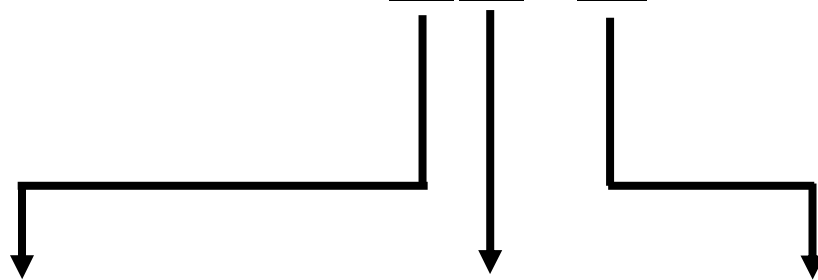


SPECIFICATION

HPL- H44XX1BA



Lens & Assembly Type:

R : Lens 60°
T : Lens 60° & Star
L : Lens 120°
F : Lens 120° & Star

Color:

H: Red
D: Blue

1W

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

Color \ Type	60°Lens	60°Lens & Star	120°Lens	120°Lens & Star
Red	HPL-H44RH1BA	HPL-H44TH1BA	HPL-H44LH1BA	HPL-H44FH1BA
Blue	HPL-H44RD1BA	HPL-H44TD1BA	HPL-H44LD1BA	HPL-H44FD1BA



1. Features

- Dimension : 4.4mm(L)×4.4mm(W)
- 1W High Flux type
- All Metal Design Cu PCB/Al reflector
- Low thermal resistance
- The InGaN or AlInGaP Chip inside
- Superior ESD protection

2. Absolute Maximum Ratings

(T_j=25°C)

Parameter	Symbol	Rating	Unit
Power Dissipation	P	Red	1.05
		Blue	1.5
Forward Current	IF	350	mA
Forward Pulse Current (1/10 Duty Cycle, 400msec Pulse Width)	IFP	500	mA
Thermal Resistance, Junction-Case	R _{th, J-C1}	10	°C/W
Reverse Voltage	VR	5	V
LED Junction Temperature	T _j	125	°C
Operating Temperature Range	Topr	-40°C to + 80°C	
Storage Temperature Range	Tstg	-40°C to + 120°C	
Soldering Condition	Tsol	260°C For 5 Seconds	

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

3. Initial Electrical/Optical Characteristics

● **Forward Voltage** (T_j=25°C)

Color	Forward Voltage					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
Red→R	V _F	1.83	2.50	3.03	I _F = 350mA	V
Blue→B	V _F	3.03	3.80	4.23	I _F = 350mA	V

Note: Forward voltage measurement allowance is ± 0.1V.

● **Reverse Current** (T_j=25°C)

Color	Reverse Current					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
Red→R	I _R	-	-	100	V _R = 5V	μA
Blue→B	I _R	-	-	100	V _R = 5V	μA

● **Radiometric Power** (T_j=25°C)

Color	Luminous Flux					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
Red→R	Φ _v		290		I _F = 350mA	mW
Blue→B	Φ _v		370		I _F = 350mA	mW

Note: Radiometric Power measurement allowance is ± 10%.

Red→R	λ _p	650	-	670	I _F = 350mA	nm
Blue→B	λ _d	450	-	455	I _F = 350mA	nm

Note: Wavelength measurement allowance is ± 1nm

- **Typical Radiation Pattern**

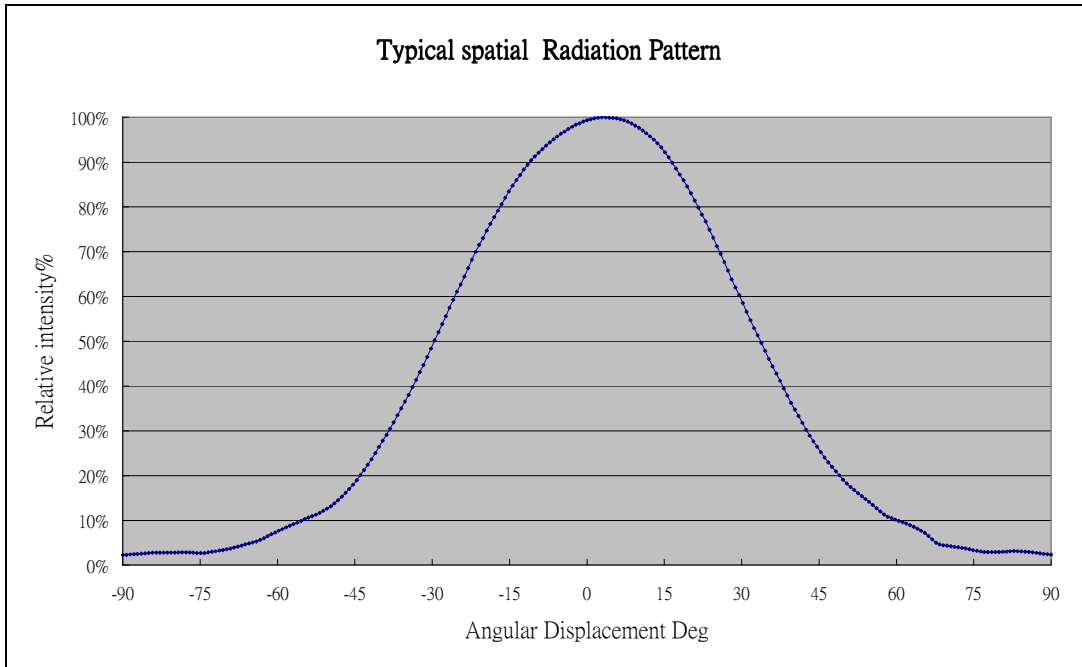


Fig. 3-1A(60° Lens) Typical Representative Spatial Radiation Pattern.

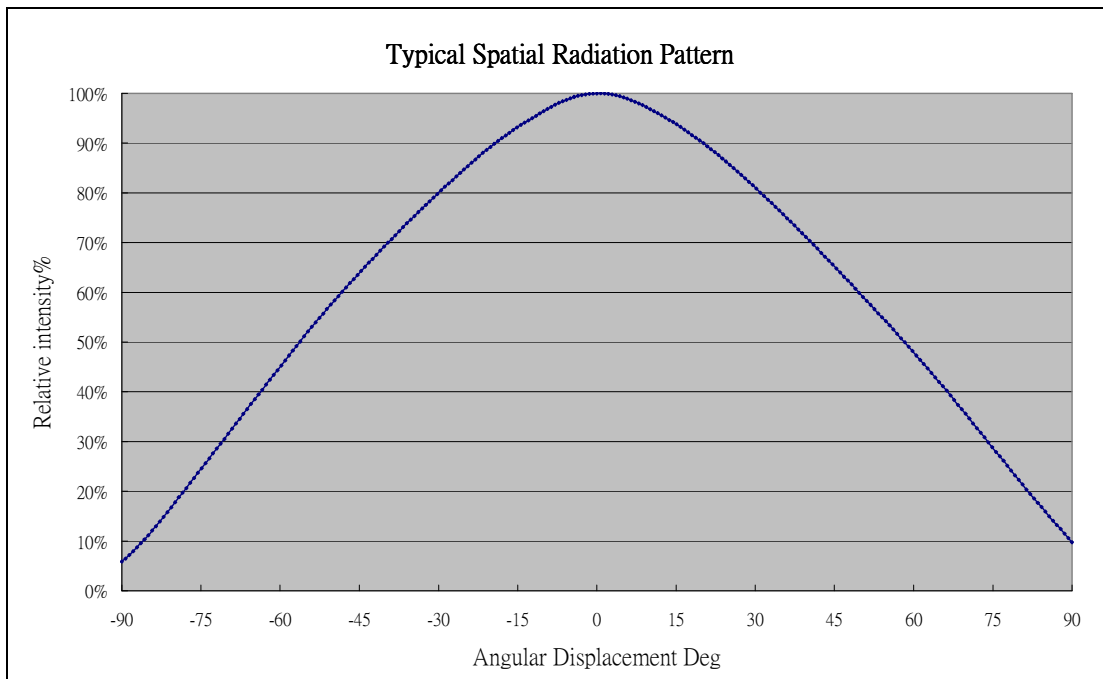
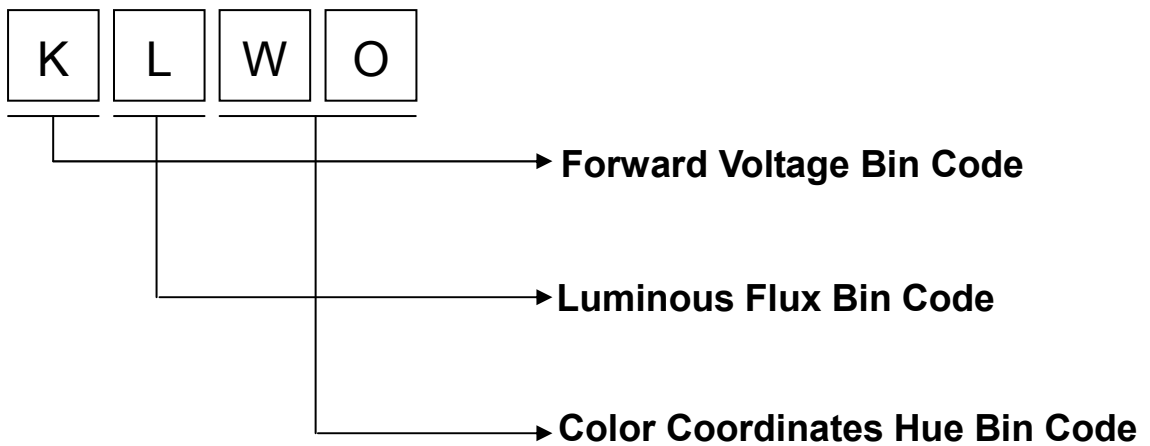
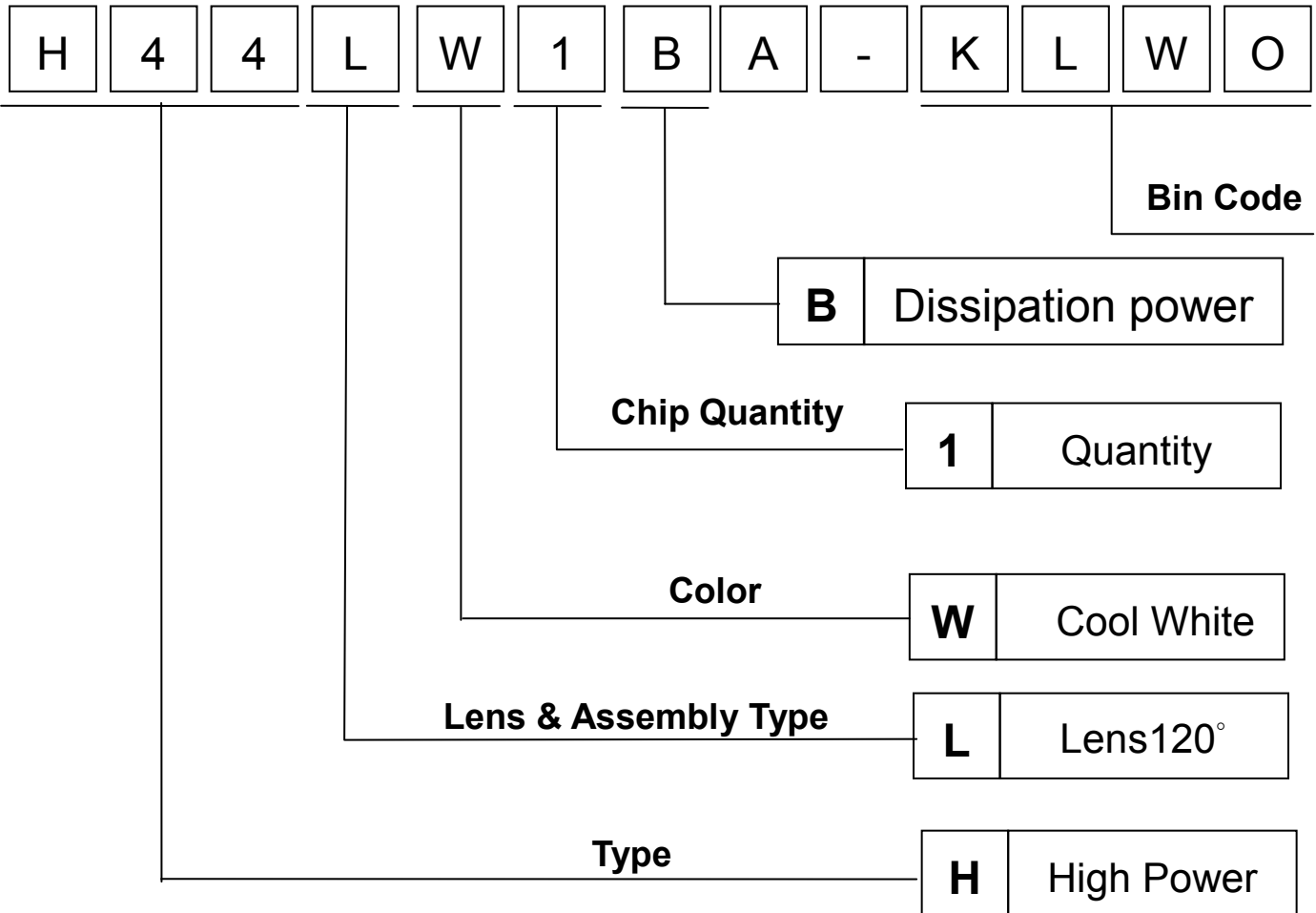


Fig. 3-1B(120° Lens) Typical Representative Spatial Radiation Pattern.

4. Part Number Formation



5. Characteristic Diagram

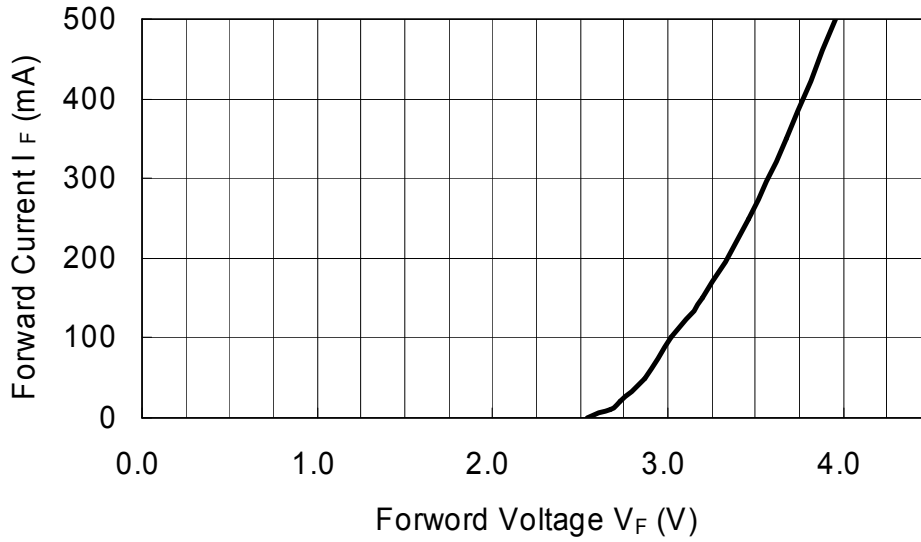


Fig. 5-1A Forward Current vs. Forward Voltage: Blue color.

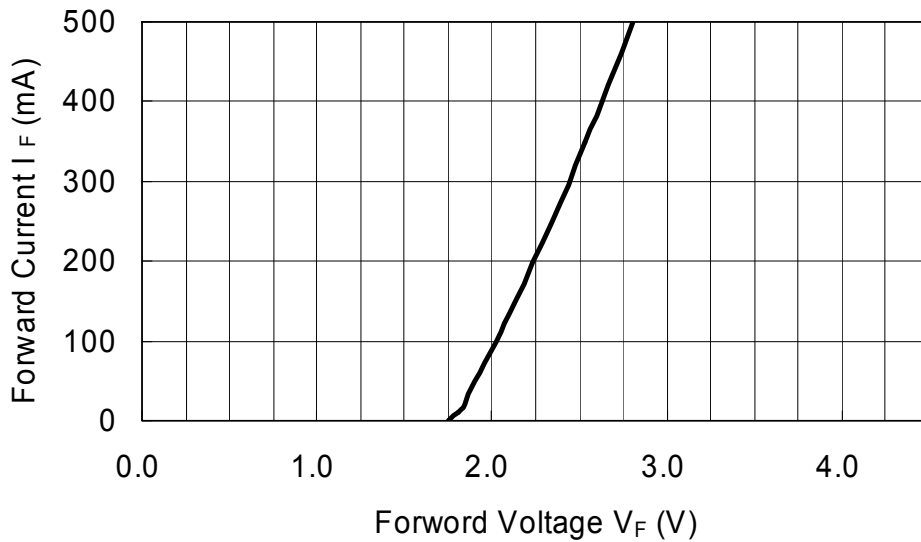


Fig. 5-2B Forward Current vs. Forward Voltage: Red color.

6. Outline Dimension

Unit : mm

HPL-H44RX1BA

HPL-H44LX1BA

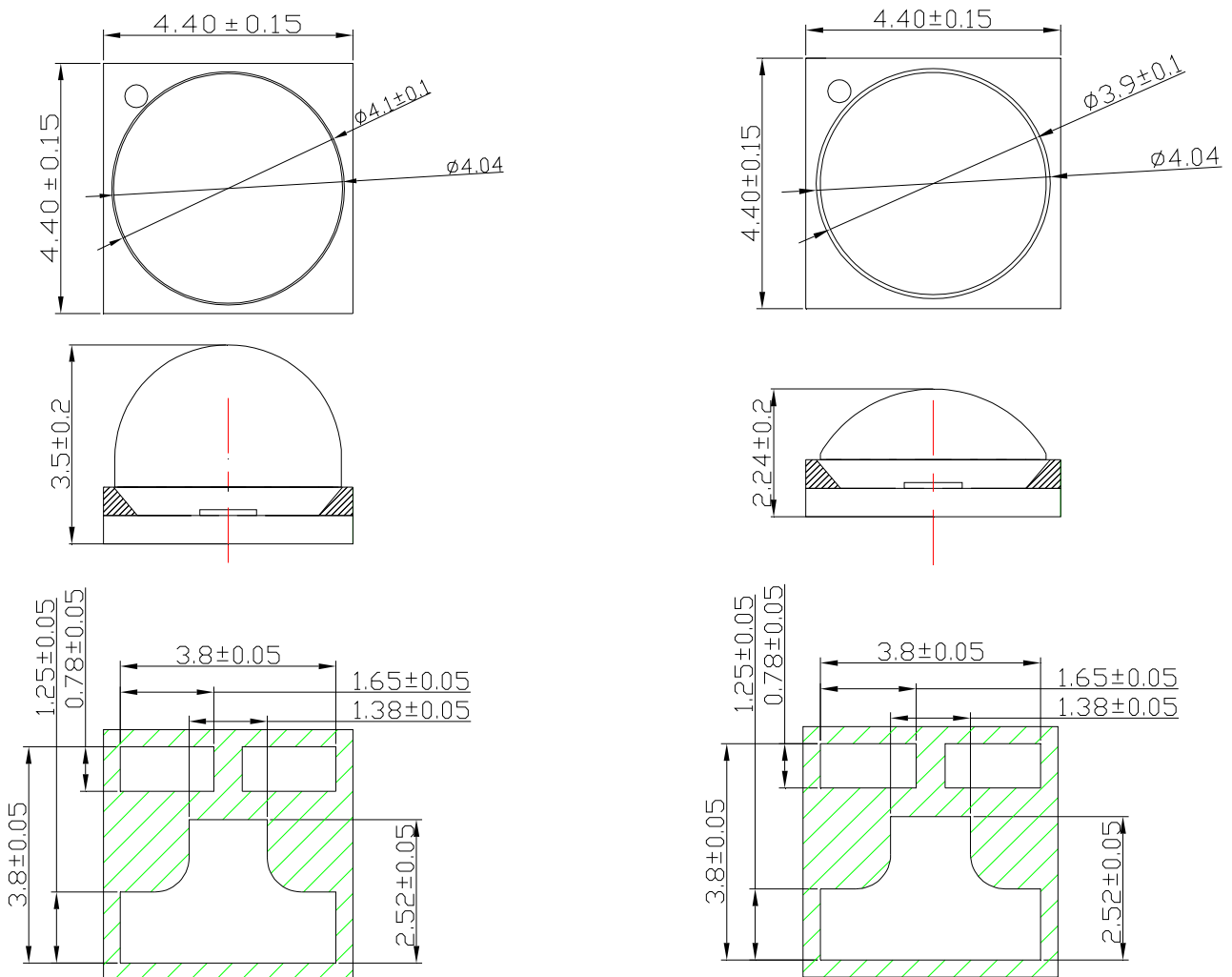
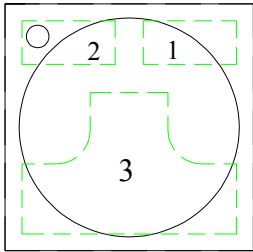
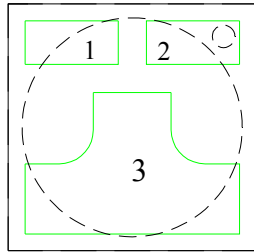


Fig.6-1A Package Outline Drawing.

● Pad configuration



TOP

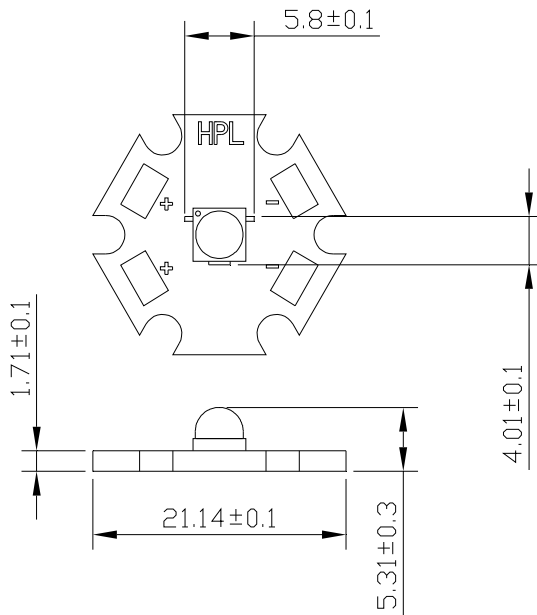


BOTTOM

PAD	Function
1	Cathode
2	Anode
3	Thermal

Fig. 6-2B Pad configuration.

HPL-H44TX1BA



HPL-H44FX1BA

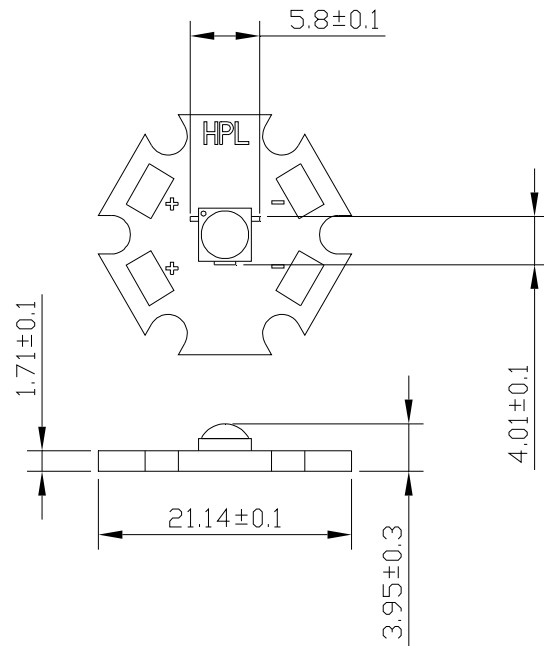
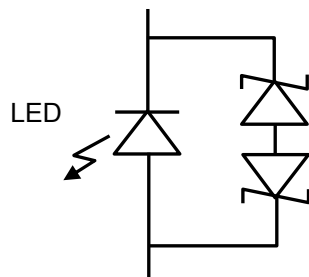


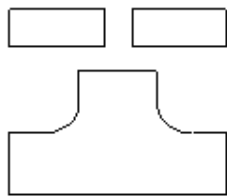
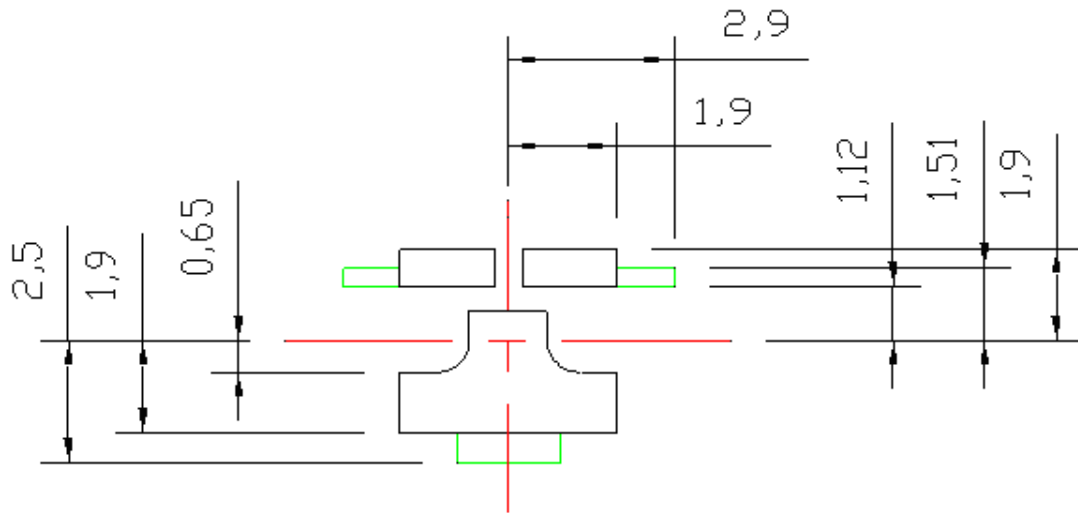
Fig.6-3C Assembly r Outline Drawing.

PROTECTION CIRCUIT

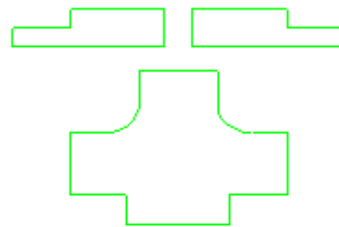


PROTECTION
ZENER

7. Recommended Solder Pattern



**SOLDER
MASK**



**COPPER
LAYER**

Fig.7-1A Solder Pad Layout.

8. Shipping Package Style

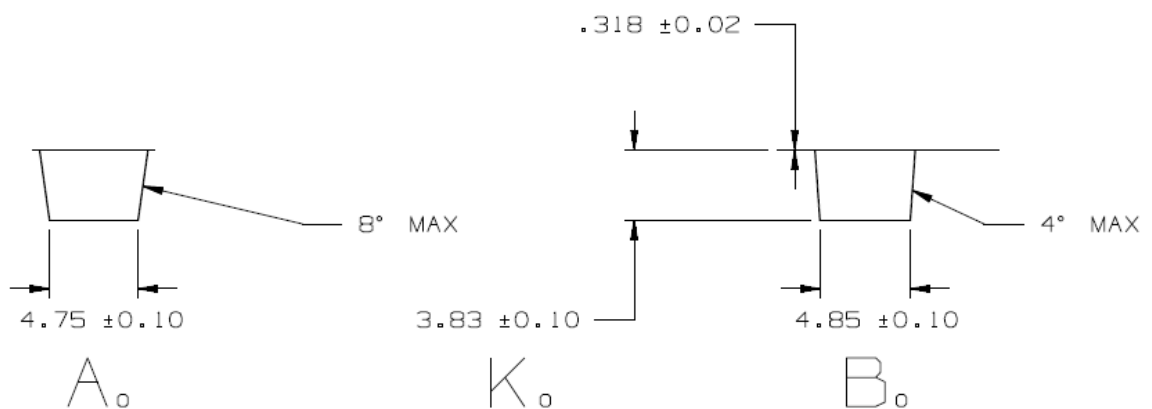
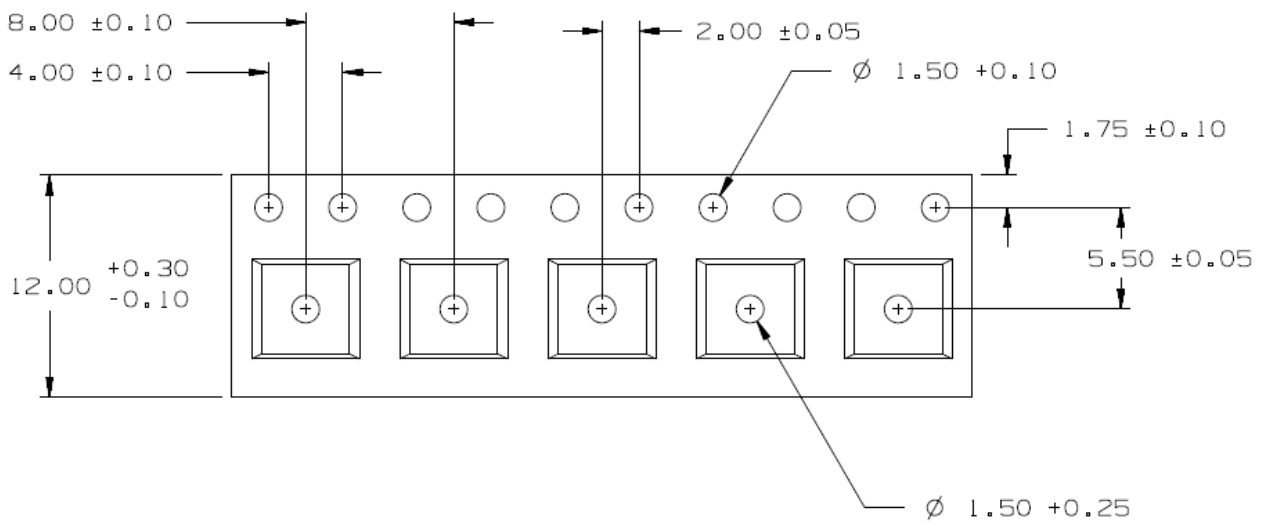
A. Lens Type

(1) Tapping Dimension Packaging Specification

- 60 degree Lens Type :

- Moisture proof bag.
- 1 Reel/bag.
- Q'ty:650 (MAX)/Reel.

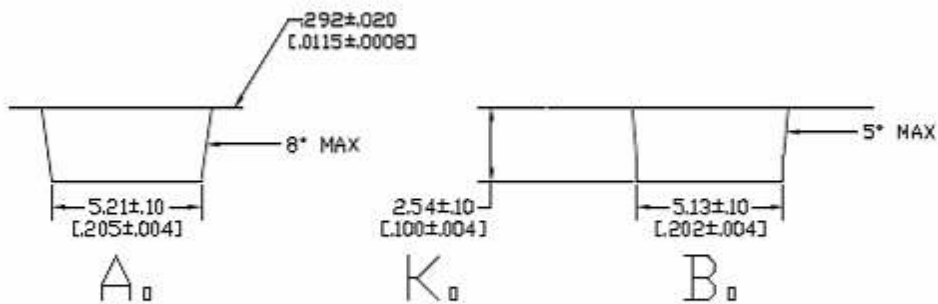
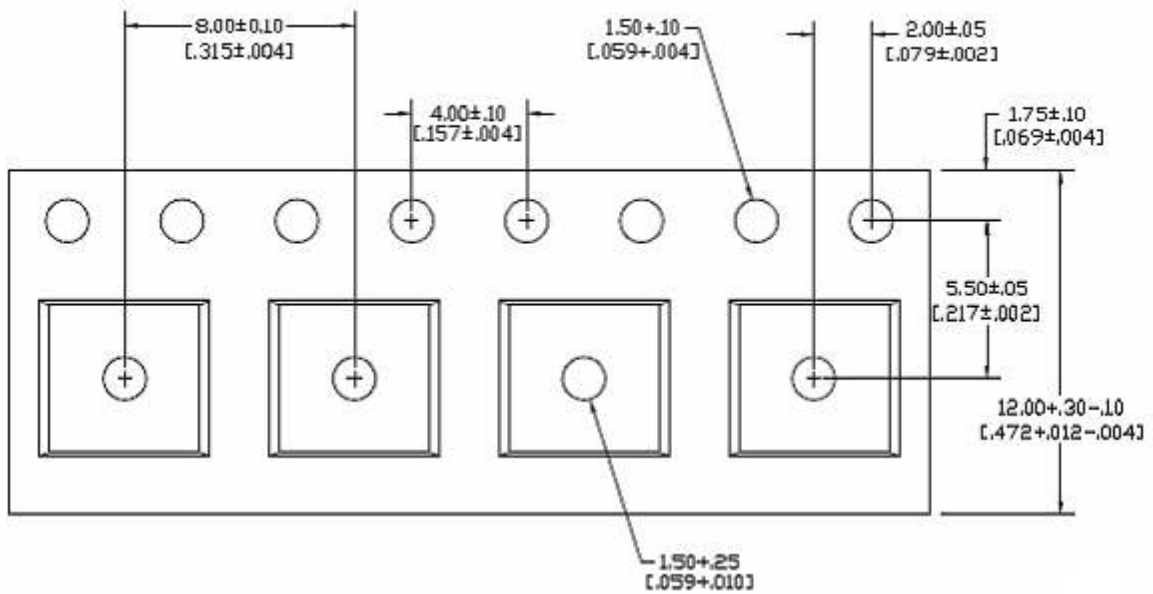
Unit : mm



● 120 degree Lens Type :

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

Unit : mm



MM
[INCH]

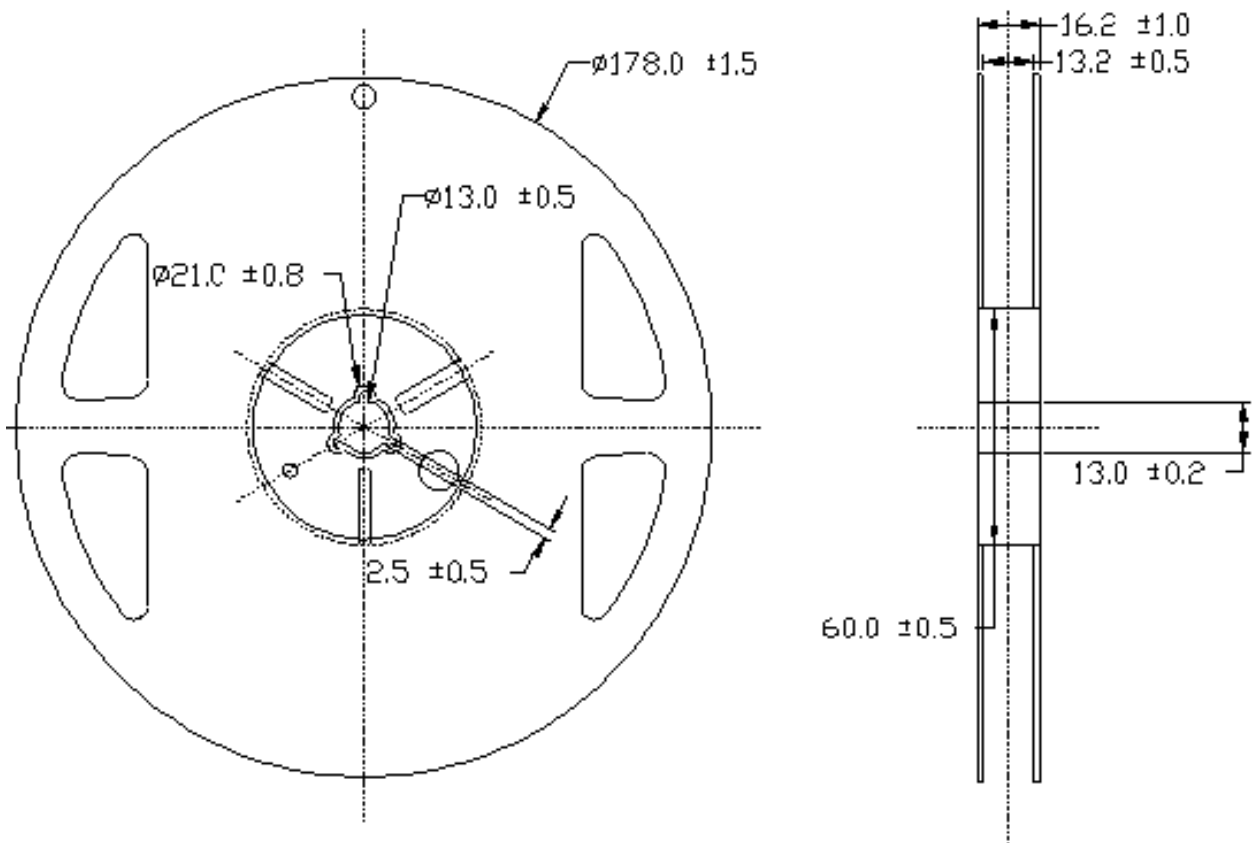
(2) Package

Box Type	Dimension (mm)	Reel/Box	60° Lens Type (Pcs)	120° Lens Type(Pcs)
Small Box(S)	230x85x265	5 Reel/Box	3250	4000
Middle Box(M)	470x265x270	30 Reel/Box	19500	24000
Large Box(L)	470x435x270	50 Reel/Box	32500	40000

Reel Packaging :

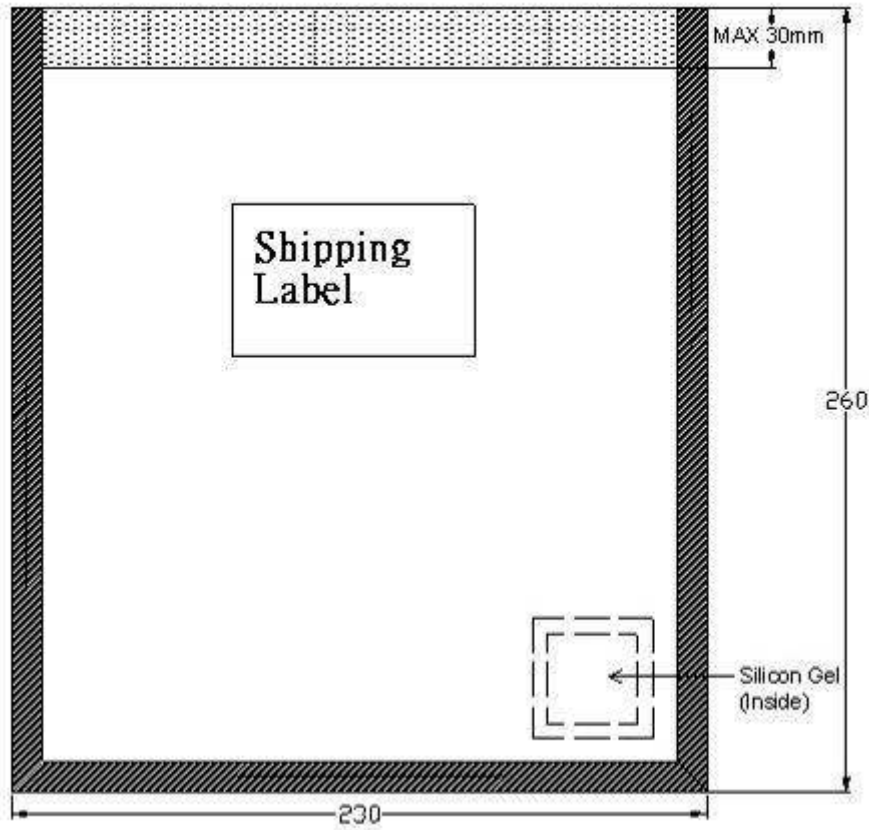
Reel Part :

Unit : mm



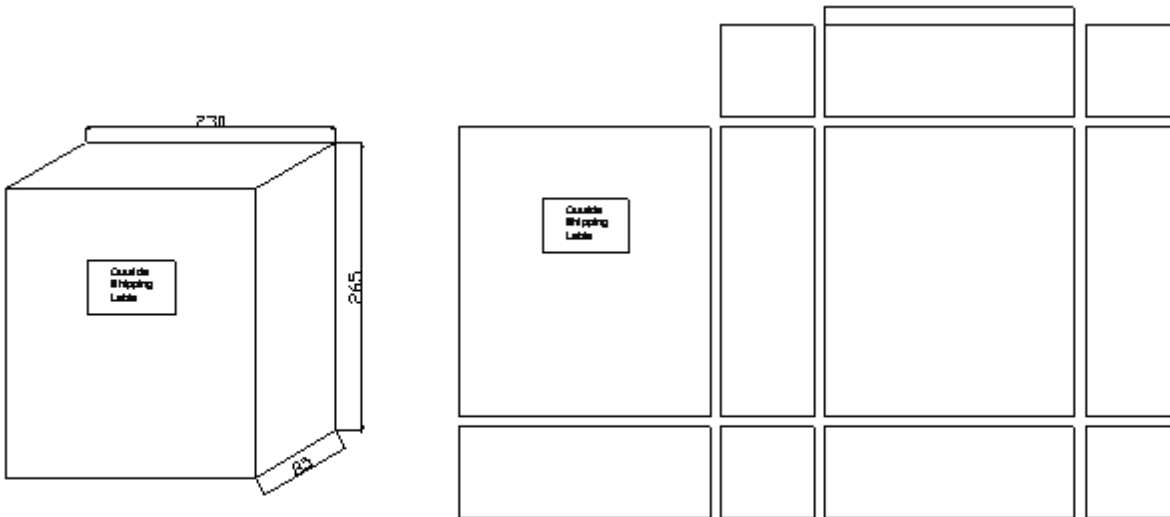
Anti Statistic Bag :

Unit : mm



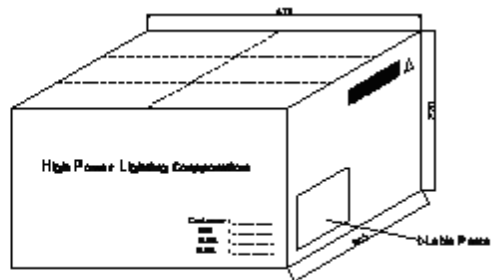
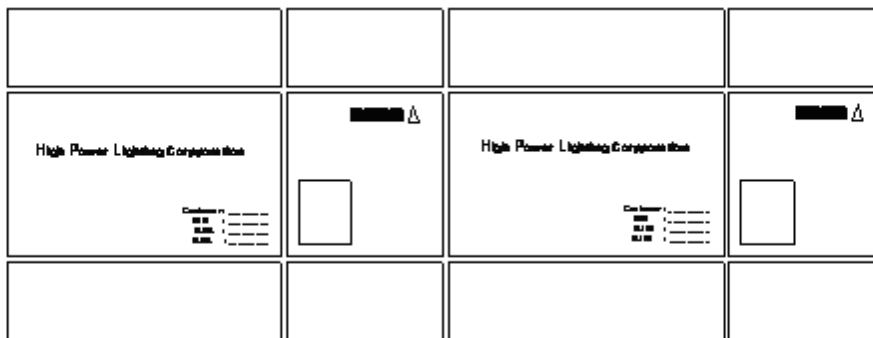
Small Box

Unit : mm



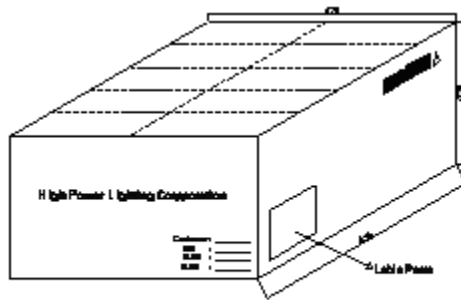
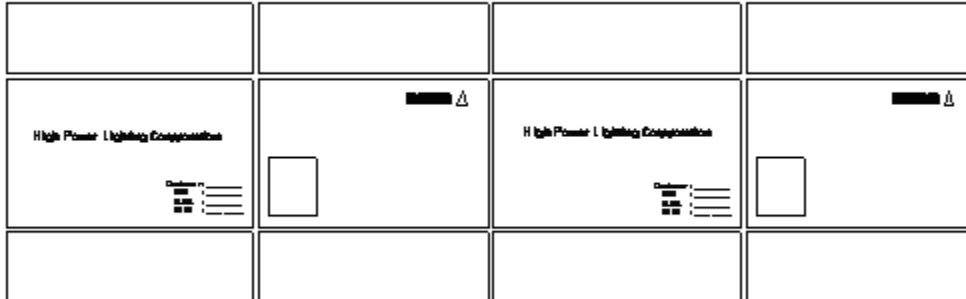
Middle Box

Unit : mm



Large Box

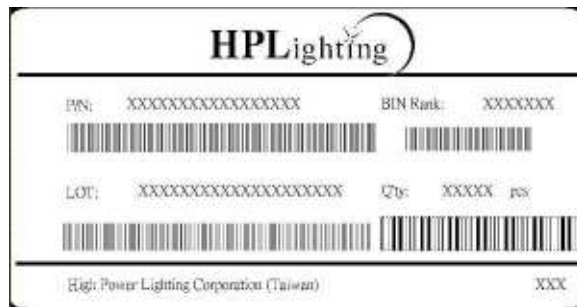
Unit : mm



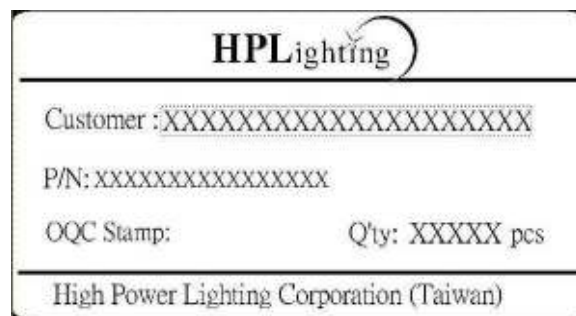
(3) Label Formation

70mm

Unit : mm



40mm,



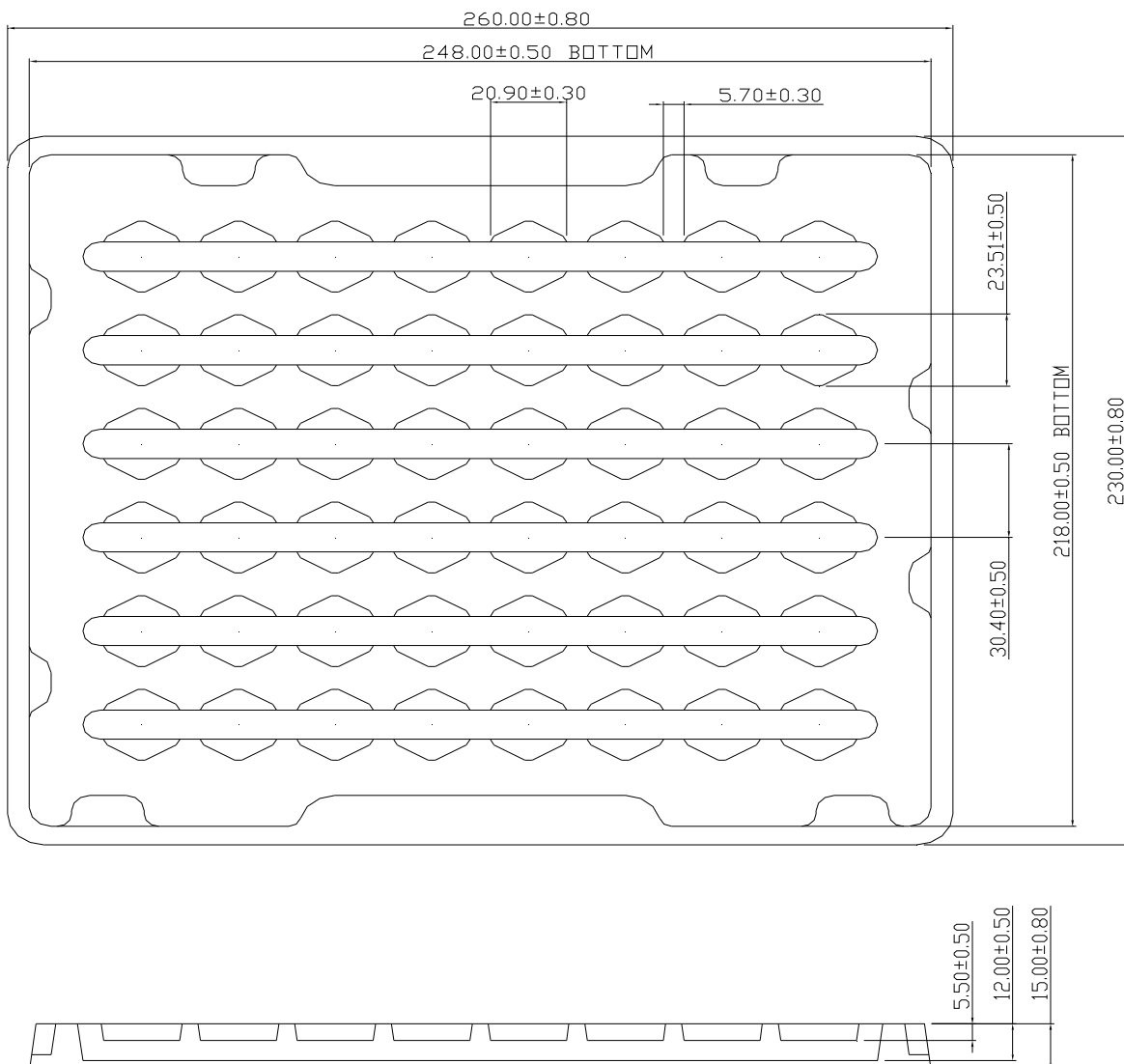
B. Assembly Type

(1) Tapping Dimension Packaging Specification

● **60 degree Assembly Type :**

- Moisture proof bag.
- 21 Tray (MAX) /bag.
- Q'ty:48pcs(MAX)/Tray

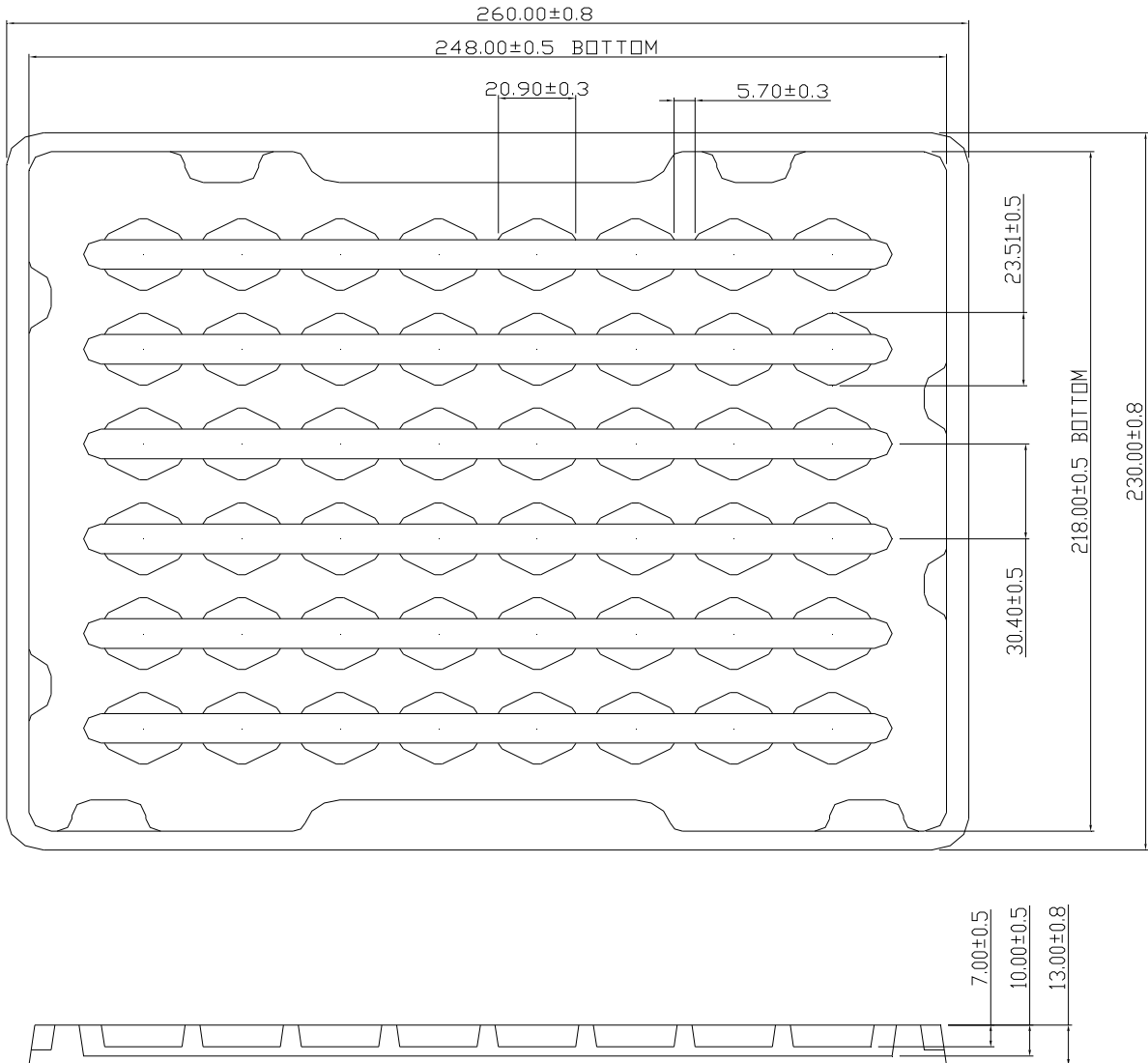
Unit : mm



● **120 degree Assembly Type :**

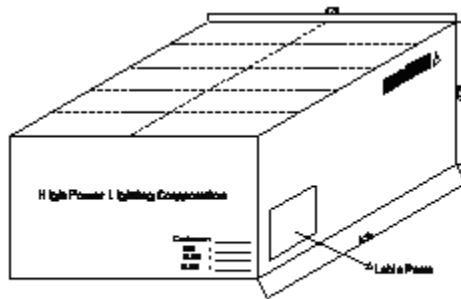
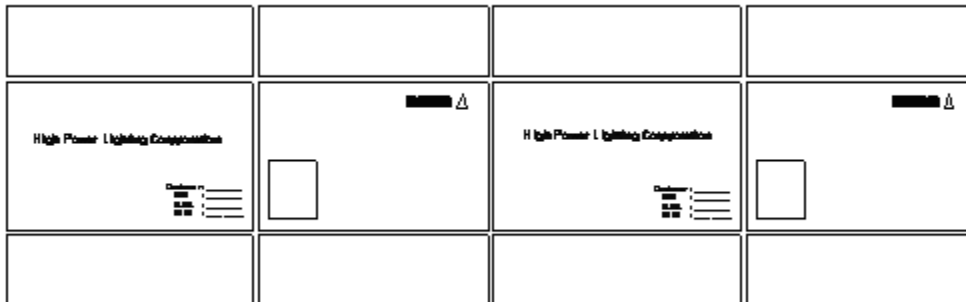
- Moisture proof bag.
- 24 Tray (MAX) /bag.
- Q'ty:48pcs (MAX)/Tray

Unit : mm



(2) Package
Large Box

Unit : mm



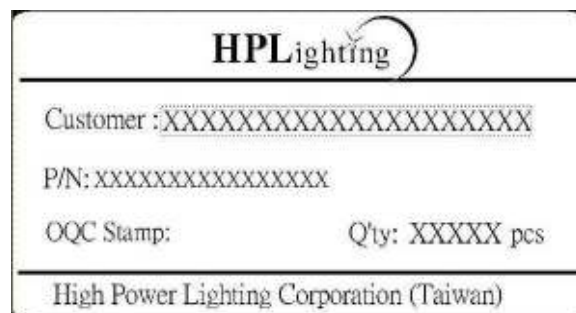
(3) Label Formation

70mm

Unit : mm

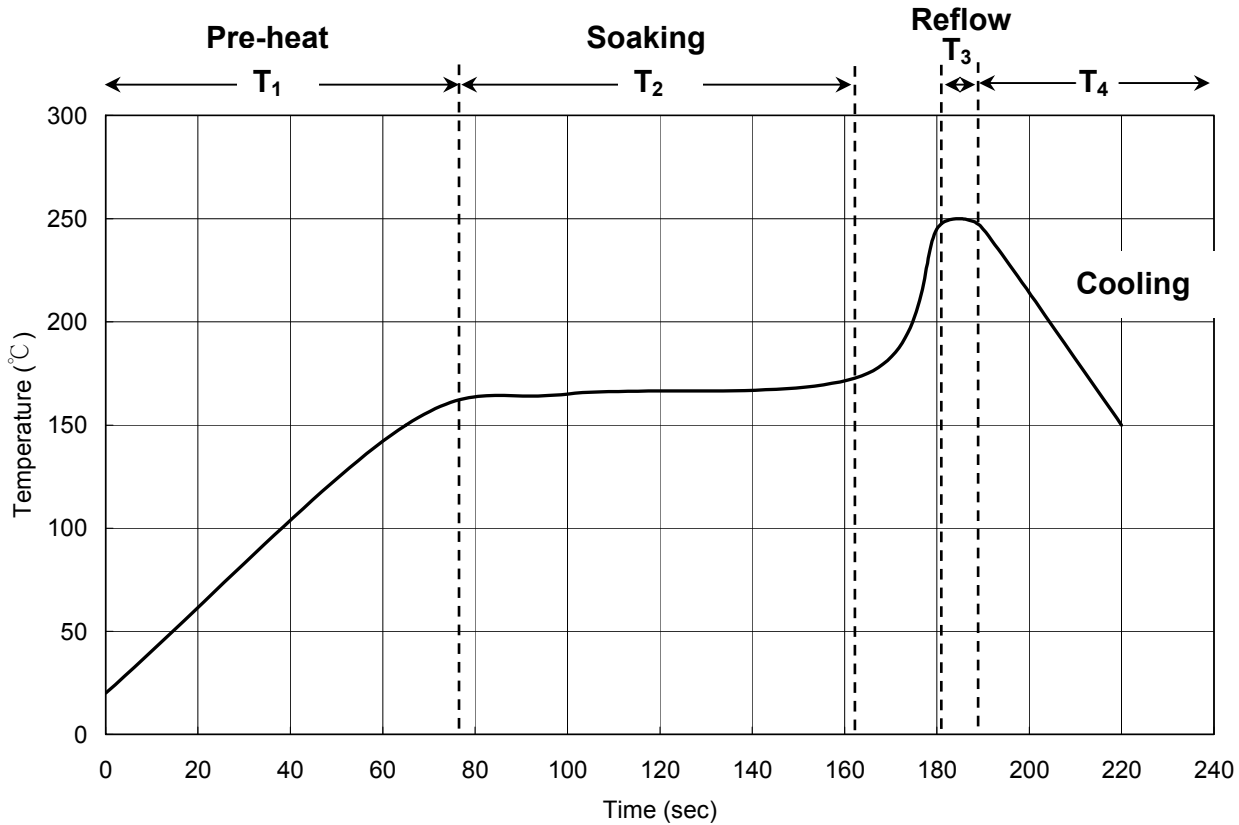


40mm,



9. 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.