



## 3mm Phototransistor

MODEL NO : PT204-6C-8

### ■ Features :

- Fast response time
- High photo sensitivity
- Suitable for visible and near infrared radiation
- Axial terminal
- Standard T-1(  $\phi$  3mm) clear plastic package

### ■ Descriptions :

- PT204-6C-8 is a high speed and high sensitive silicon NPN epitaxial planar phototransistor in a standard  $\phi$ 3 mm package. Due to its water clear epoxy the device is sensitive to visible and near infrared radiation.

### ■ Applications :

- Optoelectronic switch
- VCRs ,Video camera
- Floppy disk drive
- Infrared applied system

| PART NO. | CHIP     | LENS COLOR  |
|----------|----------|-------------|
|          | MATERIAL |             |
| PT       | Silicon  | Water Clear |

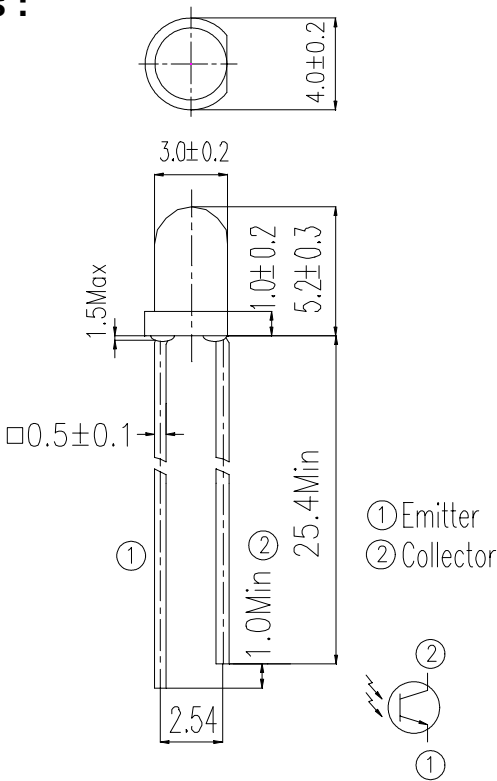


DEVICE NUMBER : DPT-020-116      REV : 1.0  
ECN : \_\_\_\_\_      PAGE : 2/7

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MODEL NO : PT204-6C-8

### ■ Package Dimensions :



■ **Notes :**

1. All dimensions are in millimeter.
2. Protruded resin under flange 1.5 mm Max.
3. Lead spacing is measured where the lead emerge from the package.
4. Lens color : Water clear.
5. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
6. 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.
7. 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.



# EVERLIGHT ELECTRONICS CO., LTD.

DEVICE NUMBER : DPT-020-116  
ECN :                     

REV : 1.0  
PAGE : 3/7

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MODEL NO : PT204-6C-8

### ■ Absolute Maximum Ratings at T<sub>A</sub> = 25°C

| Parameter                                                   | Symbol           | Rating    | Unit | Notice                                    |
|-------------------------------------------------------------|------------------|-----------|------|-------------------------------------------|
| Collector-Emitter Voltage                                   | V <sub>CEO</sub> | 30        | V    |                                           |
| Emitter-Collector- Voltage                                  | V <sub>ECO</sub> | 5         | V    |                                           |
| Collector Current                                           | I <sub>C</sub>   | 20        | mA   |                                           |
| Operating Temperature                                       | T <sub>opr</sub> | -25 ~ +85 | °C   |                                           |
| Storage Temperature                                         | T <sub>stg</sub> | -45 ~ +85 | °C   |                                           |
| Soldering Temperature                                       | T <sub>sol</sub> | 260       | °C   | 4mm from mold body<br>less than 5 seconds |
| Power Dissipation at(or below)<br>25°C Free Air Temperature | P <sub>c</sub>   | 75        | mW   |                                           |

### ■ Electronic Optical Characteristics :

| Parameter                               | Symbol               | Min. | Typ.       | Max. | Unit    | Condition                                                                   |
|-----------------------------------------|----------------------|------|------------|------|---------|-----------------------------------------------------------------------------|
| Collector-Emitter<br>Breakdown Voltage  | BV <sub>CEO</sub>    | 30   | ----       | ---- | V       | I <sub>C</sub> =100 $\mu$ A<br>Ee=0mW/cm <sup>2</sup>                       |
| Emitter-Collector<br>Breakdown Voltage  | BV <sub>ECO</sub>    | 5    | ----       | ---- | V       | I <sub>E</sub> =100 $\mu$ A<br>Ee=0mW/cm <sup>2</sup>                       |
| Collector-Emitter<br>Saturation Voltage | V <sub>CE(sat)</sub> | ---- | ----       | 0.4  | V       | I <sub>C</sub> =2mA<br>Ee=1mW/cm <sup>2</sup>                               |
| Rise Time                               | t <sub>r</sub>       | ---- | 15         | ---- | $\mu$ S | V <sub>CE</sub> =5V<br>I <sub>C</sub> =1mA<br>R <sub>L</sub> =1000 $\Omega$ |
| Fall Time                               | t <sub>f</sub>       | ---- | 15         | ---- |         |                                                                             |
| Collector Dark<br>Current               | I <sub>CEO</sub>     | ---- | ----       | 100  | nA      | V <sub>CE</sub> =20V<br>Ee=0mW/cm <sup>2</sup>                              |
| On State Collector<br>Current           | I <sub>C(on)</sub>   | 0.2  | 0.7        | 1.2  | mA      | V <sub>CE</sub> =5V<br>Ee=1mW/cm <sup>2</sup>                               |
| Wavelength of<br>Peak Sensitivity       | $\lambda_p$          | ---- | 860        | ---- | nm      | ----                                                                        |
| Rang of Spectral<br>Bandwidth           | $\lambda_{0.5}$      | ---- | 400---1200 | ---- | nm      | ----                                                                        |



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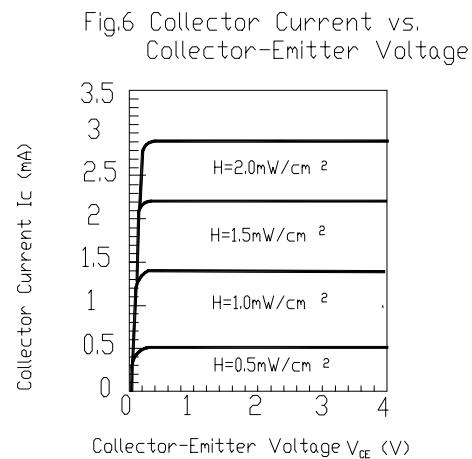
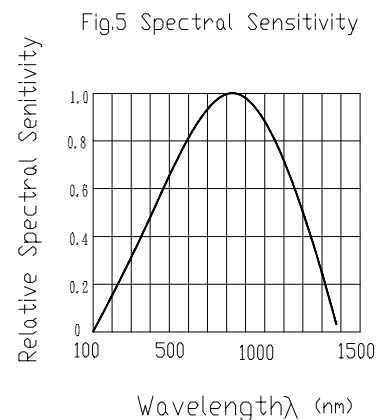
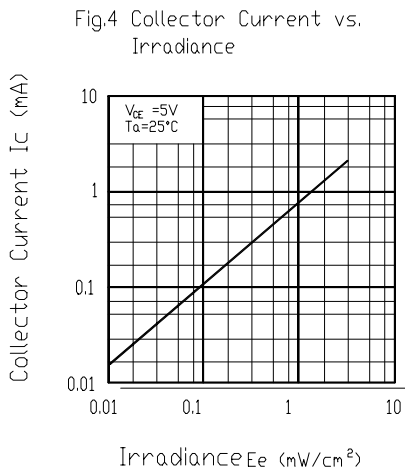
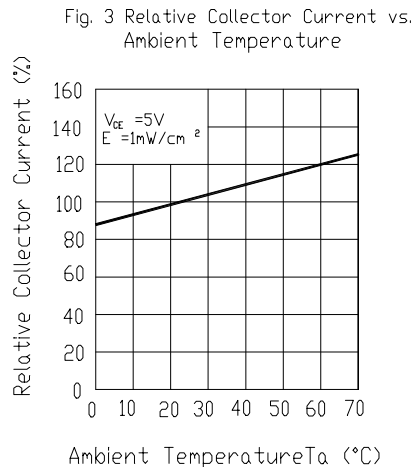
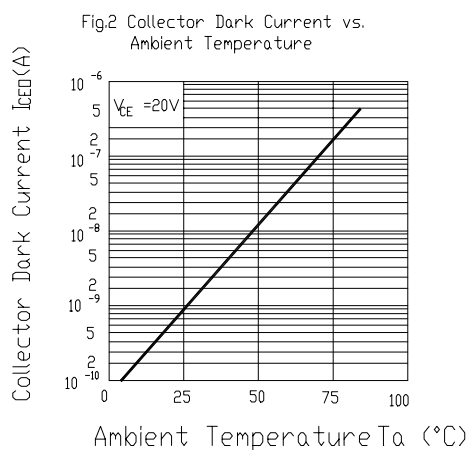
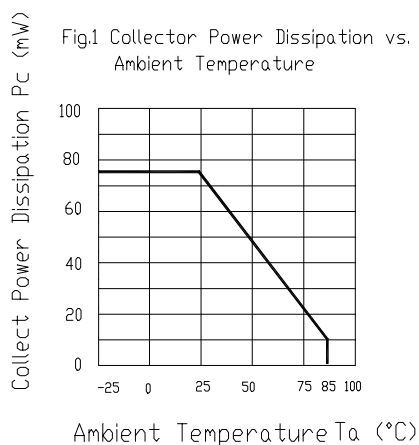
DEVICE NUMBER : DPT-020-116  
ECN :                     

REV : 1.0  
PAGE : 4/7

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### Typical Electrical/Optical/Characteristics Curves





# EVERLIGHT ELECTRONICS CO., LTD.

DEVICE NUMBER : DPT-020-116  
ECN :                     

REV : 1.0  
PAGE : 5/7

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### ■ Reliability Test Item And Condition

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

Confidence level:90%

LTPD:10%

| NO. | Item                             | Test Conditions                                                | Test Hours/<br>Cycles | Sample Size | Failure Judgement Criteria                                        | Ac/Re |
|-----|----------------------------------|----------------------------------------------------------------|-----------------------|-------------|-------------------------------------------------------------------|-------|
| 1   | Solder Heat                      | TEMP : 260℃ ± 5 ℃                                              | 5 secs                | 22 pcs      | $I_{c(on)} \leq L \times 0.8$<br><br>L :Lower specification limit | 0/1   |
| 2   | Temperature Cycle                | H : +85℃    30 mins<br>↑<br>5 mins<br>↓<br>L : -55℃    30 mins | 50 cycles             | 22 pcs      |                                                                   | 0/1   |
| 3   | Thermal Shock                    | H : +100℃    5 mins<br>↑<br>10 secs<br>↓<br>L : -10℃    5 mins | 50 cycles             | 22 pcs      |                                                                   | 0/1   |
| 4   | High Temperature Storage         | TEMP. : +100℃                                                  | 1000 hrs              | 22 pcs      |                                                                   | 0/1   |
| 5   | Low Temperature Storage          | TEMP. : -55℃                                                   | 1000 hrs              | 22 pcs      |                                                                   | 0/1   |
| 6   | DC Operating Life                | $V_{CE}=5V$                                                    | 1000 hrs              | 22 pcs      |                                                                   | 0/1   |
| 7   | High Temperature / High Humidity | 85℃ / 85% R.H.                                                 | 1000 hrs              | 22 pcs      |                                                                   | 0/1   |



DEVICE NUMBER : DPT-020-116  
ECN :                     

REV : 1.0  
PAGE : 6/7

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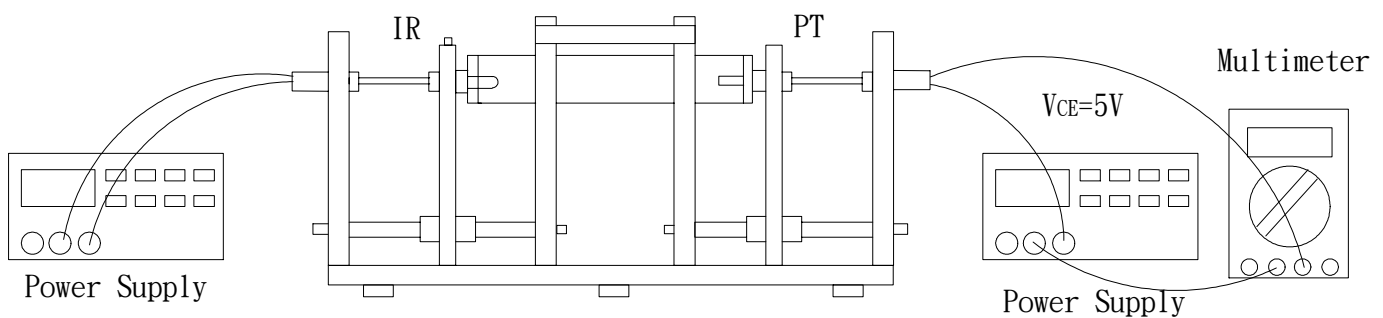
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### ■ Test Method For On State Collector Current :

Condition :  $E_e=1\text{mW/cm}^2$  ,  $V_{CE}=5\text{V}$

Test Item : Collector Current [ $I_{C(on)}$ ]

Unit : mA





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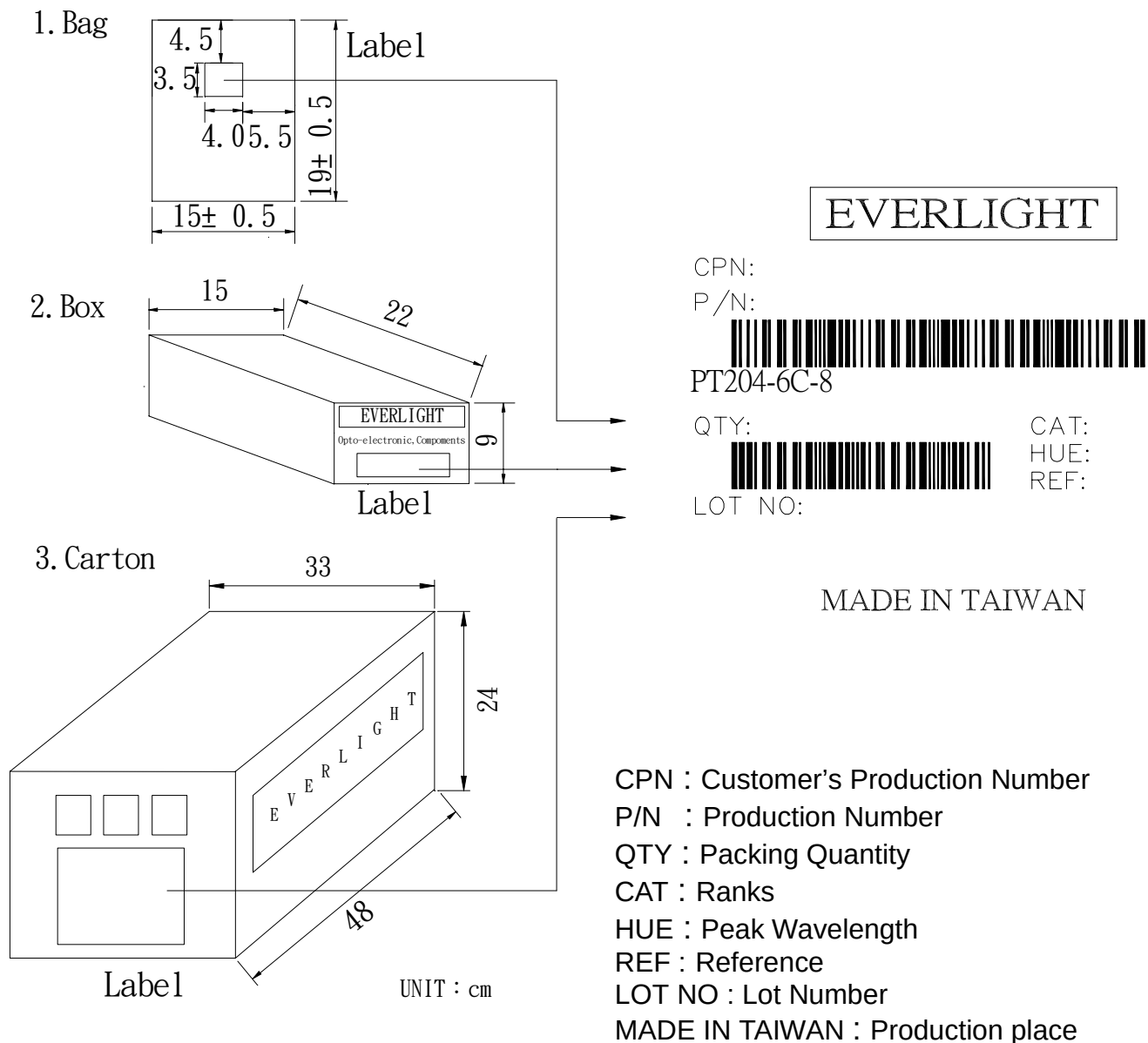
DEVICE NUMBER : DPT-020-116  
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REV : 1.0  
PAGE : 7/7

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### ■ Packing Specifications



### ■ Packing Quantity Specification

1. 1000 Pcs/1Bag , 4Bags/1Box
2. 10 Boxes/1Carton