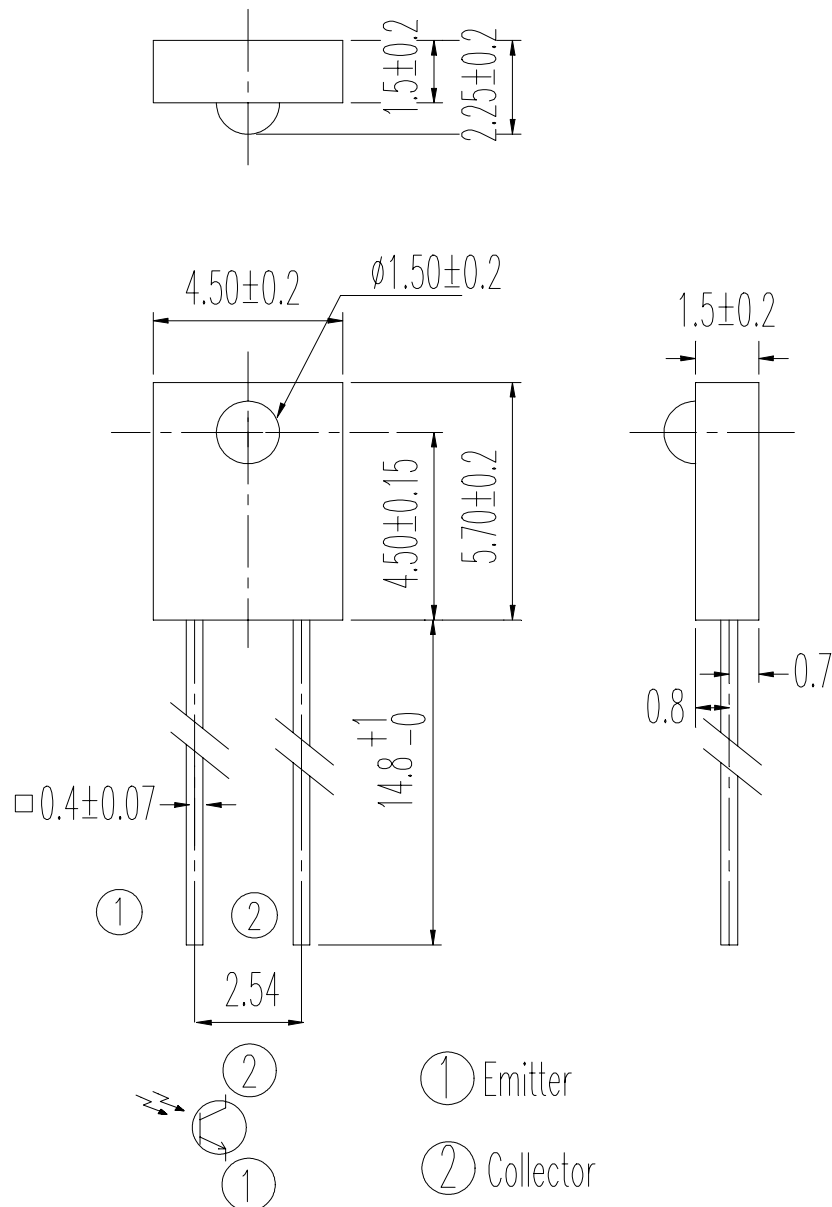




EVERLIGHT ELECTRONICS CO., LTD.

Device Number: DPT-090-107 REV: 1.0  
MODEL NO: PT908-7B ECN:                      Page: 1/7

**Package Dimensions:**



Office: NO 25,Lane.76, Chung Yang Rd., Sec.3, Tucheng, Taipei 236, Taiwan, R.O.C.

TEL: 886-2-2267-2000,2267-9936(22Lines)

FAX: 886-2-2267-6189

http: [//www.everlight.com](http://www.everlight.com)



EVERLIGHT ELECTRONICS CO., LTD.

Device Number: DPT-090-107 REV: 1.0  
MODEL NO: PT908-7B ECN:                      Page: 2/7

#### ©Notes :

- 1.All dimensions are in millimeter.
- 2 .General tolerance :  $\pm 0.1\text{mm}$
- 3.Lead spacing is measured where the lead emerge from the package.
- 4.Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
- 5.These specification sheets include materials protected under copyright of EVERLIGHT corporation. Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's consent.
- 6.When using this product , please observe the absolute maximum ratings and the instructions for use 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.

#### Description

The **PT908-7B** is a high speed and high sensitivity single photo transistor;moldes in a black plastic package with spherical side view lens.

The device is spectrally matched with IR emitters.

#### Features

- Wide angle of half sensitivity  $\theta = \pm 30^\circ$
- High sensitivity
- Fast response time

#### Applications

- Mouse
- Optoelectronic switch
- Photo interrupter



EVERLIGHT ELECTRONICS CO., LTD.

Device Number: DPT-090-107 REV: 1.0MODEL NO: PT908-7B ECN:  Page: 3/7**Absolute Maximum Ratings**

(Ta=25°C)

| ITEM                                                         | SYMBOL           | RATING  | UNIT |
|--------------------------------------------------------------|------------------|---------|------|
| Collector Power Dissipation                                  | Pc               | 75      | mW   |
| Collector-Emitter Voltage                                    | V <sub>CEO</sub> | 30      | V    |
| Emitter-Collector Voltage                                    | V <sub>ECO</sub> | 5       | V    |
| Collector Current                                            | Ic               | 20      | mA   |
| Operating Temperature                                        | Topr             | -25~+85 | °C   |
| Storage Temperature                                          | Tstg             | -40~+85 | °C   |
| Soldering Temperature<br>(1/16 inch from body for 5 seconds) | Tsol             | 260     | °C   |

**Electro-Optical Characteristics**

(Ta=25°C)

| Parameter                   |           | Symbol               | Min  | Typ        | Max  | Unit  | Condition                                              |
|-----------------------------|-----------|----------------------|------|------------|------|-------|--------------------------------------------------------|
| Collector Dark Current      |           | I <sub>CEO</sub>     | -    | -          | 100  | nA    | V <sub>CE</sub> =20V, Ee=0mW/cm <sup>2</sup>           |
| C-E Saturation Voltage      |           | V <sub>CE(Sat)</sub> | -    | -          | 0.4  | V     | Ic=0.5mA, Ee=10mW/cm <sup>2</sup>                      |
| Collector Current           |           | I <sub>C(ON)</sub>   | 0.78 | -          | 3.12 | mA    | V <sub>CE</sub> =5V, Ee=0.555mW/cm <sup>2</sup>        |
| Peak Sensitivity Wavelength |           | λ <sub>p</sub>       | -    | 860        | -    | nm    | -                                                      |
| Range of Spectral Bandwidth |           | λ <sub>0.5</sub>     | -    | 700...1200 | -    | -     | -                                                      |
| Response Time               | Rise Time | t <sub>r</sub>       | -    | 15         | -    | μ Sec | V <sub>CE</sub> =5V<br>Ic=1mA<br>R <sub>L</sub> =1000Ω |
|                             | Fall Time | t <sub>f</sub>       | -    | 15         | -    | μ Sec |                                                        |
| Half sensitivity angle      |           | 2θ 1/2               | -    | 60         | -    | Deg   | -                                                      |



Device Number: DPT-090-107 REV: 1.0  
MODEL NO: PT908-7B ECN:  Page: 4/7

## Typical Characteristics

Fig.1 Collector Power Dissipation vs. Ambient Temperature

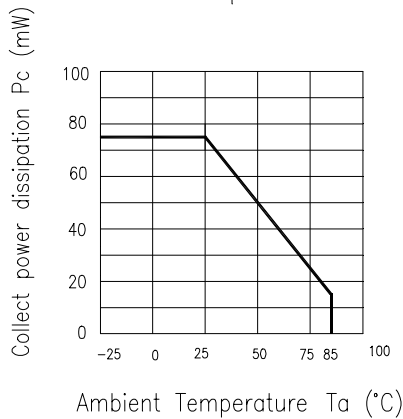


Fig.2 Collector Dark Current vs. Ambient Temperature

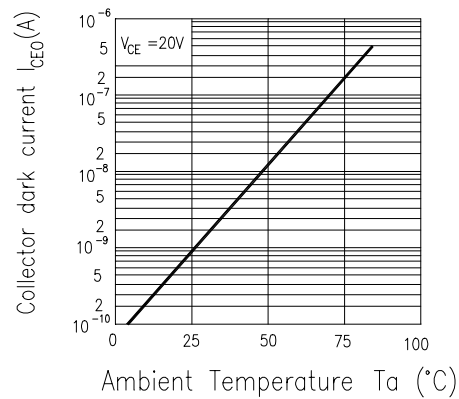


Fig. 3 Relative Collector Current vs. Ambient Temperature

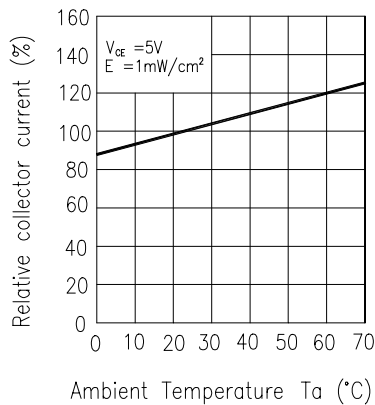


Fig.4 Collector Current vs. Irradiance

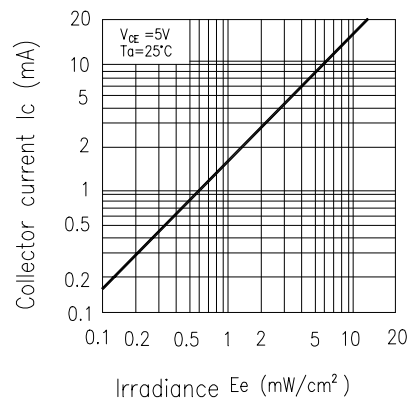


Fig.5 Spectral Sensitivity

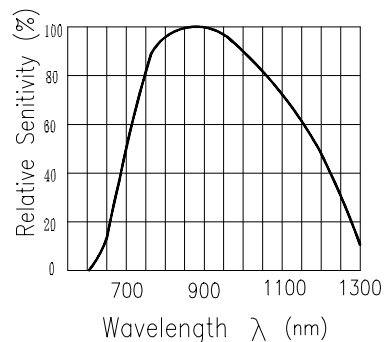
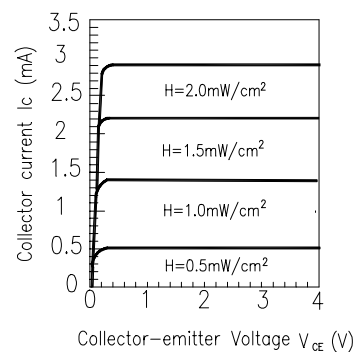
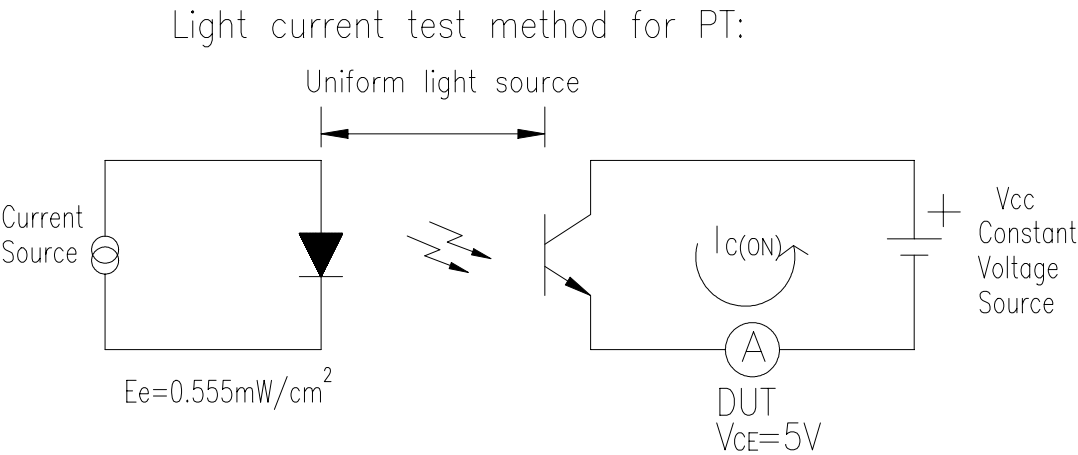


Fig.6 Collector Current vs. Collector-emitter Voltage





Test Method



Ranks

| Color Code | Parameter | Symbol      | Min  | Max  | Unit | Test Condition                                         |
|------------|-----------|-------------|------|------|------|--------------------------------------------------------|
| Red        | BIN1      | $I_{C(ON)}$ | 0.78 | 1.56 | mA   | $V_{CE}=5\text{V}$<br>$E_e=0.555\text{mW}/\text{cm}^2$ |
| Blue       | BIN2      |             | 1.09 | 2.02 |      |                                                        |
| Yellow     | BIN3      |             | 1.40 | 2.73 |      |                                                        |
| Silver     | BIN4      |             | 1.56 | 3.12 |      |                                                        |

\* For the intensity test method, the output intensity is measured indirectly by a wide uniform light source(unfocused) calibrated to  $0.555\text{mW}/\text{cm}^2$ ,~940nm radiant intensity at the PT face. Details are shown in the above diagram. It’s important that light intensity must be uniform across the face of the PT under test. Maximum and minimum values must include all variation due to mechanical and electrical sorting and measurement error.

Supplements

1.Parts

(1) Chip

| Type | Material | Peak Wavelength |
|------|----------|-----------------|
| PT   | Silicon  | 860nm           |

(2) Material

| Type     | Lead frame | Wire | Package |
|----------|------------|------|---------|
| Material | SPCC       | Gold | Epoxy   |

**Reliability**

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD : 10%

| Test Items                     | Test Conditions                                                                                      | Failure Judgement Criteria                                                  | Samples(n)       |
|--------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------|
|                                |                                                                                                      |                                                                             | Defect (c)       |
| Operating life test            | $V_{CE}=5V$<br>$T_a : 25^{\circ}C$ 1000hrs                                                           | $I_{c(on)} \leq L \times 0.8$<br><br>$L : \text{Lower specification limit}$ | $n = 22$ , $c=0$ |
| Temperature cycle              | 1cycle $-55^{\circ}C$ to $+25^{\circ}C$ to $+85^{\circ}C$<br>(30min) (5min) (30min)<br>50 cycle test |                                                                             | $n = 22$ , $c=0$ |
| Thermal shock                  | $-55^{\circ}C$ to $+85^{\circ}C$<br>(5min) (10sec) (5min)<br>50cycle test                            |                                                                             | $n = 22$ , $c=0$ |
| High temperature Storage       | Temp : $+100^{\circ}C$ 1000hrs                                                                       |                                                                             | $n = 22$ , $c=0$ |
| Low temperature Storage        | Temp : $-55^{\circ}C$ 1000hrs                                                                        |                                                                             | $n = 22$ , $c=0$ |
| High temperature High humidity | $T_a : 85^{\circ}C$ RH : 85% 1000hrs                                                                 |                                                                             | $n = 22$ , $c=0$ |
| Solder heat                    | Temp : $260 \pm 5^{\circ}C$ 10 sec                                                                   |                                                                             | $n = 22$ , $c=0$ |
| Solderability                  | Temp : $230 \pm 5^{\circ}C$ 3 sec<br>4mm from the bottom of the package.                             | More than 90% of lead to be covered by soldering                            | $n = 22$ , $c=0$ |

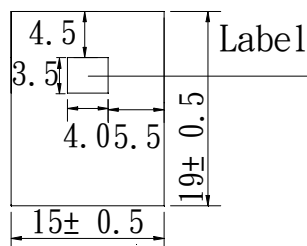


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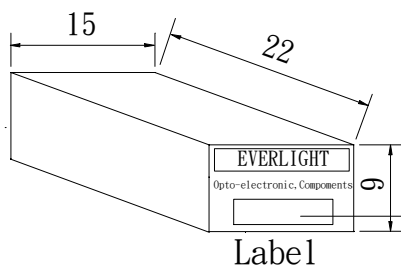
Device Number: DPT-090-107 REV: 1.0  
MODEL NO: PT908-7B ECN:                      Page: 7/7

## Packing Specifications

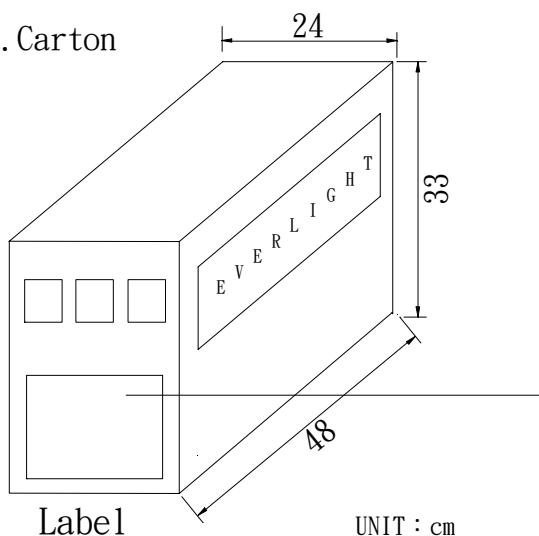
1. Bag



2. Box



3. Carton



UNIT : cm

EVERLIGHT

CPN:

P/N: 3209085603



PT908-7B

QTY: 1000

CAT:



HUE:

REF:

LOT NO:

MADE IN TAIWAN

**CPN: Customer's product number**

**P/N: Product number**

**QTY: Packing quantity**

**CAT: Ranks**

**HUE: Peak wavelength**

**REF: Reference**

**LOT NO: Lot number**

**MADE IN TAIWAN: Production place**

## Packing Quantity Specification

1.1000Pcs/1bag , 6bags/1box

2.10boxes/1Carton

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

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[EL-PT908-7B](#)