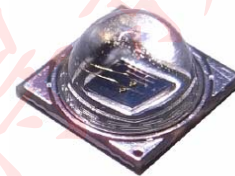


Specification For IR Series

HPL-H40DJ1B1



Features

- Dimension : 4.0mm(L)×4.0mm(W)
- High Radiant Flux type
- All Metal Design Cu Substrate with Silicone Lens
- Exceed narrow beam angle 22°
- Low thermal resistance
- The AlGaAs/ AlGaAs , AlGaAs/ GaAs Chip inside

Applications

- IrDA
- Encoder
- Data Communication
- CCTV

5F, No 173-8, Yung-Fon Road, Tu-Cheng District, New Taipei City, Taiwan, R.O.C.
TEL: +886-2-8262-8886 FAX : +886-2-8262-8885

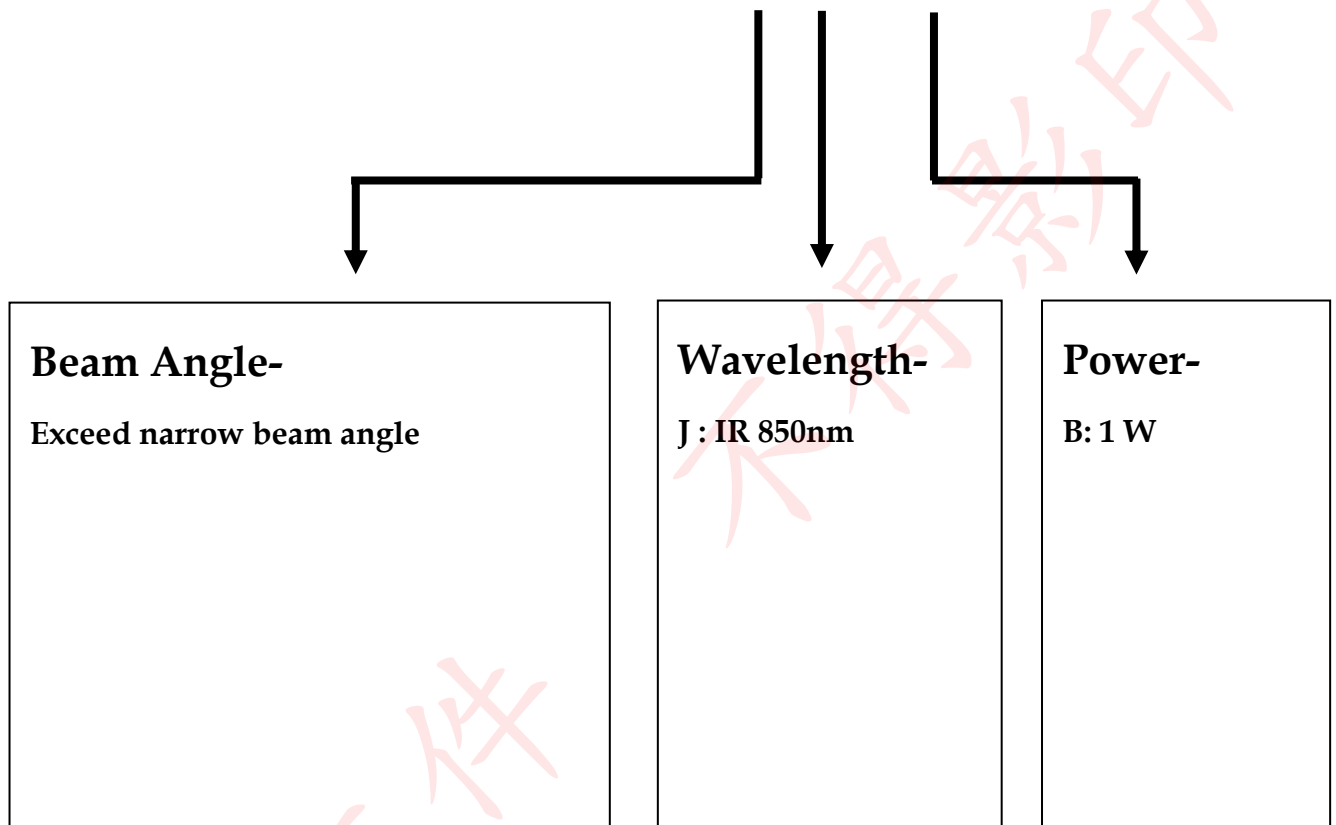


Table of Contents

General Information	3
Part Number Matrix	4
Absolute Maximum Ratings	4
Initial Electrical/Optical Characteristics.....	5
Forward Voltage.....	5
Reverse Current.....	5
Radiant Flux.....	5
Radiant Intensity	5
Peak wavelength	5
Spectra half-width	5
Typical Radiation Pattern	6
Bin Code List for Reference.....	6
Part Number Formation.....	7
Characteristic Diagram	8
Outline Dimension.....	10
Pad Configuration	10
Recommended Solder Pattern.....	11
Shipping Package Style.....	12
Qualification Reliability Testing.....	17
Recommended Solder Profile.....	18

General Information

HPL - H40DJ1B1





Part Number Matrix

Type Wavelength	22° Lens	22° Lens & Star
IR 850	HPL-H40DJ1B1	HPL-H40XJ1B1

Absolute Maximum Ratings

(T_j=25°C)

Parameter	Symbol	Rating	Unit
Power Dissipation	P	1.2	W
Forward Current	I _F	500	mA
Forward Pulse Current (1/10 Duty Cycle, 400msec Pulse Width)	I _{FP}	700	mA
Thermal Resistance, Junction-Case	R _{th, J-C1}	5	°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).

Initial Electrical/Optical Characteristics

- Forward Voltage** (T_j=25°C)

Wavelength	Forward Voltage					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
IR 850nm	V _F	-	2	-	I _F = 500mA	V

- Reverse Current** (T_j=25°C)

Wavelength	Reverse Current					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
IR 850nm	I _R	-	-	100	V _R = 5V	μA

- Radiant Flux** (T_j=25°C)

Wavelength	Radiant Flux					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
IR 850nm	Φ _e	225	380	-	I _F = 500mA	mW

- Radiant Intensity** (T_j=25°C)

Wavelength	Radiant Intensity					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
IR 850nm	I _e	-	800	-	I _F = 500mA	mW/sr

- Peak wavelength** (T_j=25°C)

Wavelength	Wavelength					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
IR 850nm	λ _p	840	855	870	I _F = 500mA	nm

- Spectra half-width** (T_j=25°C)

Wavelength	Wavelength					
	Symbol	MIN.	TYP.	MAX.	Test Condition	Unit
IR 850nm	Δλ	-	40	-	I _F = 500mA	nm



● Typical Radiation Pattern

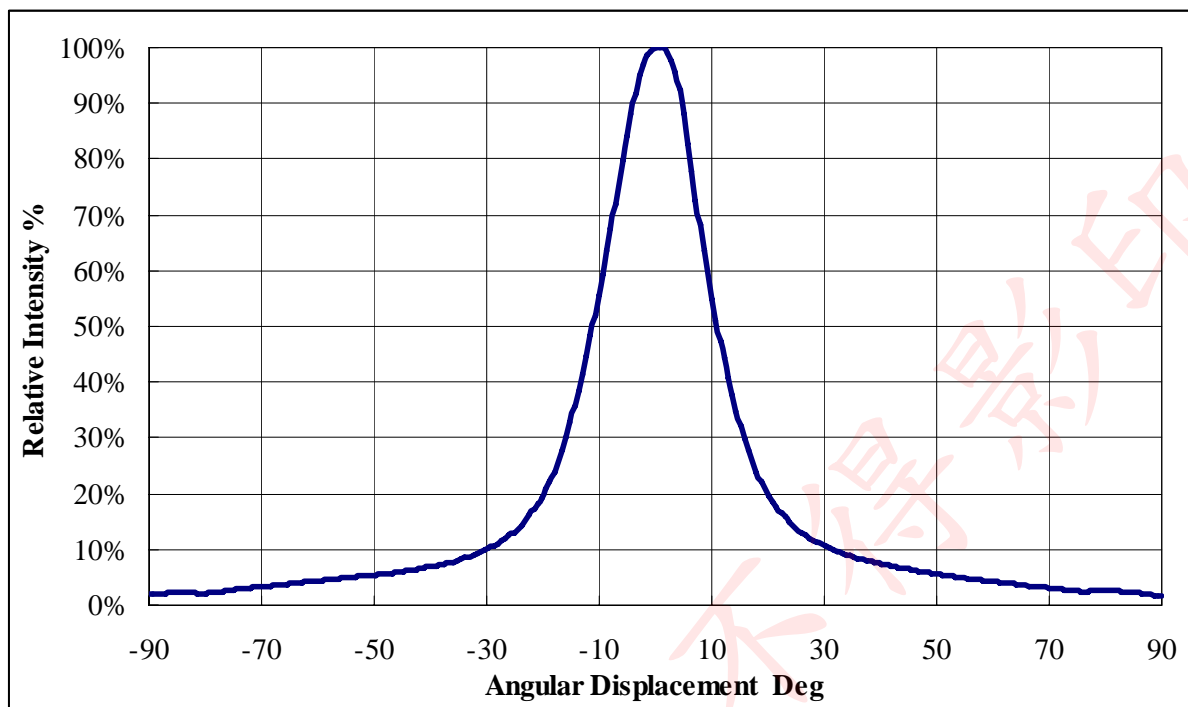


Fig. Typical Representative Spatial Radiation Pattern : 22 degree

● Bin Code List for Reference

(Tj=25°C)

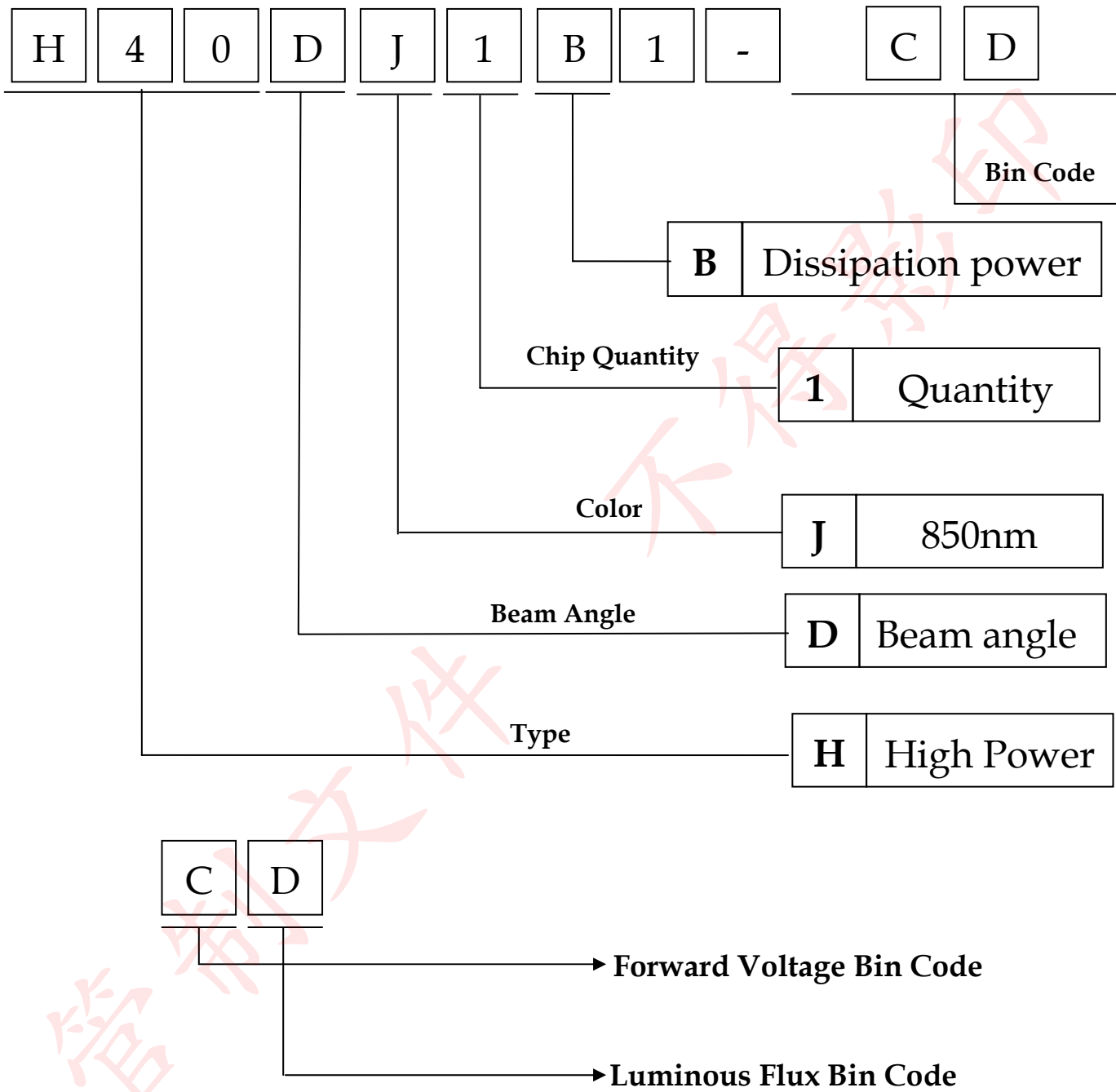
Item	Bin Code	Symbol	Condition	Min.	Max.	Unit
Forward Voltage ¹	B	V _F	I _F = 500 [mA]	1.59	1.83	V
	C			1.83	2.07	
	D			2.07	2.31	
	E			2.31	2.55	
Radiant Flux ²	B	Φ _e	I _F = 500 [mA]	225	275	mW
	C			275	350	
	D			350	425	
	E			425	500	

Note

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



Part Number Formation





Characteristic Diagram

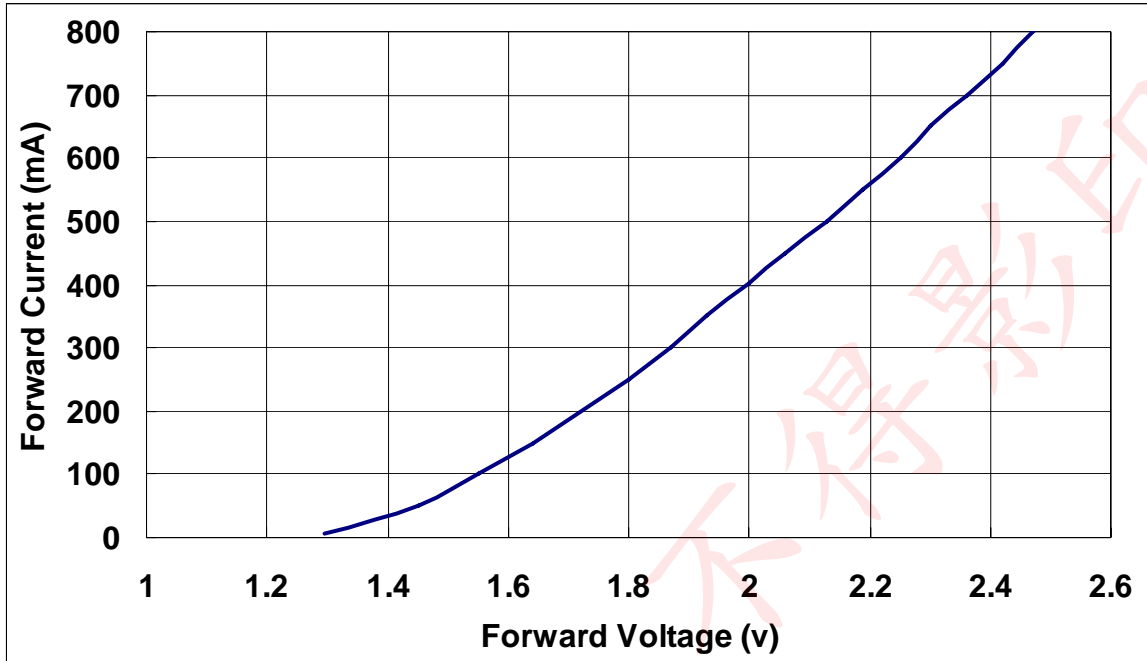


Fig. Forward Current vs. Forward Voltage

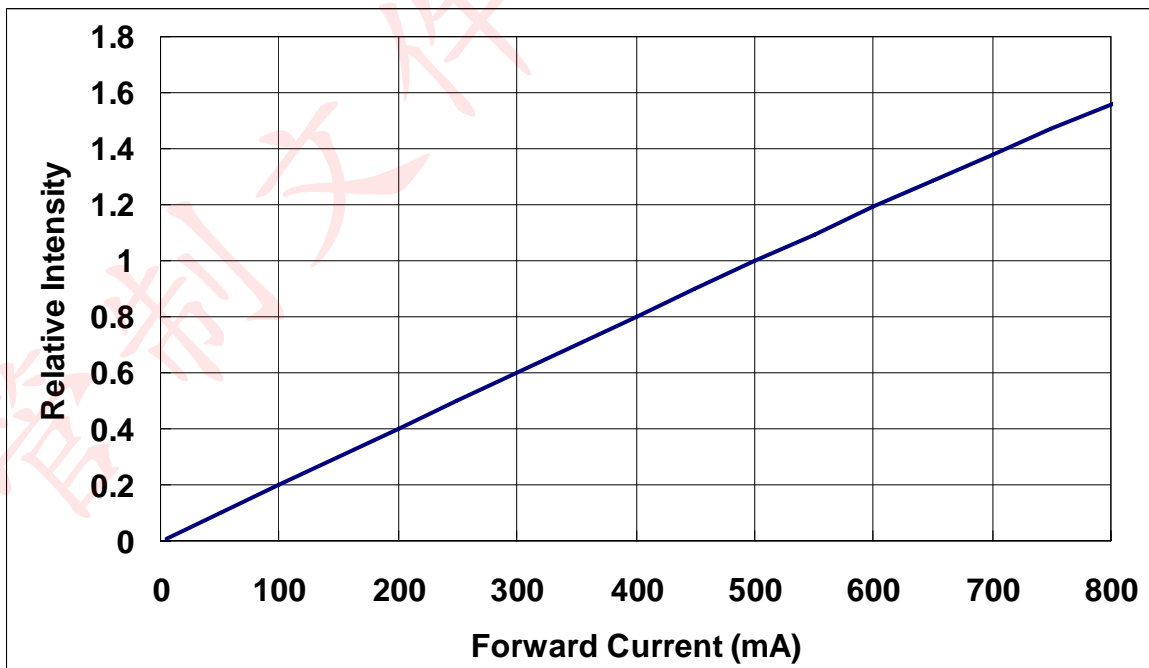


Fig. Relative Intensity vs. Forward Current.

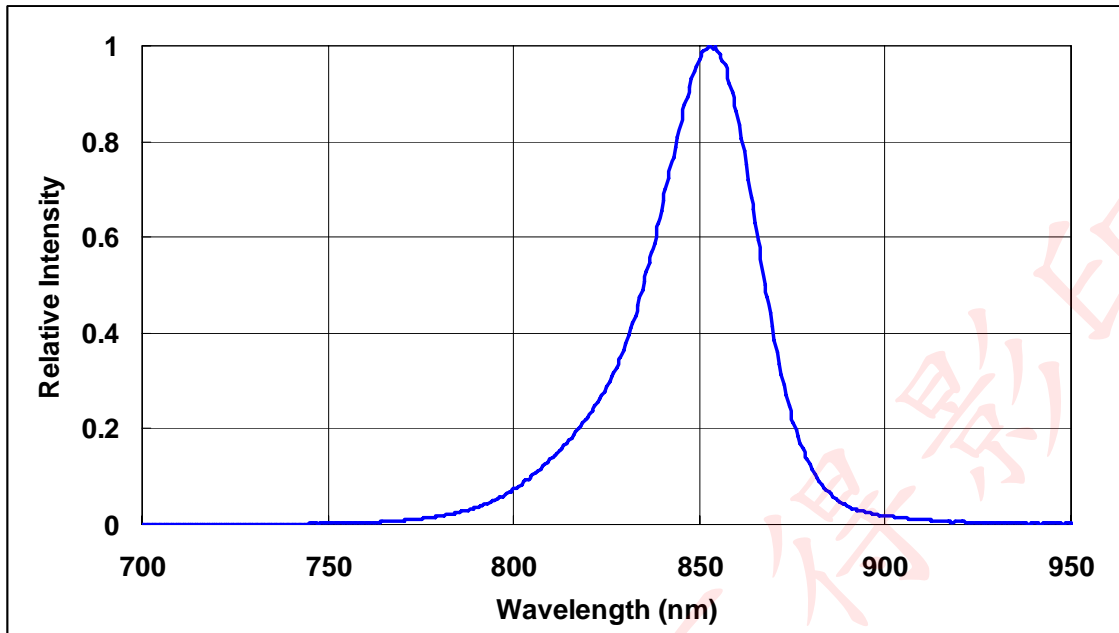


Fig. Typical Relative Intensity vs. wavelength

Outline Dimension

Unit : mm

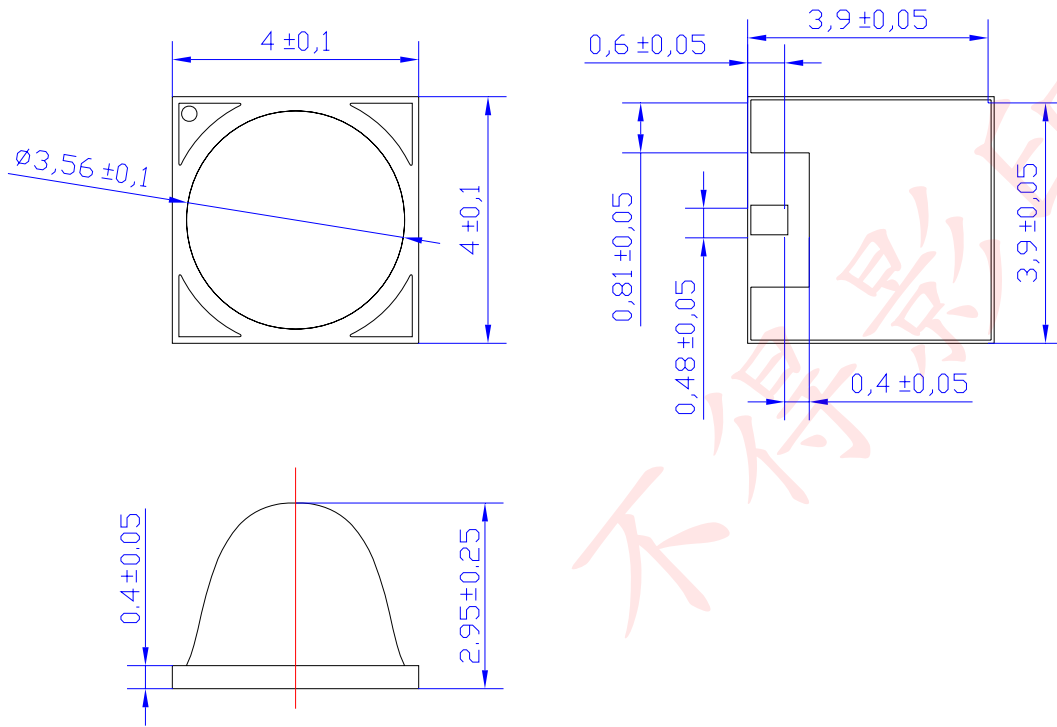
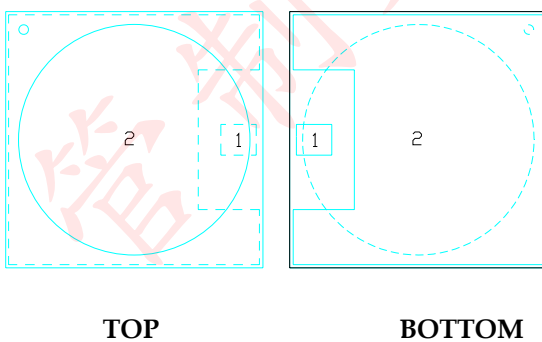


Fig. Package Outline Drawing.

● Pad Configuration



PAD	Function
1	Cathode
2	Anode、Thermal

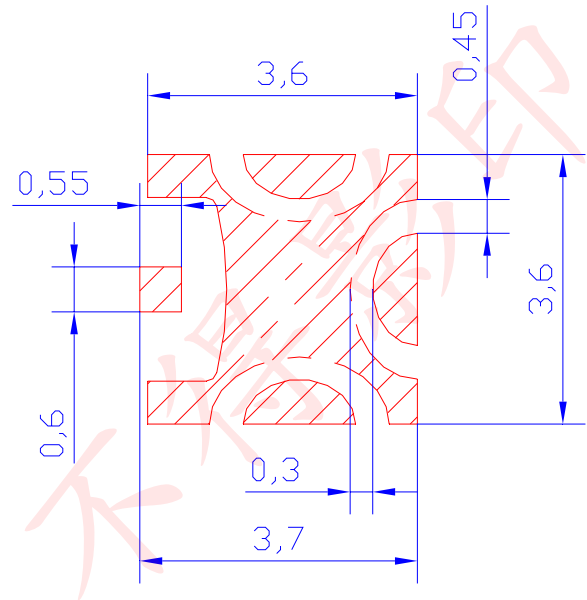
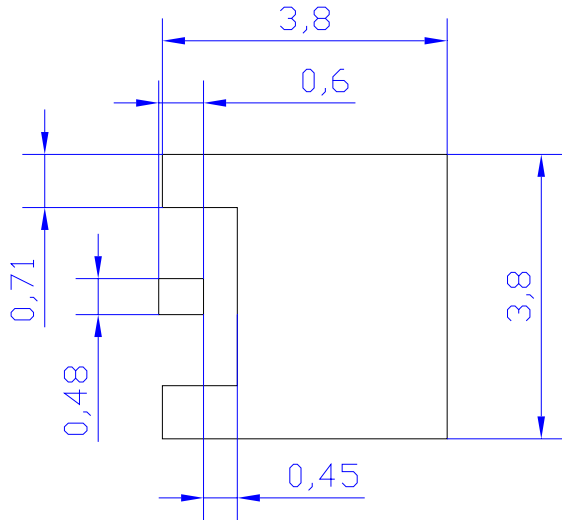
Fig8. Pad configuration.

Note: Please don't put conductive material on the top surface of LEDs.

Recommended Solder Pattern

Unit : mm

Tolerance±0.05



MCPCB LAYOUT

SOLDER MASK

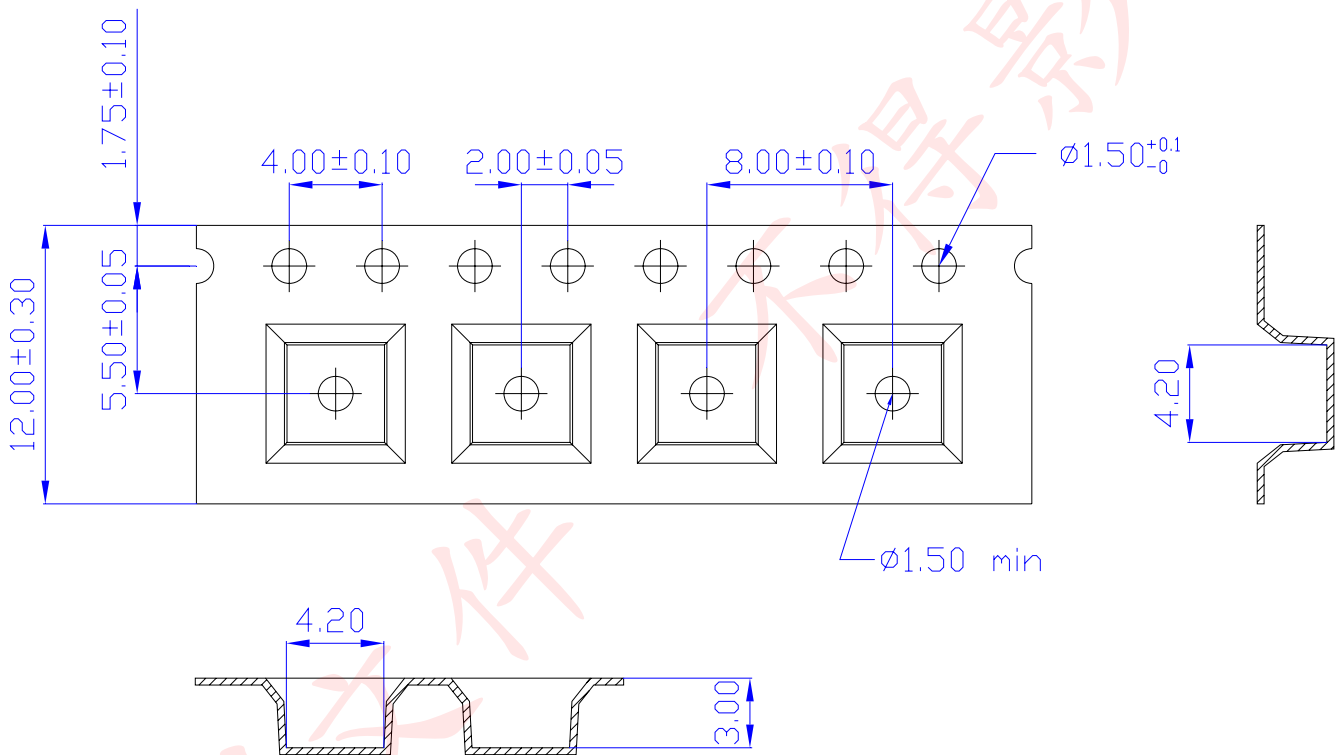
Fig. Solder Pad Layout.

Shipping Package Style

Tapping Dimension Packaging Specification

- Moisture proof bag.
- 1 Reel/bag.
- Q'ty: 700(MAX)/Reel

Unit : mm



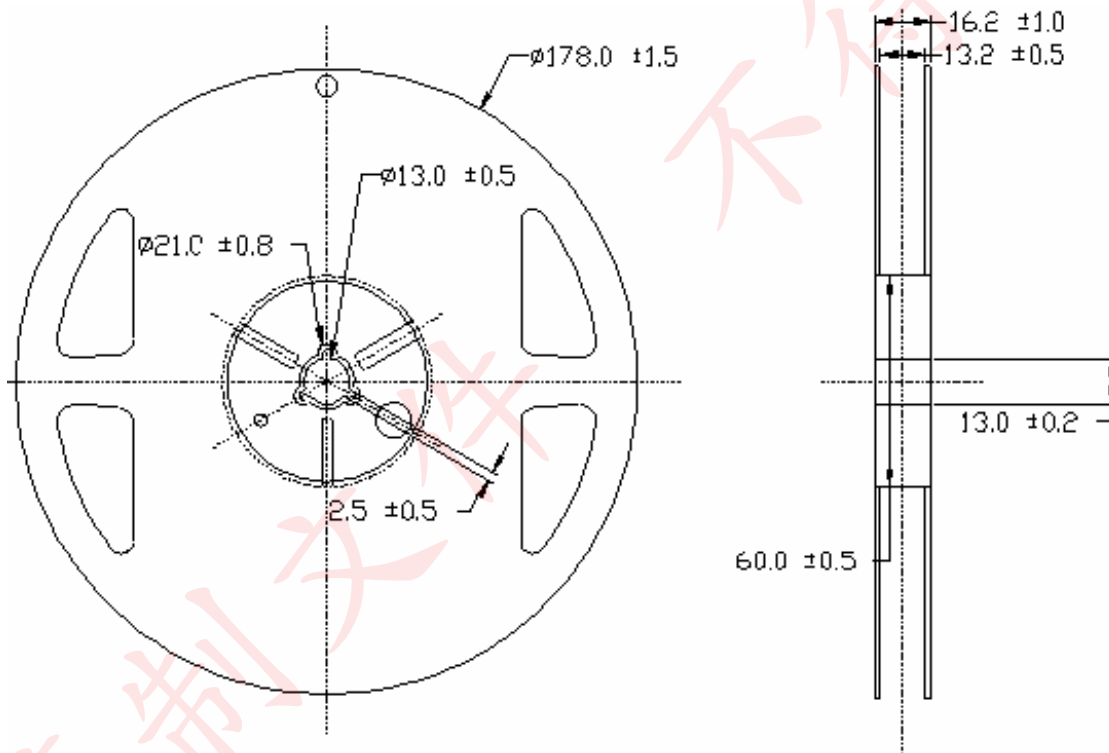
Package

Box Type	Dimension (mm)	Reel/Box	22° Lens Type (Pcs)
Small Box(S)	230x85x265	5 Reel/Box	3500
Middle Box(M)	470x265x270	30 Reel/Box	21000
Large Box(L)	470x435x270	50 Reel/Box	35000

Reel Packaging :

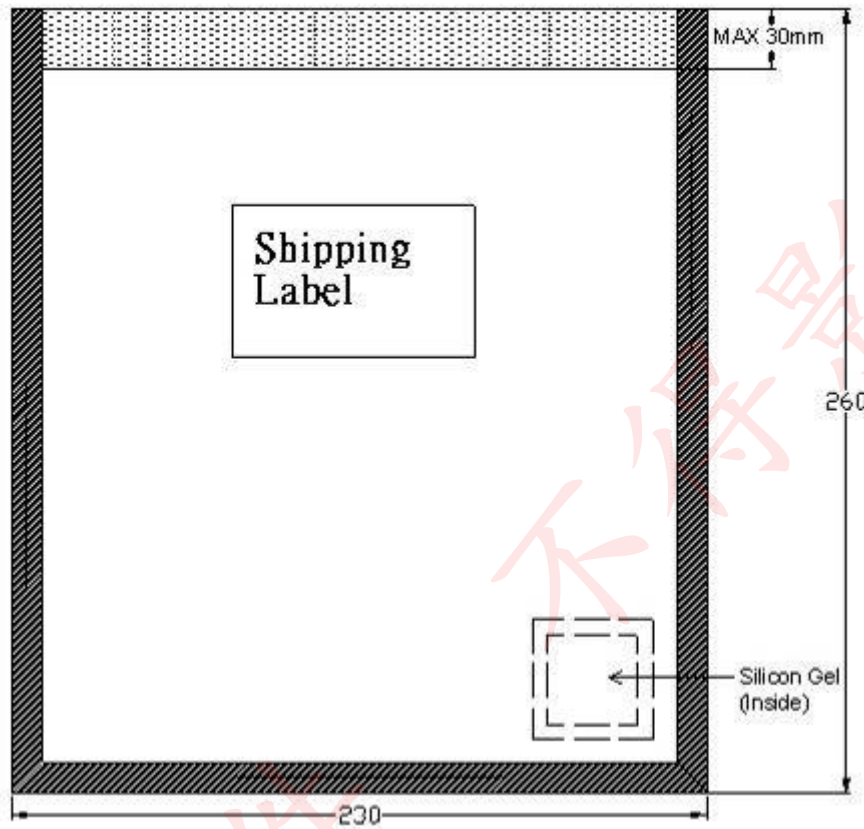
Reel Part :

Unit : mm



Anti Statistic Bag :

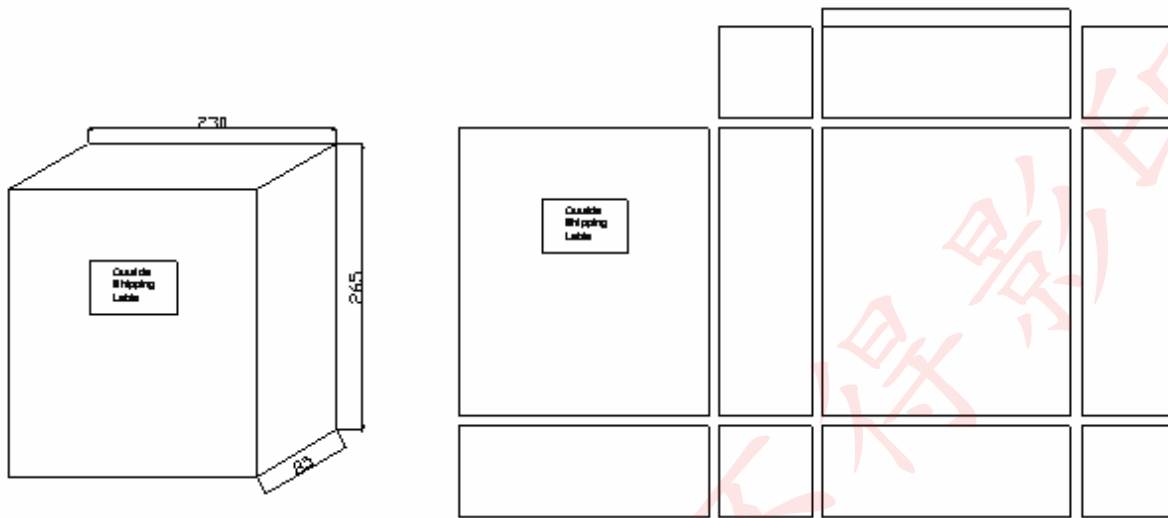
Unit : mm





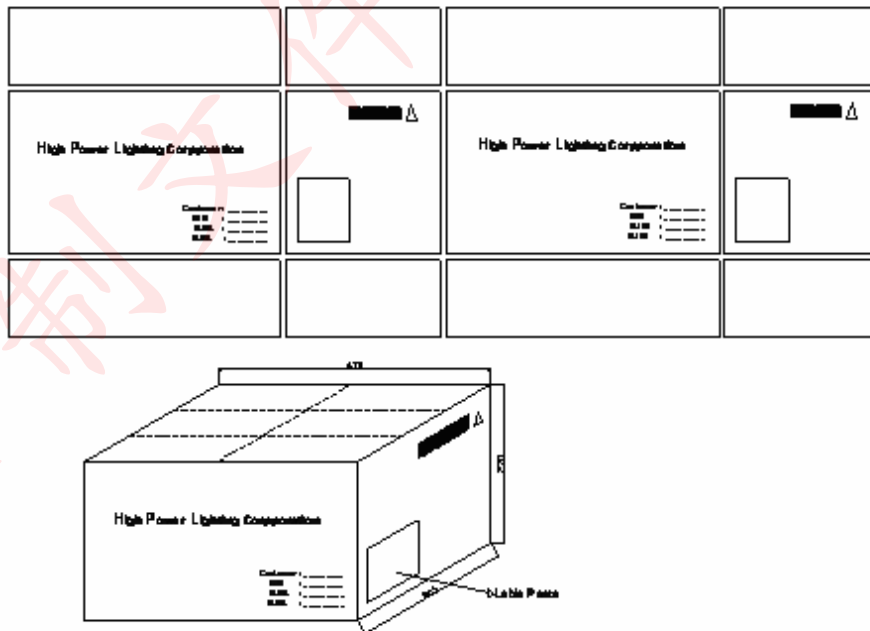
Small Box

Unit : mm



Middle Box

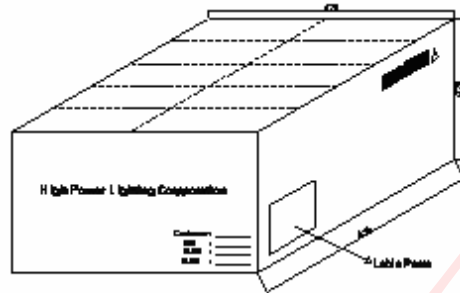
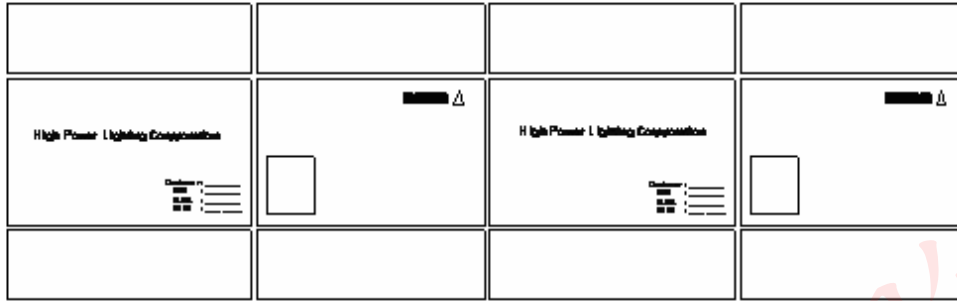
Unit : mm





Large Box

Unit : mm



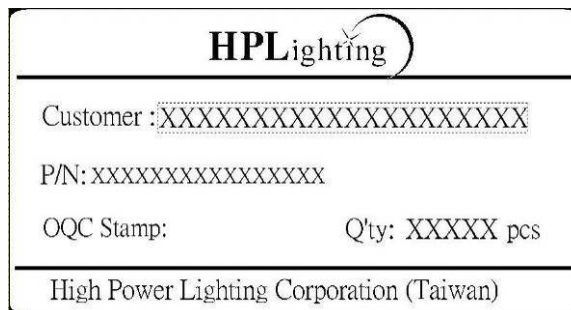
Label Formation

70mm

Unit : mm



40mm





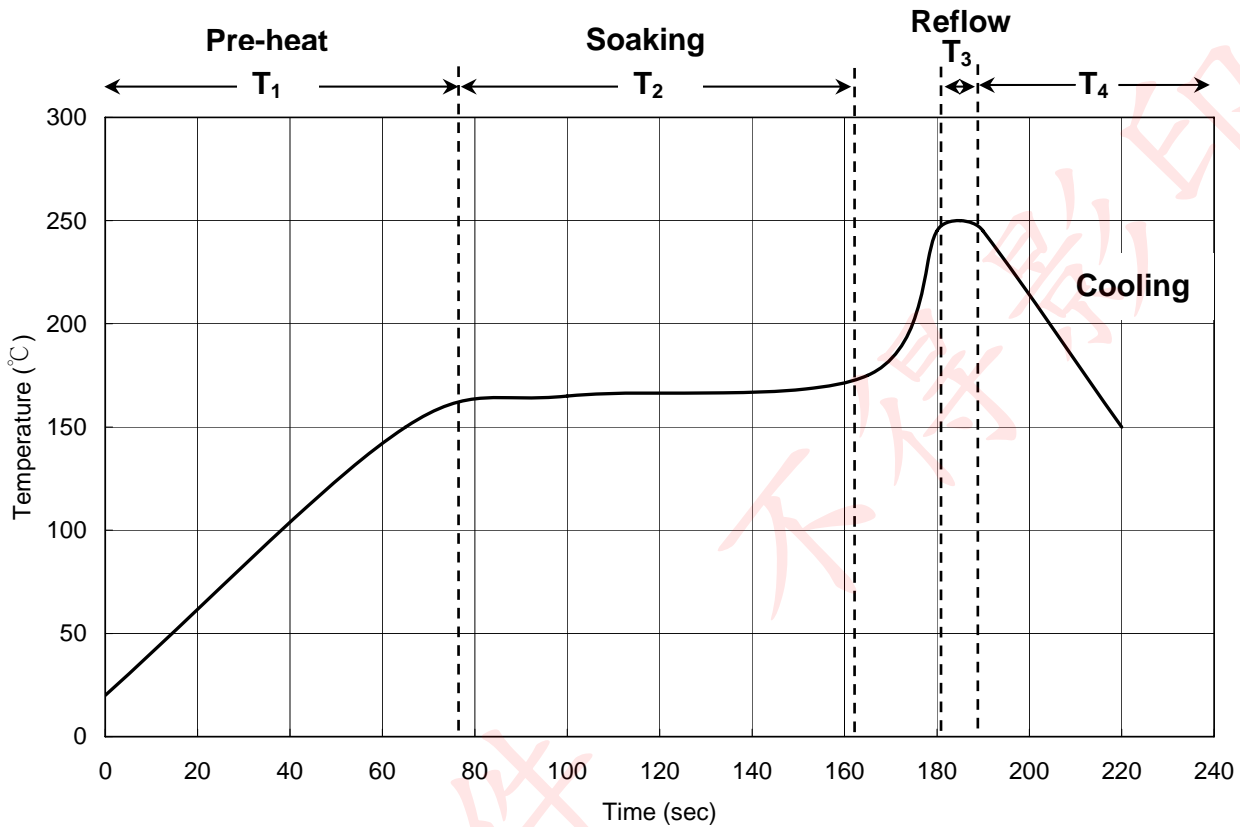
Qualification Reliability Testing

Classification	Test Item	Test conditions	Reference Standard
Endurance Test	Operation Life	$I_F = 500\text{mA}$ $T_a = 25^\circ\text{C}$ Test Duration = 1000hrs	MIL-STD-750: 1026 MIL-STD-883: 1005 JIS C 7021: B-1
	High Temperature High Humidity Storage	$I_F = 500\text{mA}$ $T_a = 85\pm 5^\circ\text{C}$ RH = 85±5% Test Duration = 1000hrs	MIL-STD-202: 103B JIS C 7021: B-11
	High Temperature Storage	$T_a = 105\pm 5^\circ\text{C}$ Test Duration = 1000hrs	MIL-STD-202: 1008 JIS C 7021: B10
	Low Temperature Storage	$T_a = -40\pm 5^\circ\text{C}$ Test Duration = 1000hrs	JISC 7021: B-12
Environmental Test	Temperature Cycling	$-30^\circ\text{C} \sim 25^\circ\text{C} \sim 105^\circ\text{C} \sim 25^\circ\text{C}$ 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	$-30\pm 5^\circ\text{C} \sim 105\pm 5^\circ\text{C}$ 30min 30min Test Duration = 10 cycle	MIL-STD-202: 107D MIL-STD-750: 1051 MIL-STD-883: 1011
	Solder Resistance	$T_{sol} = 260\pm 5^\circ\text{C}$ 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	$I_F = 500\text{mA}$	V_F shift > 10%
Luminous	$I_v\%$	$I_F = 500\text{mA}$	$I_v\%$ shift > 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.



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