Specification For IR Series

HPL-H44LX1BA



Features

- Dimension : 4.4mm(L)×4.4mm(W)
- High Radiant Flux type
- All Metal Design Cu Substrate/Al reflector with Quartz Glass Lens
- Low thermal resistance
- The The AlGaAs/ AlGaAs , AlGaAs/ GaAs Chip inside

Applications

- IrDA
- Encoder
- Data Communication

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General Information

HPL - H44X1X21BA

X_1:Lens & Assembly Type-	X_2: Wavelength-	Power-
L：120° Lens Emitter only F：120° Lens Emitter on Standard Star	I : IR 730nm J : IR 850nm K : IR 940nm	B: 1W

Part Number Matrix

Type / Wavelength	120°Lens	120°Lens & Star
IR 730nm	HPL-H44LI1BA	HPL-H44FI1BA
IR 850nm	HPL-H44LJ1BA	HPL-H44FJ1BA
IR 940nm	HPL-H44LK1BA	HPL-H44FK1BA

Absolute Maximum Ratings

(Tj=25℃)

Parameter		Symbol	Rating	Unit
Power Dissipation	IR 730nm	P	1	W
	IR 850nm		1	
	IR 940nm		1	
Forward current	IR 730nm	I_F	350	mA
	IR 850nm		500	
	IR 940nm		500	
Forward Pulse Current (1/10 Duty Cycle, 400msec Pulse Width)		I_{FP}	700	mA
Thermal Resistance, Junction-Case		R_{th}, J-C1	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 10 Seconds	

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

Initial Electrical/Optical Characteristics

- **Forward Voltage** (Tj=25℃)

Wavelength	Forward Voltage					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
IR 730nm	V_F	-	2.1	-	I_F = 350mA	V
IR 850nm		-	1.8	-	I_F = 500mA	
IR 940nm		-	1.7	-	I_F = 500mA	

- **Reverse Current** (Tj=25℃)

Wavelength	Reverse Current					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
IR 730nm	I_R	-	-	100	V_R = 5V	μA
IR 850nm		-	-	100		
IR 940nm		-	-	100		

- **Radiant Flux** (Tj=25℃)

Wavelength	Radiant Flux					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
IR 730nm	Φ_e	150	290	-	I_F = 350mA	mW
IR 850nm		225	380	-	I_F = 500mA	
IR 940nm		225	380	-	I_F = 500mA	

- **Peak wavelength** (Tj=25℃)

Wavelength	Wavelength					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
IR 730nm	λ_p	730	-	750	I_F = 350mA	nm
IR 850nm		840	-	870	I_F = 500mA	
IR 940nm		930	-	950	I_F = 500mA	

- **Spectra half-width** (Tj=25℃)

Wavelength	Wavelength					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
IR 730nm	Δλ	-	25	-	I_F = 350mA	nm
IR 850nm		-	40	-	I_F = 500mA	
IR 940nm		-	40	-	I_F = 500mA	

- **Typical Radiation Pattern**

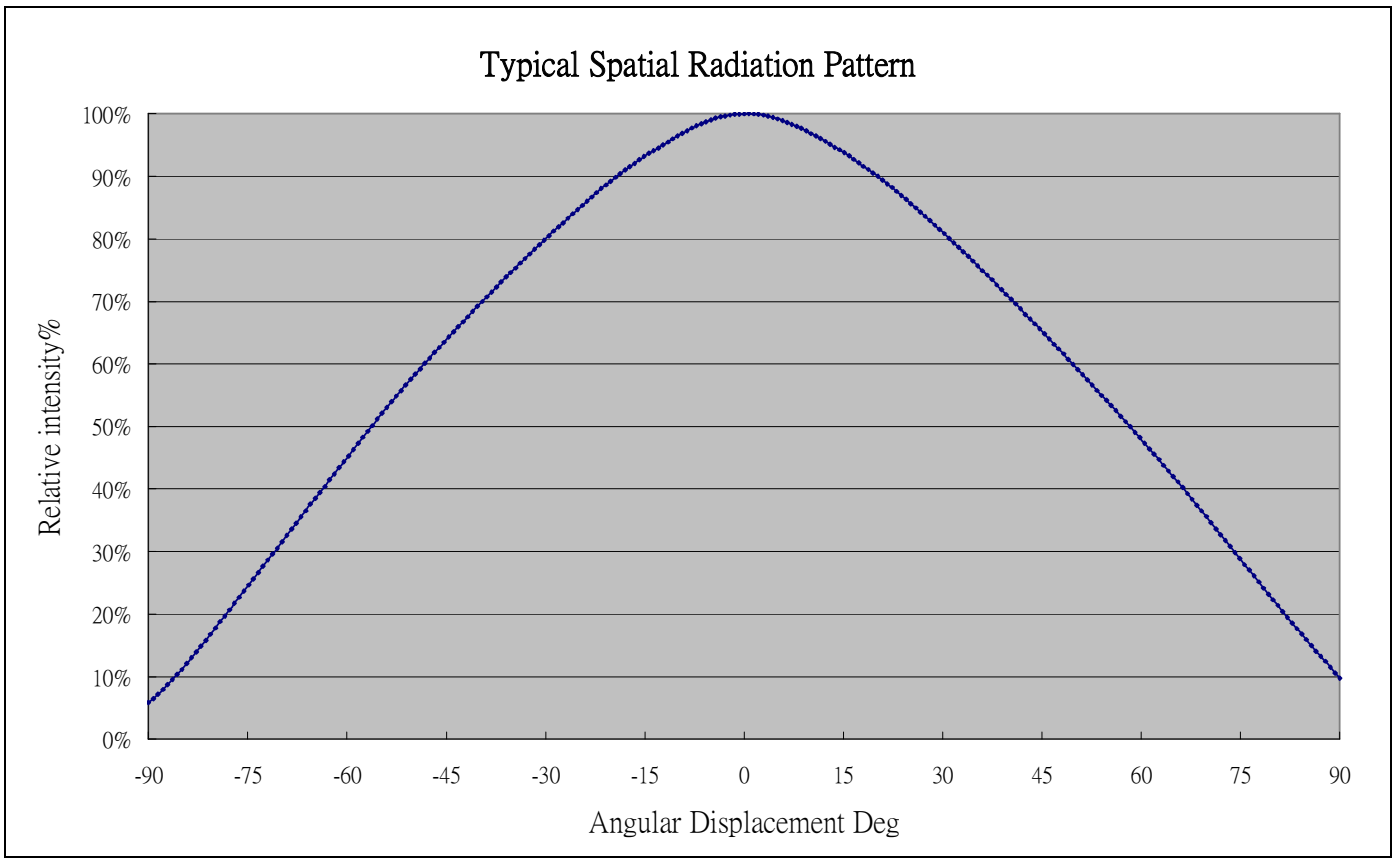


Fig. (120° Lens) Typical Representative Spatial Radiation Pattern

• Bin Code List for Reference

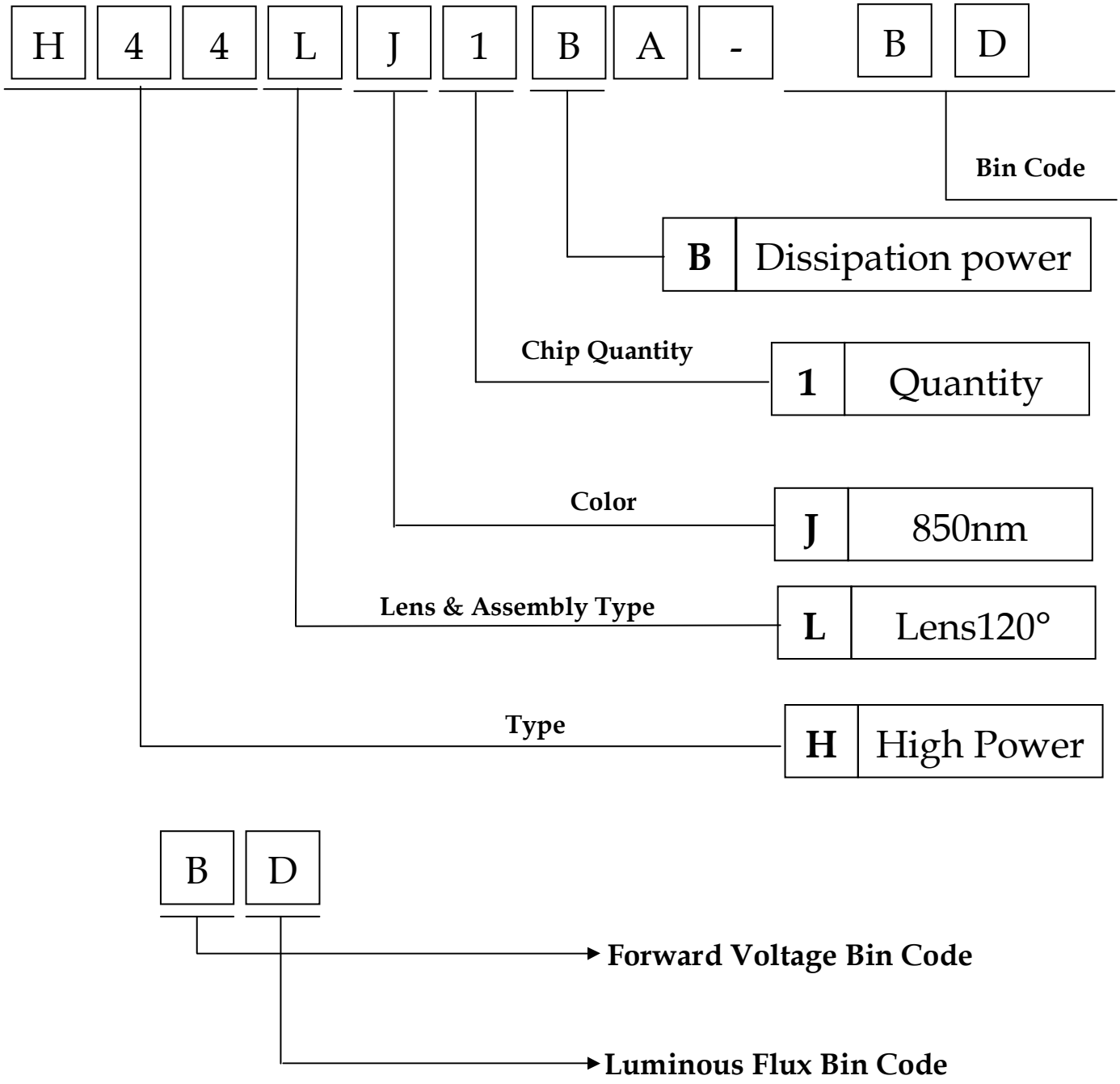
(Tj=25℃)

Item	Bin Code	Symbol	Condition	Min.	Max.	Unit
Forward Voltage[1]	A	V_F	I_F = 500 [mA] I_F = 350 [mA]	1.35	1.59	**V**
	B			1.59	1.83	
	C			1.83	2.07	
	D			2.07	2.31	
	E			2.31	2.55	
	F			2.55	2.79	
Radiant Flux[2]	A	Φe	I_F = 500 [mA] I_F = 350 [mA]	175	225	**mW**
	B			225	275	
	C			275	350	
	D			350	425	
	E			425	500	

Note

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

Part Number Formation



Characteristic Diagram

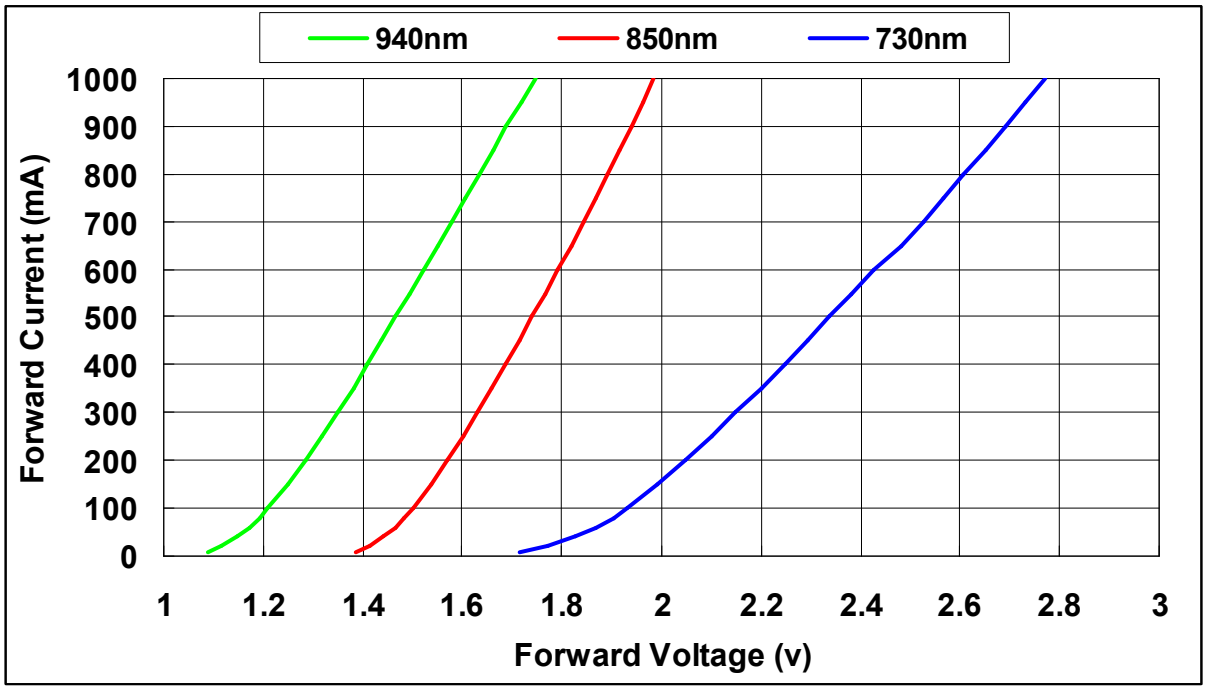


Fig. Forward Current vs. Forward Voltage

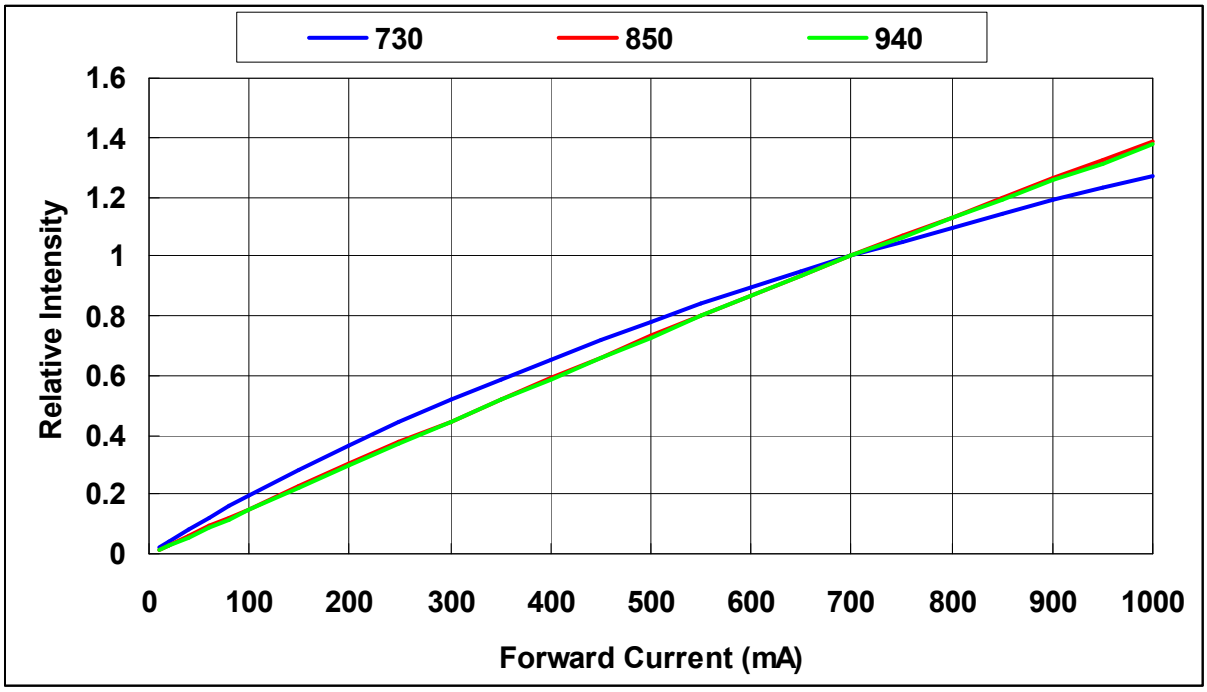


Fig. Relative Intensity vs. Forward Current.

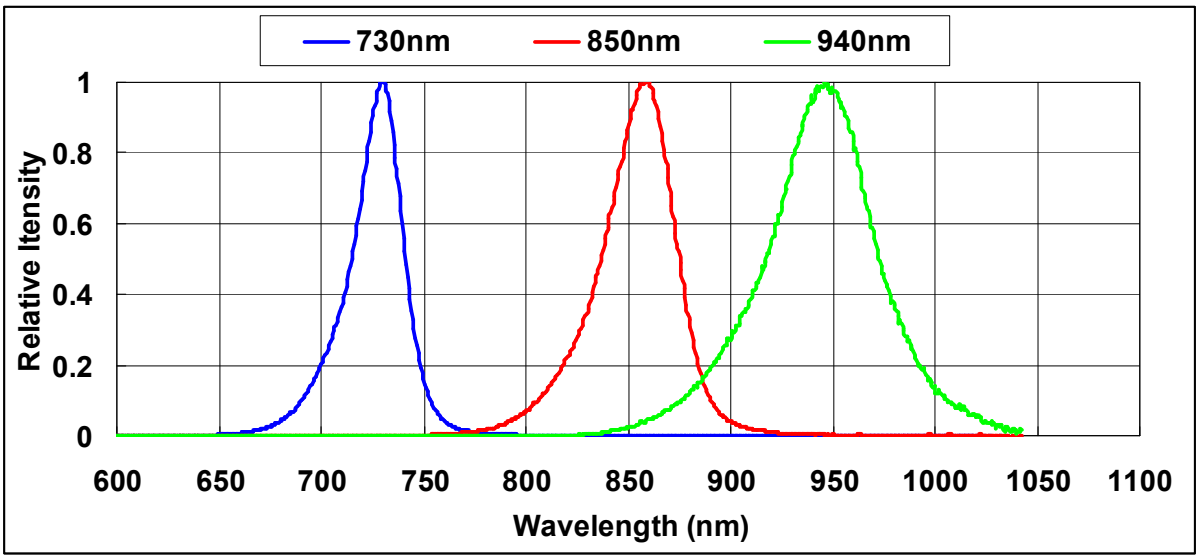


Fig. Typical Relative Intensity vs. wavelength

Outline Dimension

HPL-H44LX1BA

Unit : mm

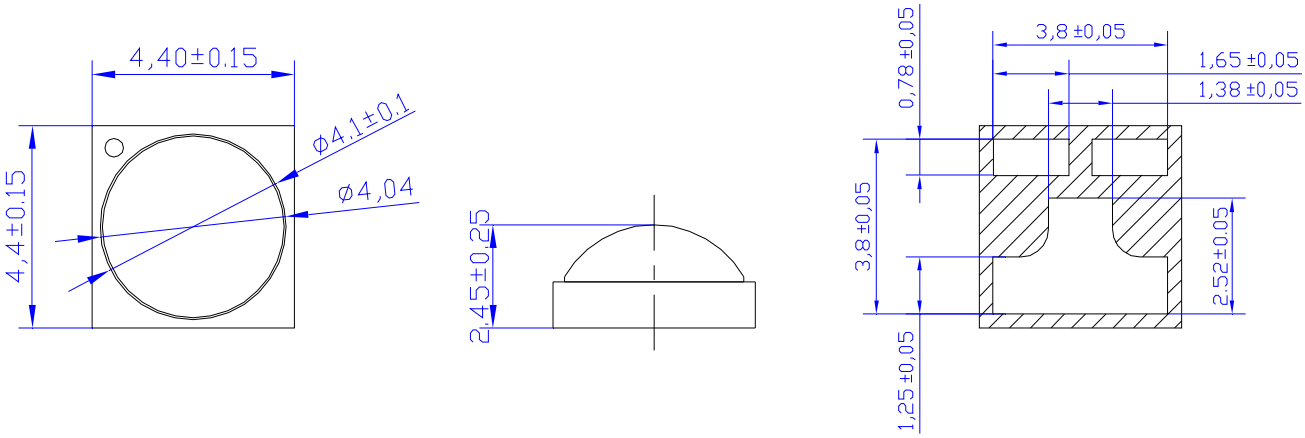
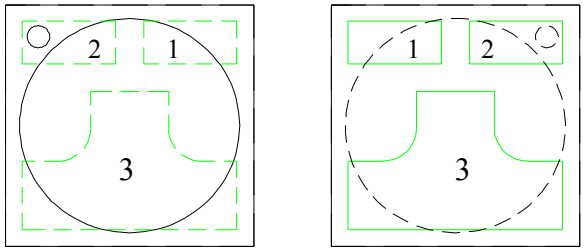


Fig. Package Outline Drawing.

Pad Configuration



TOP **BOTTOM**

PAD	Function
1	Cathode
2	Anode, Thermal

Fig. Pad configuration.

HPL-H44FX1C0

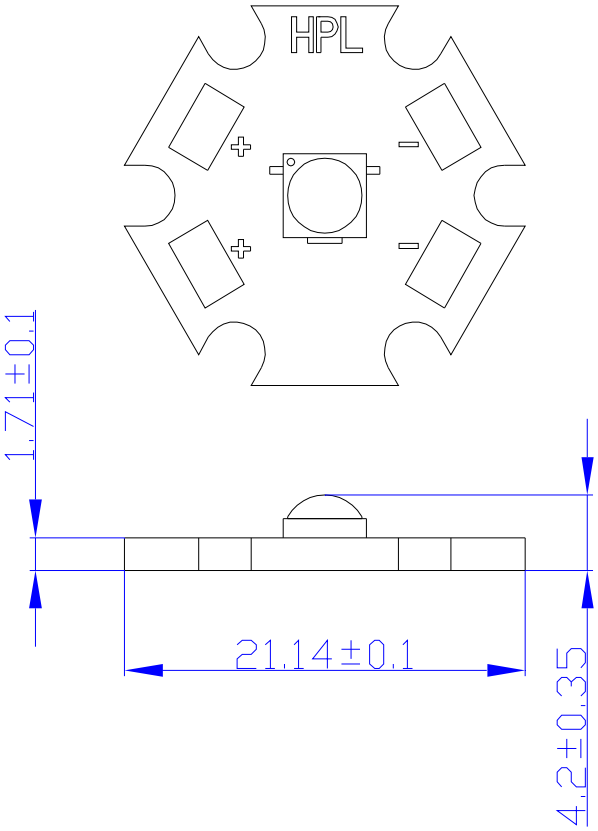
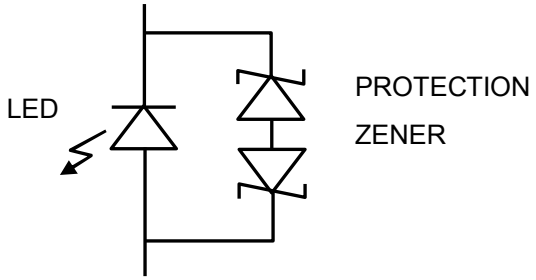
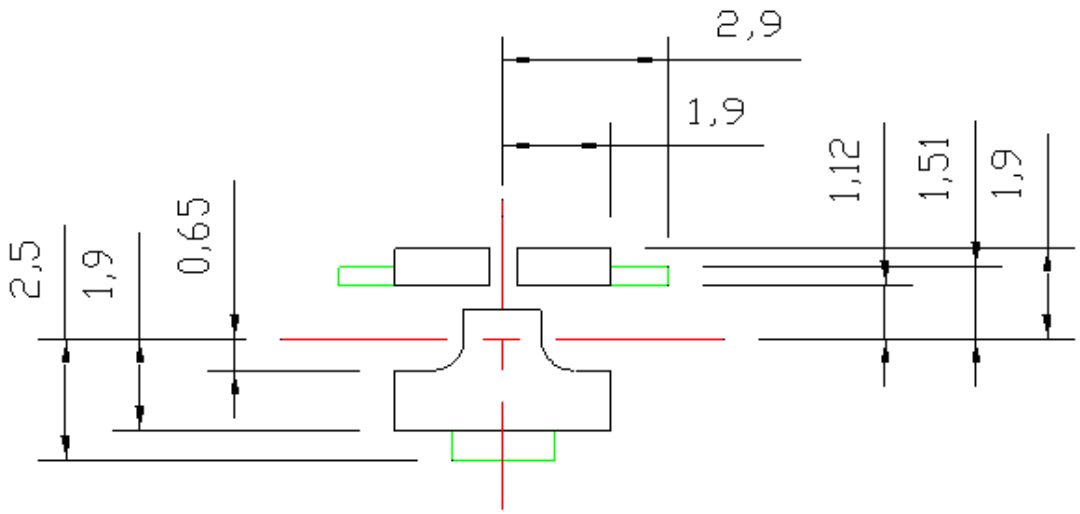


Fig. Assembly r Outline Drawing.

PROTECTION CIRCUIT



Recommended Solder Pattern





SOLDER MASK **COPPER LAYER**

Fig. Solder Pad Layout.

Shipping Package Style

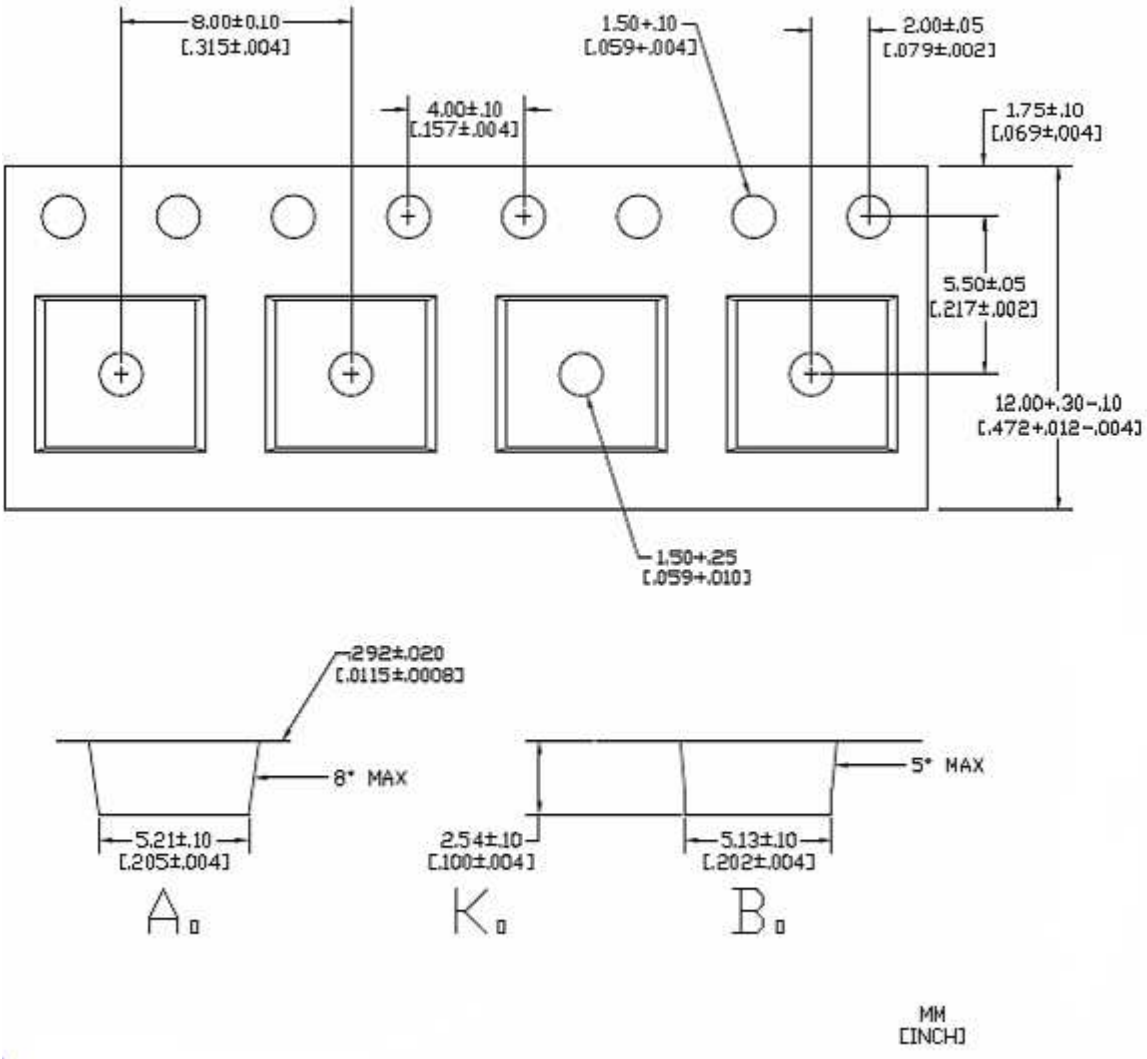
Lens Type

Tapping Dimension Packaging Specification

120 Degree Lens Type :

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

Unit : mm



Label Formation

P/N: XXXXXXXXXXXXXX	BIN Rank : XXXXXXXXXX
LOT: XXXXXXXXXXXXXX	Q'ty : XXXX PCS XXX

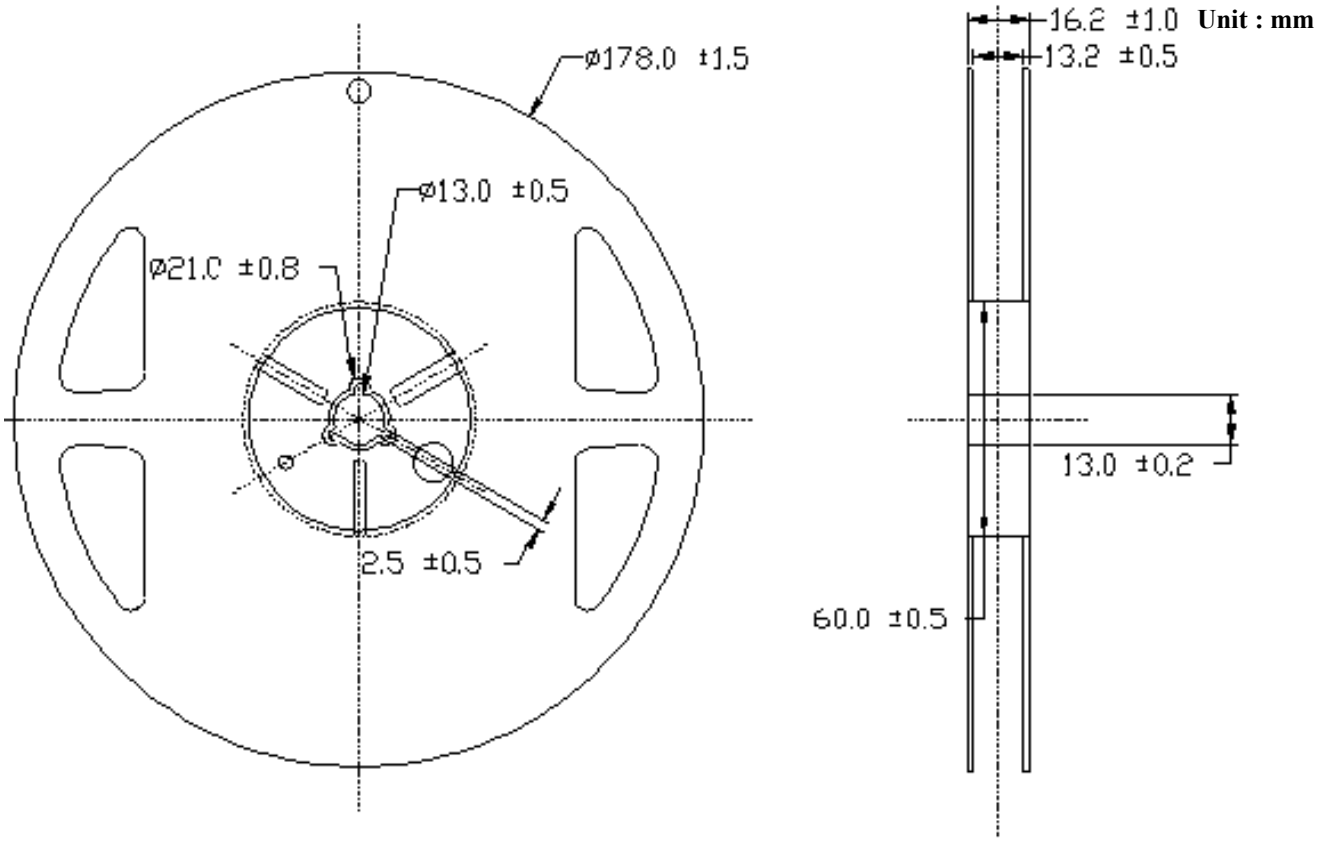
75mm*8mm

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

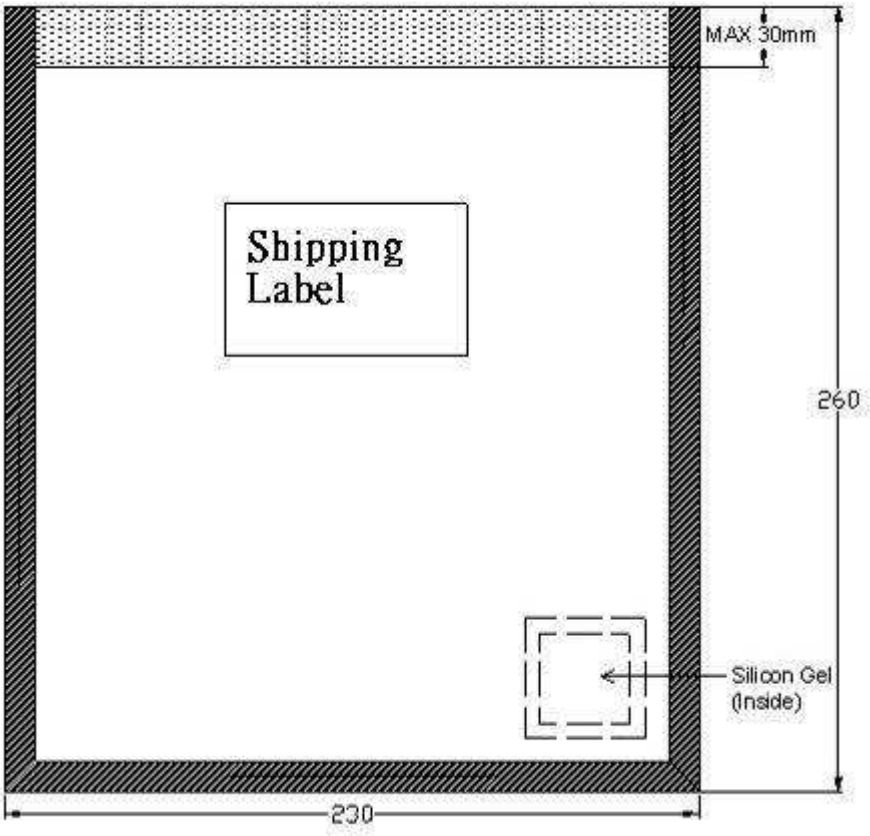
Reel Packaging :

Reel Part :



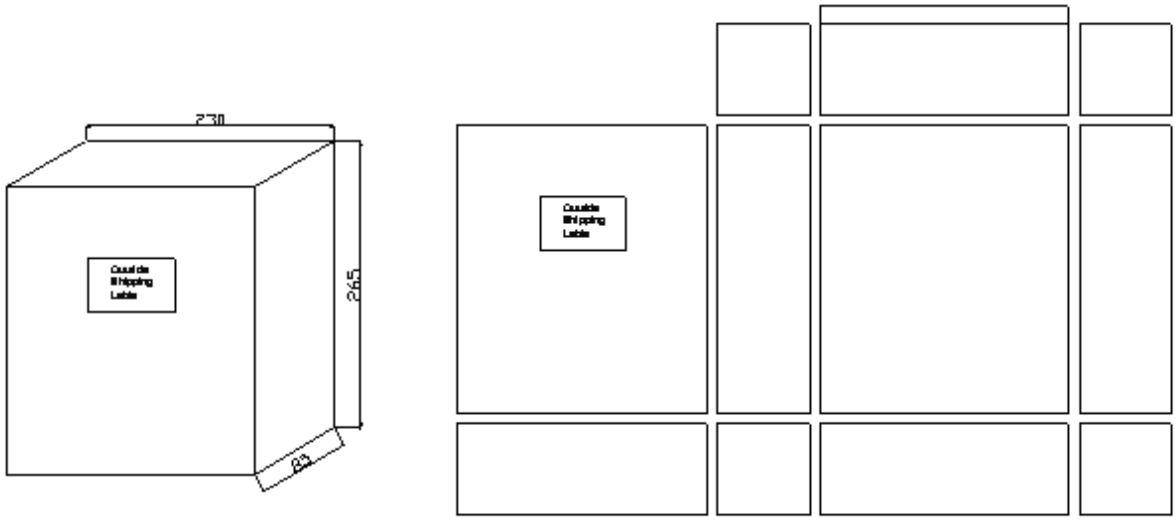
Anti Statistic Bag :

Unit : mm



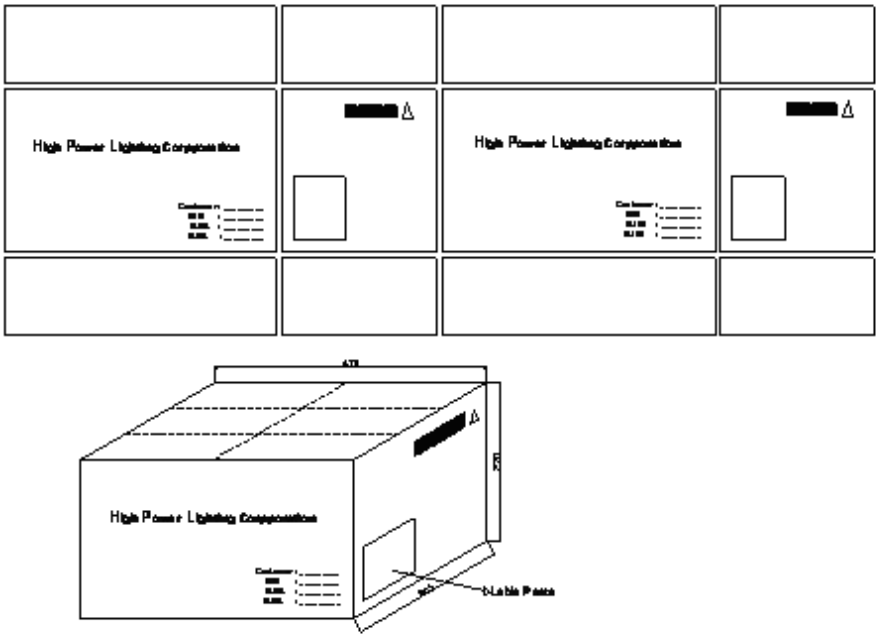
Small Box

Unit : mm



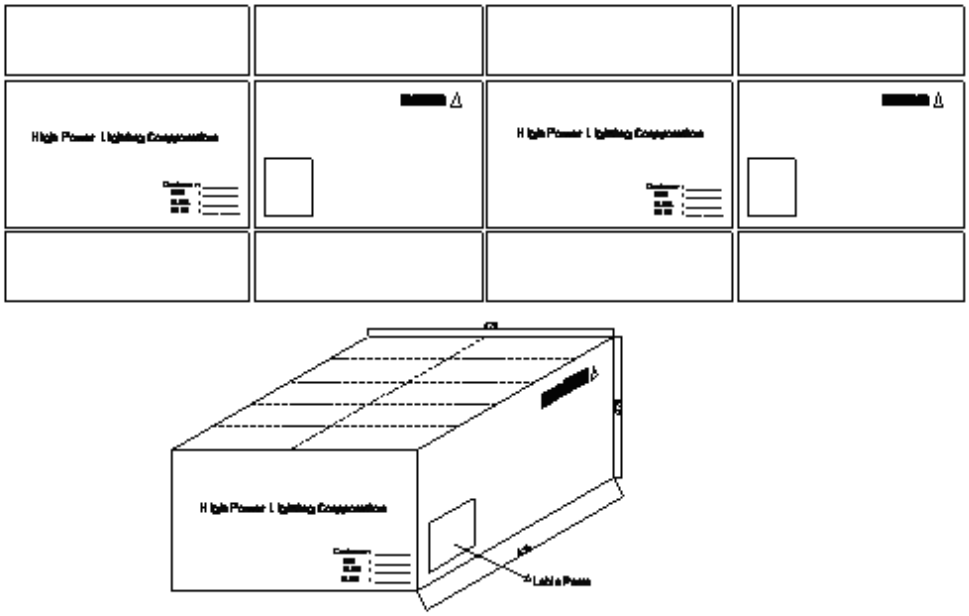
Middle Box

Unit : mm



Large Box

Unit : mm



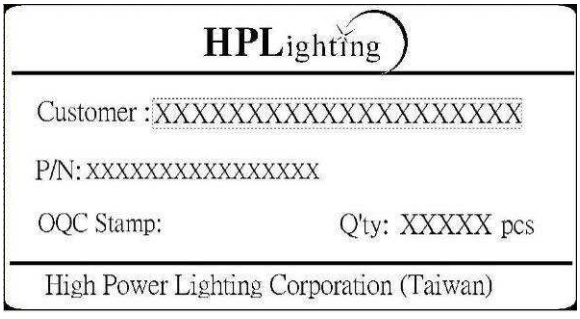
Label Formation

70mm

Unit : mm



40mm



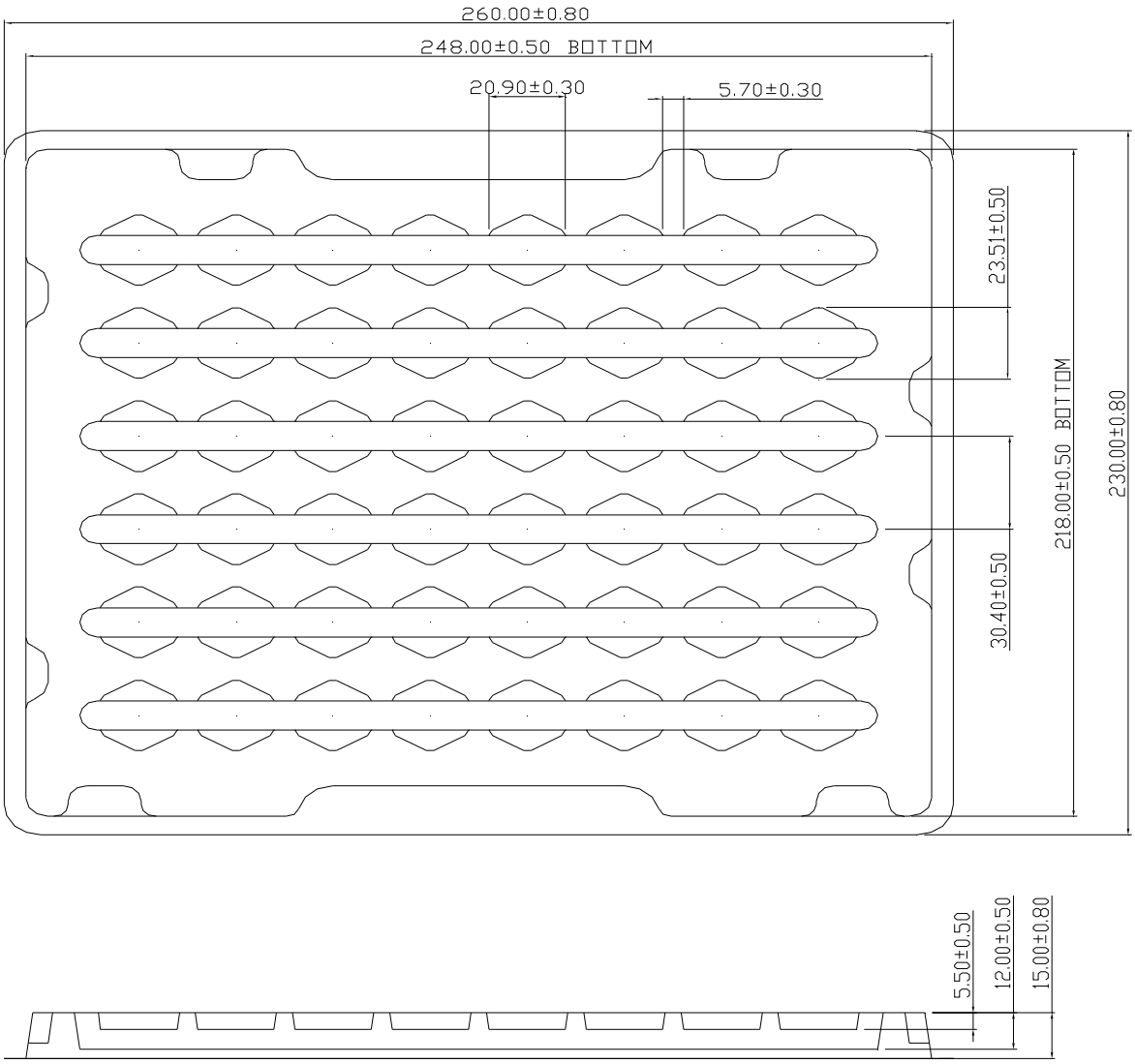
Assembly Type

Tapping Dimension Packaging Specification

120 Degree Assembly Type :

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

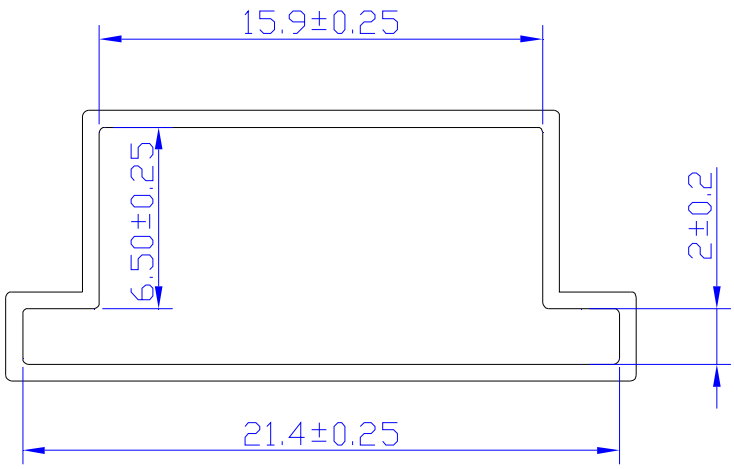
Unit : mm



120 Degree Assembly Type :

- 1 Tube
- Q'ty:20pcs(MAX)/Tube
- Q'ty: 300 Tube (MAX)/Box

Unit : mm



NOTES:
General toerance=± 0.25mm
Material :PVC,Clear
THICKNESS : 0.60±0.1
LENGTH :424±2mm

Label Formation

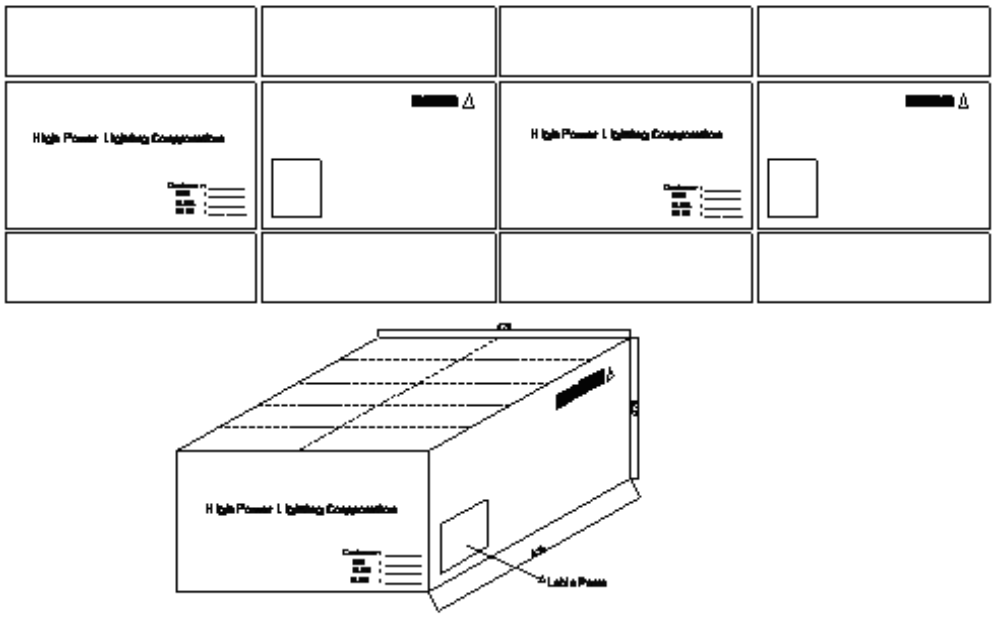
P/N: XXXXXXXXXXXXX	BIN Rank : XXXXXXXXXX
LOT: XXXXXXXXXXXXX	Q'ty : XXXX PCS XXX

75mm*8mm

Package

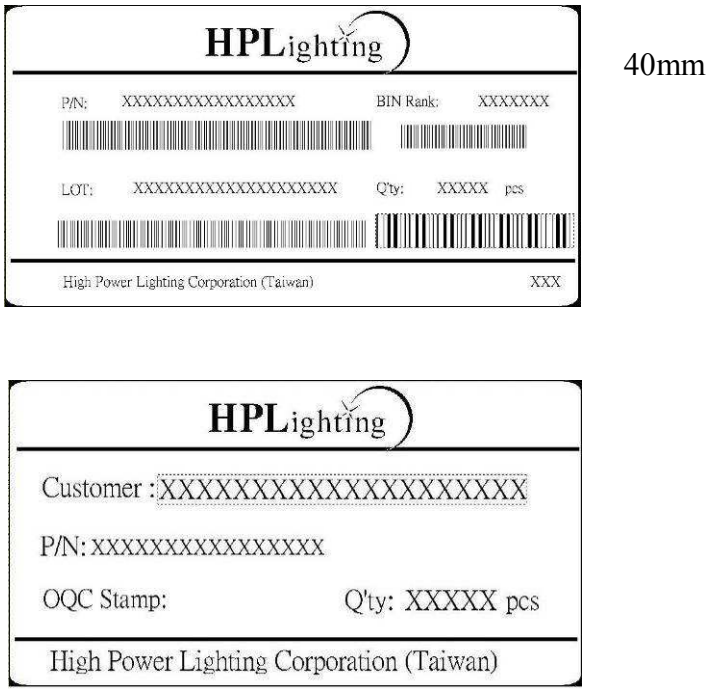
Large Box

Unit : mm



Label Formation

Unit : mm

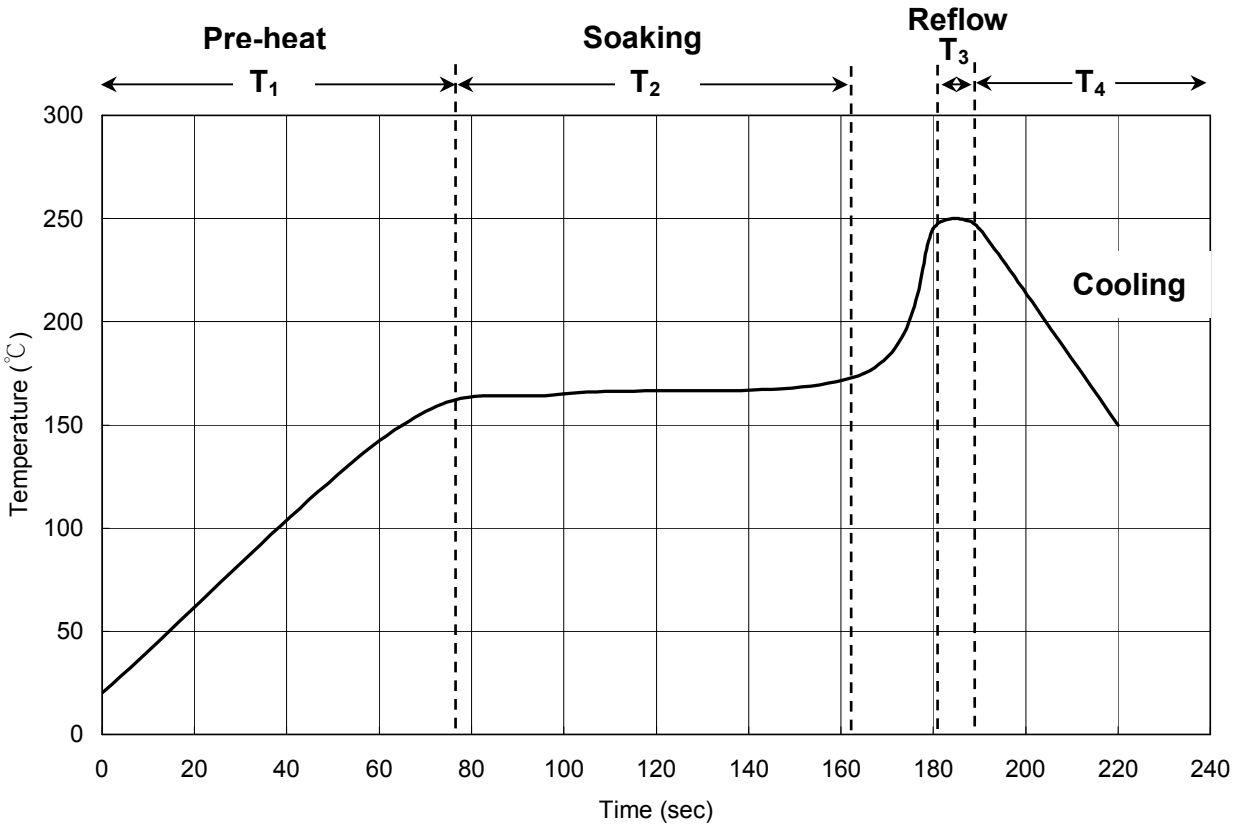


Qualification Reliability Testing

Classification	Test Item	Test conditions	Referance Standard
Endurance Test	Operation Life	I_F = 60mA/120mA(H28), 350mA/700mA(H40/H44/H99) Ta = 25℃ Test Duration = 1000hrs	MIL-STD-750: 1026 MIL-STD-883: 1005 JIS C 7021: B-1
	High Temperature High Humidity Storage	IF = 60mA/120mA(H28), 350mA/700mA(H40/H44/H99) Ta = 85±5℃ RH = 85±5% Test Duration = 1000hrs	MIL-STD-202: 103B JIS C 7021: B-11
	High Temperature Storage	Ta = 105±5℃ Test Duration = 1000hrs	MIL-STD-202: 1008 JIS C 7021: B10
	Low Temperature Storage	'Ta = -40±5℃ Test Duration = 1000hrs	JISC 7021: B-12
Environmental Test	Temperature Cycling	-40℃ ~ 25℃ ~ 105℃ ~ 25℃ 30min 5min 30min 5min Test Duration = 10 cycle	MIL-STD-202: 107D MIL-STD-750: 1051 MIL-STD-883: 1010 JIS C 7021: A-4
	Thermal Shock	-55±5℃ ~ 105±5℃ 30min 30min Test Duration = 10 cycle	MIL-STD-202: 107D MIL-STD-750: 1051 MIL-STD-883: 1011
	Solder Resistance	Tsol = 260±5℃ Dwell Time = 10sec	MIL-STD-202: 210A MIL-STD-750: 2031 JIS C 7021: A-1
Measuring Items	Symbol	Measuring Conditions	Failure Criteria
Forward voltage	V_F	IF = 60mA/120mA(H28), 350mA/700mA(H40/H44/H99)	V_F shift > 10%
Luminous	Iv%	IF = 60mA/120mA(H28), 350mA/700mA(H40/H44/H99)	I_v% shift > 10%

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.

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For the latest product information, call us or visit: www.hplighting.com.tw

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