

SPECIFICATION FOR UV SERIES

HPL- H44XX1BA

Lens & Assembly Type :

L : Lens 120°

F : Star & Lens 120°

Wavelength:

U : UV 400~410nm

V : UV 365~400nm

Caution:

Depends on different chips structures, the thermal pad could has a polarity as Anode. To avoid the risk of circuit-fail, **It is strongly recommended to suppose the condition (Anode – thermal pad)** while designing a circuit.

Part Number Matrix

Without Star:

Wavelength:	Lens 120°
U 400~410nm	HPL-H44LU1BA
V 365~400nm	HPL-H44LVI1BA

With Star:

Wavelength:	Star & Lens 120°
U 400~410nm	HPL-H44FU1BA
V 365~400nm	HPL-H44FV1BA

1. Features

- Dimension : 4.4mm(L)×4.4mm(W)
- High Radiant Flux type
- All Metal Design Cu PCB / Al reflector
- Low thermal resistance
- The InGaN Chip inside

2. Applications

- UV Lighting
- Special Lighting

3. Absolute Maximum Ratings

(T_j=25°C)

Parameters		Symbol	Rating	Unit
Power Dissipation	U 400~410nm	P	1.4	W
	V 365~400nm		1.4	

Parameters	Symbol	Rating	Unit
Forward Current	I_F	350	mA
Forward Pulse Current (1/10 Duty Cycle, 400msec Pulse Width)	I_{FP}	500	mA
Thermal Resistance, Junction-Case	$R_{th, J-C}^1$	10	°C/W
Reverse Voltage	V_R	5	V
LED Junction Temperature	T_j	125	°C
Operating Temperature Range	T_{opr}	-40°C to + 80°C	
Storage Temperature Range	T_{stg}	-40°C to + 120°C	
Soldering Condition	T_{sol}	260°C For 5 Seconds	

Note: 1. The thermal resistance value is measured with MCPCB (Star).

4. Initial Electrical/Optical Characteristics

● Forward Voltage

($T_j=25^\circ\text{C}$)

Wavelength	Forward Voltage					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
U 400~410nm	V_F	3.03	3.90	4.47	$I_F = 350\text{mA}$	V
V 365~400nm		3.03	4.05	4.47		

● Reverse Current

($T_j=25^\circ\text{C}$)

Wavelength	Reverse Current					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
U 400~410nm	I_R	-	-	10	$V_R = 5\text{V}$	μA
V 365~400nm		-	-	10		

● Radiant Intensity

($T_j=25^\circ\text{C}$)

Wavelength	Radiant Flux					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
U 400~410nm	Φ_e	-	180	-	$I_F = 350\text{mA}$	mW
V 365~375nm		-	25	-		
V 375~385nm		-	30	-		
V 385~400nm		-	40	-		

● Peak wavelength (T_j=25°C)

Wavelength	Wavelength					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
U 400~410nm	λ_p	400	-	410	$I_F = 350\text{mA}$	nm
V 365~400nm		365	-	400		

● View Angle (T_j=25°C)

Wavelength	Viewing Angle			
	Symbol	Lens 120°		Test Condition
All	$2\theta_{1/2}$	120		$I_F = 350\text{mA}$
				degree

● Spectra half-width (T_j=25°C)

Wavelength	Spectra half-width					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
U 400~410nm	$\Delta\lambda$	-	20	-	$I_F = 350\text{mA}$	nm
V 365~400nm		-	15	-		

● UV Bin Code List for Reference (T_j=25°C)

Forward Voltage Bins

Item	Bin Code	Symbol	Condition	Min.	Max.	Unit
Forward Voltage ¹	H	V_F	$I_F = 350 \text{ [mA]}$	3.03	3.27	V
	J			3.27	3.51	
	K			3.51	3.75	
	L			3.75	3.99	
	M			3.99	4.23	
	N			4.23	4.47	

Radiant Intensity Bins

Item	Bin Code	Symbol	Condition	Min.	Max.	Unit
Radiant Flux ²	0	Φ_e	$I_F = 350$ [mA]	0	10	mW
	1			10	20	
	2			20	30	
	3			30	40	
	4			40	50	
	5			50	75	
	6			75	100	
	7			100	125	
	8			125	150	
	9			150	175	
	A			175	225	
	B			225	275	
	C			275	350	

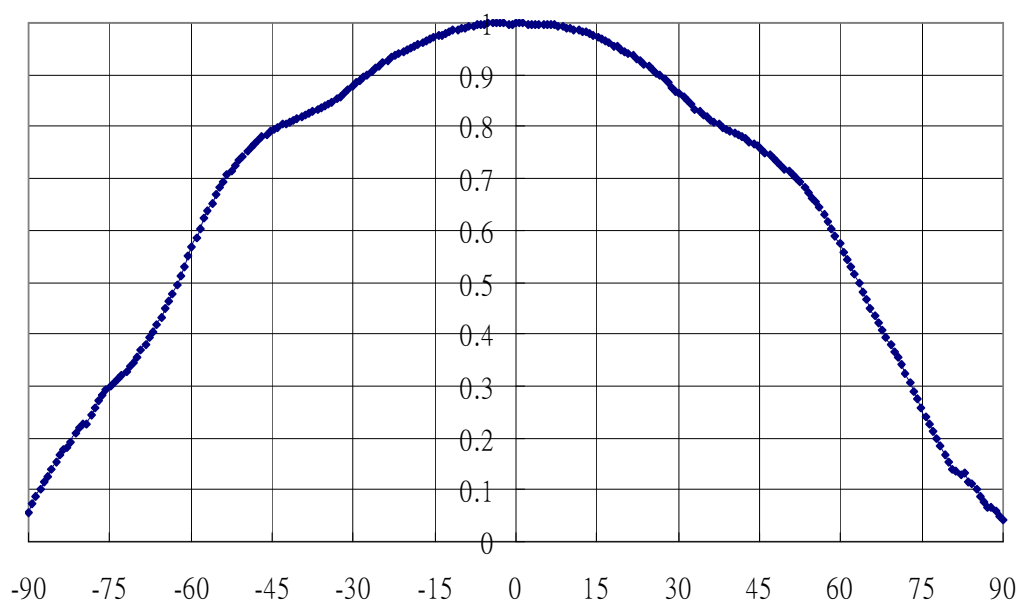
Wavelength Bins

Wavelength ³	Bin Code	Symbol	Condition	Min.	Max.	Unit
U 400~410nm	U1	λ_p	$I_F = 350$ [mA]	400	410	nm
V 365~375nm	V1			365	375	
V 375~385nm	V2			375	385	
V 385~400nm	V3			385	400	

Note

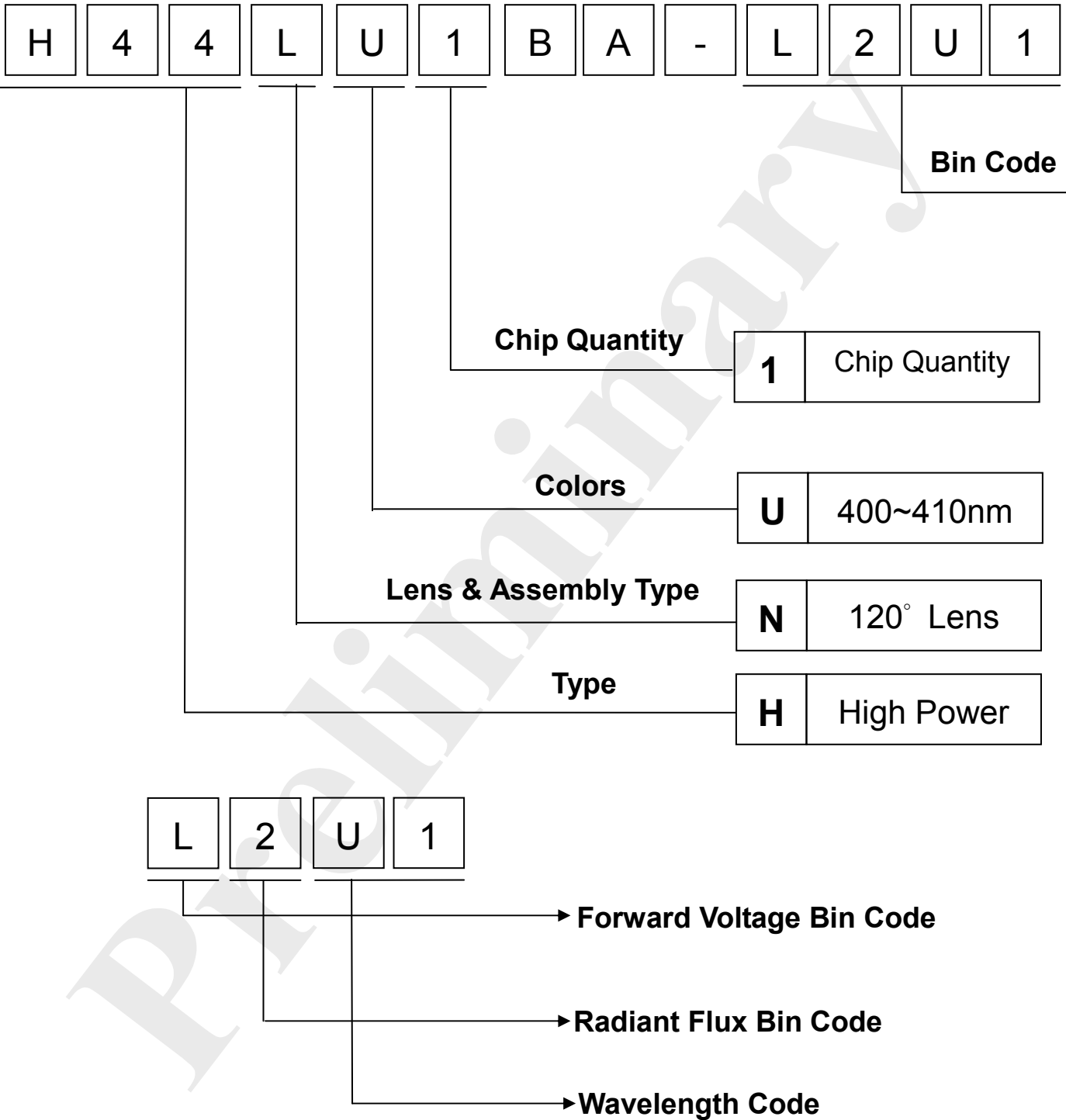
1. Forward voltage measurement allowance is $\pm 0.1V$.
2. Radiant flux measurement allowance is $\pm 10\%$.

- Optical Radiation Pattern



120° Lens

5. Part Number Formation



6. Characteristic Diagrams

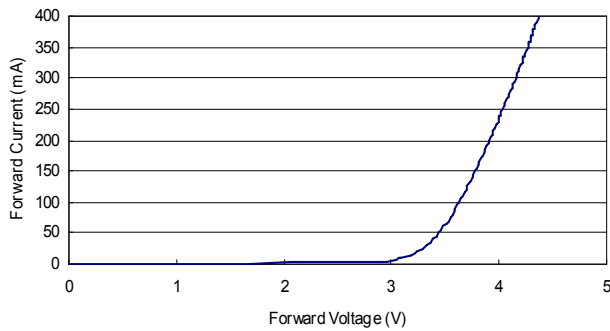


Fig. 1A Forward Current vs. Forward Voltage:
V 365~400nm

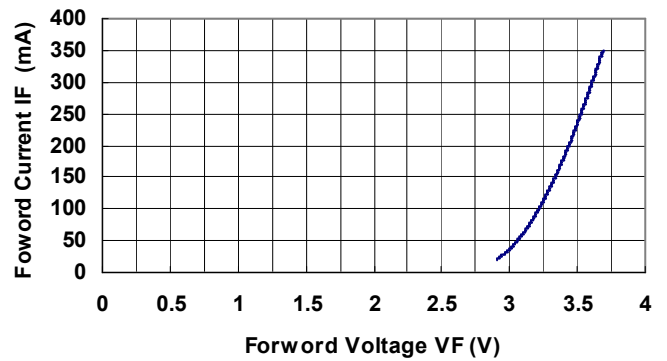


Fig. 1B Forward Current vs. Forward Voltage:
U 400~410nm

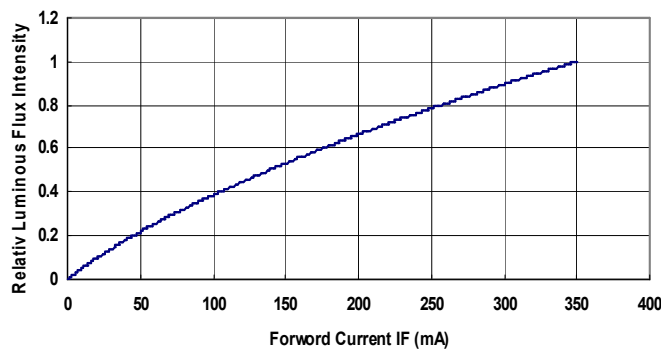


Fig. 2 Relative Intensity vs. Wavelength

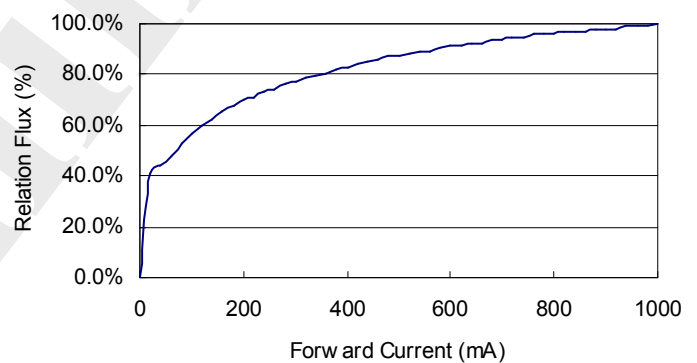


Fig. 3 Relative Intensity VS Forward Current

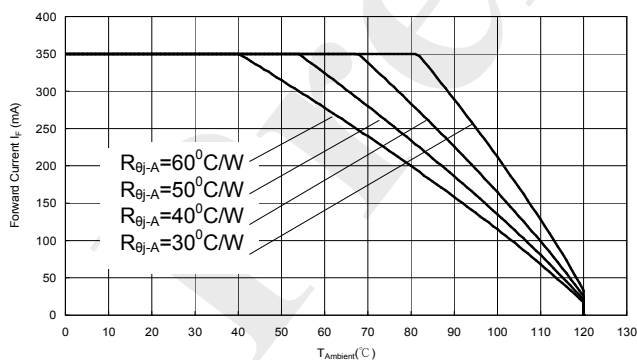
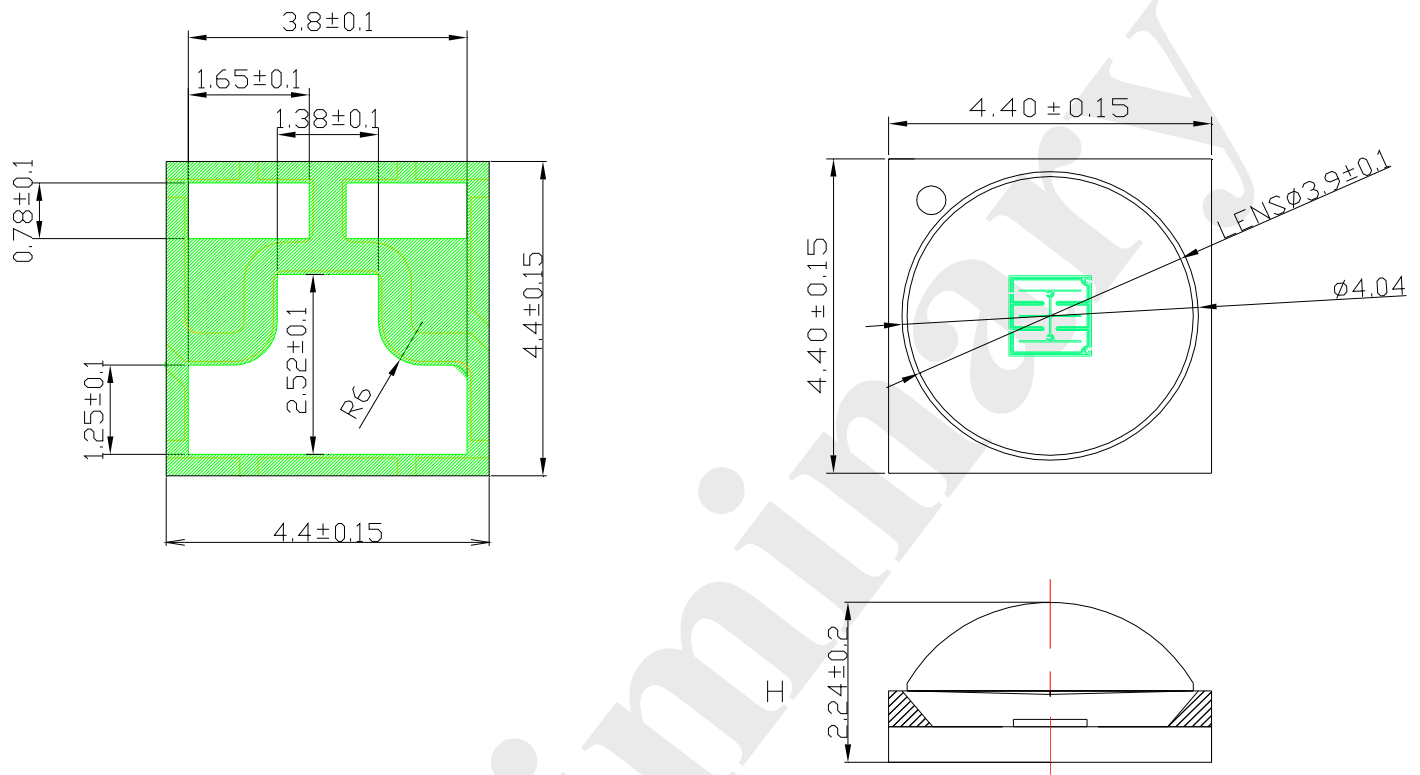


Fig. 4 Forward Current Degrading Curve

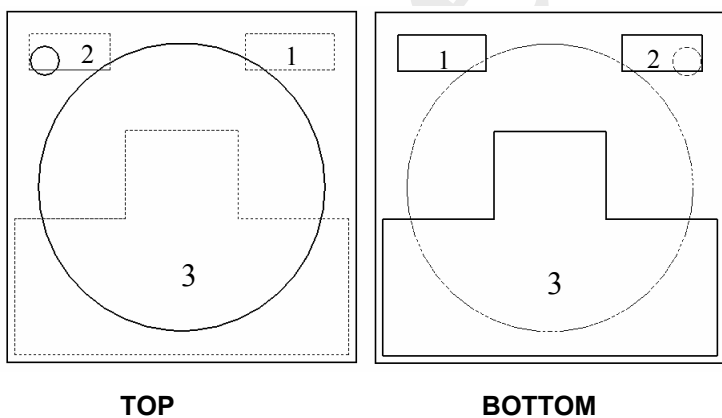
7. Outline Dimension

Unit : mm

HPL-H44Lx1BA

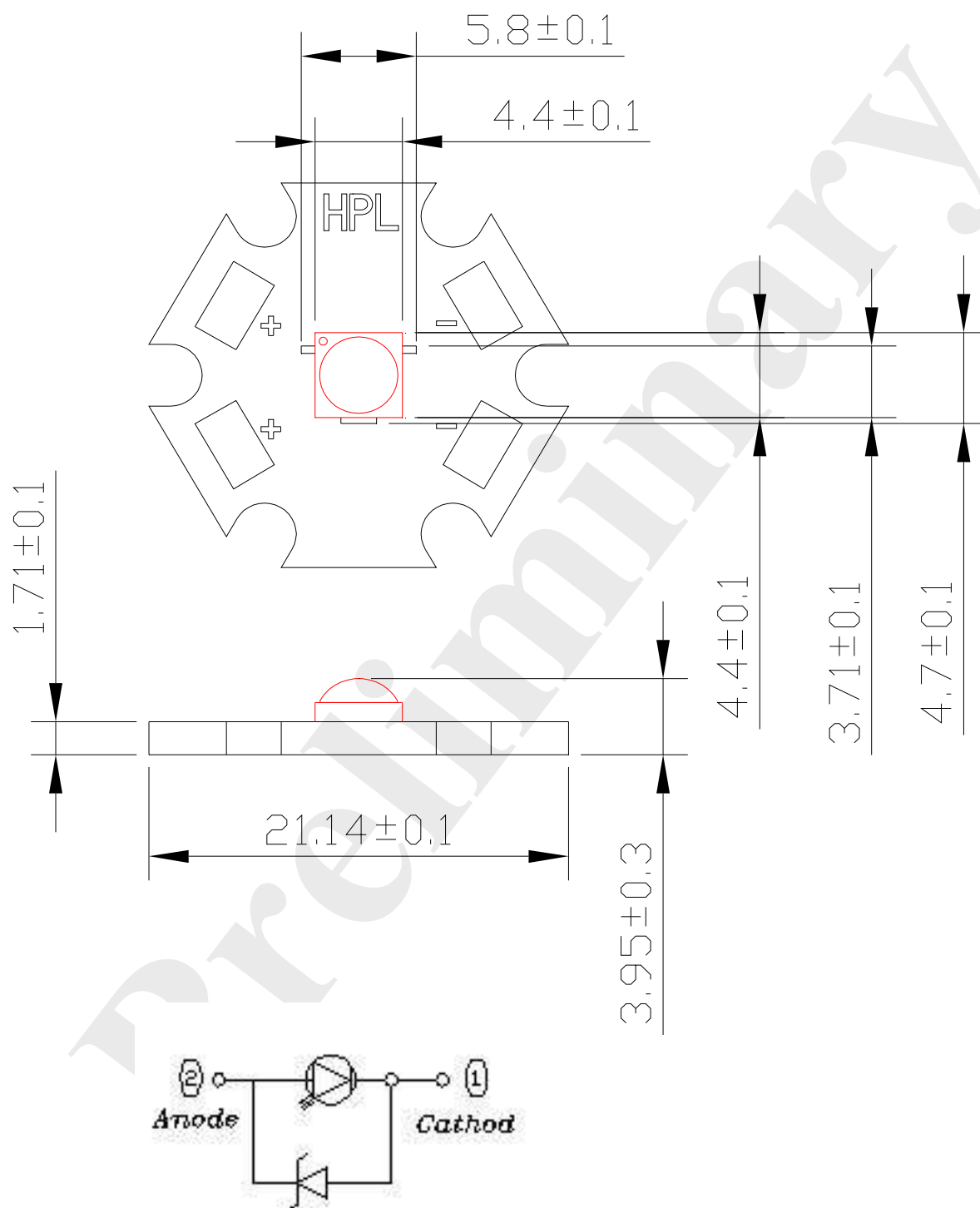


Pad configuration

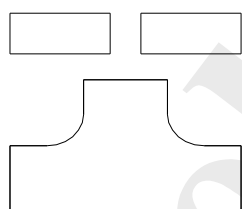
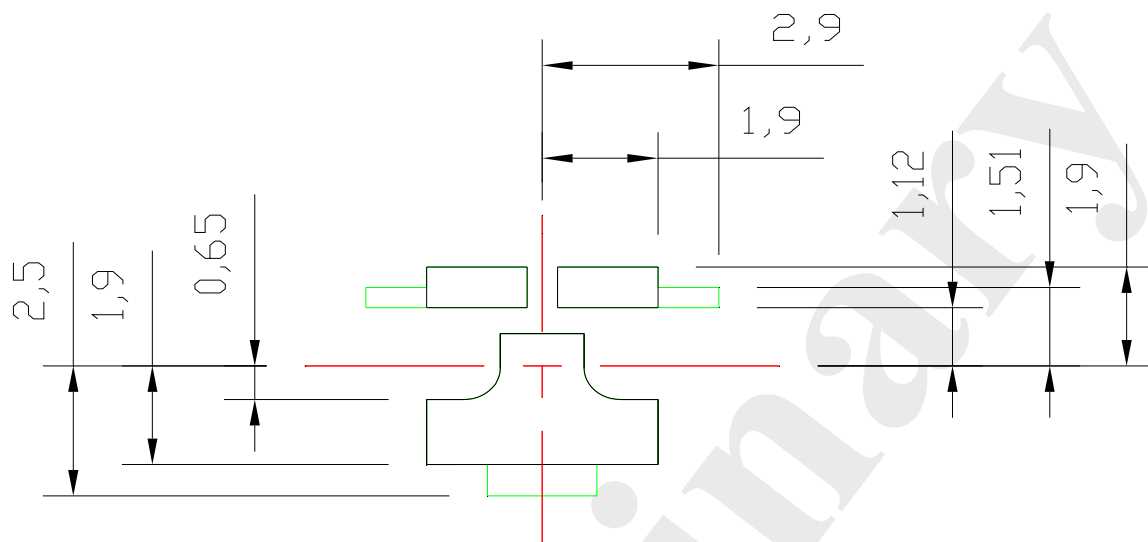


PAD	Function
1	cathode
2	anode
3	thermal

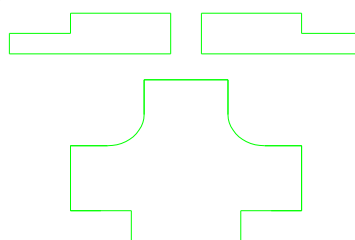
HPL-H44Fx1BA



8. Recommended Solder Pattern



**SOLDER
MASK**



**COOPER
LAYER**

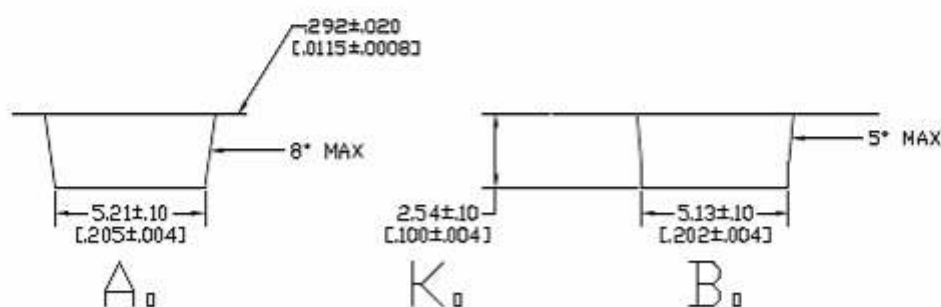
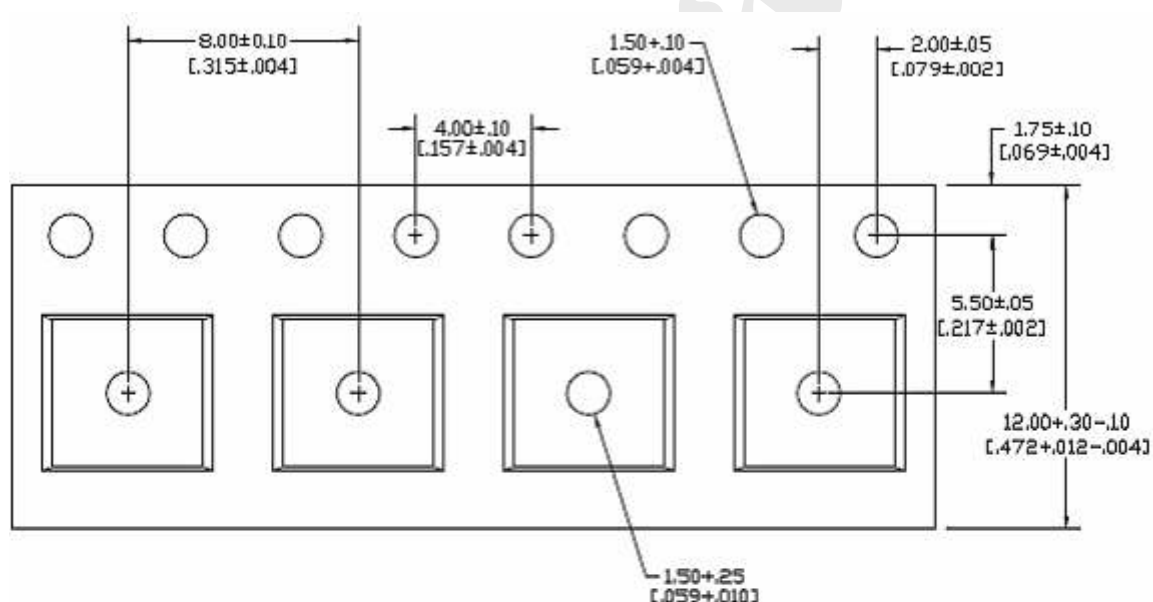
9. Shipping Package Style

(1) Tapping Dimension Packaging Specification

● 120 degree Lens Type :

- Moisture proof bag.
- 1 Reel/bag.
- Q'ty: 800(MAX)/Reel.

Unit : mm


MM
[INCH]

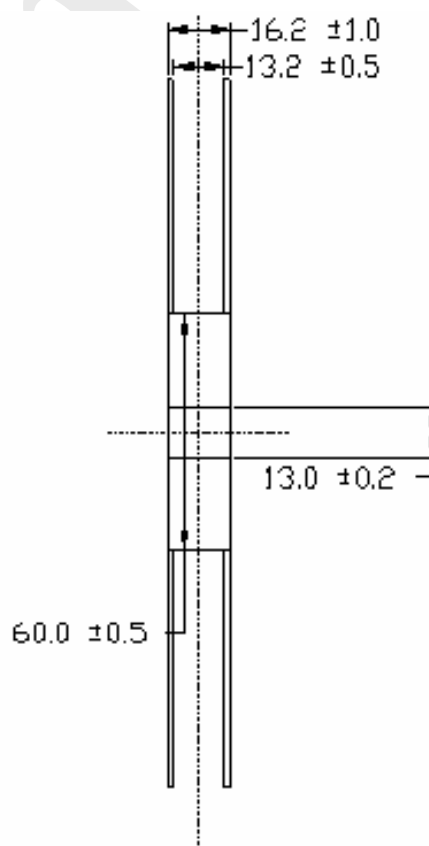
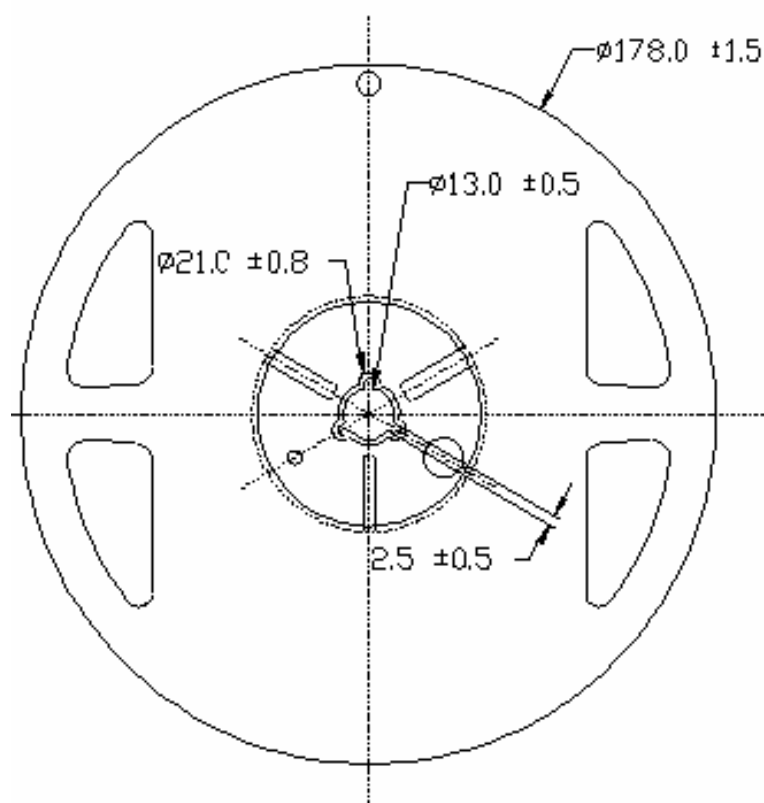
(2) Package

Box Type	Dimension (mm)	Reel/Box	120° Lens Type (Pcs)
Small Box(S)	230x85x265	5 Reel/Box	4000
Middle Box(M)	470x265x270	30 Reel/Box	24000
Large Box(L)	470x435x270	50 Reel/Box	40000

Reel Packaging :

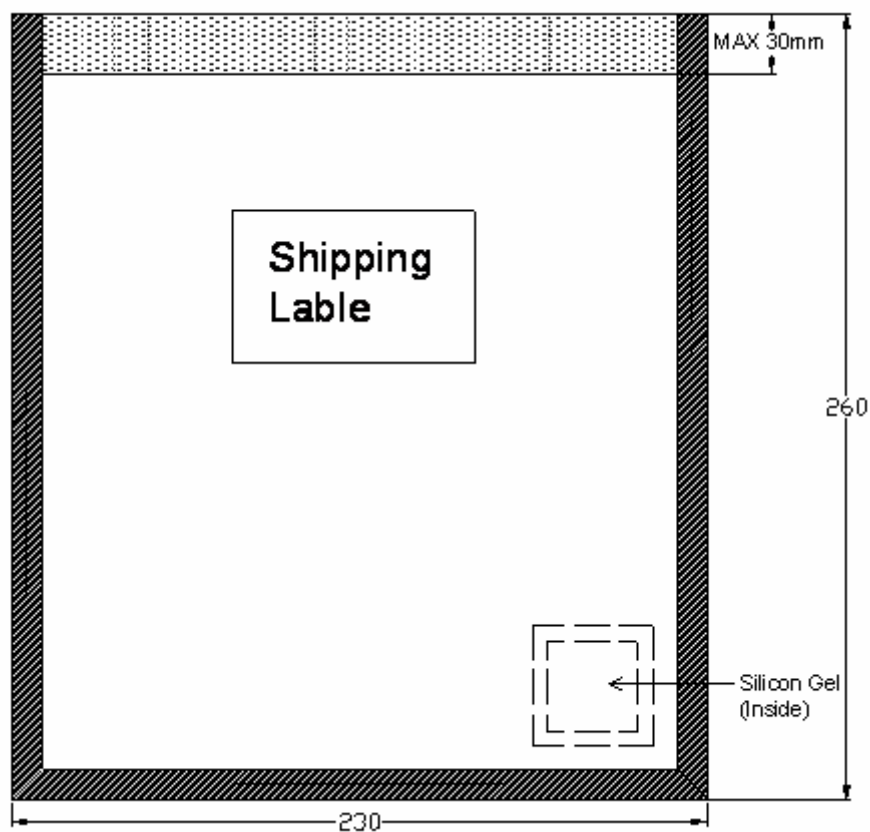
Reel Part :

Unit : mm



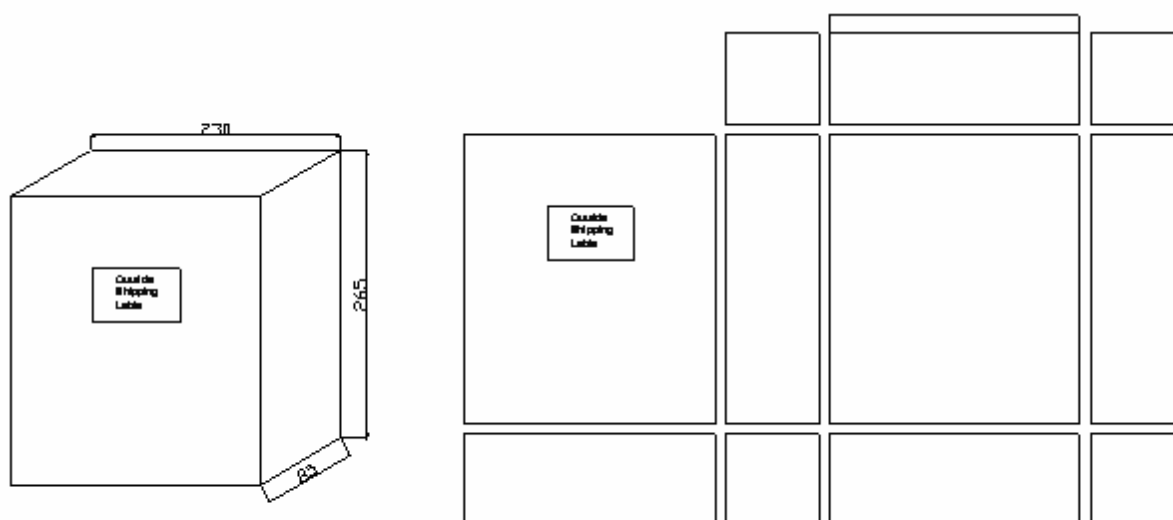
Anti Statistic Bag :

Unit : mm



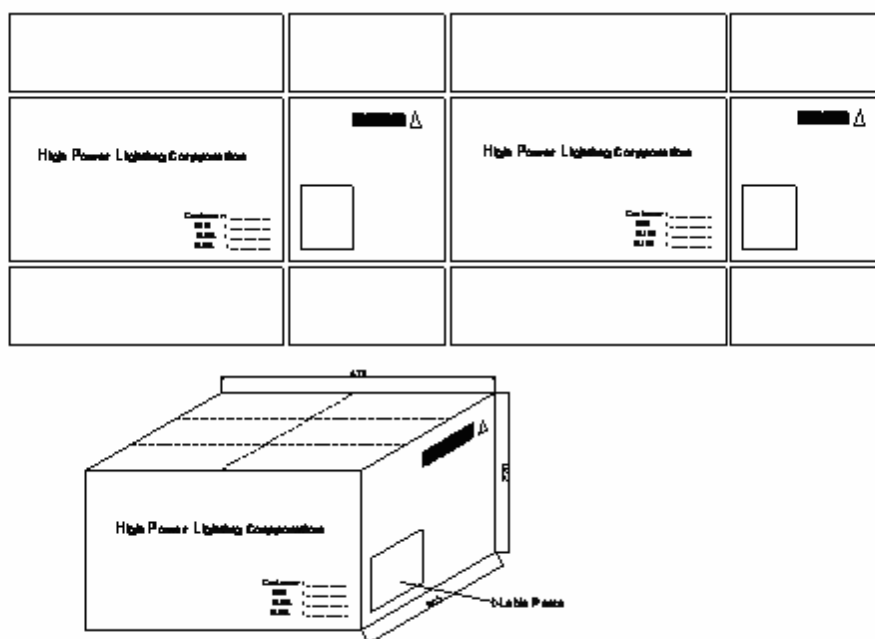
Small Box

Unit : mm



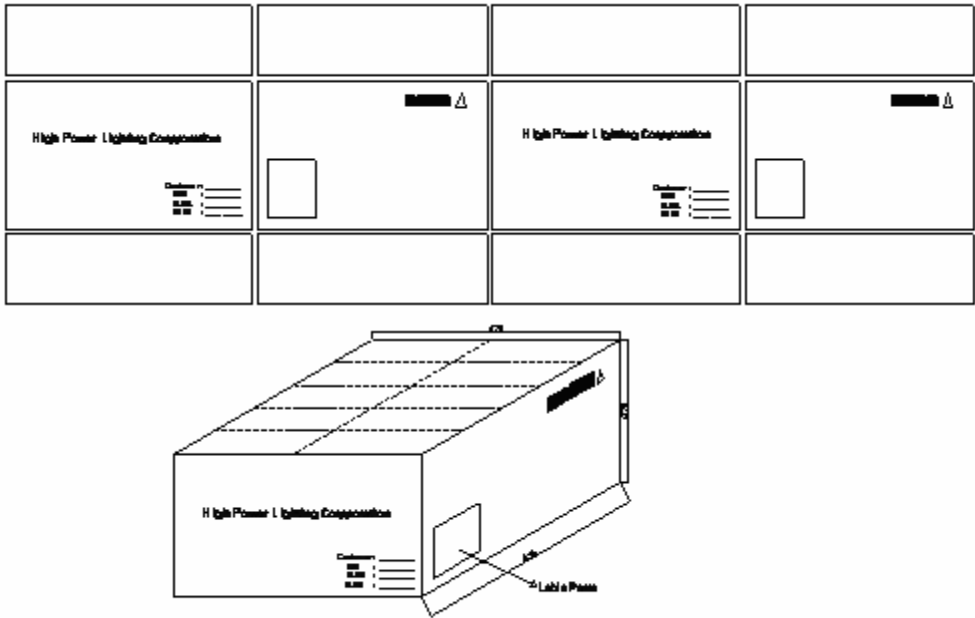
Middle Box

Unit : mm



Large Box

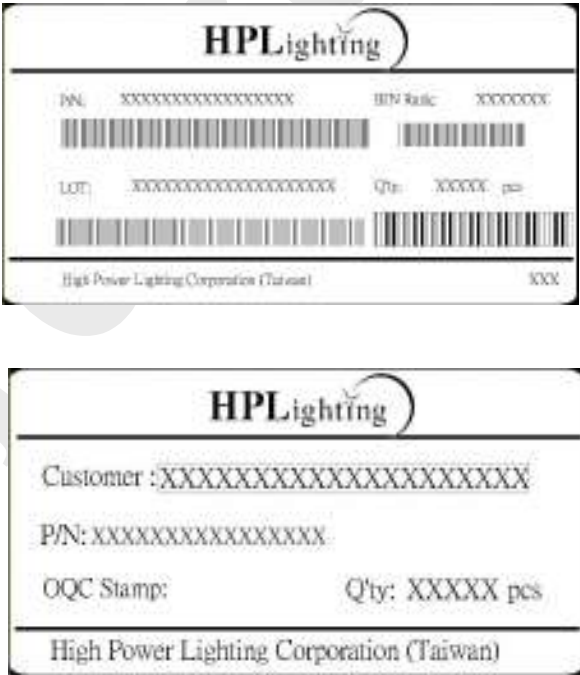
Unit : mm



(3) Label Formation

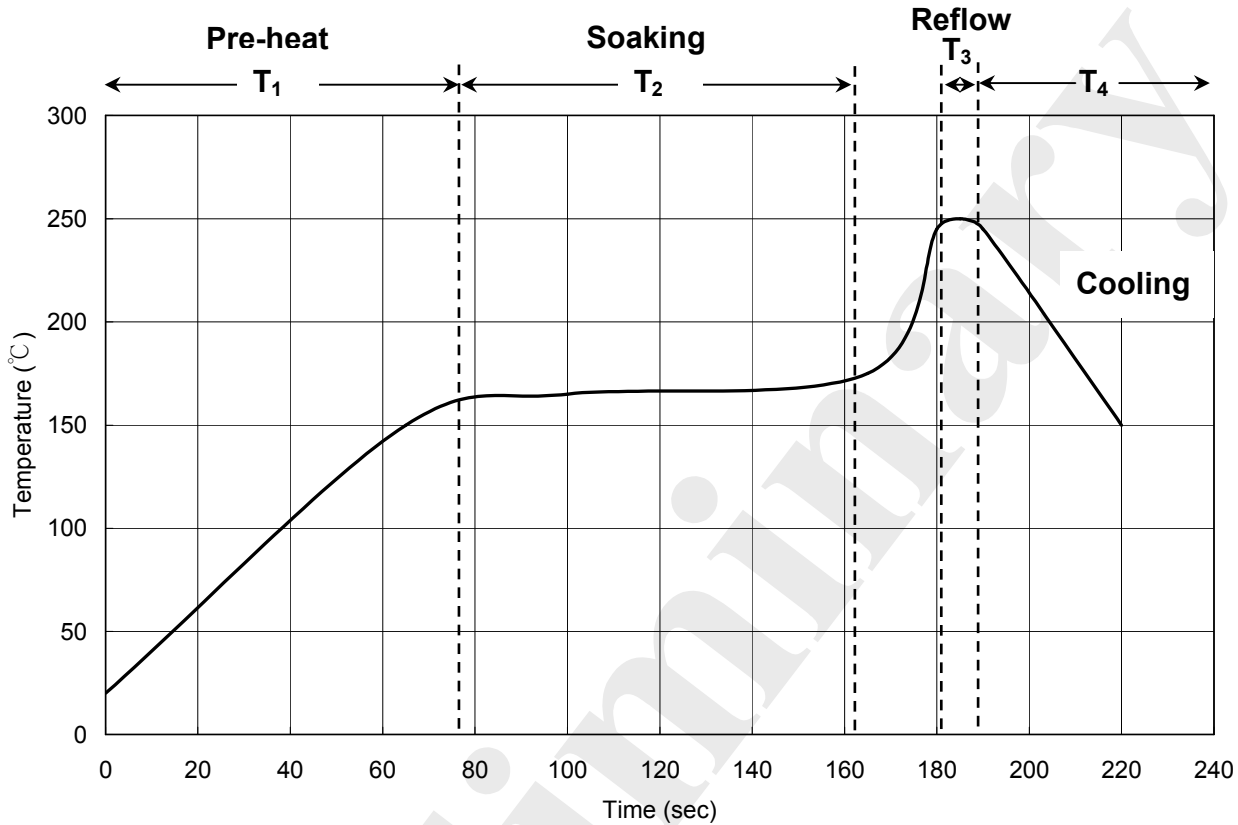
70mm

Unit : mm



10. Recommended Solder profile

Soldering Recommended soldering conditions:



T ₁	Ramp up rate	1.0 ~ 3.0 °C/sec
	Pre-heat time	50 ~ 80 sec
T ₂	Soaking temperature	155 ~ 185 °C
	Dwell time during soaking	60 ~ 120 sec
T ₃	Reflow temperature	240 ~ 250 °C
	Reflow time	Max 10 sec
	Ramp up rate during reflow	1.2 ~ 2.3 °C/sec
T ₄	Cooling	1.0 ~ 6.0 °C/sec

Note: Suggest using Sn96Ag3Cu0.5 lead free solder.

Cleaning

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED if necessary.