

### Technical Data Sheet Top Phototransistor PT67-21C/L606/TR8(DVP-2)

#### 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(DVP-2) 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.

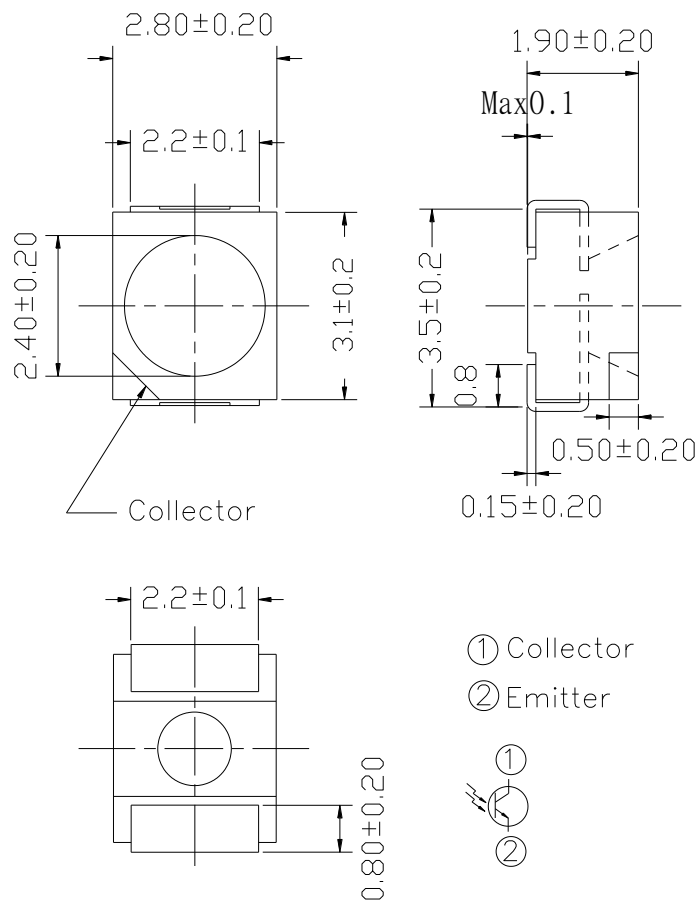
#### Applications

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

#### Device Selection Guide

Device No.	Chip Material	Lens Color
PT67-21C/L606/TR8(DVP-2)	Silicon	Water clear

## Package Dimensions



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

## Absolute Maximum Ratings (Ta=25°C )

Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	$V_{CEO}$	30	V
Emitter-Collector-Voltage	$V_{ECO}$	4	V
Collector Current	$I_C$	20	mA
Operating Temperature	$T_{opr}$	-25 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +100	°C
Soldering Temperature *1	$T_{sol}$	260	°C
Power Dissipation at(or below) 25°C Free Air Temperature	$P_c$	75	mW

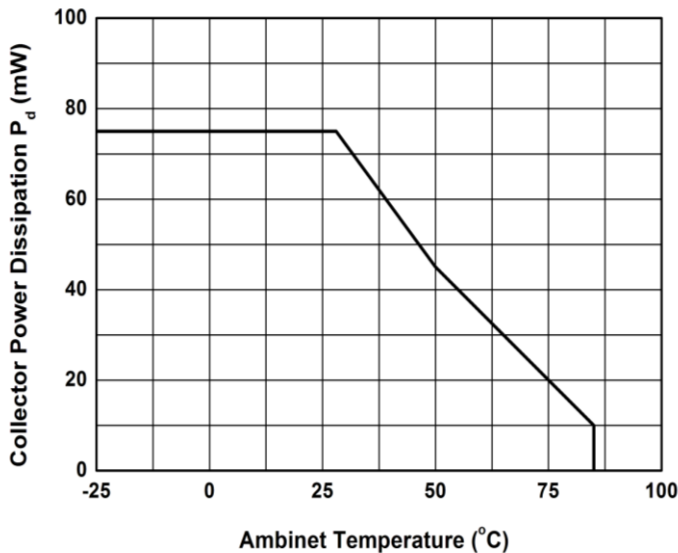
**Notes: \*1:Soldering time  $\leq 5$  seconds.**

## Electro-Optical Characteristics (Ta=25°C unless specified otherwise)

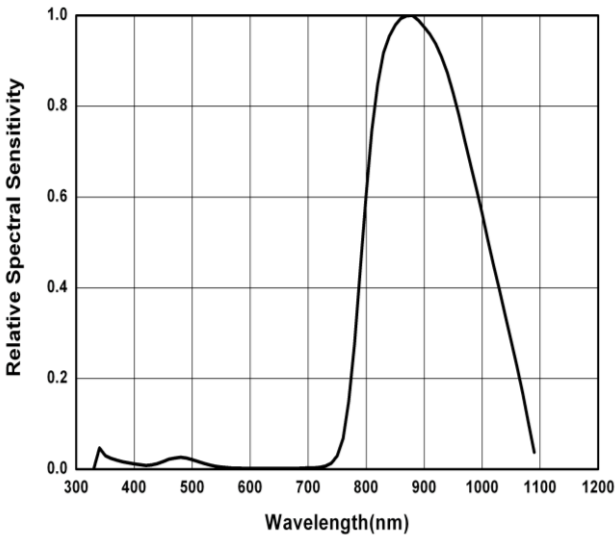
Parameter	Symbol	Min.	Typ.*	Max.	Unit	Condition
Rang Of Spectral Bandwidth	$\lambda_{0.1}$	400	--	1100	nm	--
Wavelength Of Peak Sensitivity	$\lambda_P$	-	940	--	nm	--
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	30	-	--	V	$I_C=100\mu A$ $E_e=0mW/cm^2$
Emitter-Collector Breakdown Voltage	$BV_{ECO}$	5	--	--	V	$I_C=100\mu A$ $E_e=0mW/cm^2$
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	$I_{C(ON)}$	2.00	2.30	10.0	mA	$V_{CE}=5V$ $E_e=1mW/cm^2$ $\lambda_P=940nm$
View Angle	$2\theta_{1/2}$	--	120	--	Deg.	$V_{CE}=5V$
Rise time	$t_r$	--	15	--	$\mu S$	$V_{CE}=5V$ $I_C=1mA$
Fall time	$t_f$	--	15	--	$\mu S$	$R_L=1000\Omega$

Typical Electrical/Optical/Characteristics Curves

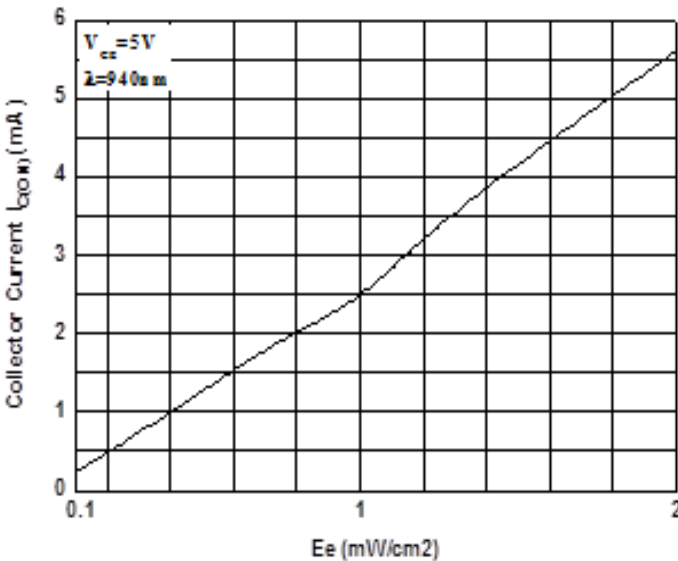
Collector Power Dissipation vs. Ambient Temperature



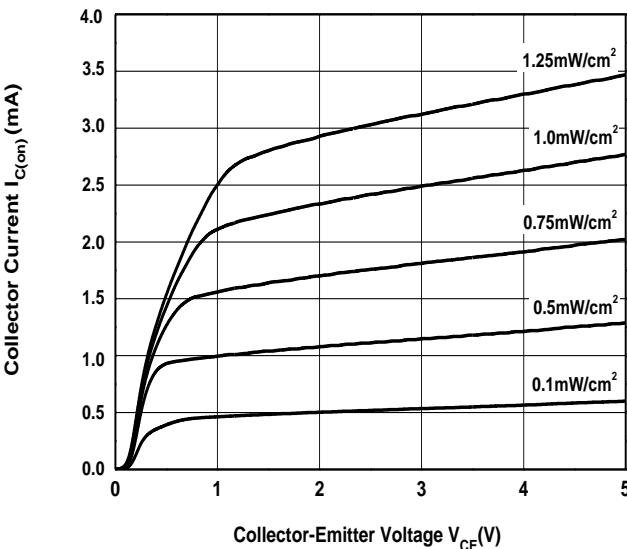
Spectral Sensitivity



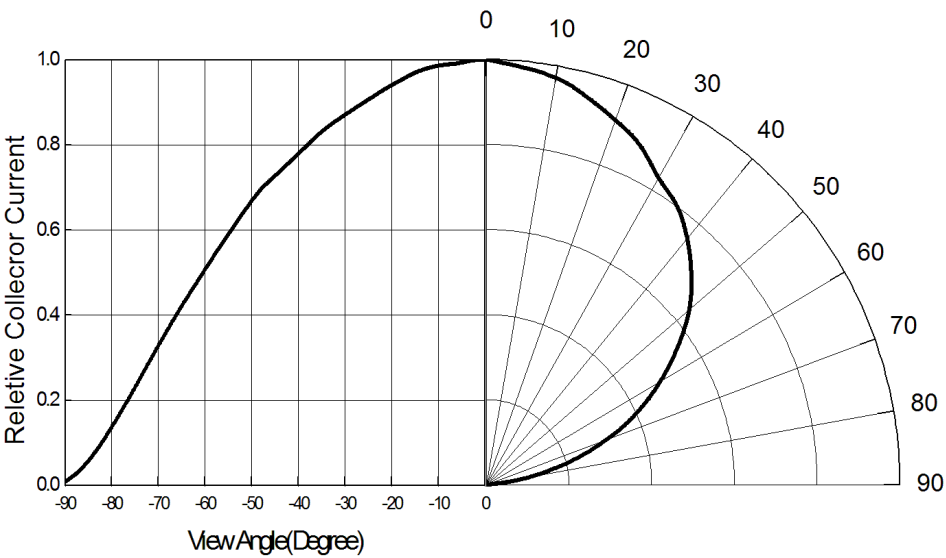
Collector Current vs. Irradiance



Collector Current vs. Collector-Emitter Voltage



Relative Collector 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.

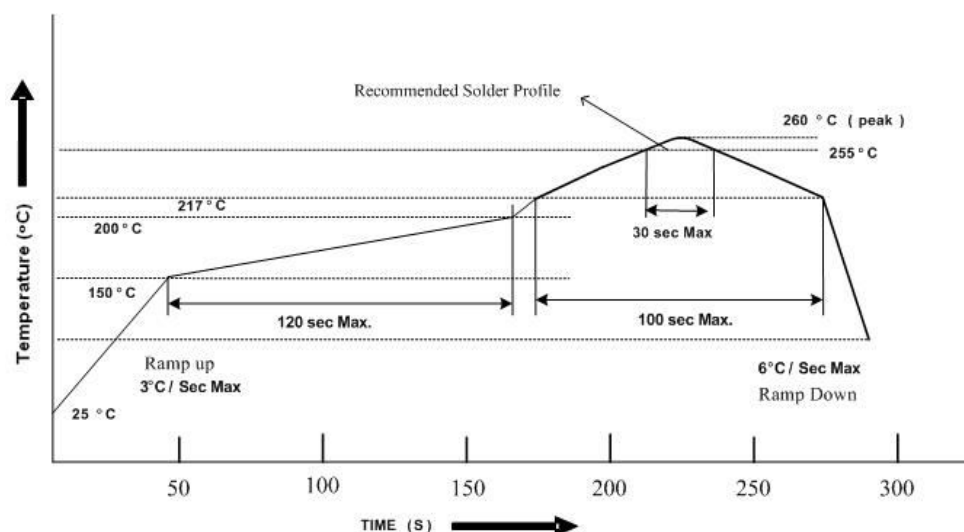
2.5 The Phototransistor should be used within 72 hours (3 days) after opening the package

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.

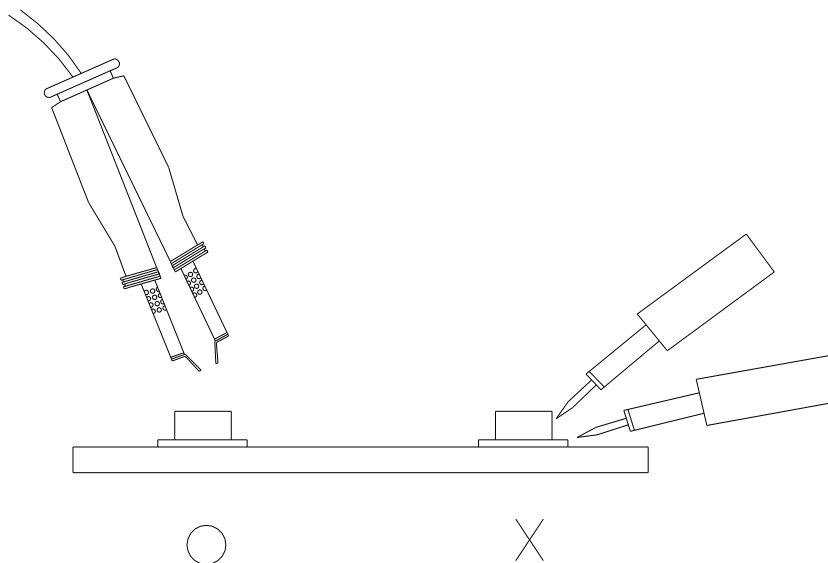
3.4 After soldering, do not warp the circuit board.

#### 4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350°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

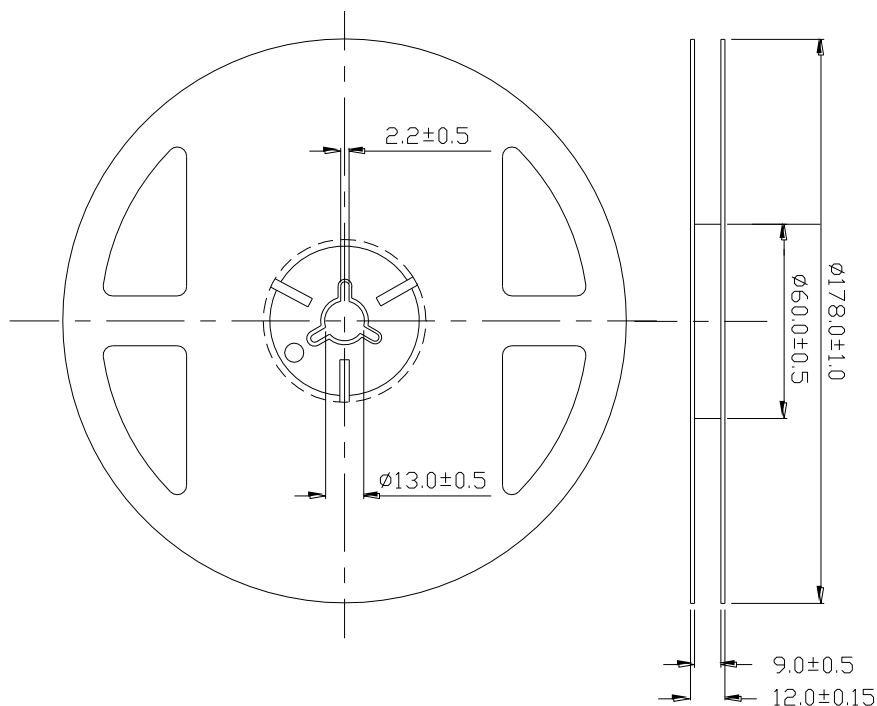
Repair should not be done after the Phototransistor have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the Phototransistor will or will not be damaged by repairing.



#### 6. Sulfuration

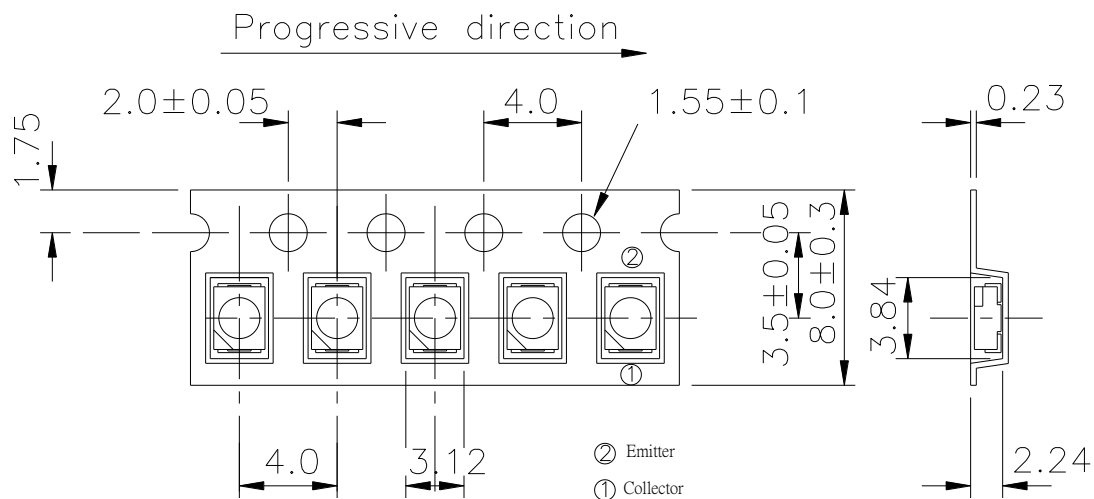
Precautionary measures: Select and use quality guaranteed PCB board, solder substance and other related material. Avoid exposure to elemental sulfur substance. Never store LED with high oxidizing or reducing substances or other corrosive material. All the LED products can't be lighting in strong acid and strong alkali environment without special processing.

## Package Dimensions



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

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

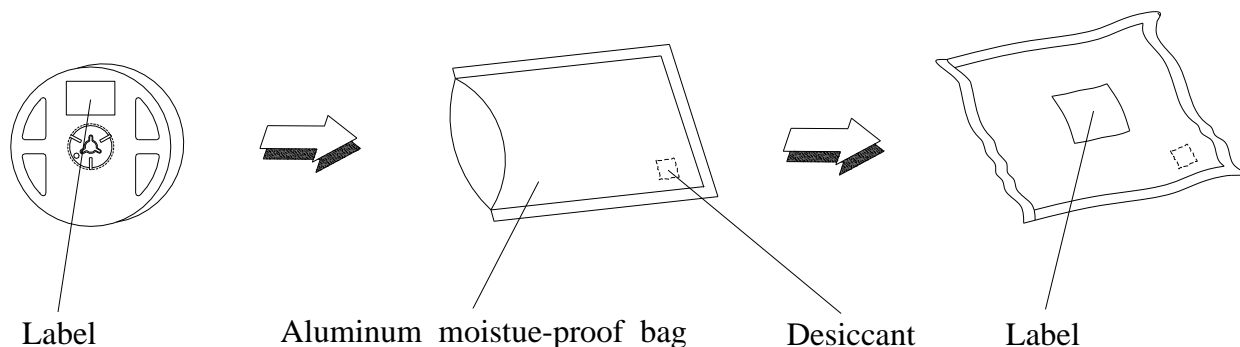


TOLERANCES UNLESS DIMENSION  $\pm 0.1$   
ANGLE  $\pm 0.5$   
UNIT: mm

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




## Packing Procedure



## Label Form Specification

RoHS (Pb) EVERLIGHT	
CPN : XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXX	
P/N : XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXX	
LOT NO : XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXX	
QTY :	HUE :
CAT :	REF :
REFERENCE :	



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

## DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. 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 the 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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