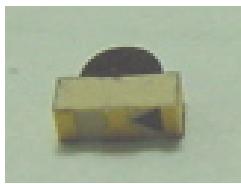


Chip Phototransistor with spherical top view Lens PT12-21B/TR8(PF)



Features

- Fast response time
- High photo sensitivity
- Small junction capacitance
- Package in 8mm tape on "7" diameter reels.
- Pb free
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH
- Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm).

Descriptions

- PT12-21B/TR8(PF) is a phototransistor in miniature SMD package which is molded in a Black epoxy with spherical top view lens.
- The device is Spectrally matched to infrared emitting diode.

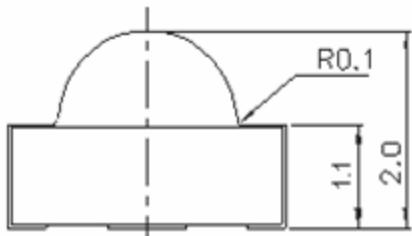
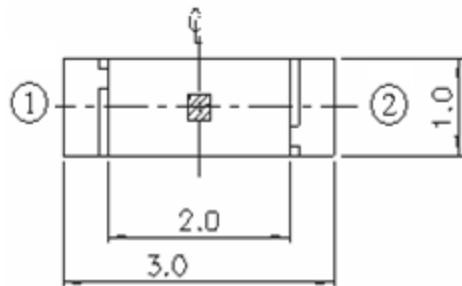
Applications

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

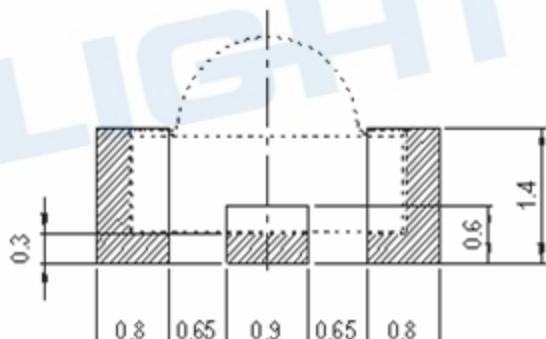
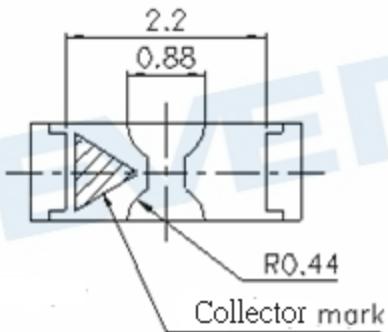
Device Selection Guide

Part Category	Chip Material	Resin Color
PT	Silicon	Black

Package Dimensions



For reflow soldering (propose)

**Notes:** 1. All dimensions are in millimeters2. Tolerances unless dimensions $\pm 0.1\text{mm}$

3. Suggested pad dimension is just for reference only

Please modify the pad dimension based on individual need

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V _{CEO}	30	V
Emitter-Collector-Voltage	V _{ECO}	5	V
Collector Current	I _C	50	mA
Operating Temperature	T _{opr}	-25 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +85	°C
Soldering Temperature	T _{sol}	260	°C
Power Dissipation at (or below) 25°C Free Air Temperature	P _c	75	mW

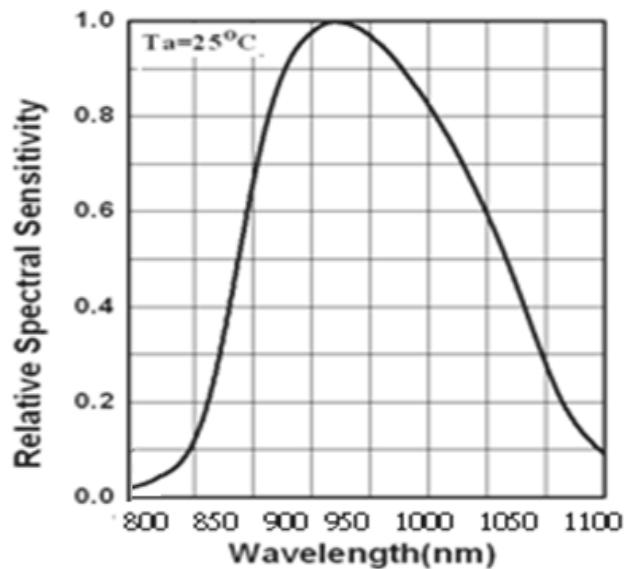
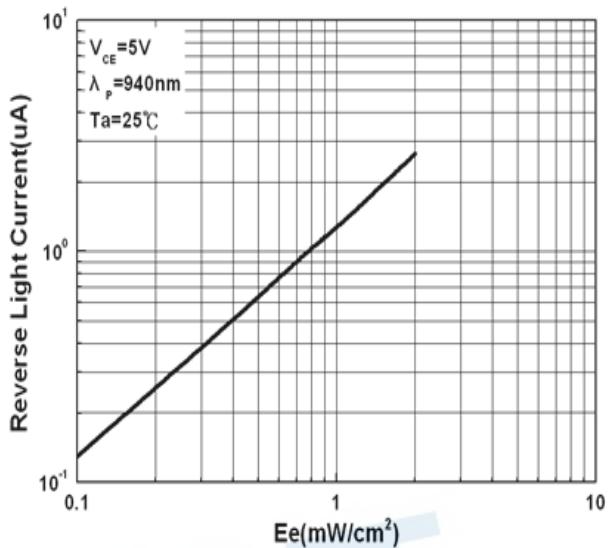
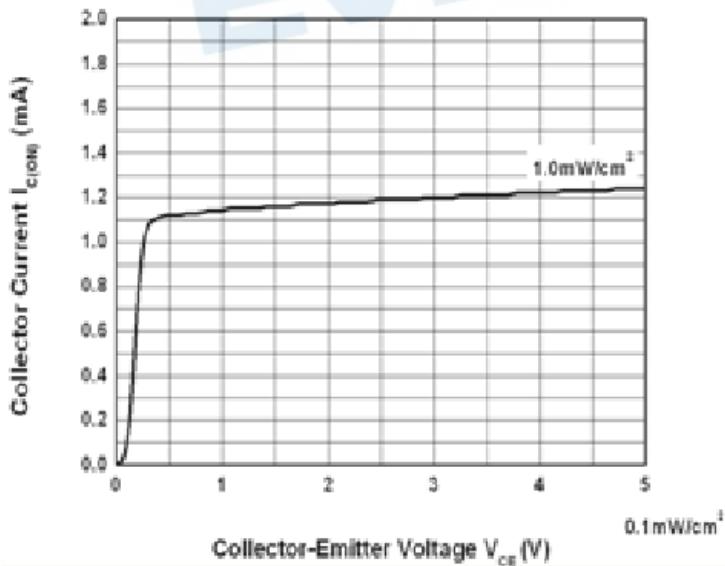
Notes: *1:Soldering time \leq 5 seconds.

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Rang Of Spectral Bandwidth	$\lambda_{0.5}$	---	730	---	1100	nm
Wavelength Of Peak Sensitivity	λ_P	---	---	940	---	nm
Collector-Emitter BreakdownVoltage	BV _{CEO}	I _C =100μA Ee=0mW/cm ²	30	---	---	V
Emitter-Collector BreakdownVoltage	BV _{ECO}	I _E =100μA Ee=0mW/cm ²	5	---	---	V
Collector-Emitter SaturationVoltage	V _{CE(sat)}	I _C =2mA Ee=1m W/cm ²	---	---	0.4	V
Collector Dark Current	I _{CEO}	V _{CE} =20V Ee=0mW/cm ²	---	---	100	nA
On State Collector Current	I _{C(ON)}	V _{CE} =5V Ee=1mW /cm ²	0.3	0.7	---	mA

Typical Electro-Optical Characteristics Curves

Fig.1 Spectral Sensitivity .

Fig.2 Collector Current vs.
IrradianceFig.3 Collector Current vs.
Collector-Emitter Voltage

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 After opening the package: The LEDs should be kept at 30°C or less and 60%RH or less.

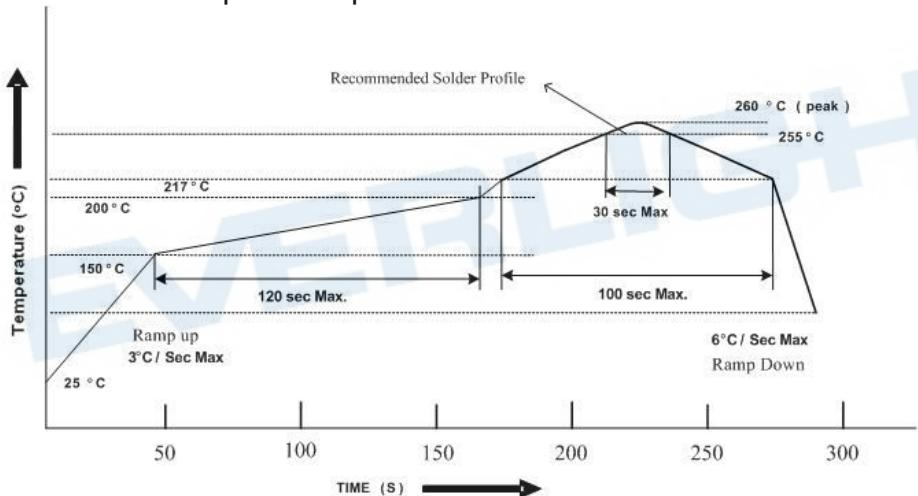
2.3 The LEDs should be used within 168 hours (7days) after opening the package .

2.4 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 : $60 \pm 5^\circ\text{C}$ 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 Phototransistor during heating.

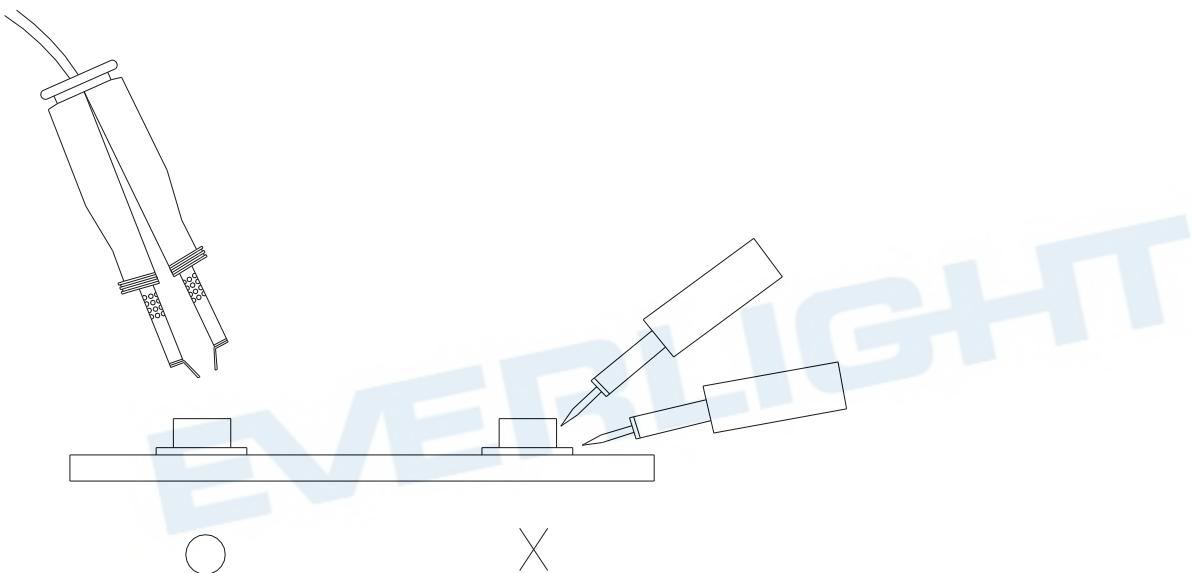
3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

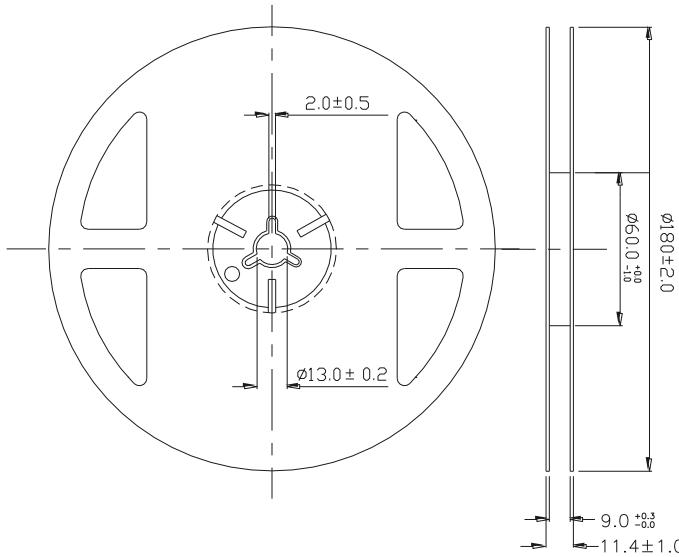
Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of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

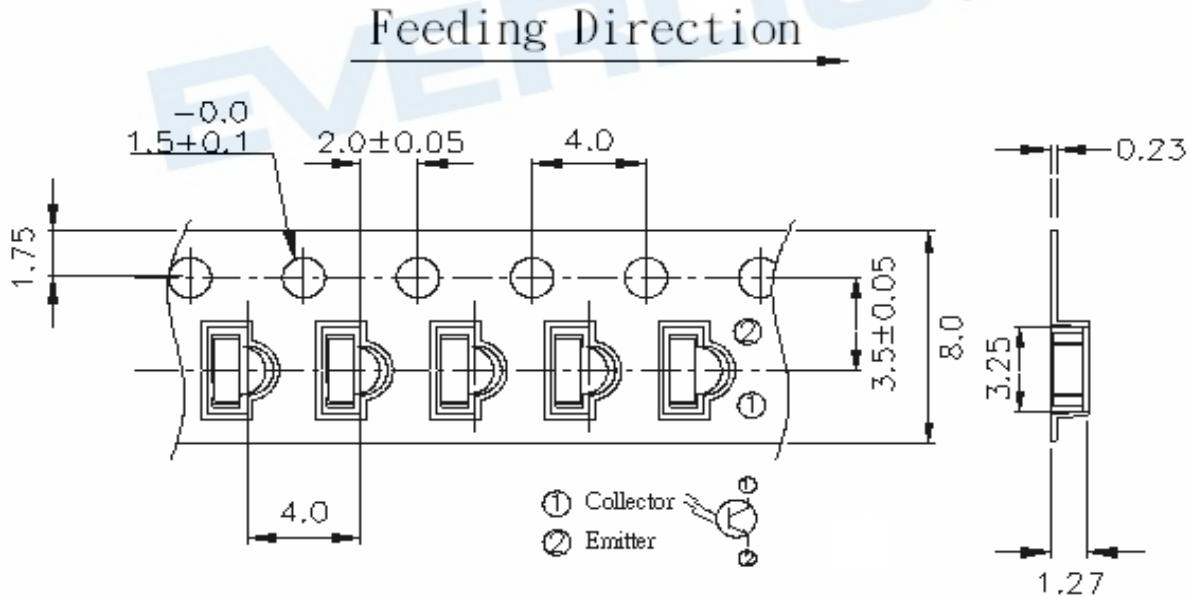


Package Dimensions

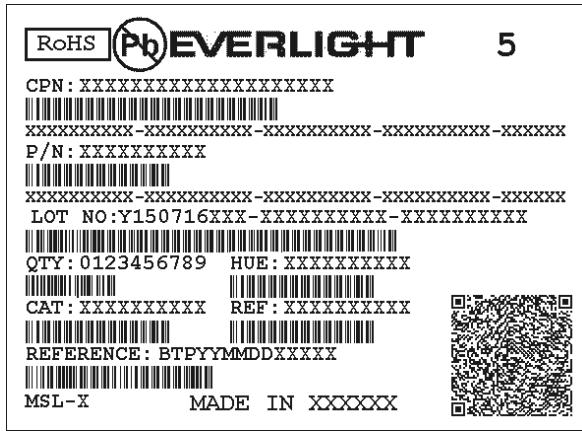


Note: The tolerances unless mentioned are $\pm 0.1\text{mm}$, Unit: mm

Carrier Taping Dimensions: (Quantity: 2000PCS/Reel)



Note: The tolerances unless mentioned are ± 0.1 mm, Unit: mm

Label Form Specification

CPN: Customer's Production Number

P/N : Production Number

LOT No: Lot Number

QTY: Packing Quantity

HUE: Peak Wavelength

CAT: Ranks

REF: Reference

MSL-X: MSL Level

Made In: Manufacture place

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EVERLIGHT ELECTRONICS CO., LTD.

Office: No. 6-8, Zhonghua Rd., Shulin Dist.,

New Taipei City 23860, Taiwan

Tel: 886-2-2685-6688

Fax: 886-2685-2699 , 6897

<http://www.everlight.com>