SPECIFICATION FOR UV SERIES

HPL- H77X X 1 B A

Lens & Assembly Type :

N : No special Work
S : with Star
A : Lens 25°
B : Lens 45°
L : Lens 120°
G : Star & Lens 25°
H : Star & Lens 45°
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:

Colors	Flat	Lens 25^0	Lens 45^0	Lens 120^0
U 400~410nm	HPL-H77NU1BA	HPL-H77AU1BA	HPL-H77BU1BA	HPL-H77LU1BA
V 365~400nm	HPL-H77NV1BA	HPL-H77AV1BA	HPL-H77BV1BA	HPL-H77LVI1BA

With Star:

Colors	Star & Flat	Star & Lens 25^0	Star & Lens 45^0	Star & Lens 120^0
U 400~410nm	HPL-H77SH1BA	HPL-H77GH1BA	HPL-H77MH1BA	HPL-H77FH1BA
V 365~400nm	HPL-H77SK1BA	HPL-H77GK1BA	HPL-H77MK1BA	HPL-H77FK1BA

1. Features

- Dimension : 7.0mm(L)×7.0mm(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 (Tj=25℃)

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** **(Tj=25℃)**

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

- **Reverse Current** **(Tj=25℃)**

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

- **Radiant Intensity** **(Tj=25℃)**

Wavelength	Radiant Flux					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
U 400~410nm	Φ_e	-	180	-	I_F = 350mA	mW
V 365~375nm		-	25	-		
V 375~385nm		-	30	-		
V 385~400nm		-	90	-		

- **Peak wavelength** **(Tj=25℃)**

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

- **View Angle** **(Tj=25℃)**

Wavelength	Viewing Angle						
	Symbol	Without Lens	Lens 120°	Lens 25°	Lens 45°	Test Condition	Unit
All	$2\theta_{1/2}$	110°	120°	25°	45°	I_F = 350mA	degree

- **Spectra half-width** **(Tj=25℃)**

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

- **UV Bin Code List for Reference** **(Tj=25℃)**

Forward Voltage Bins

Item	Bin Code	Symbol	Condition	Min.	Max.	Unit
Forward Voltage[1]	H	V_F	I_F = 350 [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	

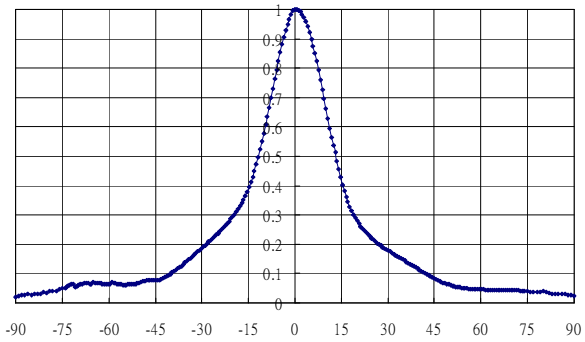
Wavelength Bins

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	

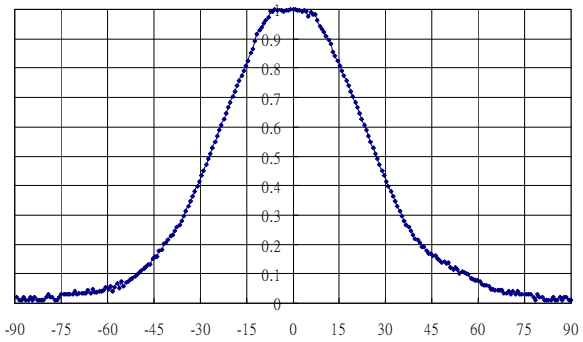
Note

1. Forward voltage measurement allowance is ± 0.1V.
2. Radiant flux measurement allowance is ± 10%.

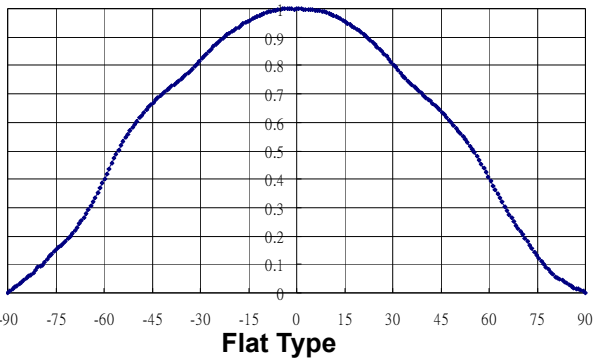
- **Optical Radiation Pattern**



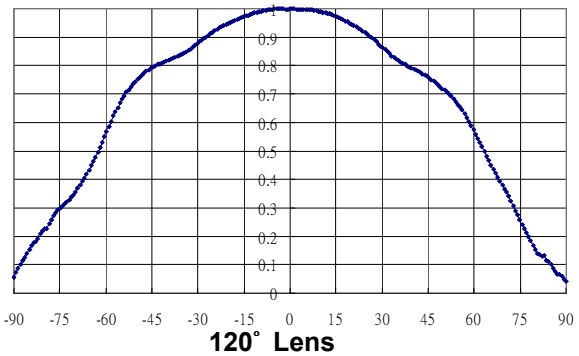
25˚ Lens



45˚ Lens

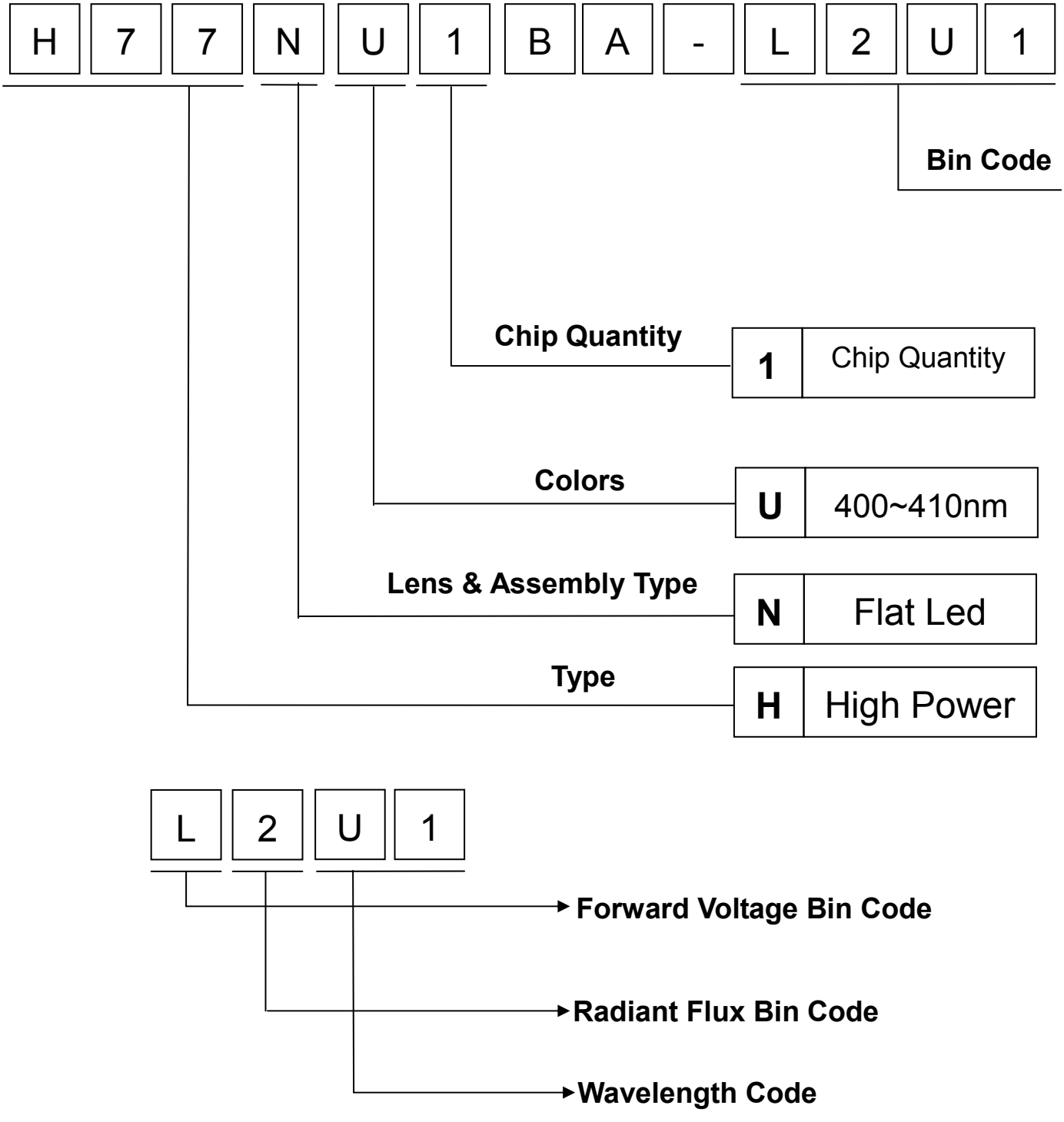


Flat Type



120˚ Lens

5. Part Number Formation



6. Characteristic Diagrams

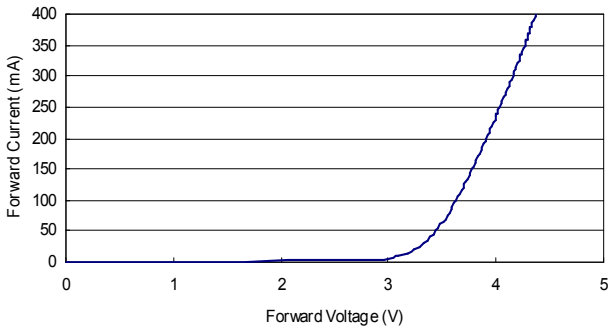


Fig. 1A Forward Current vs. Forward Voltage:

V 365~400nm

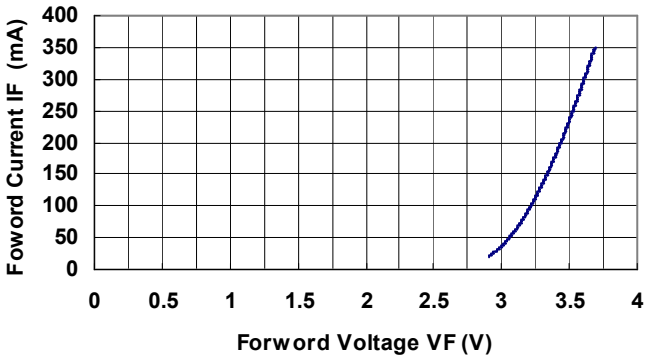


Fig. 1B Forward Current vs. Forward Voltage:

U 400~410nm

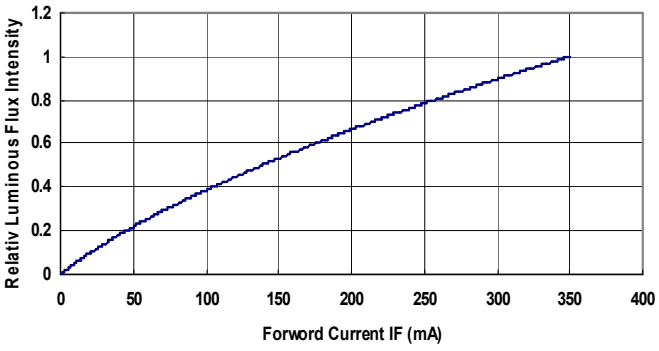


Fig. 2 Relative Intensity vs. Wavelength

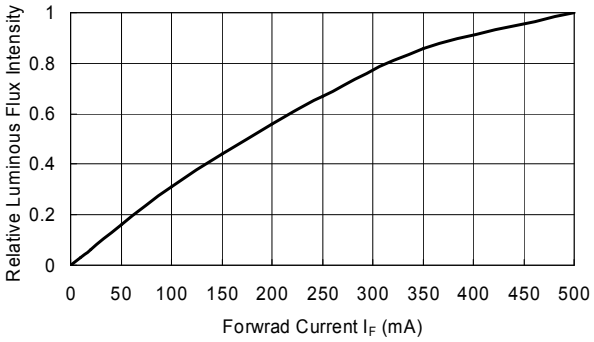


Fig. 3 Relative Intensity VS Forward Current

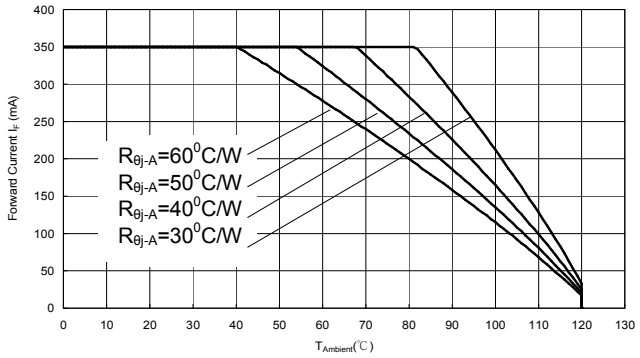
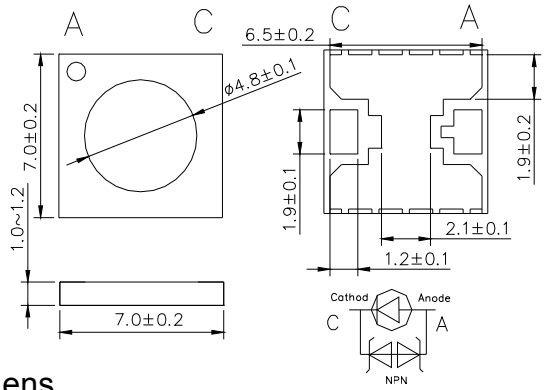


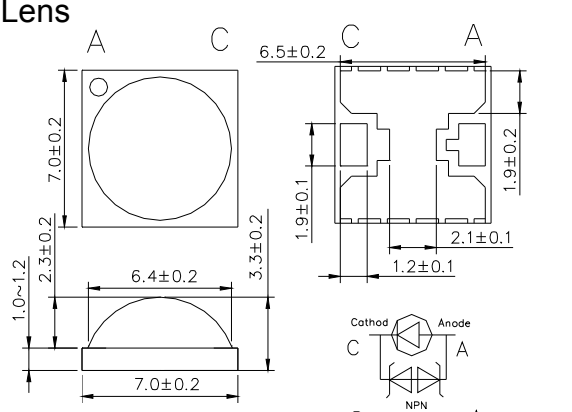
Fig. 4 Forward Current Degrading Curve

7. Dimensions (Unit:mm)

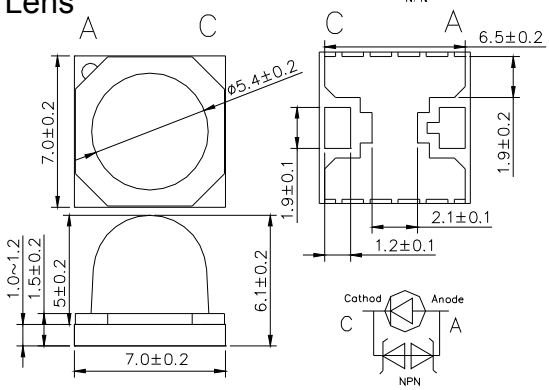
Flat Type



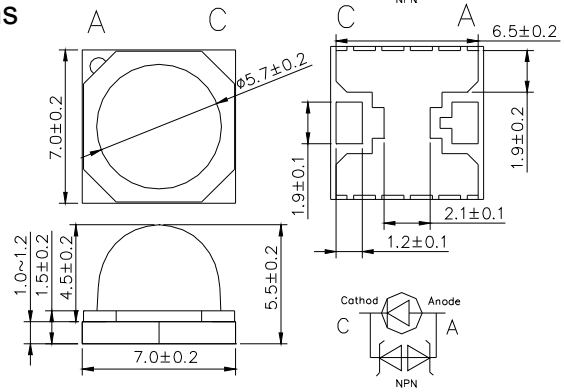
120° Lens



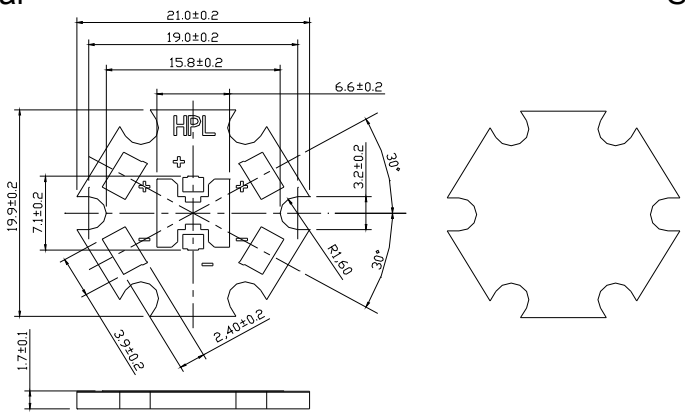
25° Lens



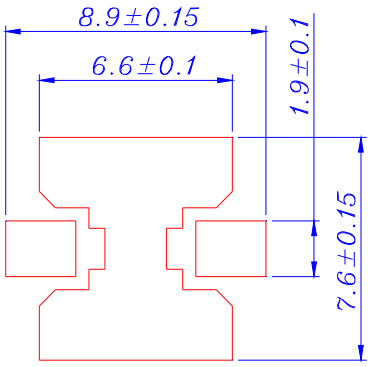
45° Lens



Star



Solder Pad Note: See the caution area

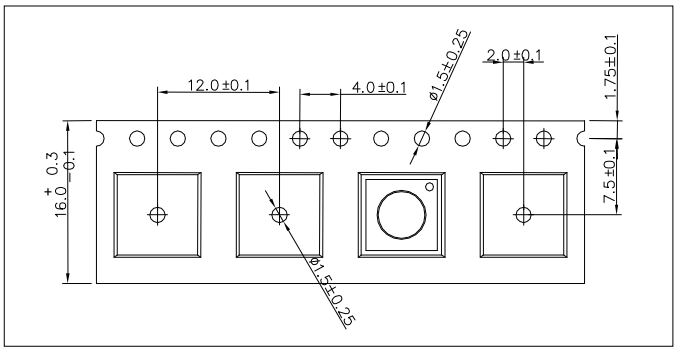


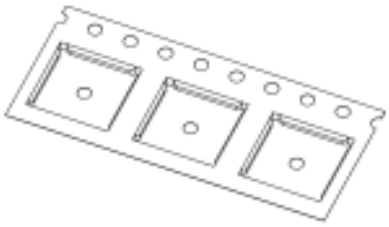
8. Shipping Package

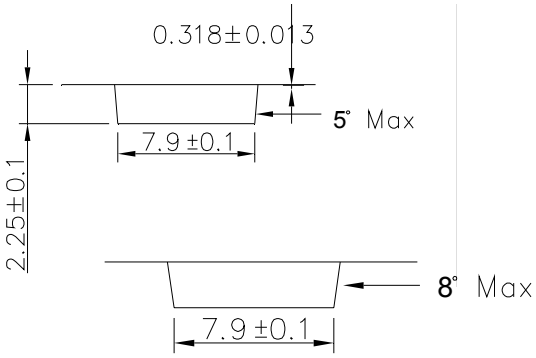
Unit : mm

(1)Tapping Dimension Packaging Specification

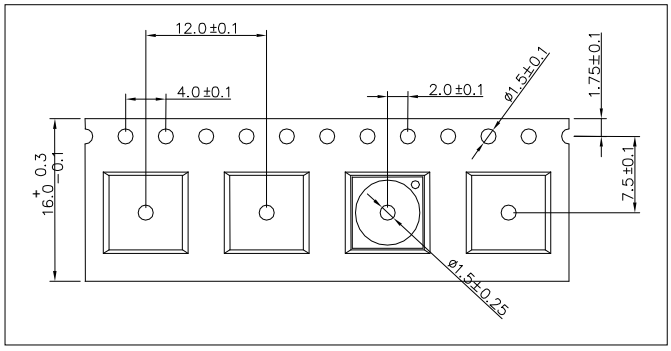
- **Flat Type :**
  - Moisture proof bag.
  - 1 Reel/bag.
  - Q'ty: 500(MAX)/Reel.

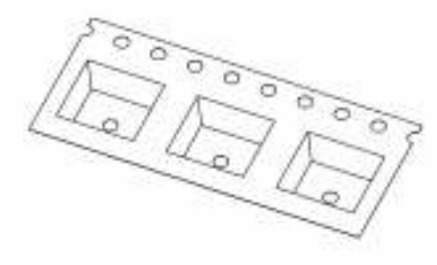


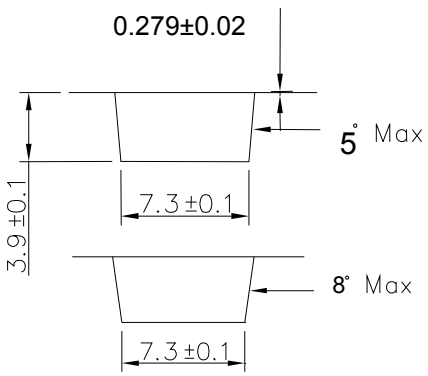




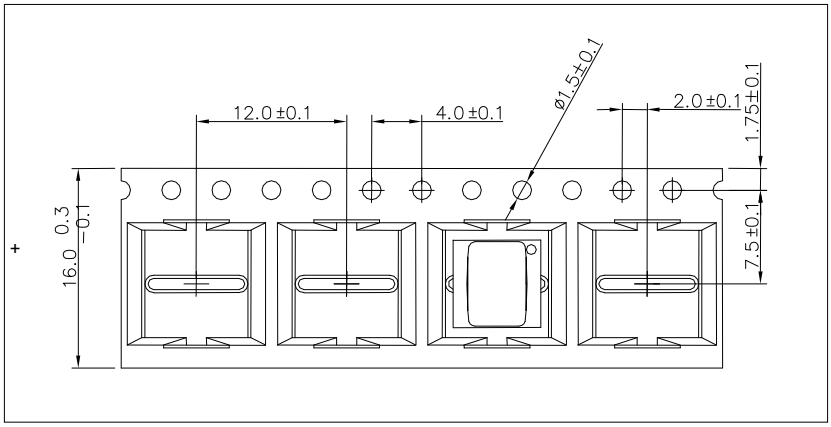
- **With 120 degree Lens:**
  - Moisture proof bag.
  - 1 Reel/bag.
  - Q'ty: 200(MAX)/Reel.

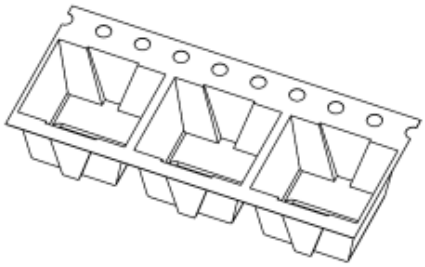


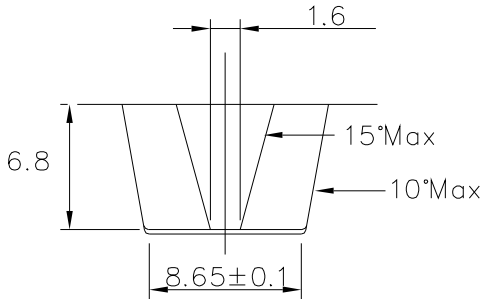


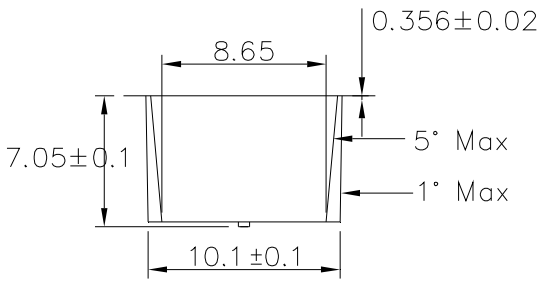


- **With 45 degree Lens:**
  - Moisture proof bag.
  - 1 Reel/bag.
  - Q'ty: 150(MAX)/Reel.



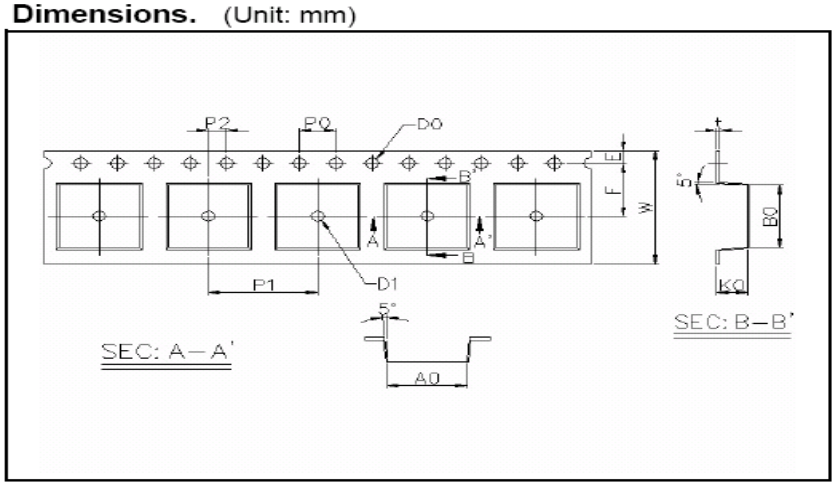






- **With 25 degree Lens & Special Shipping:**
  - Moisture proof bag.
  - 1 Reel/bag.
  - Q'ty: 150(MAX)/Reel.

Dimensions. (Unit: mm)



Item	Specification	Tol. (+/-)
W	16.00	± 0.30
E	1.75	± 0.10
F	7.50	± 0.10
D0	1.50	+0.10,-0
D1	1.50	+0.10,-0
P0	4.00	± 0.10
P1	12.00	± 0.10
P2	2.00	± 0.10
P0 x 10	40.00	± 0.20

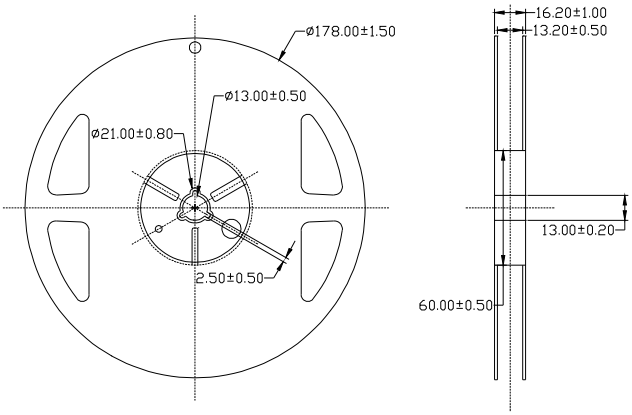
t	0.35	± 0.05
A0	7.60	± 0.10
B0	7.60	± 0.10
K0	5.30	± 0.10

(2) Package

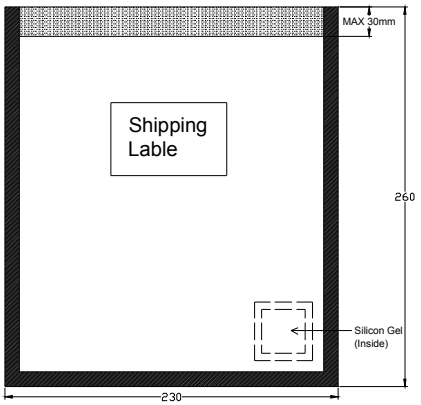
Box Type	Dimensions (mm)	Reel/Box
Small Box (S)	230 × 85 × 265	4 Reel/Box
Middle Box (M)	470 × 265 × 270	24 Reel/Box
Large Box (L)	470 × 435 × 270	40 Reel/Box

Reel Packaging **Unit: mm**

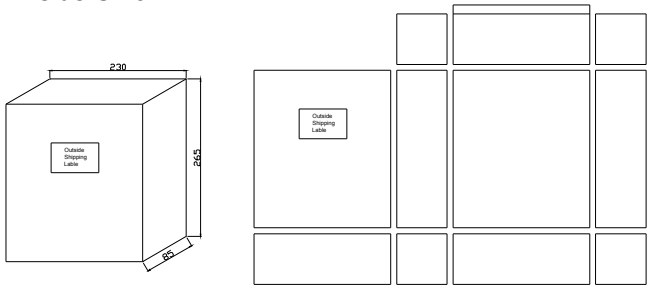
Reel



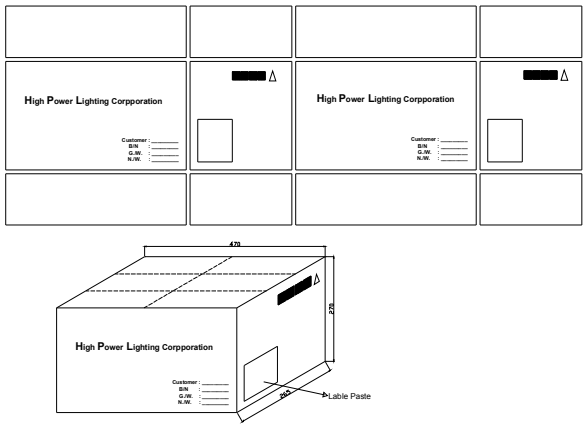
Anti Static Bag



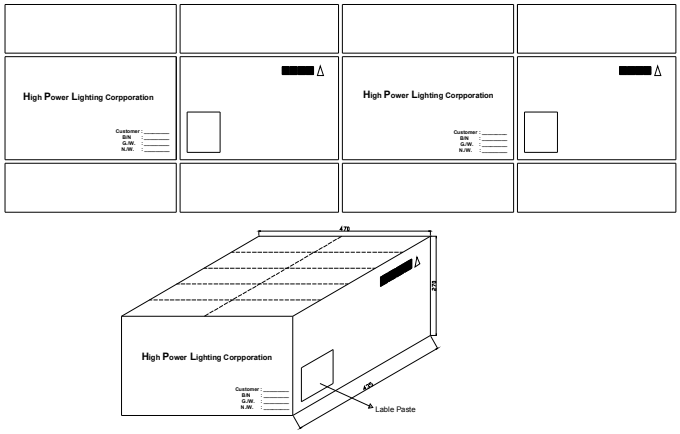
Inside Small



Middle Box

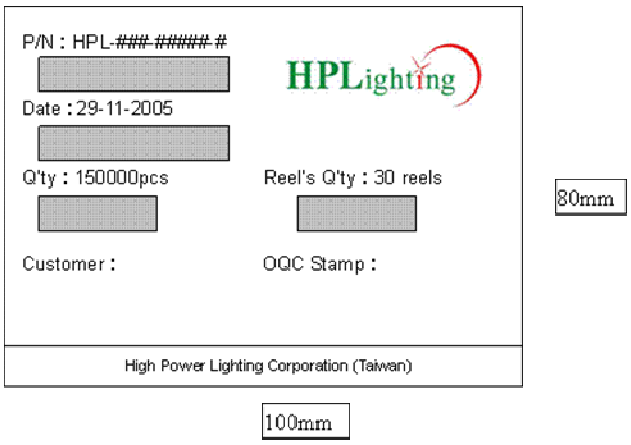


Large Box (Carton)

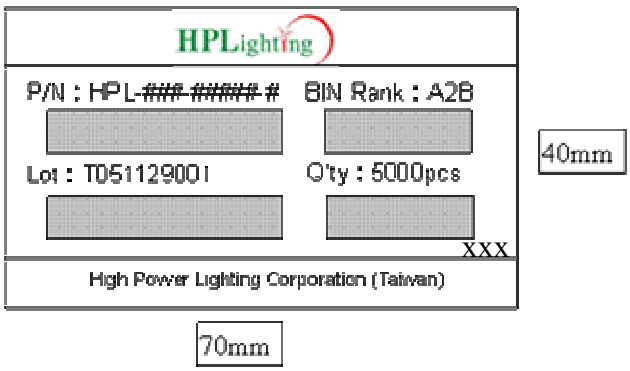


(3) Label Formation

Carton Label

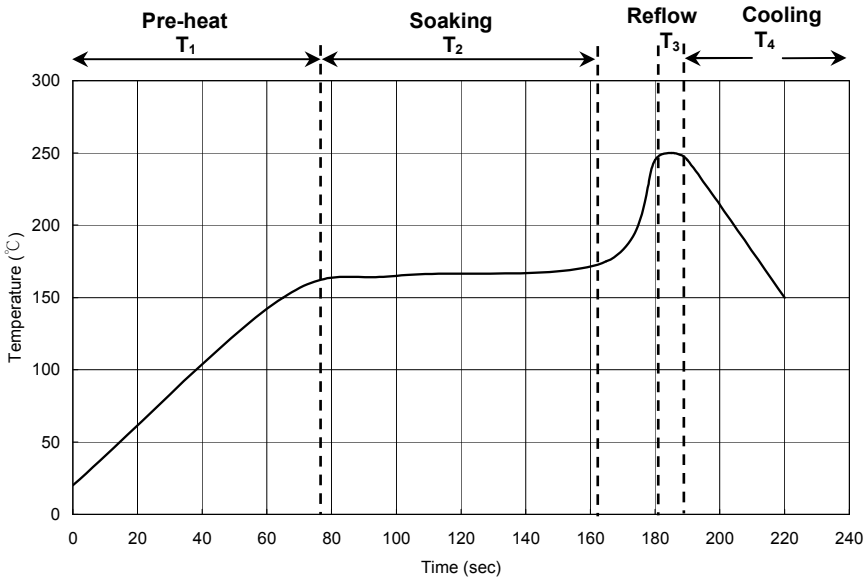


Reel Label



9. Recommended Solder profile

Soldering



Recommended soldering conditions:

T_1	Ramp up rate	1.0 ~ 3.0 ℃/sec
	Pre-heat time	50 ~ 80 sec
T_2	Soaking temperature	155 ~ 185 ℃
	Dwell time during soaking	60 ~ 120 sec
T_3	Reflow temperature	240 ~ 250 ℃
	Reflow time	Max 10 sec
	Ramp up rate during reflow	1.2 ~ 2.3 ℃/sec
T_4	Cooling	1.0 ~ 6.0 ℃/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.