

3mm Photodiode, T-1 PD204-6C/L3



Features

- Fast response time
- High photo sensitivity
- Small junction capacitance
- Pb free
- This product itself will remain within RoHS compliant version.

Description

PD204-6C/L3 is a high speed and high sensitive PIN photodiode in a standard 3Φ plastic package. Due to its water clear epoxy the device is sensitive to visible and infrared radiation.

Applications

- Automatic door sensor
- Camera
- Game machine
- High speed photo detector

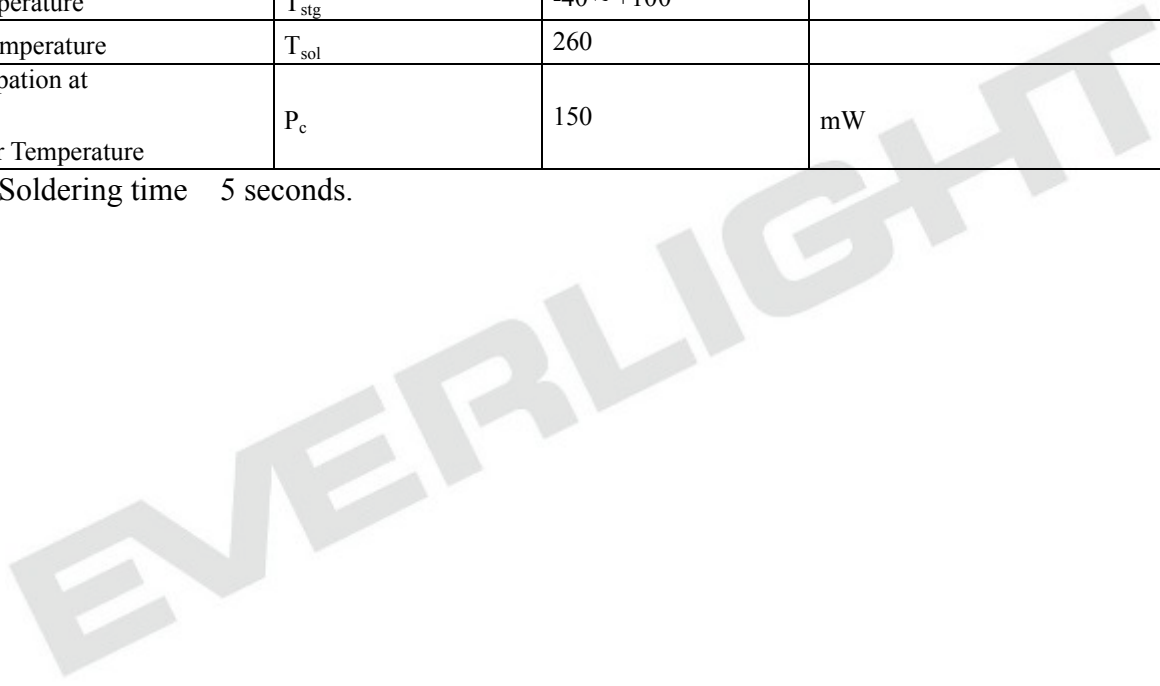
Device Selection Guide

Chip Materials	Lens Color
Silicon	Water clear

Absolute Maximum Ratings (Ta=25)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	32	V
Operating Temperature	T_{opr}	-40 ~ +85	
Storage Temperature	T_{stg}	-40 ~ +100	
Soldering Temperature	T_{sol}	260	
Power Dissipation at (or below) 25 Free Air Temperature	P_c	150	mW

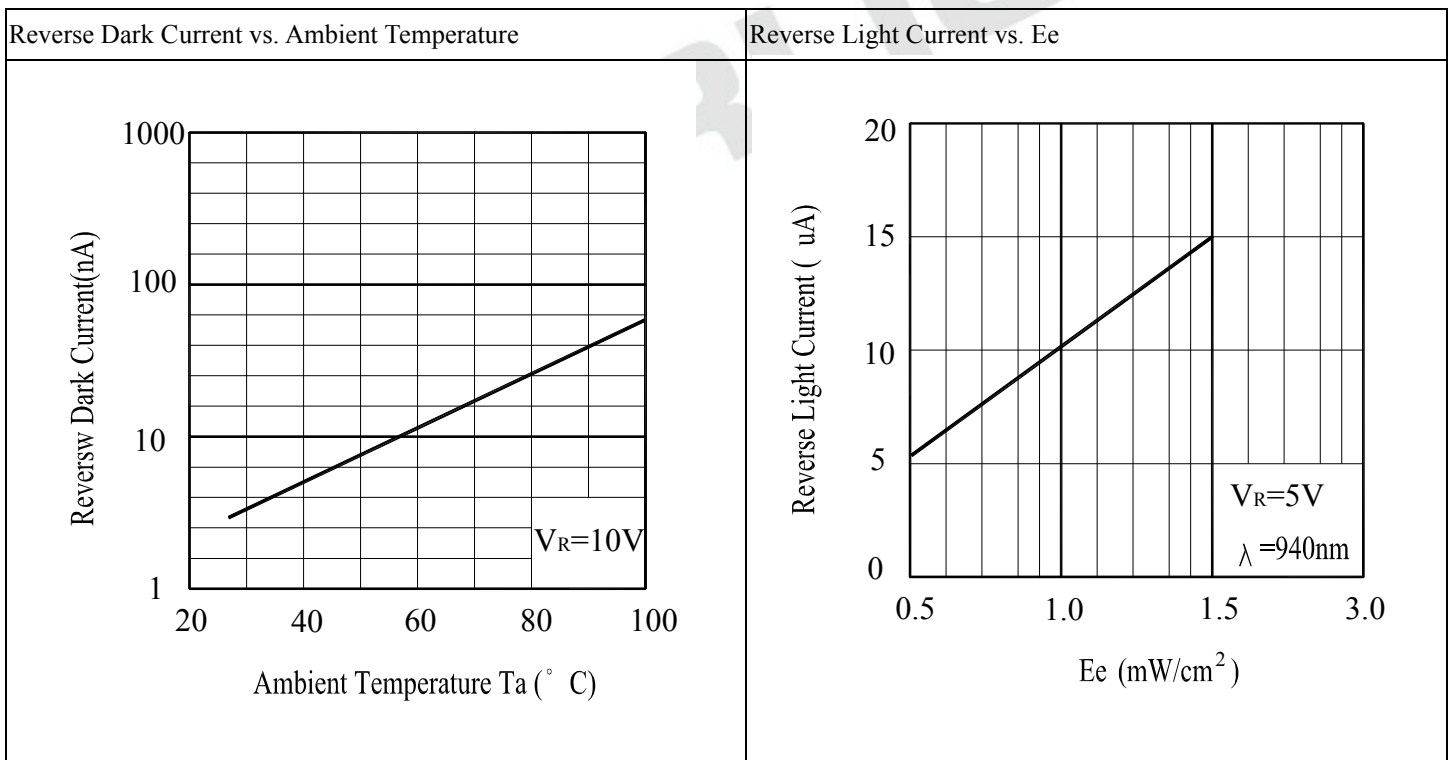
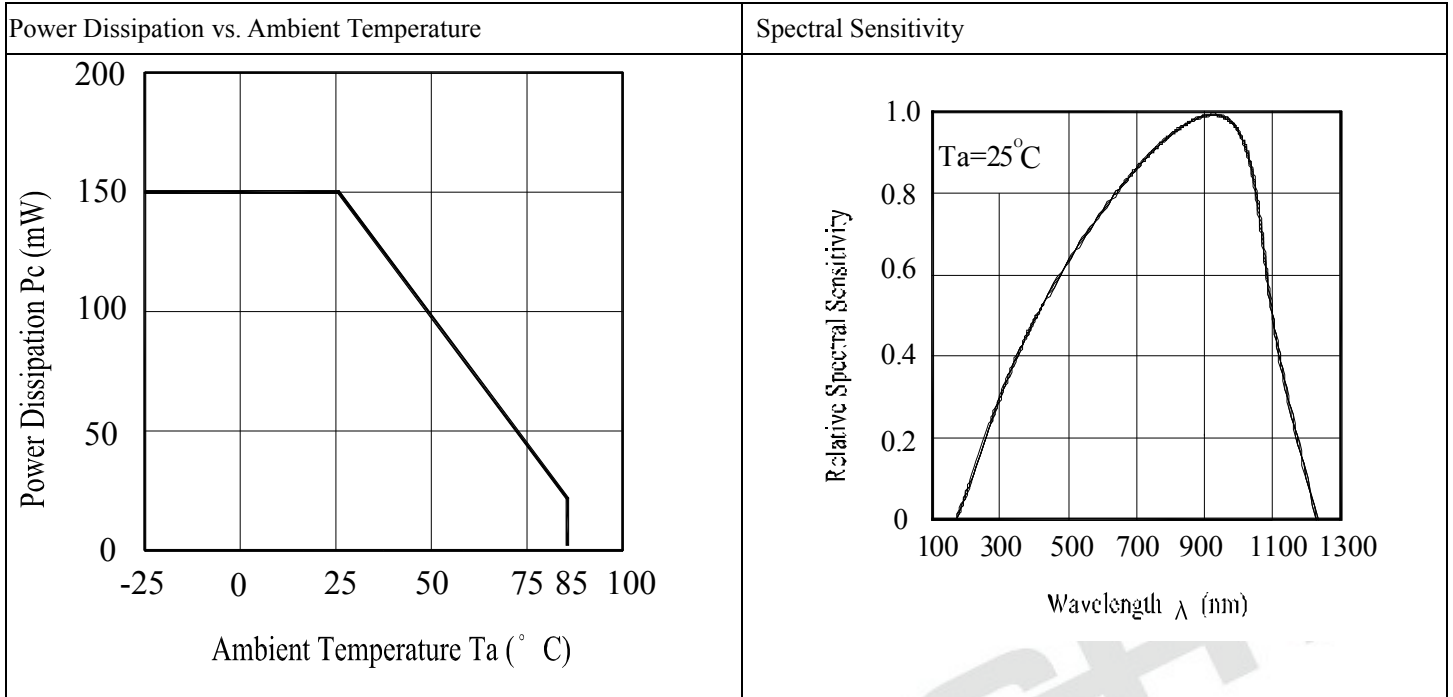
Notes: *1:Soldering time 5 seconds.



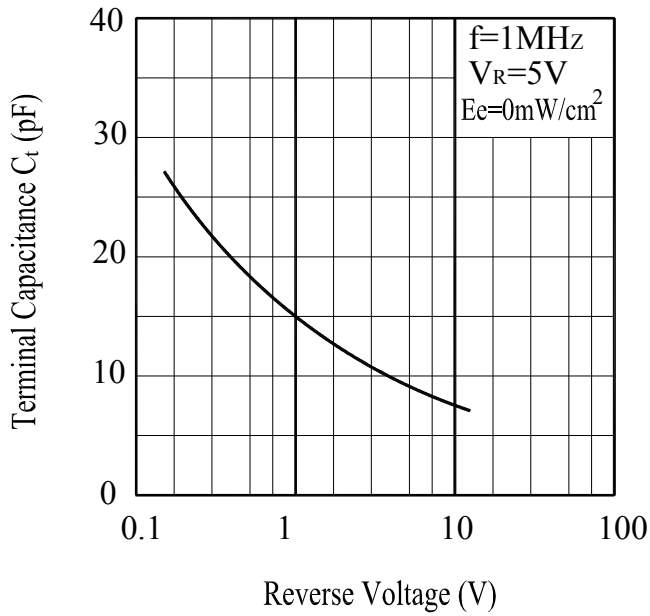
Electro-Optical Characteristics (Ta=25)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Range Of Spectral Bandwidth	$\lambda_{0.5}$	400	---	1100	nm	----
Wavelength Of Peak Sensitivity	λ_P	---	940	---	nm	----
Open-Circuit Voltage	V_{OC}	---	0.44	---	V	Ee=5mW/cm ² $\lambda_p=940nm$
Short- Circuit Current	I_{SC}	---	10	---	μA	Ee=1mW/cm ² $\lambda_p=940nm$
Reverse Light Current	I_L	---	10	---	μA	Ee=1mW/cm ² $\lambda_p=940nm$ $V_R=5V$
Reverse Dark Current	I_D	---	---	10	nA	Ee=0mW/cm ² $V_R=10V$
Reverse Breakdown Voltage	V_{BR}	32	170	---	V	Ee=0mW/cm ² $I_R=100\mu A$
Total Capacitance	C_t	---	10	---	pF	Ee=0mW/cm ² $V_R=5V$ $f=1MHz$
Rise Time/ Fall Time	t_r / t_f	----	10	----	ns	$V_R=10V$ $R_L=100\Omega$
View Angle	2 $\theta_{1/2}$	----	45	----	deg	$I_F=20mA$

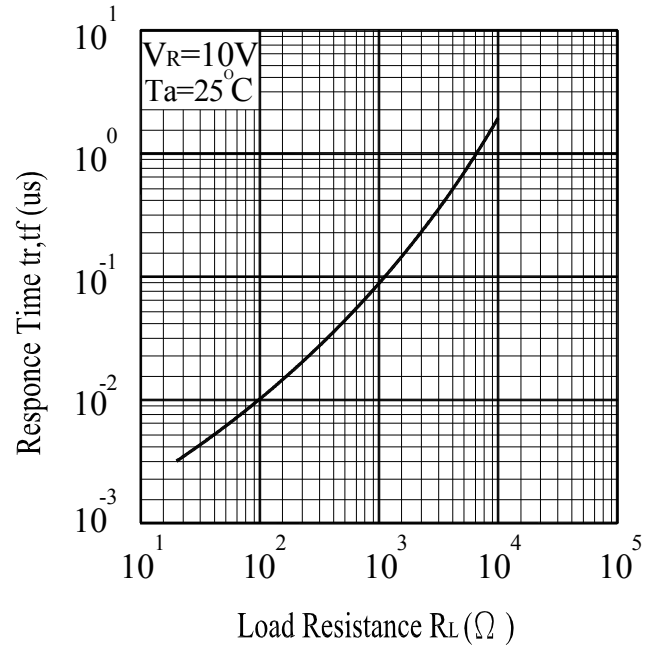
Typical Electro-Optical Characteristics Curves



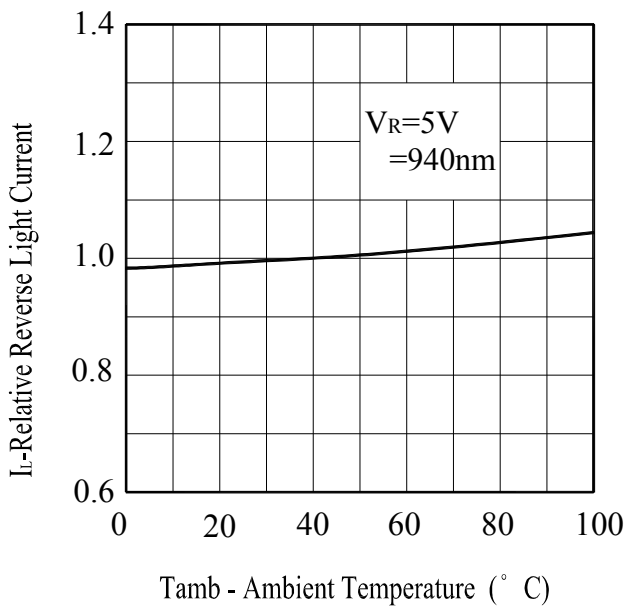
Terminal Capacitance vs. Reverse Voltage



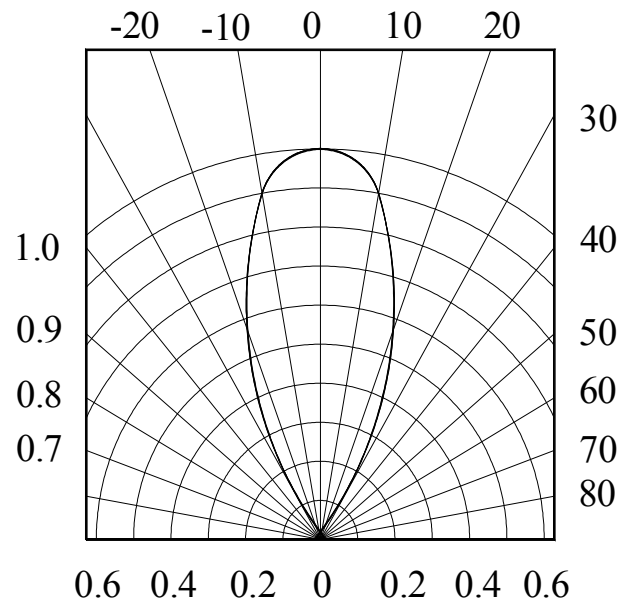
Response Time vs. Load Resistance



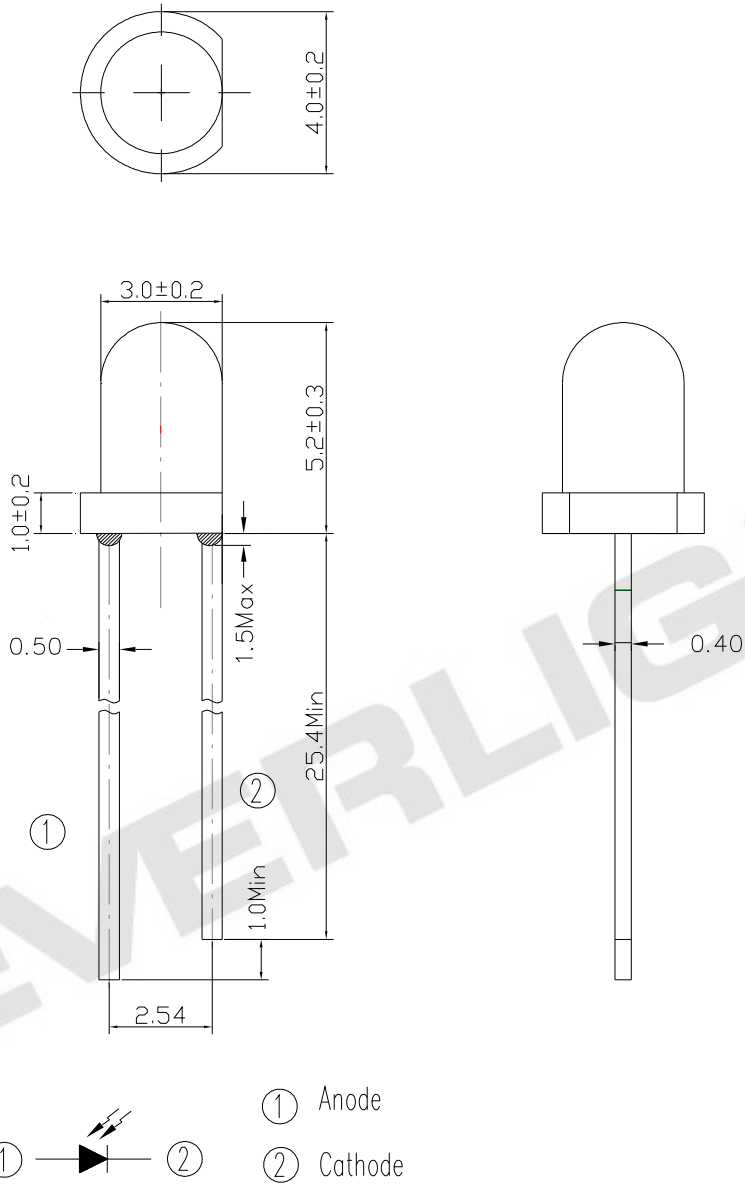
Relative Reverse Light Current vs. Ambient Temperature



Sensitivity Diagram

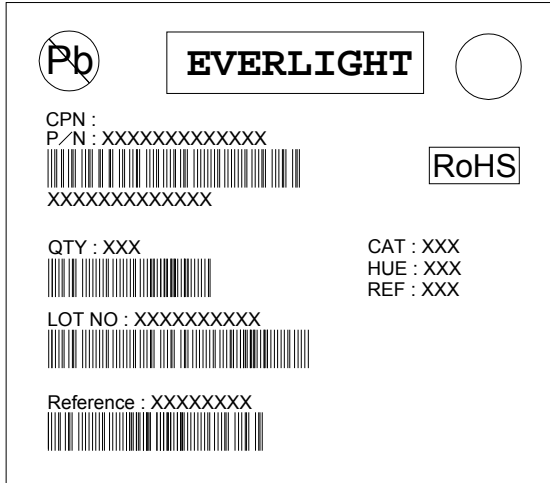


Package Dimension



Note: Tolerances unless dimensions ± 0.25 mm

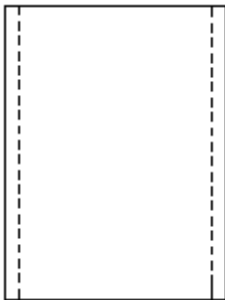
Label Form Specification



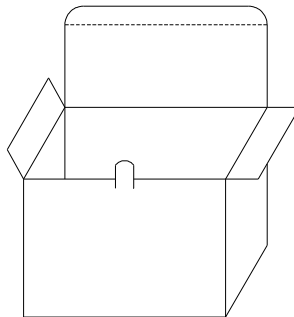
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number
- X: Month
- Reference: Identify Label Number

Packing Specification

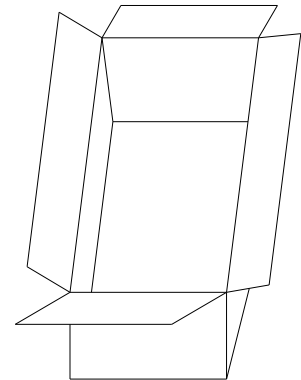
■ Anti-electrostatic bag



■ Inner Carton



■ Outside Carton



■ Packing Quantity

1. 1000 PCS/1 Bag, 4 Bags/1 Inner Carton
2. 10 Inner Cartons/1 Outside Carton

Notes

1. Lead Forming

- During lead formation, the leads should be bent at a point at least 3mm from the base of the epoxy bulb.
- Lead forming should be done before soldering.
- Avoid stressing the LED package during leads forming. The stress to the base may damage the LED's characteristics or it may break the LEDs.
- Cut the LED lead frames at room temperature. Cutting the lead frames at high temperatures may cause failure of the LEDs.
- When mounting the LEDs onto a PCB, the PCB holes must be aligned exactly with the lead position of the LED. If the LEDs are mounted with stress at the leads, it causes deterioration of the epoxy resin and this will degrade the LEDs.

2. Storage

- The LEDs should be stored at 30°C or less and 70%RH or less after being shipped from Everlight and the storage life limits are 3 months. If the LEDs are stored for 3 months or more, they can be stored for a year in a sealed container with a nitrogen atmosphere and moisture absorbent material.
- Please avoid rapid transitions in ambient temperature, especially, in high humidity environments where condensation can occur.

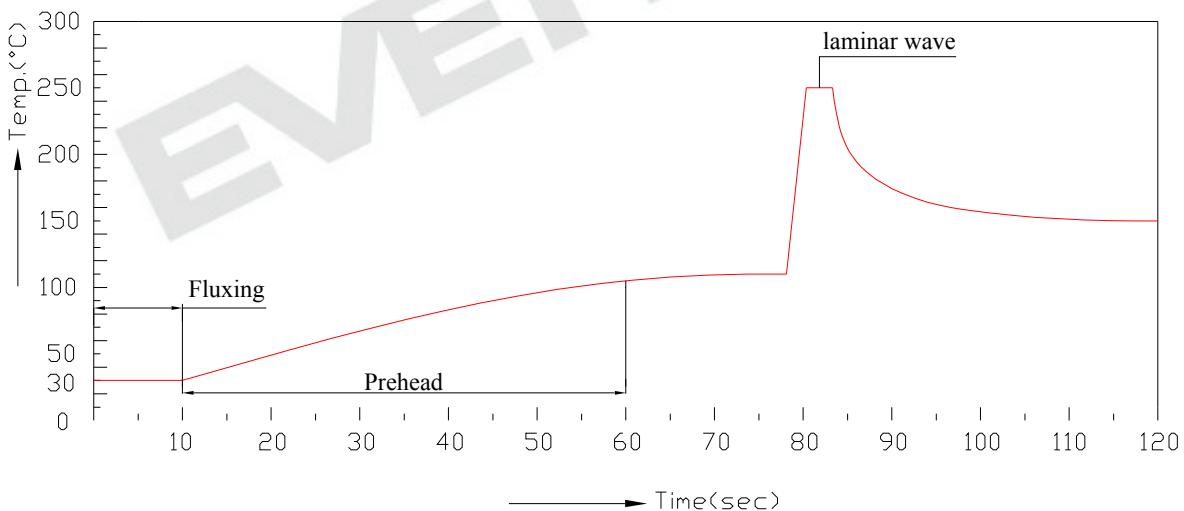
3. Soldering

- Careful attention should be paid during soldering. When soldering, leave more than 3mm from solder joint to epoxy bulb, and soldering beyond the base of the tie bar is recommended.

- Recommended soldering conditions:

Hand Soldering		DIP Soldering	
Temp. at tip of iron	300 Max. (30W Max.)	Preheat temp.	100 Max. (60 sec Max.)
Soldering time	3 sec Max.	Bath temp. & time	260 Max., 5 sec Max
Distance	3mm Min.(From solder joint to epoxy bulb)	Distance	3mm Min. (From solder joint to epoxy bulb)

- Recommended soldering profile



- Avoiding applying any stress to the lead frame while the LEDs are at high temperature particularly when soldering.
- Dip and hand soldering should not be done more than one time
- After soldering the LEDs, the epoxy bulb should be protected from mechanical shock or vibration until the LEDs return to room temperature.