Specification For UV Series

HPL-H99IU1C0

1. Features	2. Application
■ Dimension : 9.0mm(L)×9.0mm(W) ■ All Metal Design Cu Substrate/Al reflector with Quartz Glass Lens ■ Quartz-like silicon resin ■ Good for SMT process ■ Low thermal resistance ■ The InGaN Chip inside	■ UV Printing/UV Curing ■ Medical ■ Electronics Assembly ■ Opto Electronics ■ Special Lighting ■ Defect Detection

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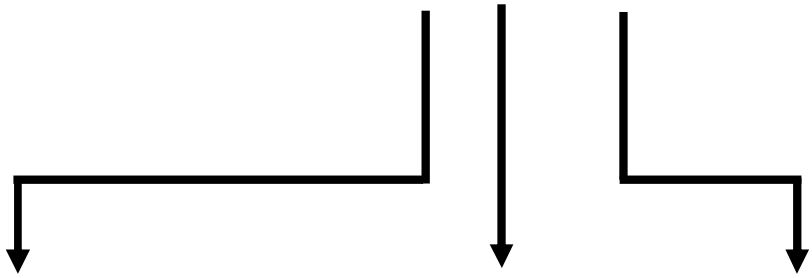
Table of Contents

General Information

HPL – H99 X_1 X_2 1 C 0



X_1:Lens & Assembly Type-

I：70° Lens Emitter only
J：70°Lens Emitter on Standard Star

X_2:Color-

U: UV390~420nm

Power-

C: 3W

Part Number Matrix

Type / Wavelength	70°Lens	70°Lens & Star
V	HPL-H99IU1C0	HPL-H99JU1C0

Absolute Maximum Ratings

(Tj=25℃)

Parameter		Symbol	Rating	Unit
Power Dissipation	UV390-420nm	P	3	W
Forward Current		I_F	700	mA
Forward Pulse Current (1/10 Duty Cycle, 400msec Pulse Width)		I_{FP}	1000	mA
Thermal Resistance, Junction-Case		R_{th}, J-C1	5	°C/W
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).

Initial Electrical/Optical Characteristics

- **Forward Voltage** (Tj=25℃)

Wavelength	Forward Voltage					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
390~420nm	V_F	3.03	3.8	4.47	I_F= 700mA	V

Caution: The real output is decided by chip capability

- **Radiant Flux**(Tj=25℃)

Wavelength	Radiant Flux					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
410~420nm	Φ_e	500	850	-	I_F = 700mA	mW
400~410nm		500	850	-		
390~400nm		500	850	-		

Caution: The real output is decided by chip capability

- **Peak wavelength** (Tj=25℃)

Wavelength	Wavelength					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
390~420nm	λ_p	390	-	420	I_F = 700mA	nm

- **Spectra half-width** (Tj=25℃)

Wavelength	Wavelength					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
390~420nm	$\Delta\lambda$	-	15	-	I_F = 700mA	nm

Typical Radiation Pattern

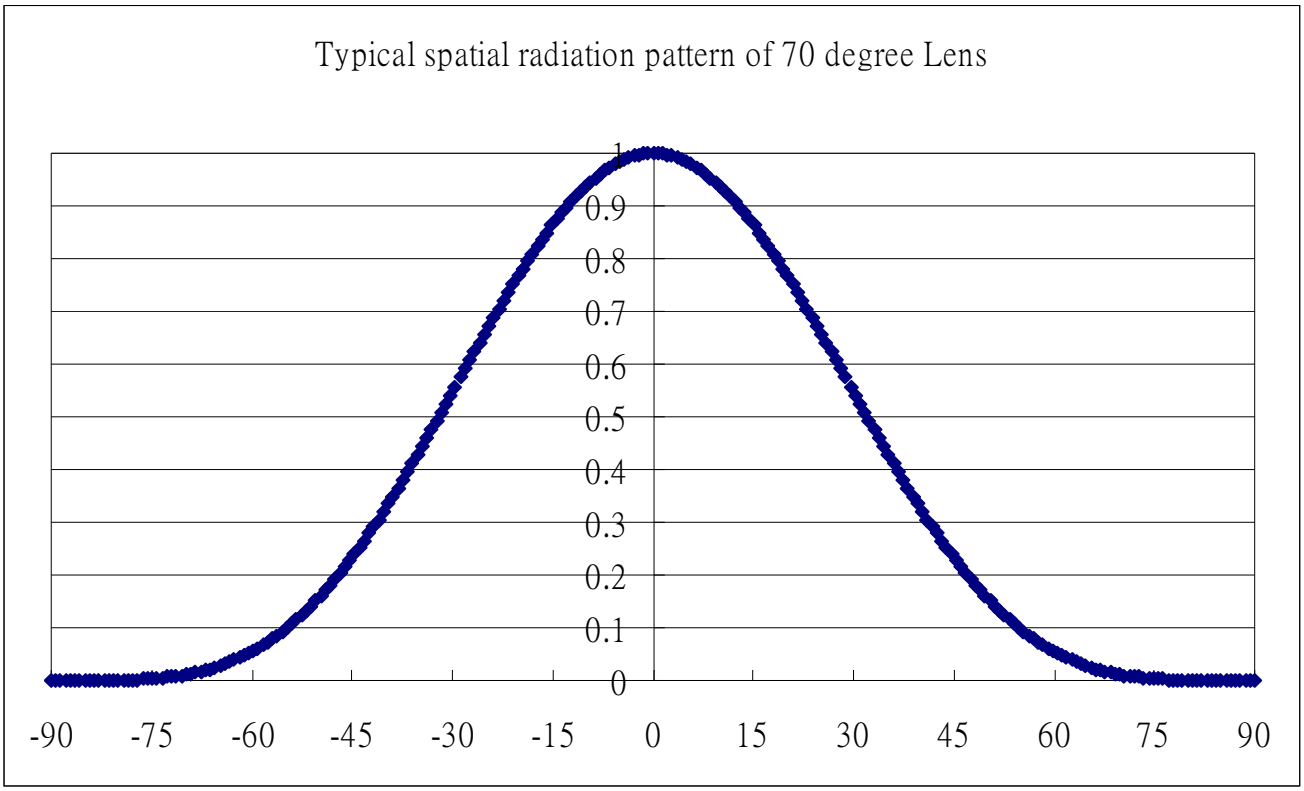


Fig. (70° Lens) Typical Representative Spatial Radiation Pattern

• Bin Code List for Reference

(Tj=25℃)

Item	Bin Code	Symbol	Condition	Min.	Max.	Unit
Forward Voltage[1]	H	V_F	I_F = 700 [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 Flux[2]	D	Φ_e	I_F = 700 [mA]	350	425	**mW**
	E			425	500	
	F			500	600	
	G			600	700	
	H			700	800	
	J			800	900	

• Wavelength Bins

Wavelength[3]	Bin Code	Symbol	Condition	Min.	Max.	Unit
U 390~420nm	UF	λp	I_F = 700 [mA]	415	420	nm
	UE			410	415	
	UD			405	410	
	UC			400	405	
	UB			395	400	
	UA			390	395	

Note

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

Characteristic Diagram

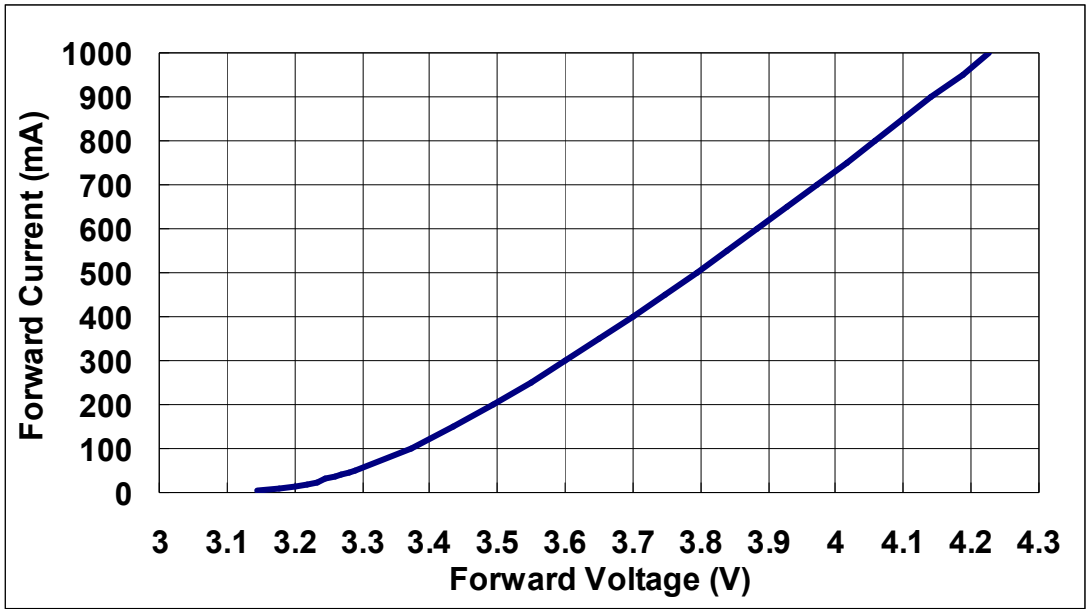


Fig. Forward Current vs. Forward Voltage

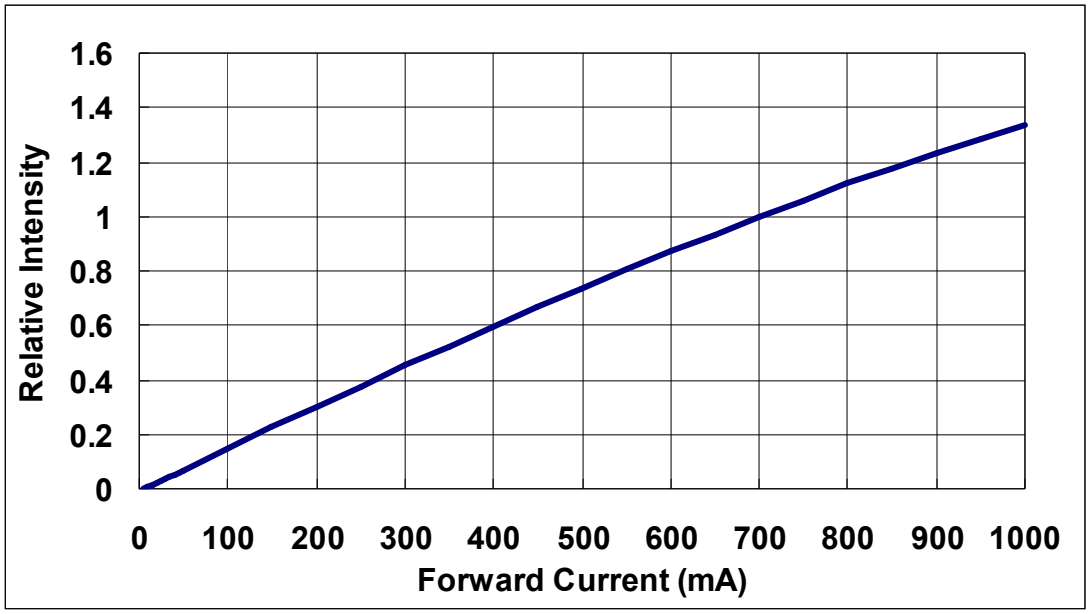


Fig. Relative Intensity vs. Forward Current.

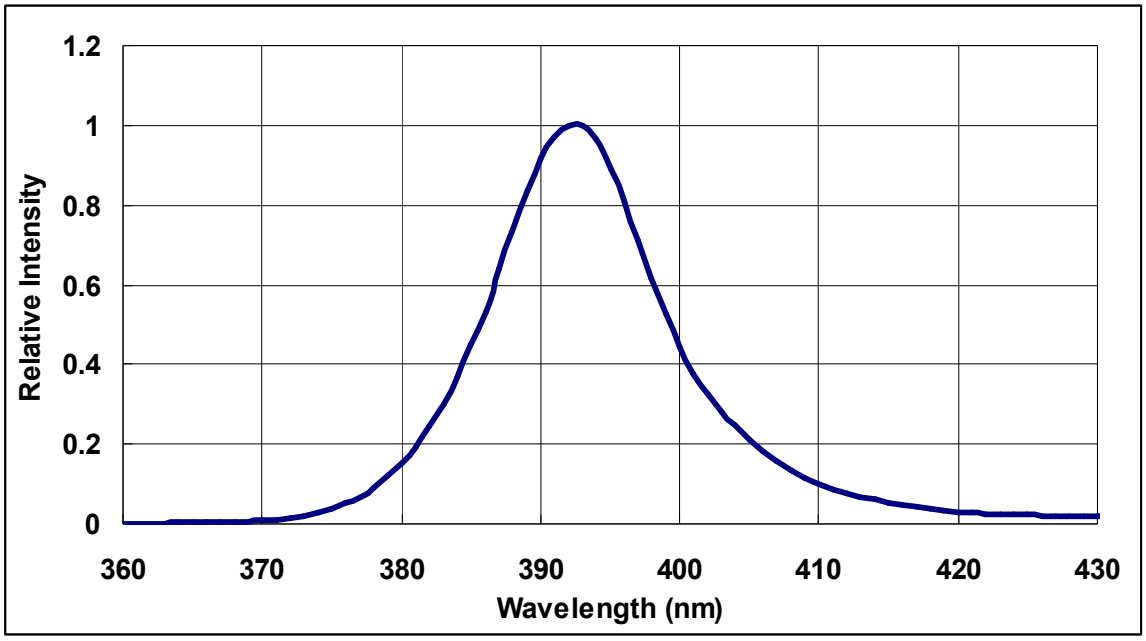


Fig. Typical Relative Intensity vs. wavelength

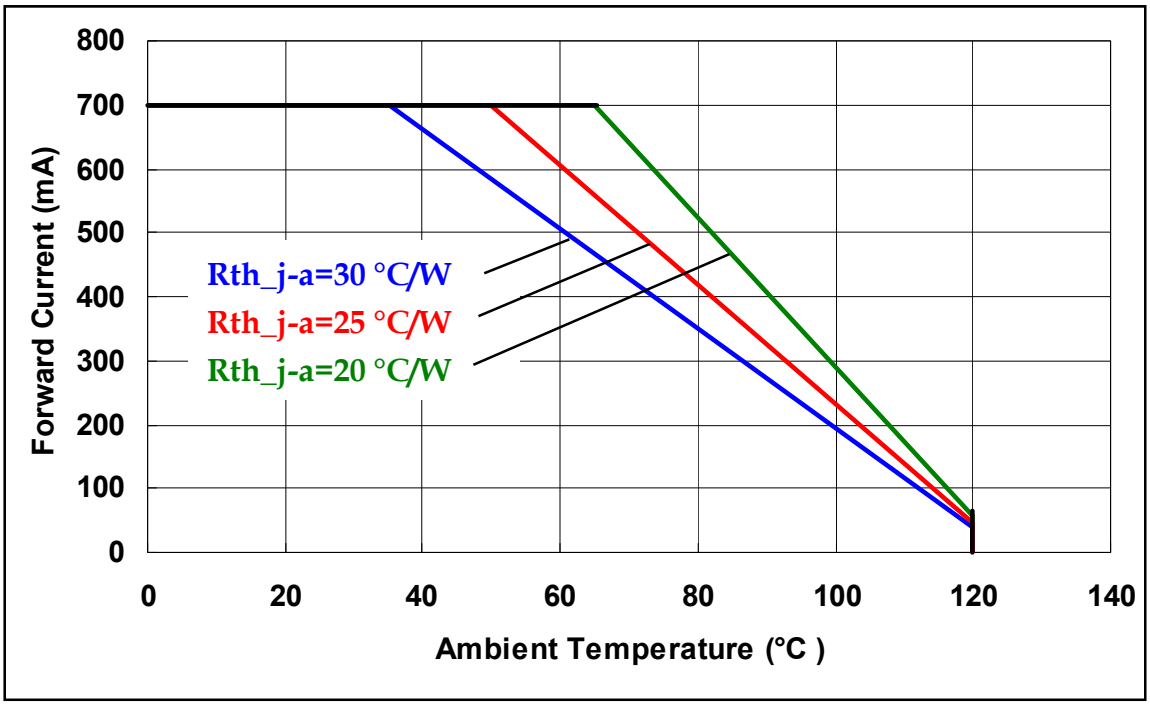


Fig. Forward Current Degrading Curve

Note:

Rth_j-a : junction to Ambient Thermal Resistance

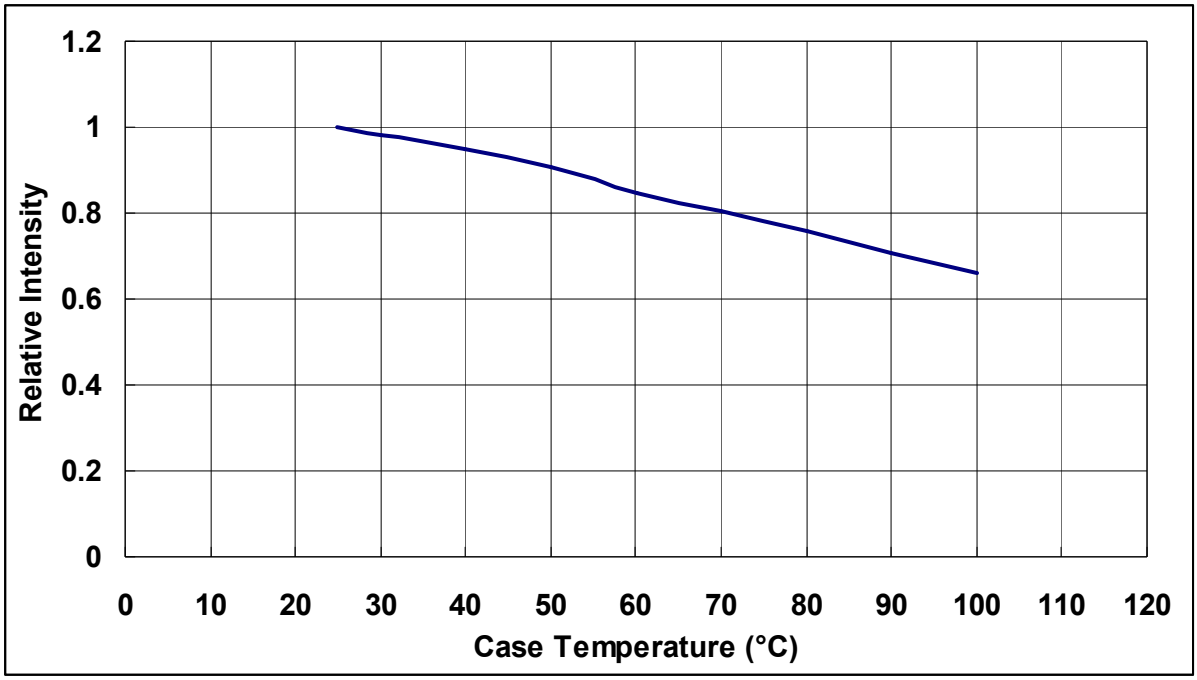


Fig. Relative Intensity vs. Case Temperature

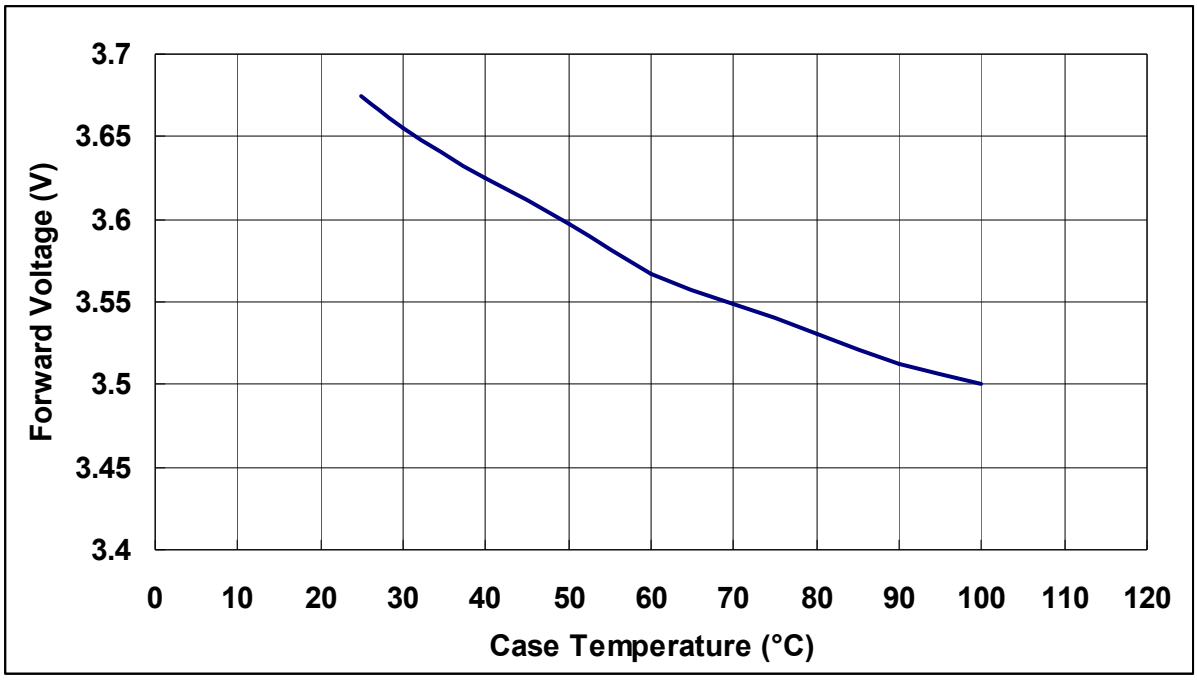


Fig. Forward Voltage vs. Case Temperature

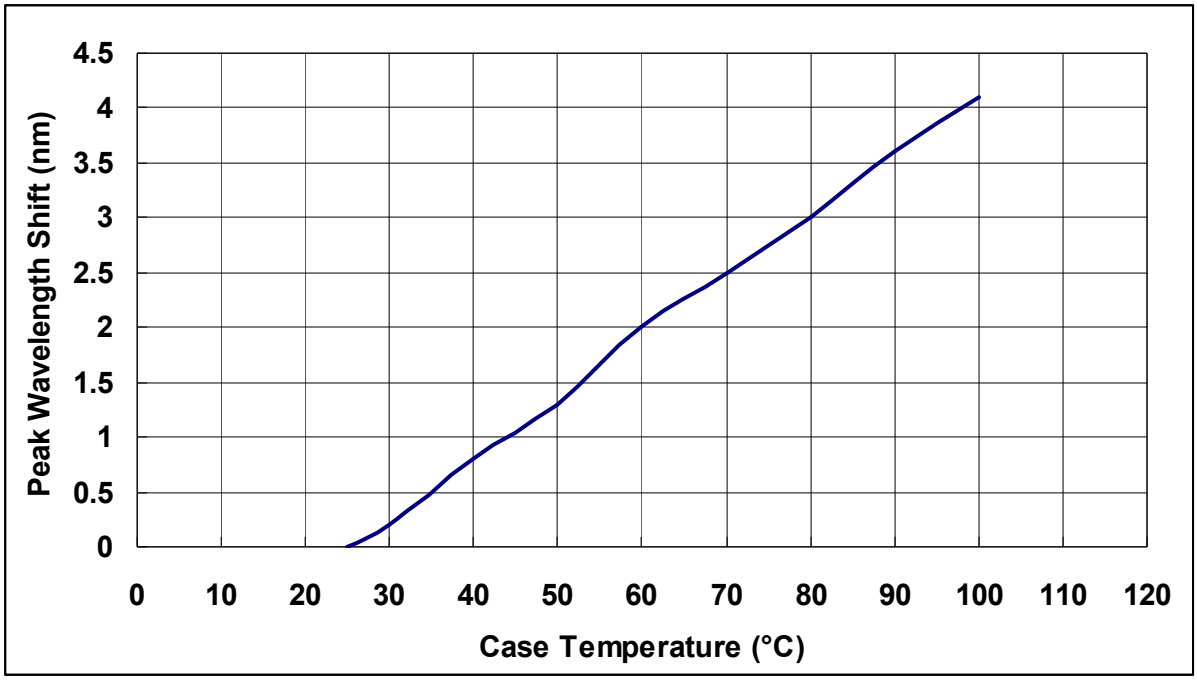
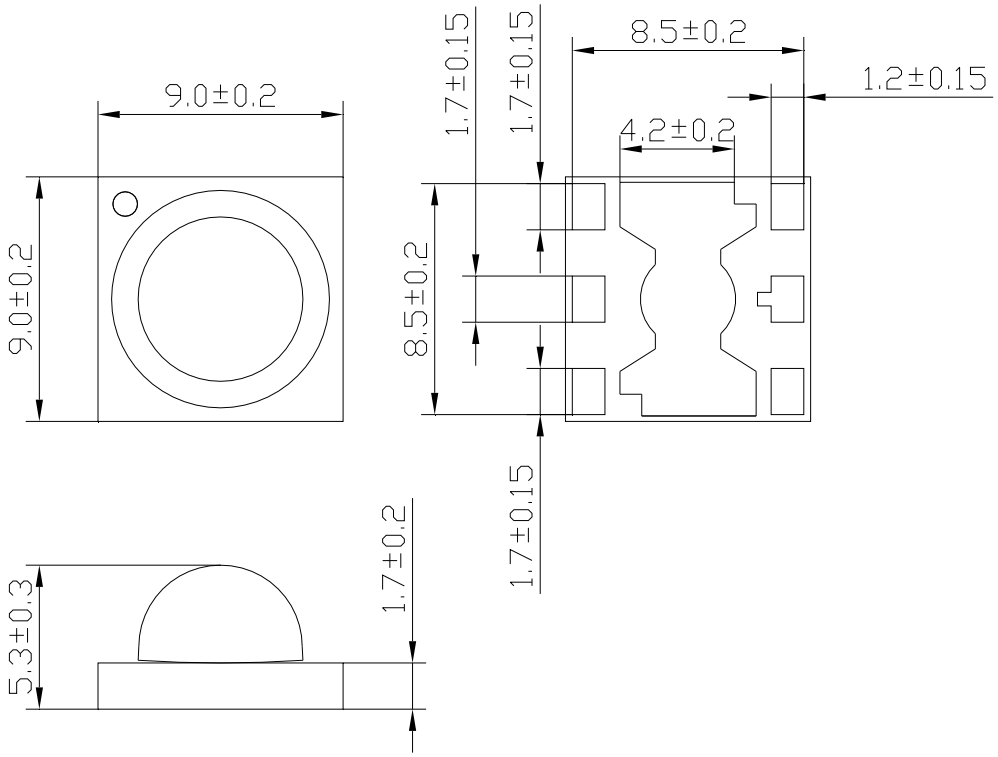


Fig. Peak Wavelength shift vs. Case Temperature

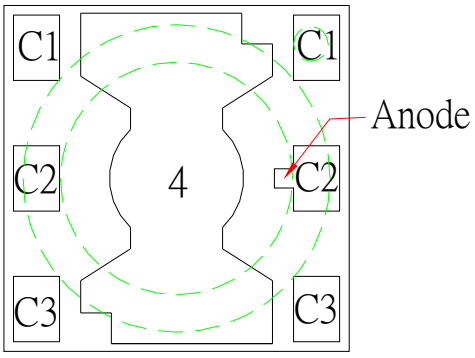
Outline Dimension

HPL-H99IU1C0

Unit : mm



Pad Configuration

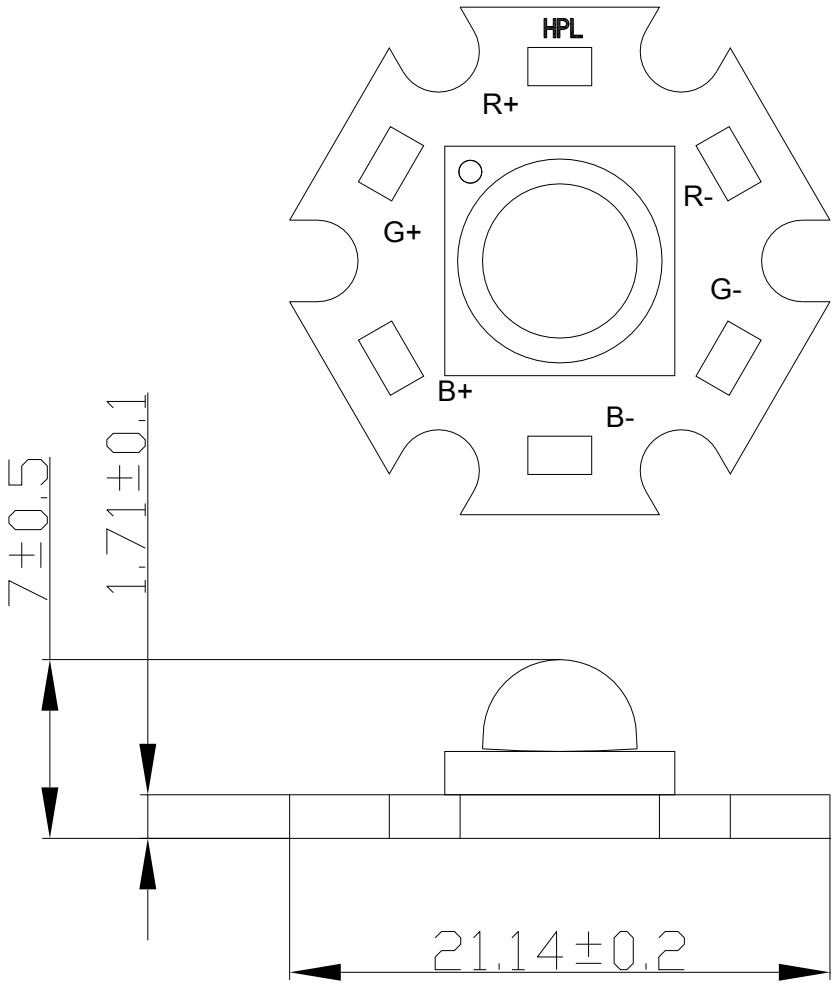


PAD	Function
C1	-
C2	Chip
C3	-
4	Thermal

Fig. Pad configuration.

Note : Thermal pad is not electrically neutral. Do not electrically connect either the anode or cathode to the Thermal pad.

HPL-H99JU1C0



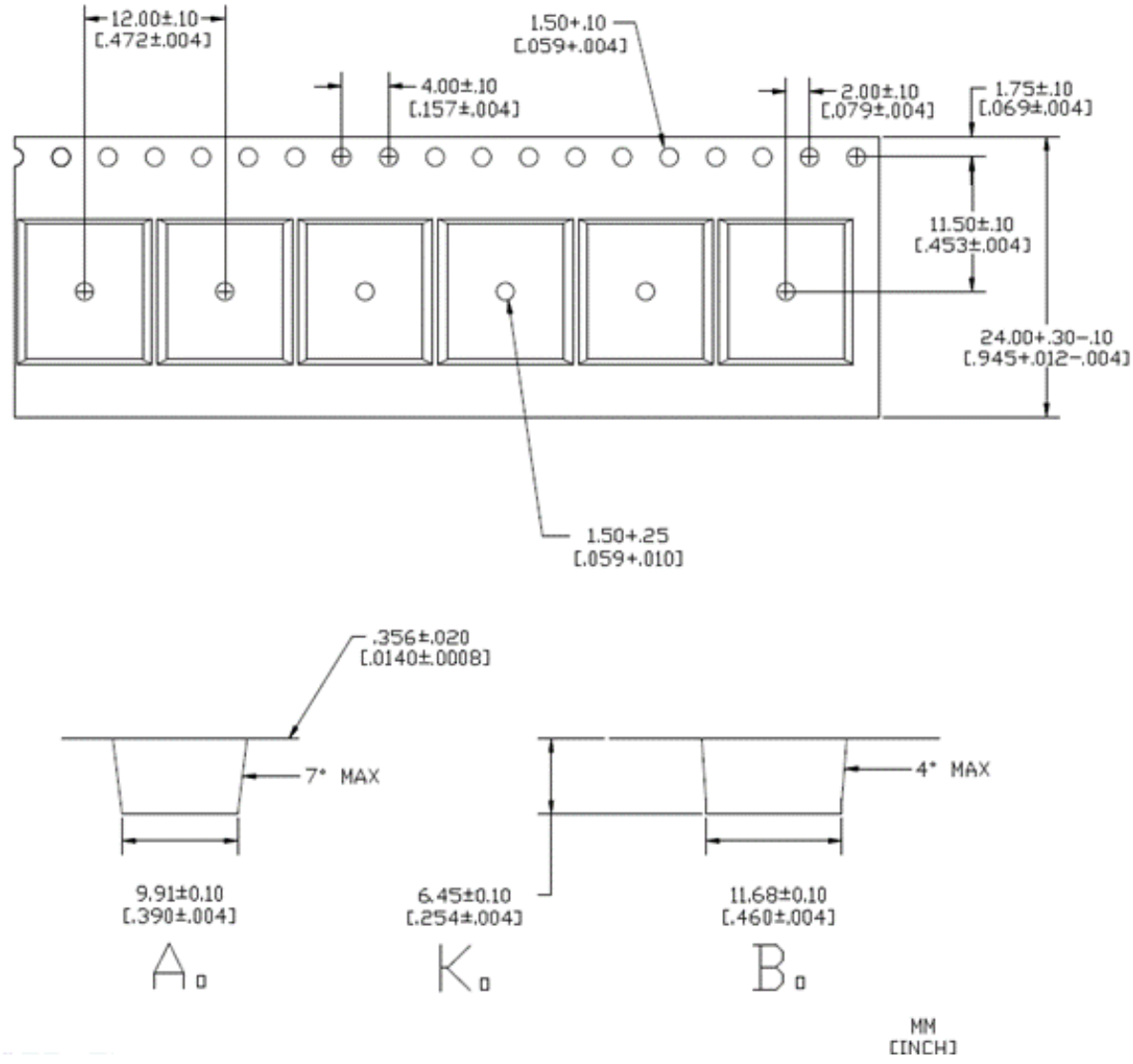
Shipping Package Style

Tapping Dimension Packaging Specification

70 lens Type :

- Moisture proof bag.
- 1 Reel/bag.
- Q'ty: 200(MAX)/Reel.

Unit : mm



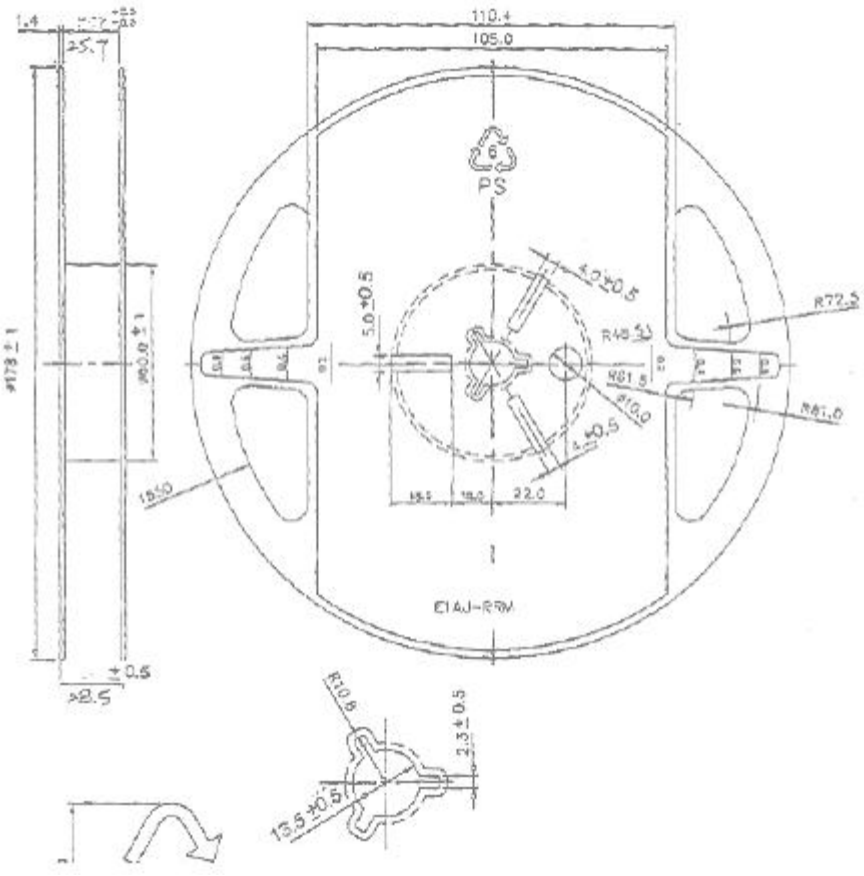
Package

Box Type	Dimension (mm)	Reel/Box	Lens Type (Pcs)
Small Box(S)	230x85x265	3 Reel/Box	600
Middle Box(M)	470x265x270	18 Reel/Box	3600
Large Box(L)	470x435x270	30 Reel/Box	6000

Reel Packaging :

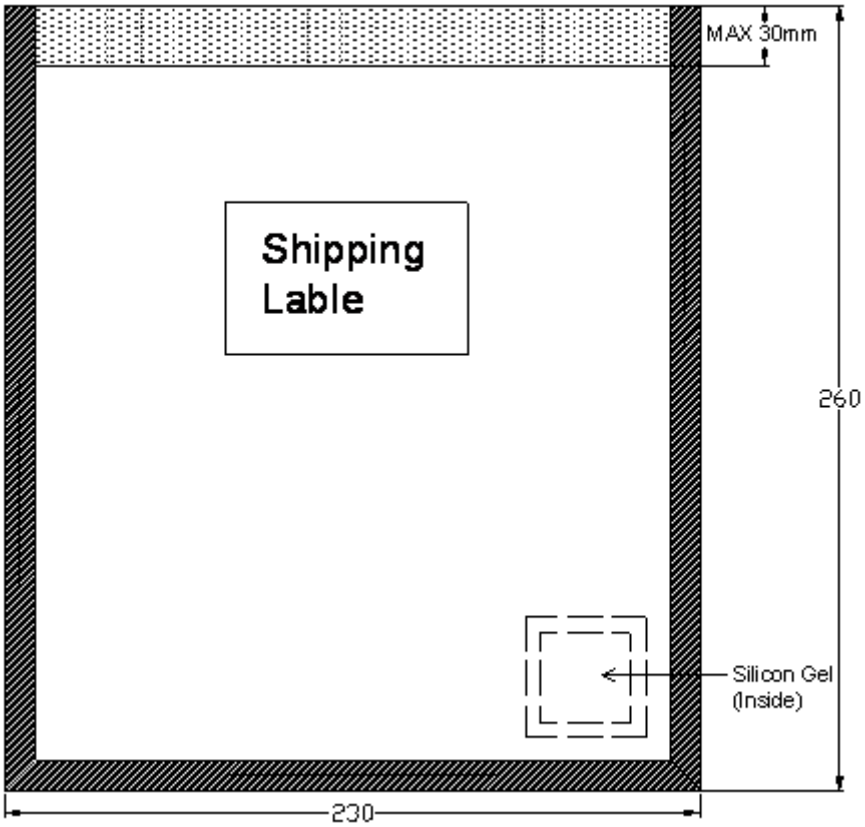
Reel Part :

Unit : mm



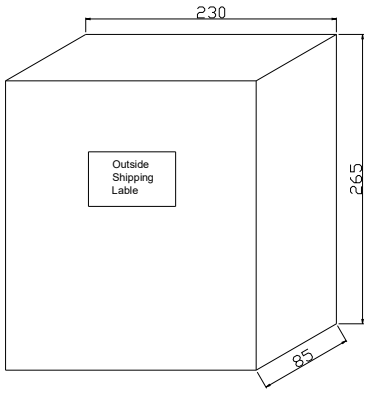
Anti Statistic Bag :

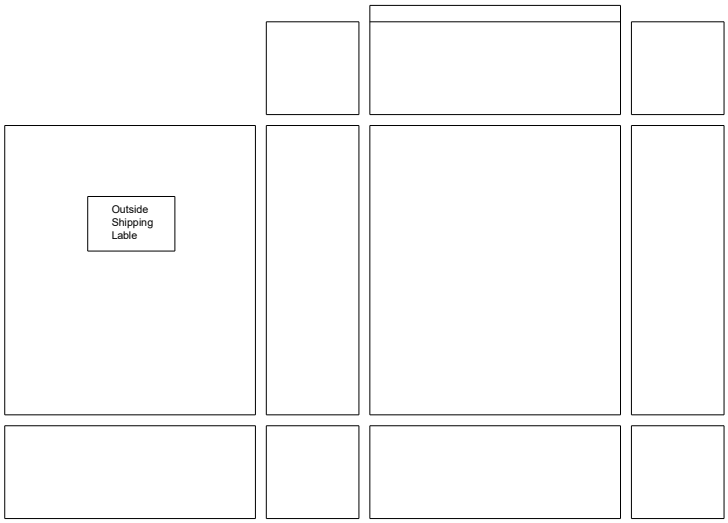
Unit : mm



Small Box

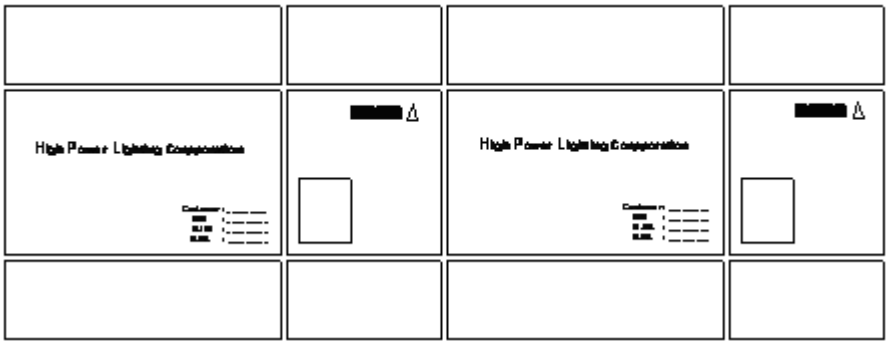
Unit : mm

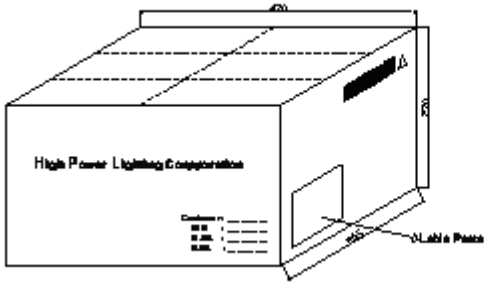




Middle Box

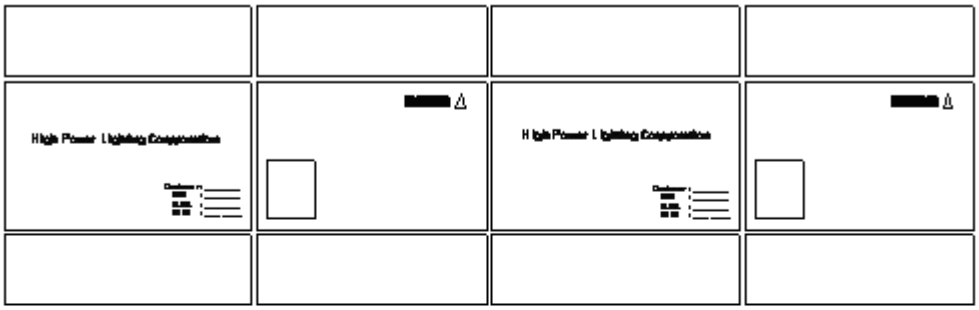
Unit : mm

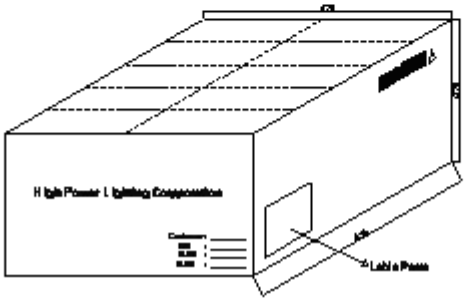




Large Box

Unit : mm



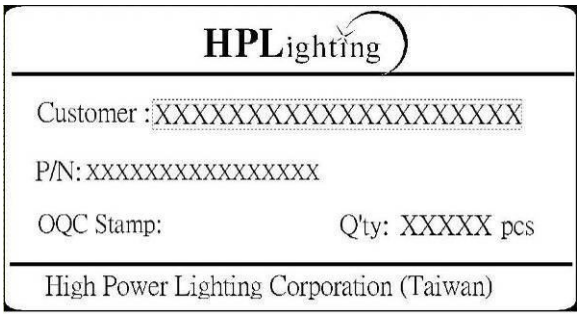


Label Formation

Unit : mm

70mm

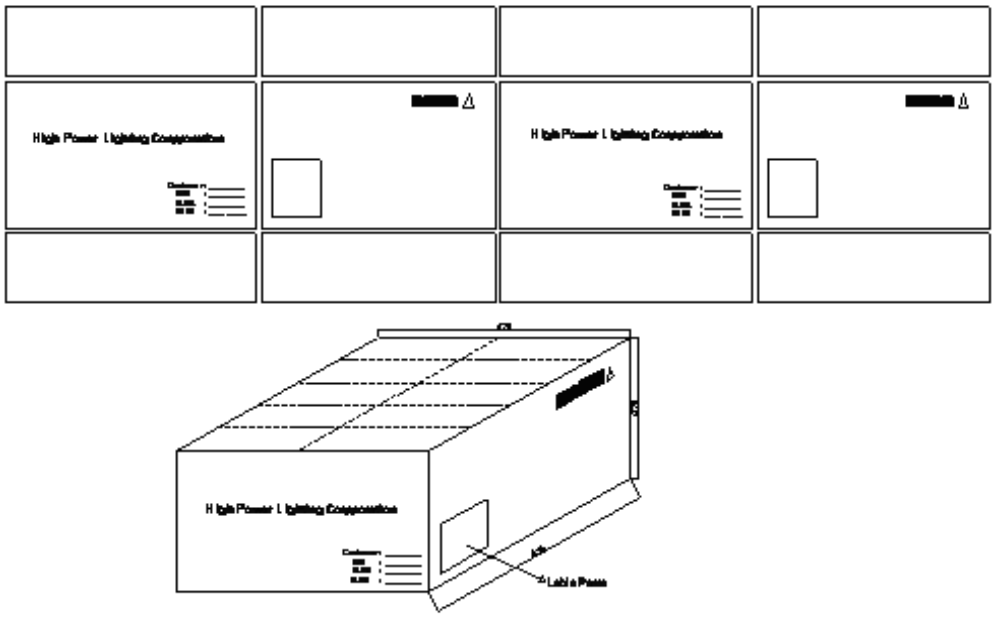
40mm



Package

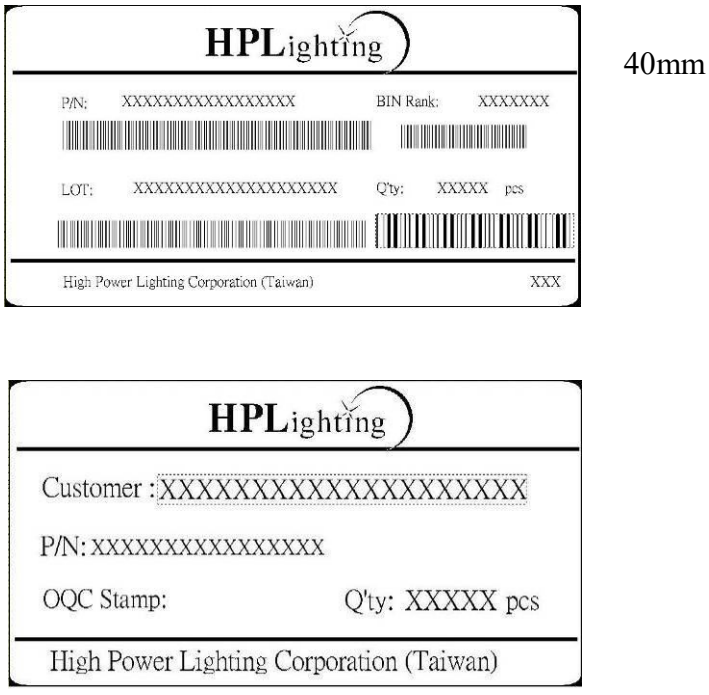
Large Box

Unit : mm



Label Formation

Unit : mm



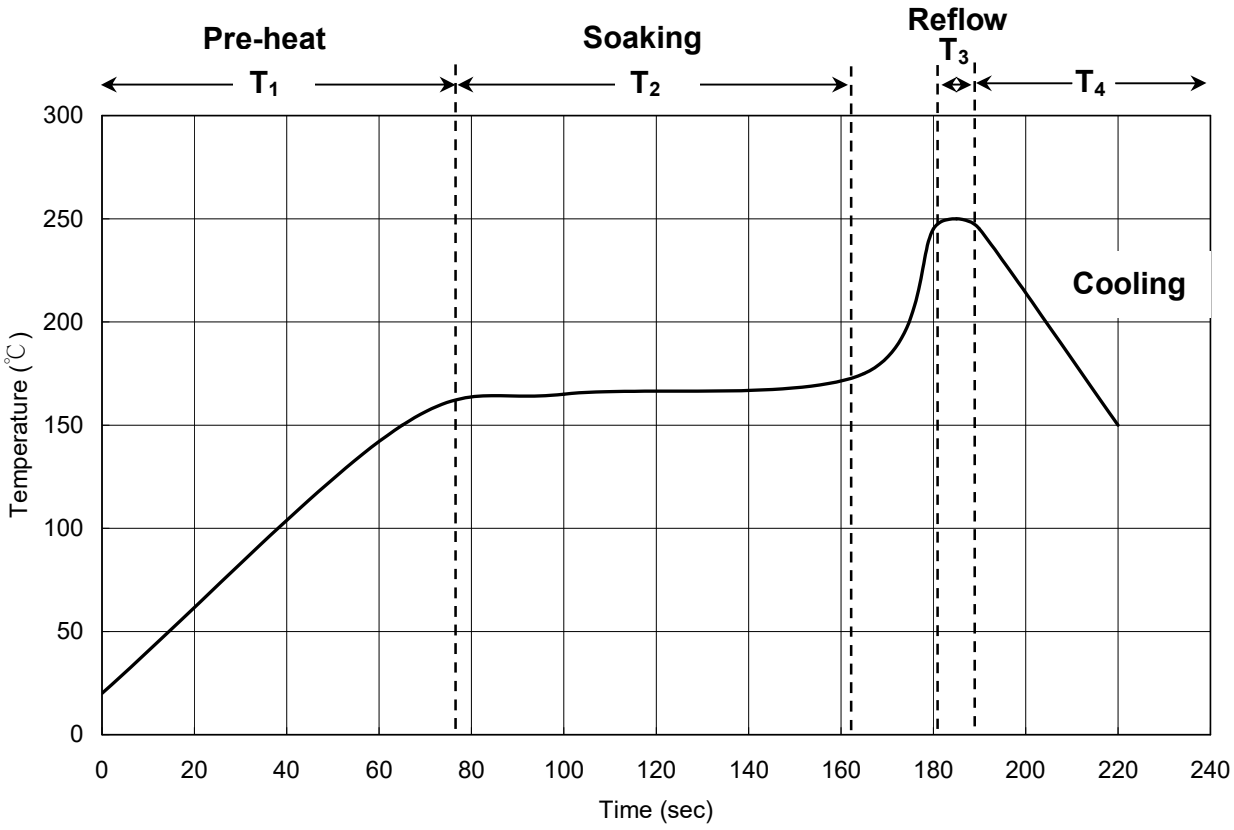
Qualification Reliability Testing

Classification	Test Item	Test conditions	Referance Standard
Endurance Test	Operation Life	I_F = 700mA Ta = 25℃ Test Duration = 1000hrs	MIL-STD-750: 1026 MIL-STD-883: 1005 JIS C 7021: B-1
	High Temperature High Humidity Storage	IF = 700mA Ta = 85±5℃ RH = 85±5% Test Duration = 1000hrs	MIL-STD-202: 103B JIS C 7021: B-11
	Hihg 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 =700mA	V_F shift > 10%
Luminous	Iv%	IF =700mA	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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