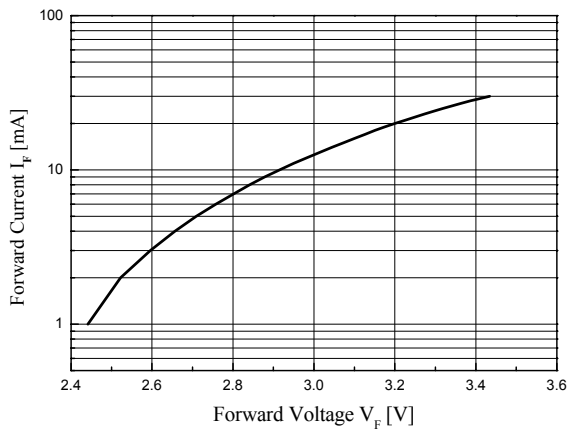
6. CHARACTERISTIC DIAGRAMS

$I_{rel} = f(\theta)$, T_a= 25ºC



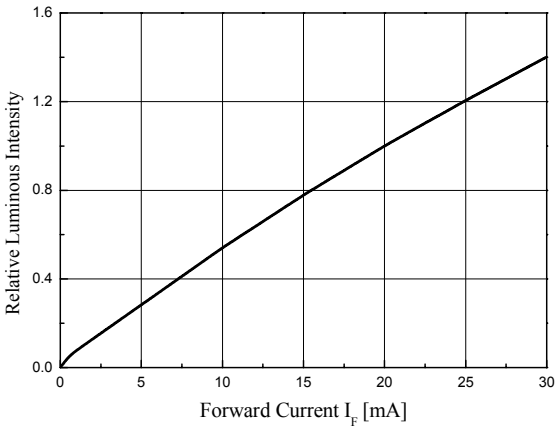
Off Axis Angle vs. Relative Intensity

$I_F = f(V_F)$, T_a= 25ºC



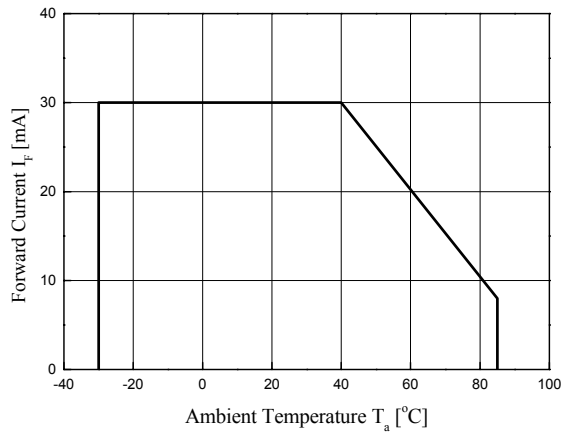
Forward Voltage vs. Forward Current

$I_V = f(I_F)$, T_a= 25ºC



Forward Current vs. Relative Intensity

$I_F = f(T_a)$, T_a= 25ºC



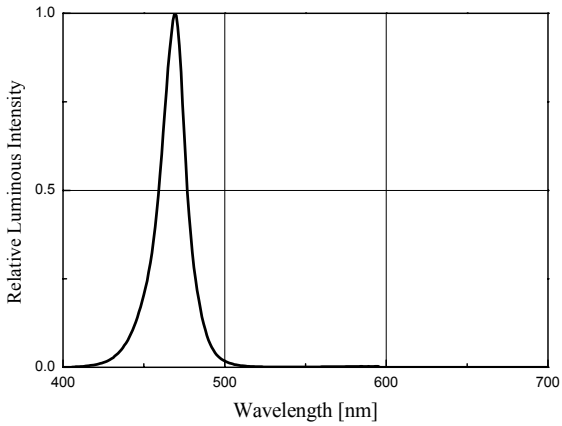
Ambient Temperature vs. Forward Current

SEOUL SEMICONDUCTOR CO., LTD.

148-29, Kasan-Dong, Keumchun-Gu, Seoul, Korea

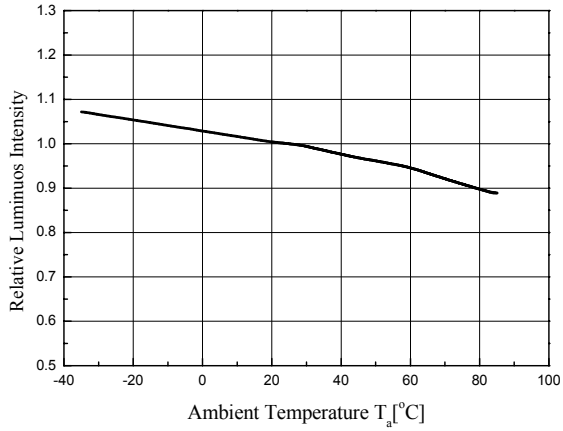
TEL : 82-2-3281-6269 FAX : 82-2-857-5430

$I_{rel} = f(\lambda_d)$, T_A= 25ºC, I_F= 20mA



Wavelength vs. Relative Intensity

$I_V / I_{V(25C)} = f(T_A)$, I_F= 20mA



Ambient Temperature vs. Relative Intensity

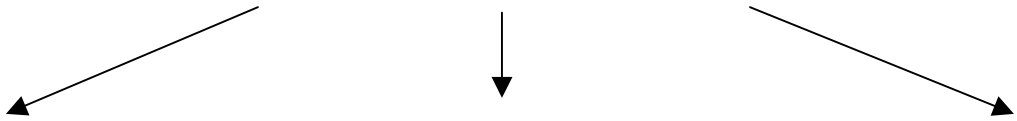
SEOUL SEMICONDUCTOR CO., LTD.

148-29, Kasan-Dong, Keumchun-Gu, Seoul, Korea

TEL : 82-2-3281-6269 FAX : 82-2-857-5430

7. BIN CODE DESCRIPTION

BIN CODE		
Intensity	Color Ranks	Forward Voltage
T	1	2



Intensity (mcd) @ I_F = 20mA		
BIN CODE	Min.	Max.
S	300	450
T	450	600
U	600	800

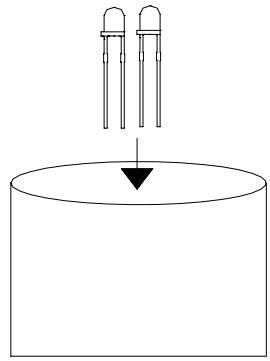
Dominant Wavelength (nm) @ I_F = 20mA		
BIN CODE	Min.	Max.
1	464	470
2	470	476

Forward Voltage (V) @ I_F = 20mA		
BIN CODE	Min.	Max.
0	3.0	3.2
1	3.2	3.4
2	3.4	3.6
3	3.6	3.8
4	3.8	4.0

SEOUL SEMICONDUCTOR CO., LTD.
148-29, Kasan-Dong, Keumchun-Gu, Seoul, Korea
TEL : 82-2-3281-6269 FAX : 82-2-857-5430

8. PACKING

1) Bulk Packing



(1) Antistatic poly vinyl bag apply

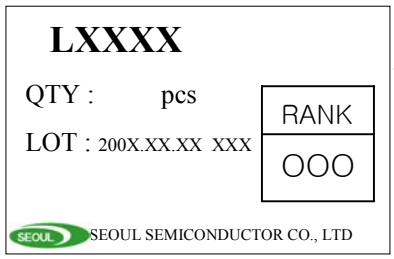
Poly bag:

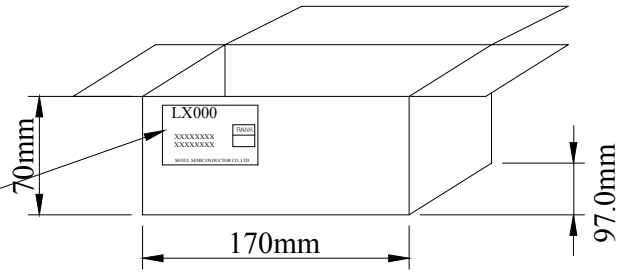
5ϕ Lamp Series : 500pcs

3ϕ Lamp Series : 500pcs

(2) Inner box structure

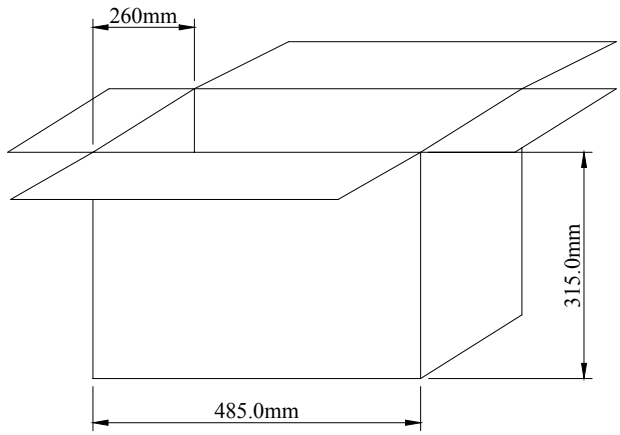
Box : 2 poly bags





(3) Outer box structure

Box : 27 boxes

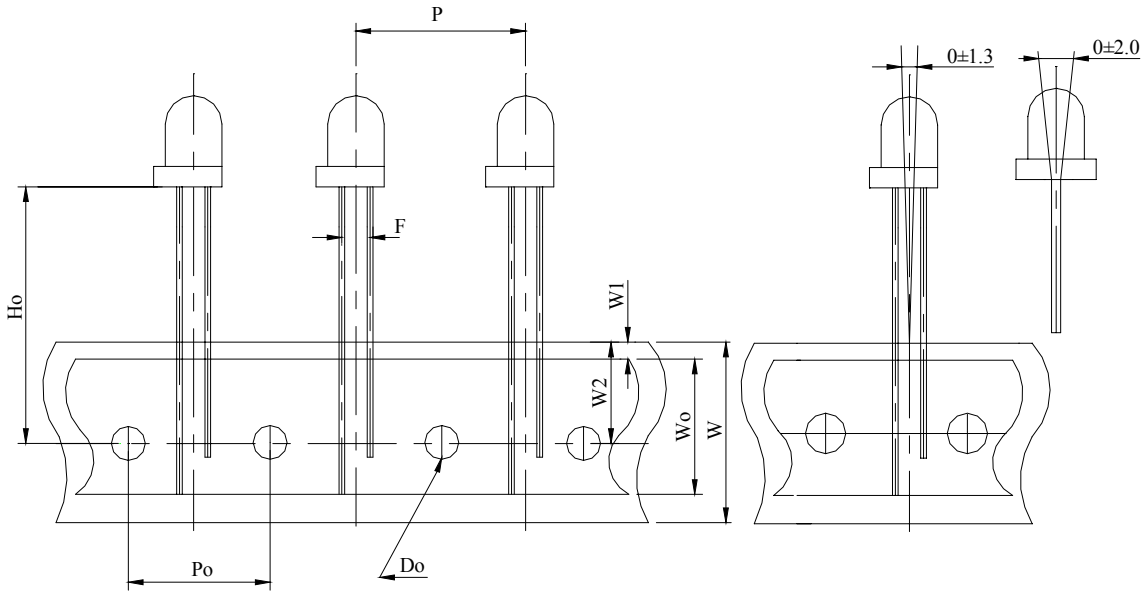


SEOUL SEMICONDUCTOR CO., LTD.

148-29, Kasan-Dong, Keumchun-Gu, Seoul, Korea

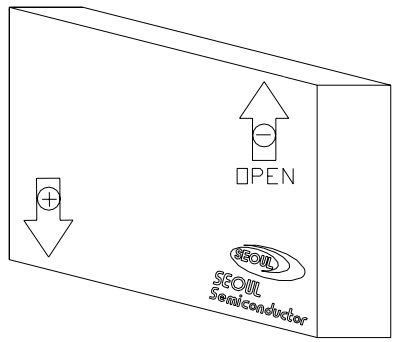
TEL : 82-2-3281-6269 FAX : 82-2-857-5430

2) Tapping Outline Dimensions



Package Dimensions (unit : *mm*)			
Ho*		P	12.7±0.5
W	18.0 $^{+1.0}_{-0.5}$	Po	12.7±0.3
Wo	13.0±0.3	F	5.0±0.5
W1	1.0±0.5	Do	ϕ4.0±0.5
W2	9.0±0.5		

* Remark : Ho - users define.



1 Box contain quantity.

* 3ϕ Lamp Series : 3000pcs

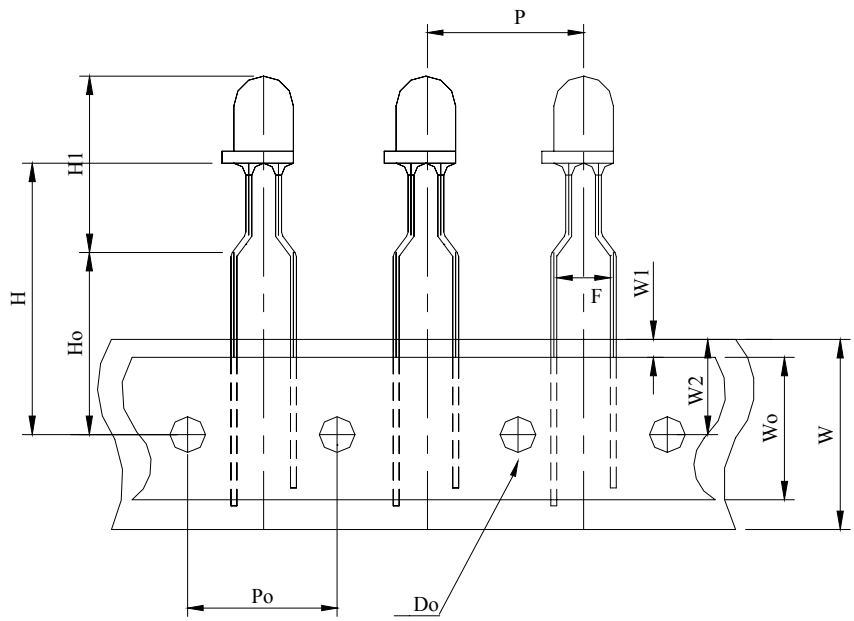
* 5ϕ Lamp Series : 2000pcs

SEOUL SEMICONDUCTOR CO., LTD.

148-29, Kasan-Dong, Keumchun-Gu, Seoul, Korea

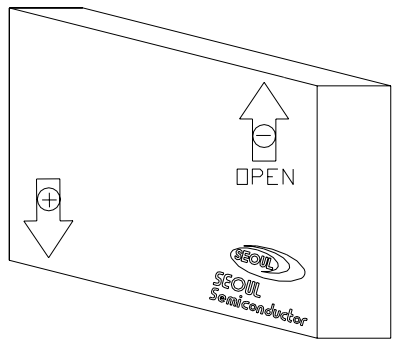
TEL : 82-2-3281-6269 FAX : 82-2-857-5430

3) Forming Outline Dimensions



Package Dimensions (unit : *mm*)			
H *		W2	9.0±0.5
Ho *		P	12.7±0.5
H1 *		Po	12.7±0.3
W	$18.0^{+1.0}_{-0.5}$	F	5.0±0.5
Wo	13.0±0.3	Do	ϕ4.0±0.5
W1	1.0±0.5		

* Remark : H / Ho / H1- users define.



1 Box contain quantity.

* 3ϕ Lamp Series : 2000pcs

* 5ϕ Lamp Series : 1500pcs

SEOUL SEMICONDUCTOR CO., LTD.

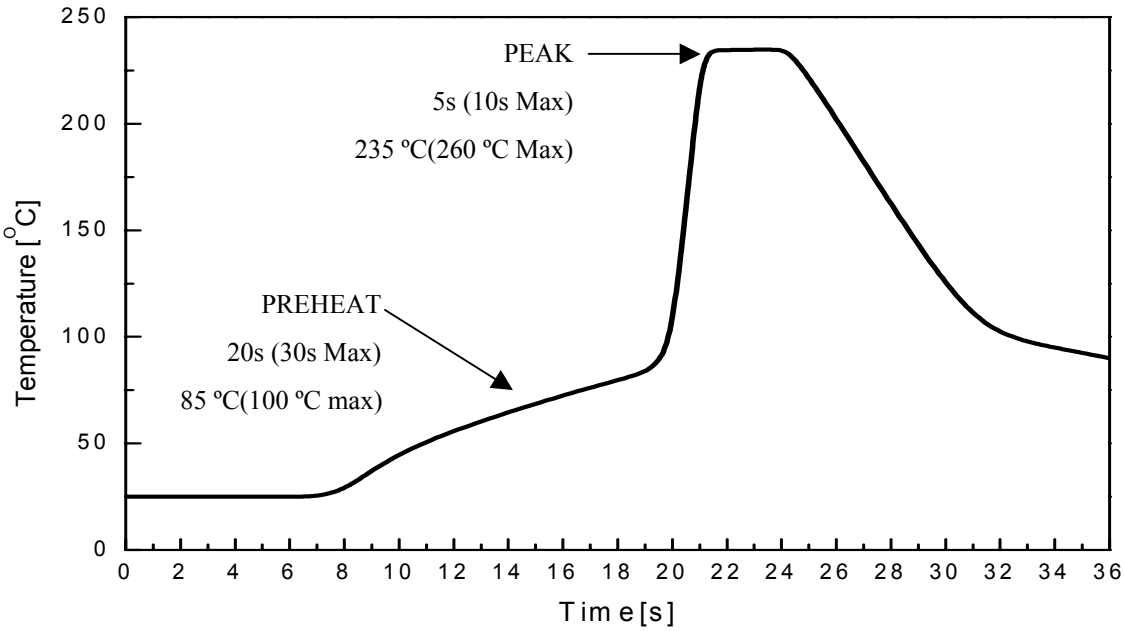
148-29, Kasan-Dong, Keumchun-Gu, Seoul, Korea

TEL : 82-2-3281-6269 FAX : 82-2-857-5430

9. SOLDERING PROFILE

1) Wave Soldering Conditions / Profile

- Preliminary heating to be at 85ºC(120 ºC max) for 20 seconds(60 seconds max).
- Soldering heat to be at 235 ºC (260ºC max) for 5 seconds (10 seconds max.)
- Soak time above 200 ºC is 5 seconds



2) Hand Soldering conditions

- Not more than 5 seconds at max. 300ºC, under Soldering iron.

Note : In case the soldered products are reused in soldering process, we don't guarantee the products.

SEOUL SEMICONDUCTOR CO., LTD.
148-29, Kasan-Dong, Keumchun-Gu, Seoul, Korea
TEL : 82-2-3281-6269 FAX : 82-2-857-5430

10. PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8		A	B	C
L	*	*	*	*	*	*	*	-	*	*	*

1) Lamp LED initial

2) Color

U: Ultra Violet, B : Blue (460~490nm), C : Cyan (490~510nm)

T : True Green (510~540nm), G : Yellow-Green (540~580nm)

Y : Yellow (580~600nm) O : Orange (600~620nm) R : Red (620~700nm)

W : White M : Warm I : Infrared

3) If the products have 2 or 3chips

GR : Green + Red (according to wavelength), FL : Full color

4) Outline type

1 : 3x2(square), 2 : 5x2(square), 3 : Phi3, 5 : Phi 5 ,

6 : 3Phi Oval, 7 : 5Phi Oval

5) Half angle

1: ~14^{o}, 2: 15~24^{o} , 3: 25~34^{o}, 4: 35~44^{o}, 5 : 45~54^{o}… 0 : more than 100^{o}

6) 1st Development according to a chip

7) 2nd Development (other material)

D : diffused C : colored Z : zener chip attached

8) Stand off type

A, B, C : Bin cord description A: IV, B: WD C: VF

SEOUL SEMICONDUCTOR CO., LTD.
148-29, Kasan-Dong, Keumchun-Gu, Seoul, Korea
TEL : 82-2-3281-6269 FAX : 82-2-857-5430

11. PRECAUTION FOR USE

1) In order to avoid the absorption of moisture, it is recommended to store in the dry box (or desiccators) with a desiccant .

2) In case of more than 1 week passed after opening or change color of indicator on desiccant components shall be dried 10-12Hr, at 60±5℃.

3) In case of supposed the components is humid, shall be dried dip-solder just before, 12Hr at 80±5℃ or 10Hr at 100±5℃.

4) Any mechanical force or any excess vibration shall not be accepted to apply during cooling process to normal temp. after soldering.

5) Quick cooling shall not be avoid.

6) Components shall not be mounted on warped direction of PCB.

7) Anti radioactive ray design is not considered for the products listed here in.

8) This device should not be used in any type of fluid such as water, oil, organic solvent and etc. When washing is required, IPA should be used.

9) When the LEDs are illuminating, operating current should be decided after considering the ambient maximum temperature.

10) LEDs must be stored to maintain a clean atmosphere. If the LEDs are stored for 3 months or more after being shipped from SSC, a sealed container with a nitrogen atmosphere should be used for storage.

11) The LEDs must be soldered within seven days after opening the moisture-proof packing.

12) Repack unused products with anti-moisture packing, fold to close any opening and then store in a dry place.

13) The appearance and specifications of the product may be modified for improvement without notice.

SEOUL SEMICONDUCTOR CO., LTD.
148-29, Kasan-Dong, Keumchun-Gu, Seoul, Korea
TEL : 82-2-3281-6269 FAX : 82-2-857-5430