



LIGHTING FOREVER

Technical Data Sheet

Side Looking Silicon PIN Photodiode

PT57-21B/TR8



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.

Descriptions

- PT57-21B/TR8 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.

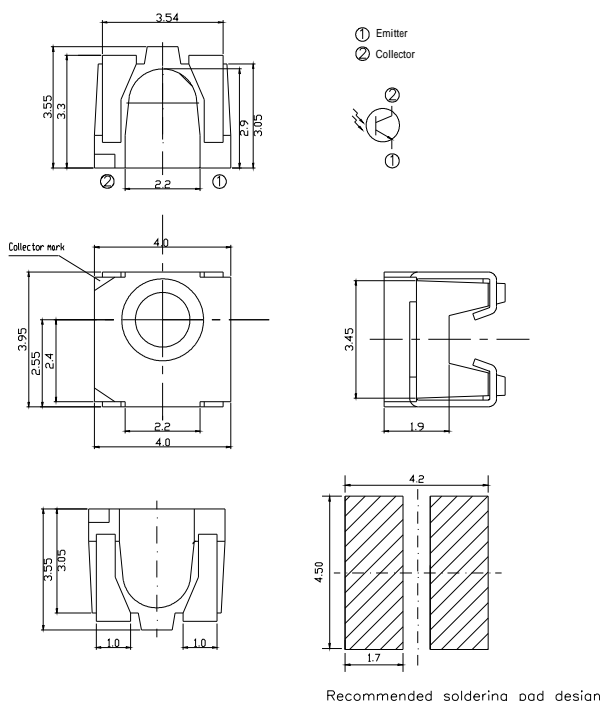
Applications

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

Device Selection Guide

LED Part No.	Chip	Lens Color
	Material	
PT57-21B/TR8	Silicon	Black

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_{CEO}	30	V
Emitter-Collector-Voltage	V_{ECO}	5	V
Collector Current	I_C	20	mA
Operating Temperature	T_{opr}	$-25 \sim +85$	
Storage Temperature	T_{stg}	$-40 \sim +85$	
Soldering Temperature	T_{sol}	260	
Power Dissipation at(or below) 25 Free Air Temperature	P_c	75	mW

Notes: *1:Soldering time 5 seconds.

Electro-Optical Characteristics (Ta=25 °C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Rang Of Spectral Bandwidth	0.5	---	700	---	1100	nm
Wavelength Of Peak Sensitivity	P	---	---	940	---	nm
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=100\mu A$ $E_e=0mW/cm^2$	30	---	---	V
Emitter-Collector Breakdown Voltage	BV_{ECO}	$I_E=100\mu A$ $E_e=0mW/cm^2$	5	---	---	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=0.1mA$ $E_e=1mW/cm^2$	---	---	0.4	V
Collector Dark Current	I_{CEO}	$V_{CE}=20V$ $E_e=0mW/cm^2$	---	---	100	nA
On State Collector Current	$I_{C(ON)}$	$V_{CE}=5V$ $E_e=1mW/cm^2$	0.4	0.8	---	mA
Rise Time	t_r	$V_{CE}=5V$ $I_C=1mA$ $R_L=1000$	---	15	---	μS
Fall Time	t_f		---	15	---	

Typical Electro-Optical Characteristics Curves

Fig.1 Collector Power Dissipation vs.
Ambient Temperature

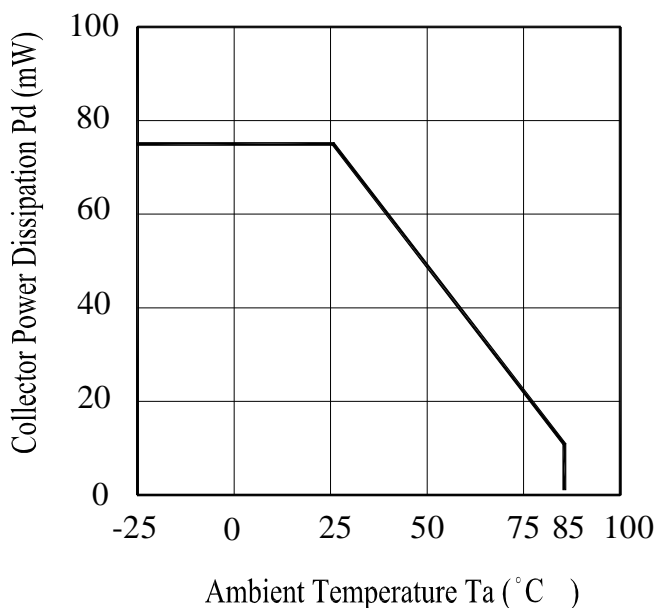


Fig.2 Spectral Sensitivity

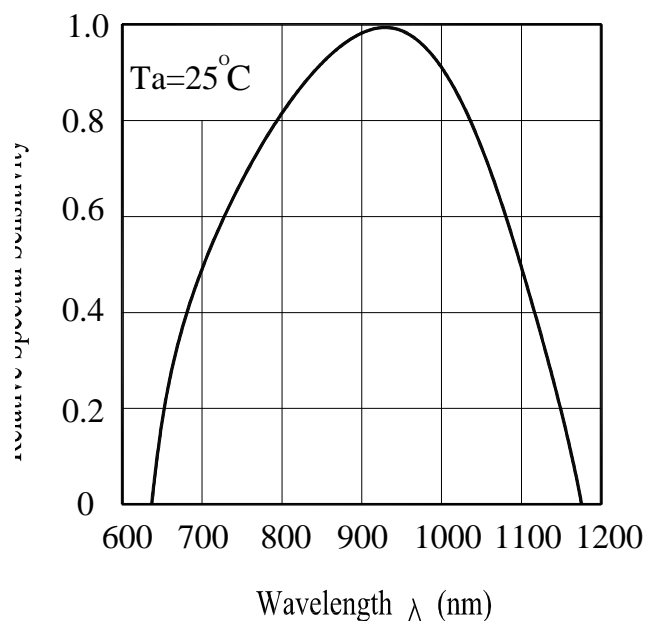


Fig.3 Relative Collector Current vs.
Ambient Temperature

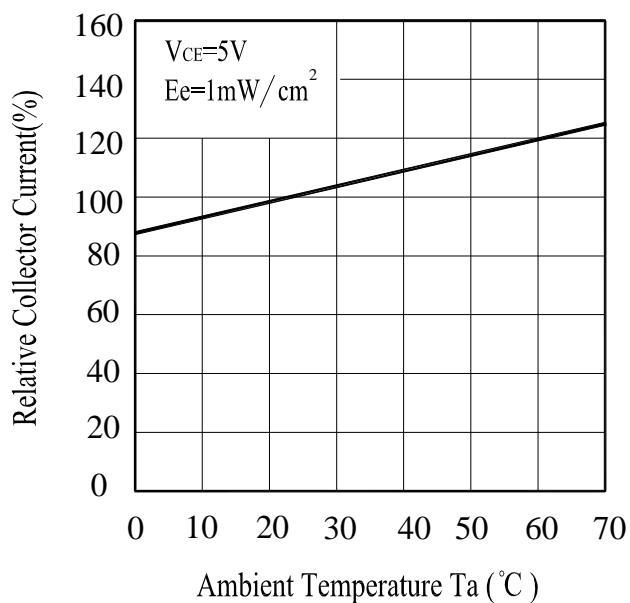
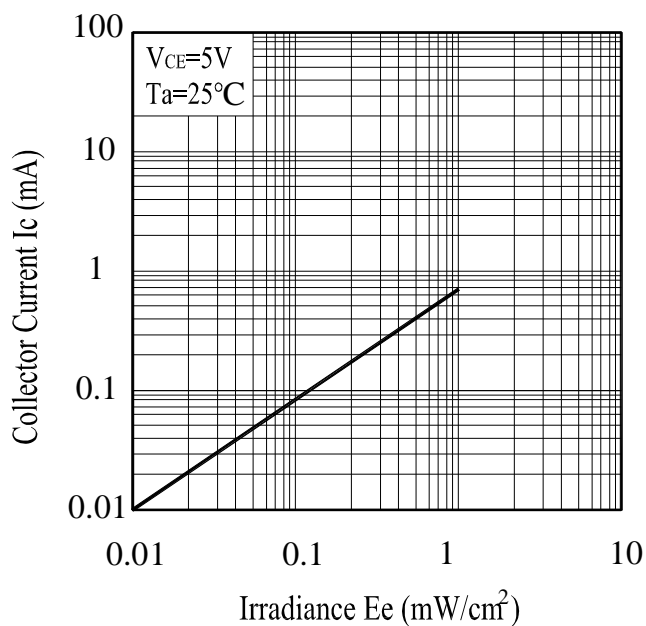
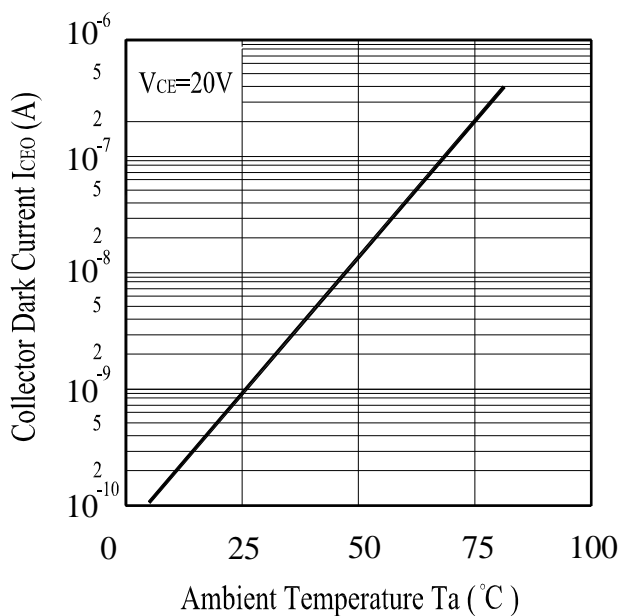


Fig.4 Collector Current vs.
Irradiance



Typical Electro-Optical Characteristics Curves

Fig.5 Collector Dark Current vs.
Ambient Temperature



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 LEDs should be kept at 30 or less and 90%RH or less.

2.3 The LEDs should be used within a year.

2.4 After opening the package, the LEDs should be kept at 30 or less and 70%RH or less.

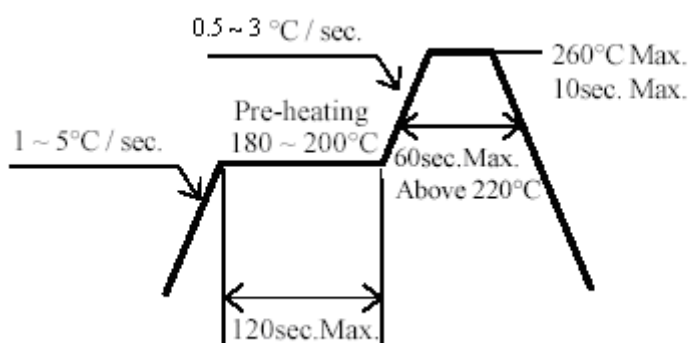
2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

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

Baking treatment : 60 ± 5 for 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 LEDs during heating.

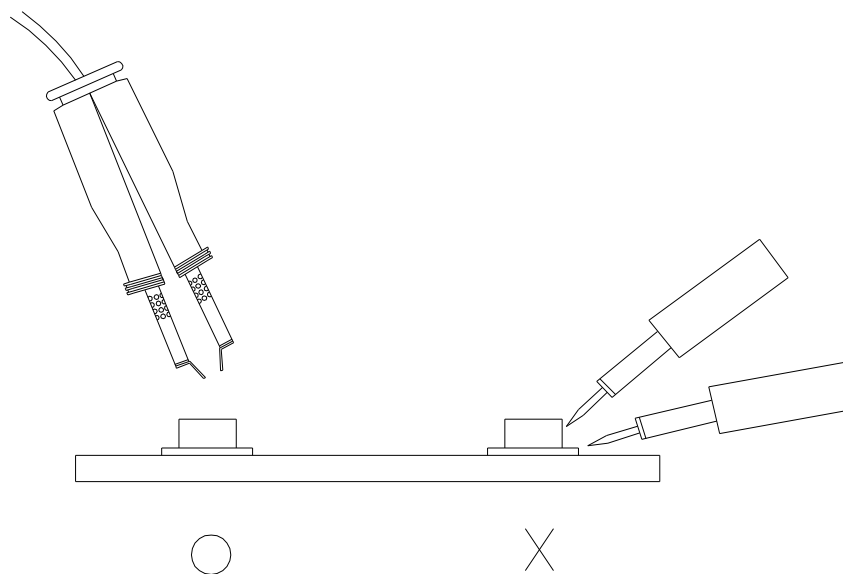
3.4 After soldering, do not warp the circuit board.

4.Soldering Iron

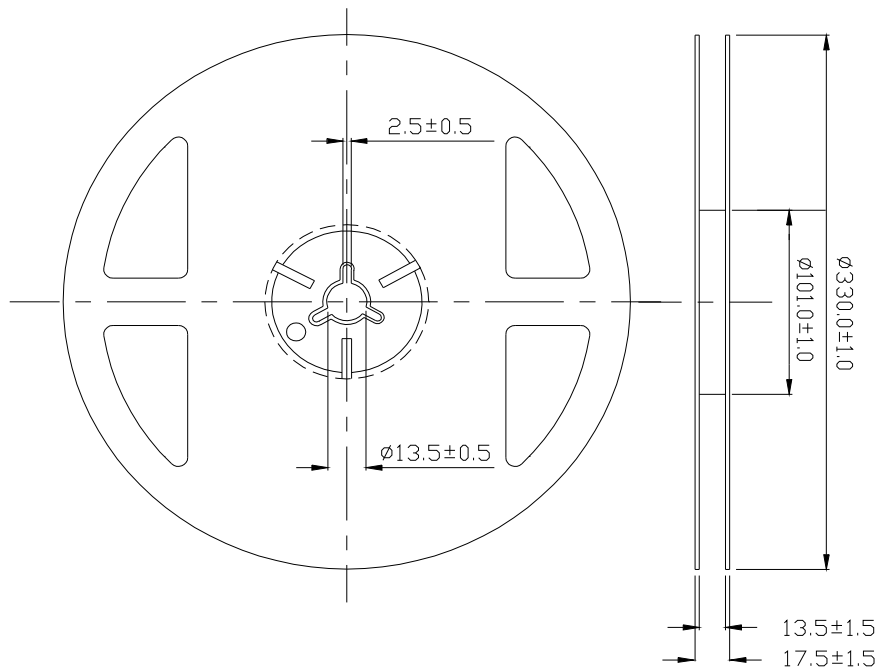
Each terminal is to go to the tip of soldering iron temperature less than 350 for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the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

5.Repairing

Repair should not be done after the LEDs 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 LEDs will or will not be damaged by repairing.

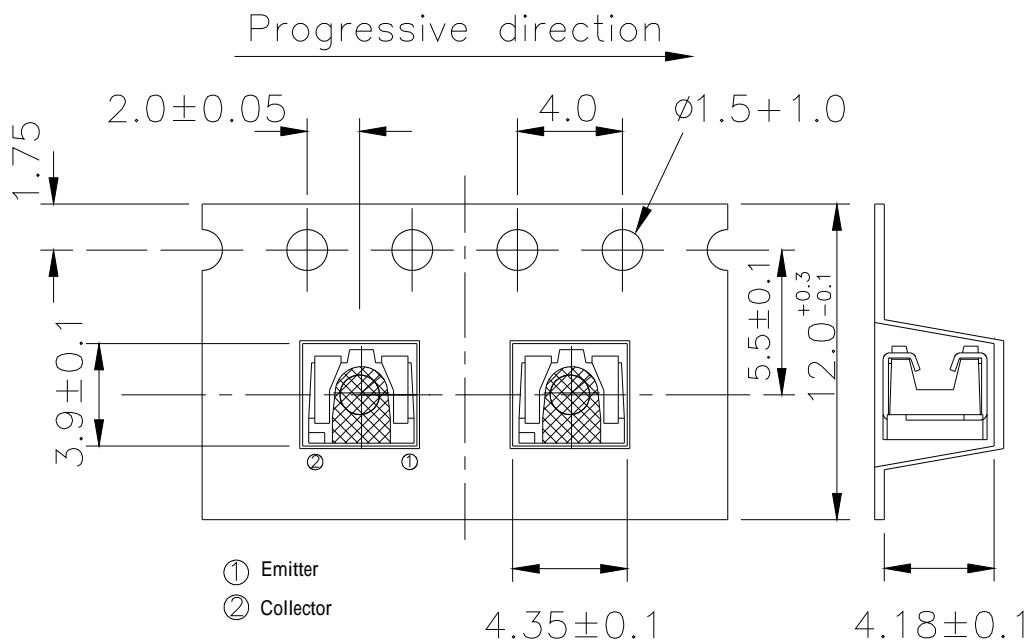


Package Dimensions



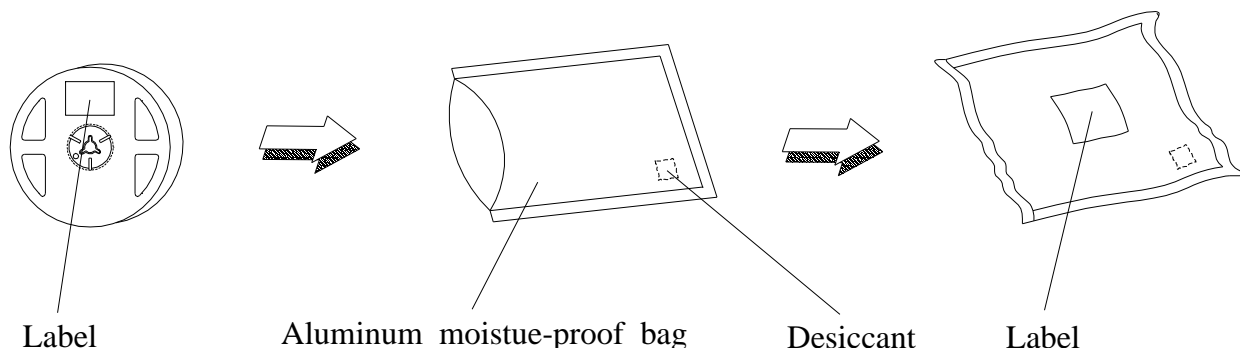
Note: The tolerances unless mentioned is ± 0.1 mm ,Unit = mm

Carrier Tape Dimensions: Loaded quantity 500 PCS per reel



Unit:mm

Packing Procedure



Label Form Specification

	EVERLIGHT	
CPN : P/N : XXXXXXXXXXXXX XXXXXXXXXXXX		
QTY : XXX	CAT : XXX	
	HUE : XXX	
	REF : XXX	
LOT NO : XXXXXXXXXX		
Reference : XXXXXXXX		

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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