

### Technical Data Sheet Top Phototransistor PT67-21C/L606/TR8(GDB)

#### Features

- Fast response time
- High photo sensitivity
- Small junction capacitance
- Compatible with infrared and vapor phase reflow solder process.
- Pb free
- The product itself will remain within RoHS compliant version.



#### Description

• PT67-21C/L606/TR8(GDB) is a high speed silicon NPN epitaxial planar phototransistor in a compact surface-mountable package. It's compatible with automatic placement equipment and can withstand IR reflow, vapor phase reflow , and wave solder processes.

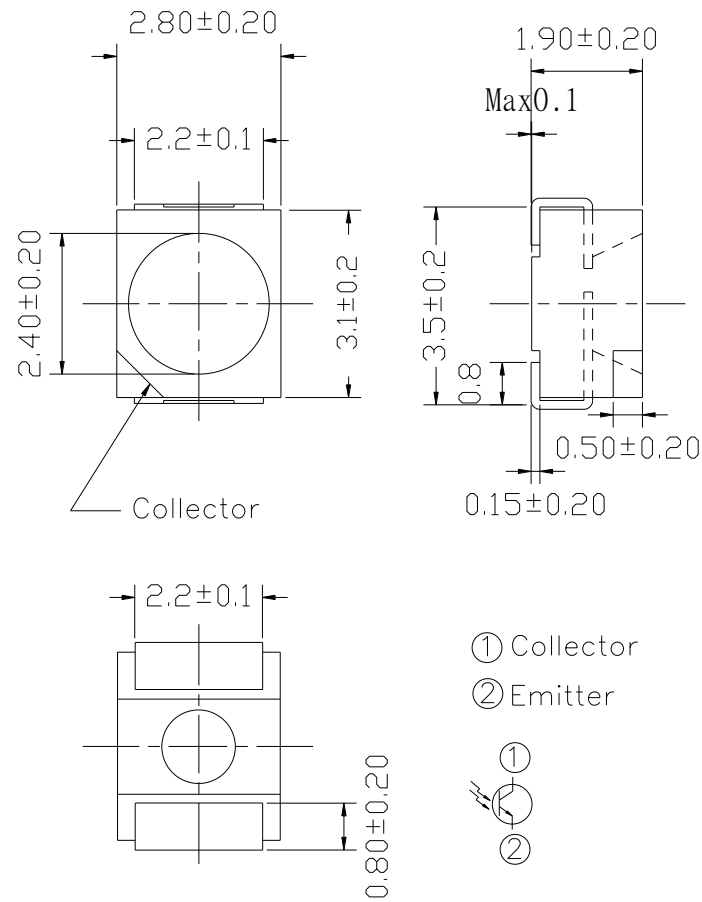
#### Applications

- Miniature switch
- Counters and sorter
- Position sensor
- Infrared applied system
- Encoder

#### Device Selection Guide

Device No.	Chip Material	Lens Color
PT67-21C/L606/TR8(GDB)	Silicon	Water clear

**Package Dimensions**



- Notes:** 1.All dimensions are in millimeters  
2.Tolerances unless dimensions  $\pm 0.1\text{mm}$

**Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )**

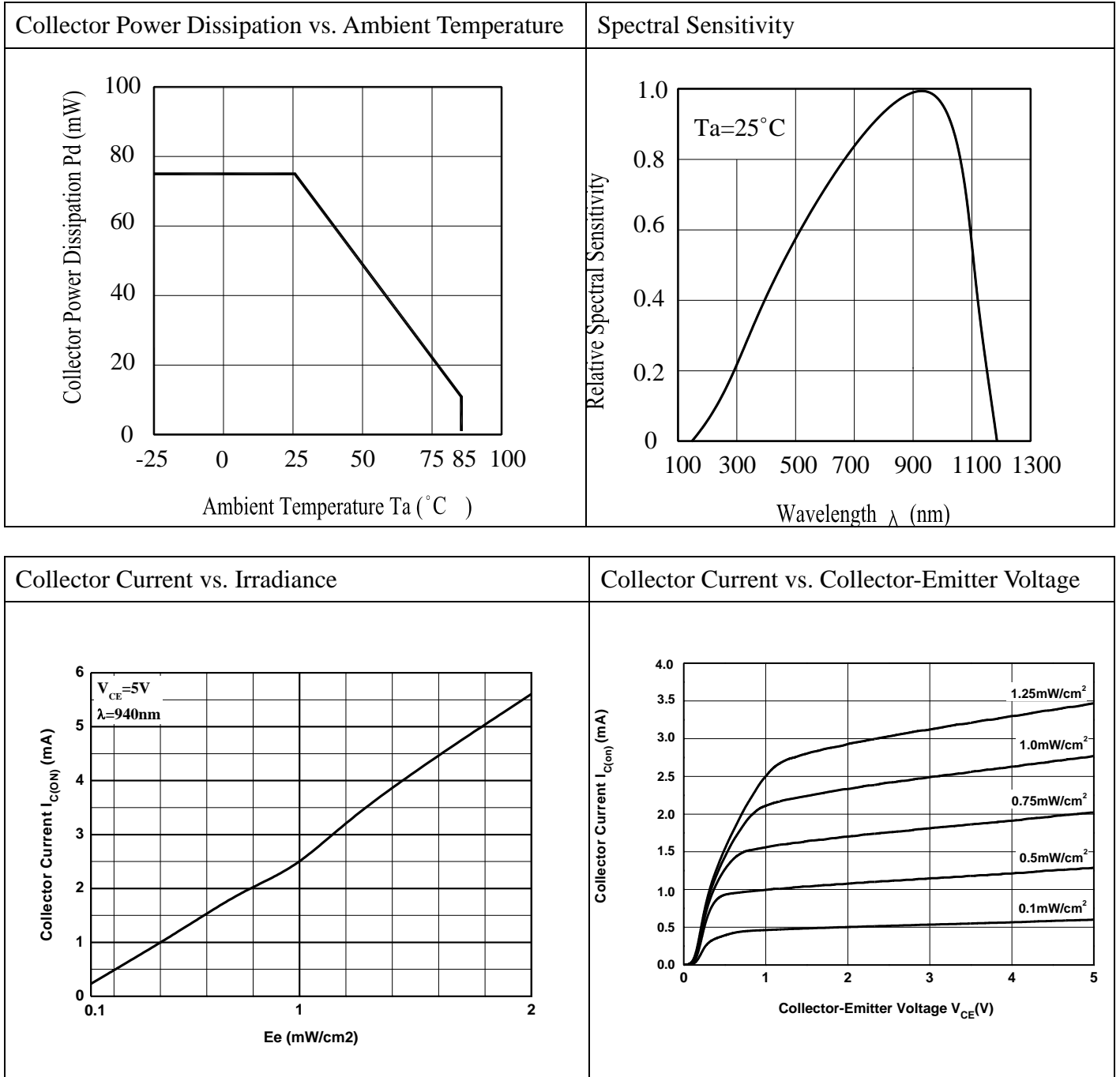
Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	$V_{\text{CEO}}$	30	V
Emitter-Collector-Voltage	$V_{\text{ECO}}$	5	V
Collector Current	$I_{\text{C}}$	20	mA
Operating Temperature	$T_{\text{opr}}$	-25 ~ +85	$^\circ\text{C}$
Storage Temperature *1	$T_{\text{stg}}$	-40 ~ +85	$^\circ\text{C}$
Soldering Temperature	$T_{\text{sol}}$	260	$^\circ\text{C}$
Power Dissipation at(or below) 25 $^\circ\text{C}$ Free Air Temperature	$P_{\text{c}}$	75	mW

**Notes: \*1:Soldering time  $\leq 5$  seconds.**

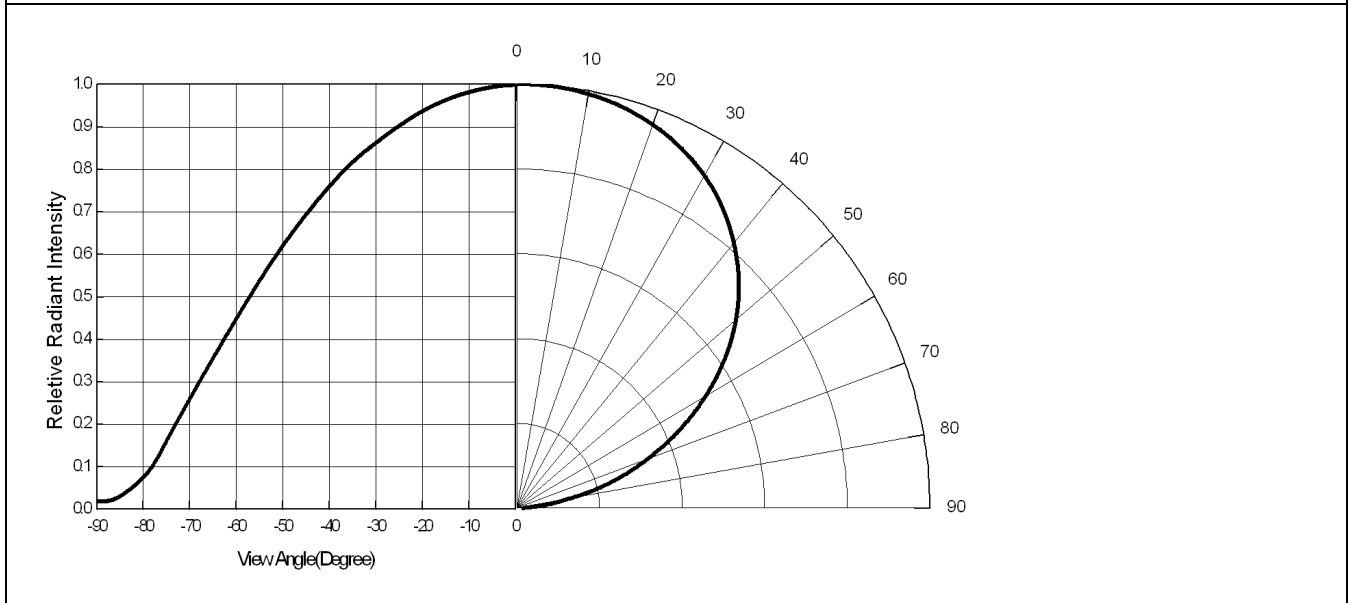
Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Rang Of Spectral Bandwidth	$\lambda_{0.5}$	400	---	1100	nm	---
Wavelength Of Peak Sensitivity	$\lambda_P$	---	940	---	nm	---
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	30	---	---	V	$I_C=100\mu A$ $E_e=0mW/cm^2$
Emitter-Collector Breakdown Voltage	$BV_{ECO}$	5	---	---	V	$I_E=100\mu A$ $E_e=0mW/cm^2$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	---	---	0.4	V	$I_C=1mA$ $E_e=1mW/cm^2$
Collector Dark Current	$I_{CEO}$	---	---	500	nA	$V_{CE}=20V$ $E_e=0mW/cm^2$
On State Collector Current	$I_{C(ON)}$	2.0	2.3	10.0	mA	$V_{CE}=5V$ $E_e=1mW/cm^2$
View Angle	$2\theta_{1/2}$	--	120	--	deg	$V_R = 5V$
Rise Time	$t_r$	---	15	---	$\mu S$	$V_{CE}=5V$ $I_C=1mA$ $R_L=1000\Omega$
Fall Time	$t_f$	---	15	---		

Typical Electrical/Optical/Characteristics Curves



Relative Light Current vs. Angular Displacement



## Precautions For Use

### 1. Over-current-proof

Customer must apply resistors for protection , otherwise slight voltage shift will cause big current change ( Burn out will happen ).

### 2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package, the Phototransistor should be kept at 30°C or less and 90%RH or less.

2.3 The Phototransistor should be used within a year.

2.4 After opening the package, the Phototransistor should be kept at 30°C or less and 60%RH or less.

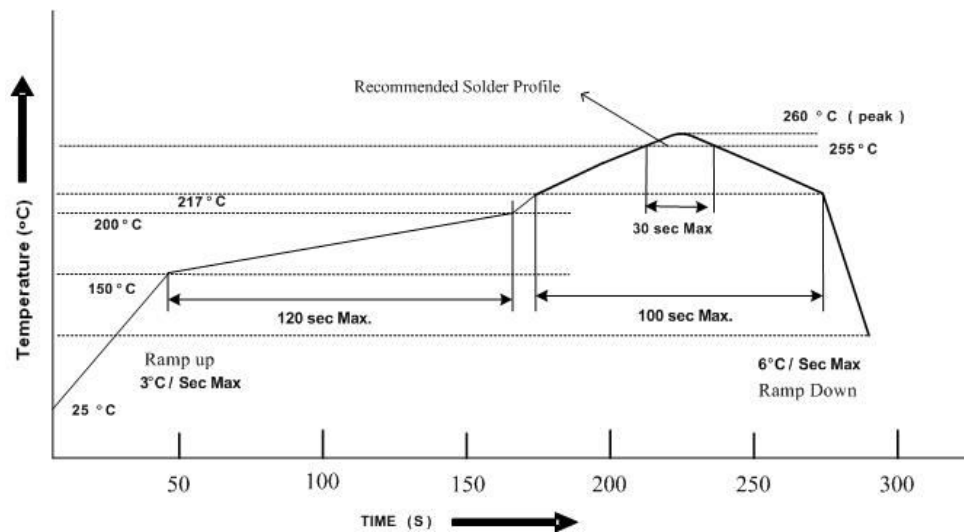
2.5 The Phototransistor should be used within 72 hours (3 days) after opening the package

2.6 If the moisture absorbent material (silica gel) has faded away or the Phototransistor have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment : 60±5°C for Min. Min. 24 hours.

### 3. Soldering Condition

#### 3.1 Pb-free solder temperature profile



3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the Phototransistor during heating.

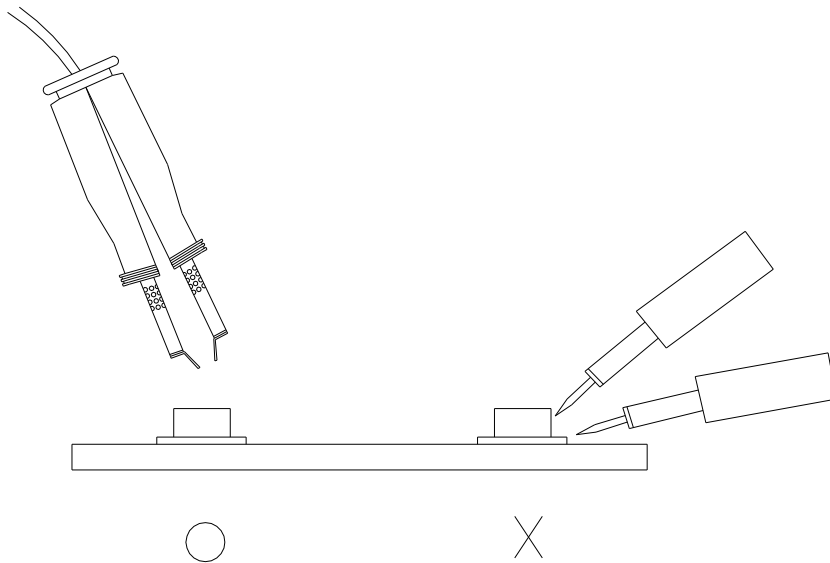
3.4 After soldering, do not warp the circuit board.

#### 4. Soldering Iron

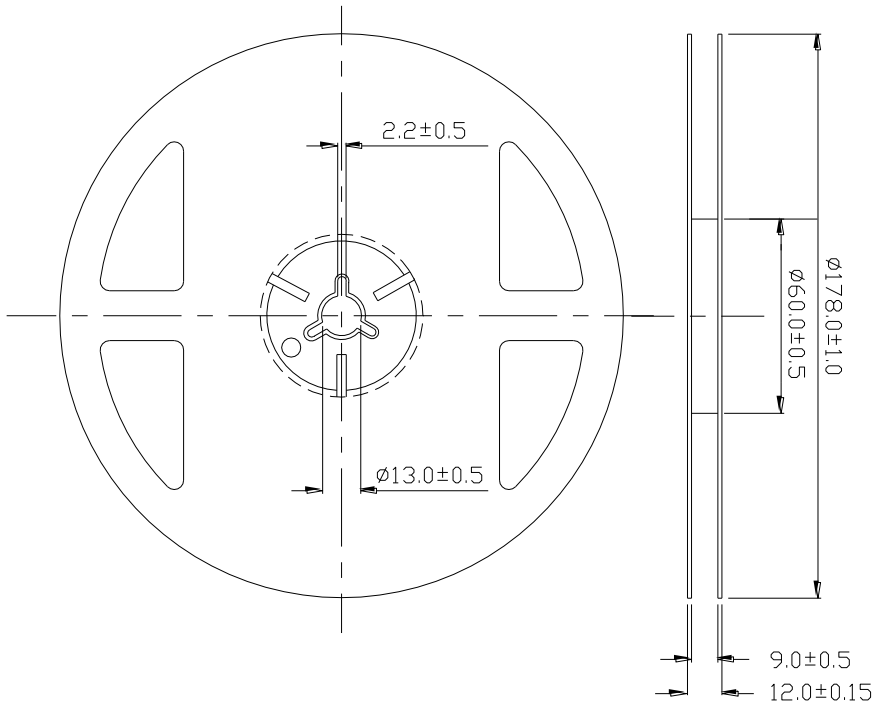
Each terminal is to go to the tip of soldering iron temperature less than  $350^{\circ}\text{C}$  for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

#### 5. Repairing

Repair should not be done after the Phototransistor have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the Phototransistor will or will not be damaged by repairing.

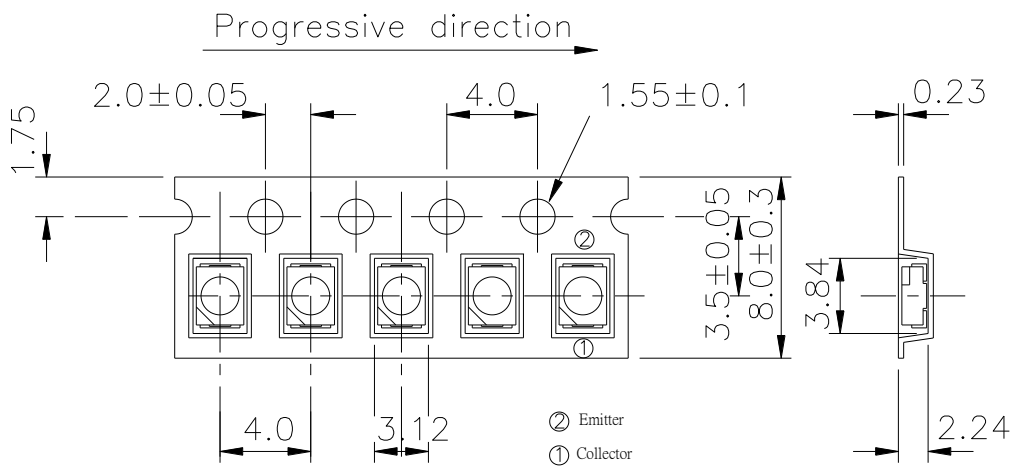


**Package Dimensions**



**Note:** The tolerances unless mentioned is  $\pm 0.1$ mm ,Unit = mm

**Carrier Tape Dimensions:(Quantity: 2000pcs/reel)**

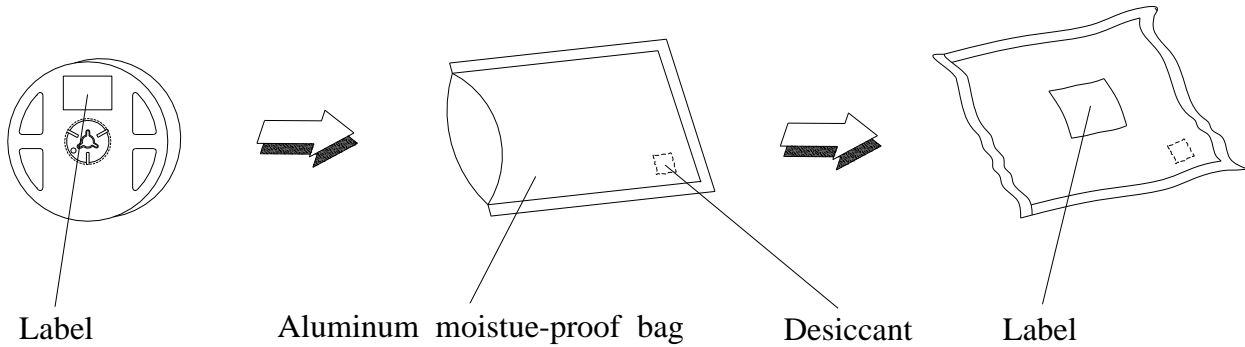


TOLERANCES UNLESS DIMENSION  $\pm 0.1$   
ANGLE  $\pm 0.5$   
UNIT:mm

**Note:** The tolerances unless mentioned is  $\pm 0.1$ mm ,Unit = mm



## Packing Procedure



## Label Form Specification

	<b>EVERLIGHT</b>	
CPN : P/N : XXXXXXXXXXXXX XXXXXXXXXXXXXX		<b>RoHS</b>
QTY : XXX XXXXXXXXXXXXXX	CAT : XXX HUE : XXX REF : XXX	
LOT NO : XXXXXXXXXXXX XXXXXXXXXXXXXX		
Reference : XXXXXXXX XXXXXXXXXXXXXX		

CPN: Customer's Production Number

P/N : Production Number

QTY: Packing Quantity

CAT: Ranks

HUE: Peak Wavelength

REF: Reference

LOT No: Lot Number

MADE IN TAIWAN: Production Place

## Notes

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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