

## Technical Data Sheet

### 1.5mm Side Looking Phototransistor

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#### PT928-6C

#### Features

- Fast response time
- High sensitivity
- Small junction capacitance
- Pb free
- The product itself will remain within RoHS compliant version.

#### Descriptions

PT928-6C is a phototransistor in miniature package which is molded in a water clear plastic with spherical top view lens. The device is spectrally matched to infrared emitting diode.



#### Applications

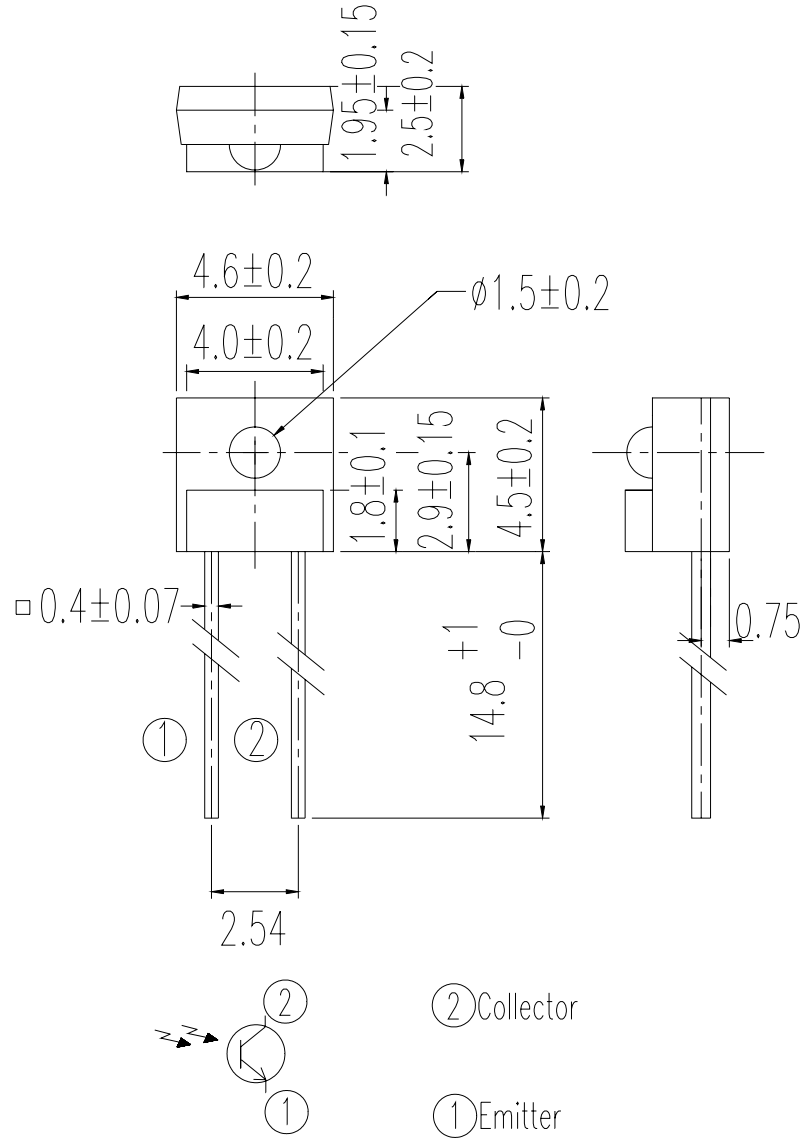
- Optoelectronic switch
- VCR , Video Camera
- Floppy disk drive
- Infrared applied system

#### Device Selection Guide

| LED Part No. | Chip     | Lens Color  |
|--------------|----------|-------------|
|              | Material |             |
| PT           | Silicon  | Water Clear |

Device No:DPT-092-082

**Package Dimensions**



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

**Device No:DPT-092-082**

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

| Parameter  | Symbol           | Rating      | Units |
|--|------------------|-------------|-------|
| 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 | °C    |
| Storage Temperature  | T <sub>stg</sub> | -40 ~ +85°C | °C    |
| Lead Soldering Temperature                                   | T <sub>sol</sub> | 260         | °C    |
| Power Dissipation at (or below)<br>25°C Free Air Temperature | P <sub>c</sub>   | 75          | mW    |

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

**Electro-Optical Characteristics (Ta=25°C)**

| Parameter                            | Symbol               | Condition   | Min. | Typ. | Max. | Units |
|--------------------------------------|----------------------|---|------|------|------|-------|
| Collector-Emitter Saturation Voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =2mA<br>Ee=1mW/cm <sup>2</sup>     | ---  | ---  | 0.4  | V     |
| Rise Time                            | t <sub>r</sub>       | V <sub>CE</sub> =5V<br>I <sub>C</sub> =1mA        | ---  | 15   | ---  | μS    |
| Fall Time                            | t <sub>f</sub>       | RL=1000Ω  | ---  | 15   | ---  |       |
| Collector Dark Current               | I <sub>CEO</sub>     | Ee=0mW/cm <sup>2</sup><br>V <sub>CE</sub> =20V    | ---  | ---  | 100  | nA    |
| On State Collector Current           | I <sub>C(on)</sub>   | Ee=0.555mW/cm <sup>2</sup><br>V <sub>CE</sub> =5V | 0.52 |      | 3.48 | mA    |
| Wavelength of Peak Sensitivity       | λ <sub>p</sub>       | ---   | ---  | 860  | ---  | nm    |
| Rang of Spectral Bandwidth           | λ <sub>0.5</sub>     | ---   | 400  | ---  | 1200 | nm    |

**Typical Electro-Optical Characteristics Curves**

Fig.1 Collector Power Dissipation vs. Ambient Temperature

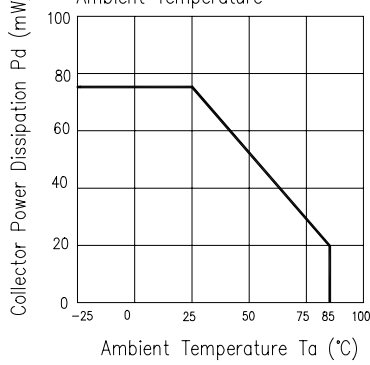


Fig.2 Collector Dark Current vs. Ambient Temperature

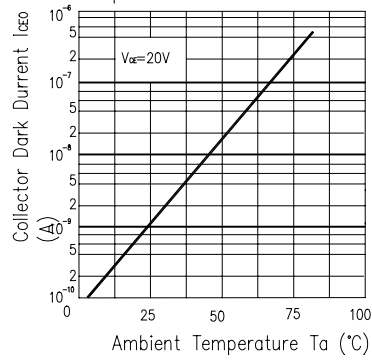


Fig.3 Relative Collector Current vs. Ambient Temperature

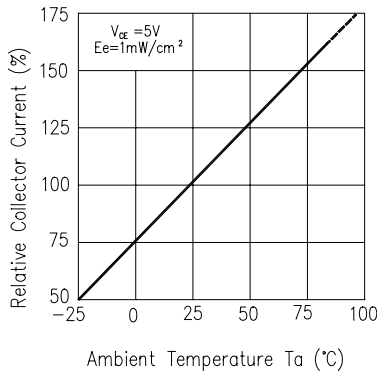


Fig.4 Collector Current vs. Irradiance

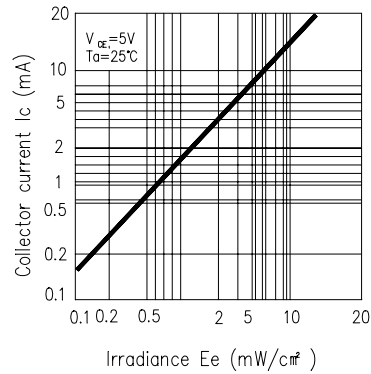


Fig.5 Spectral Sensitivity

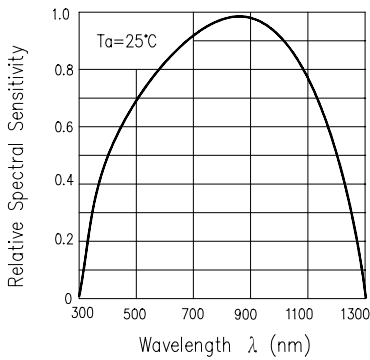
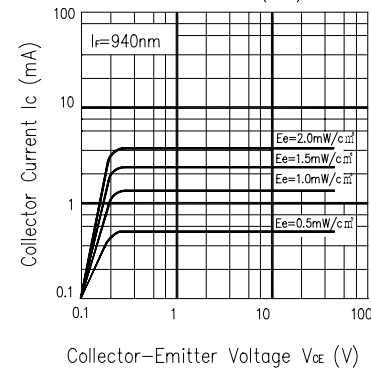
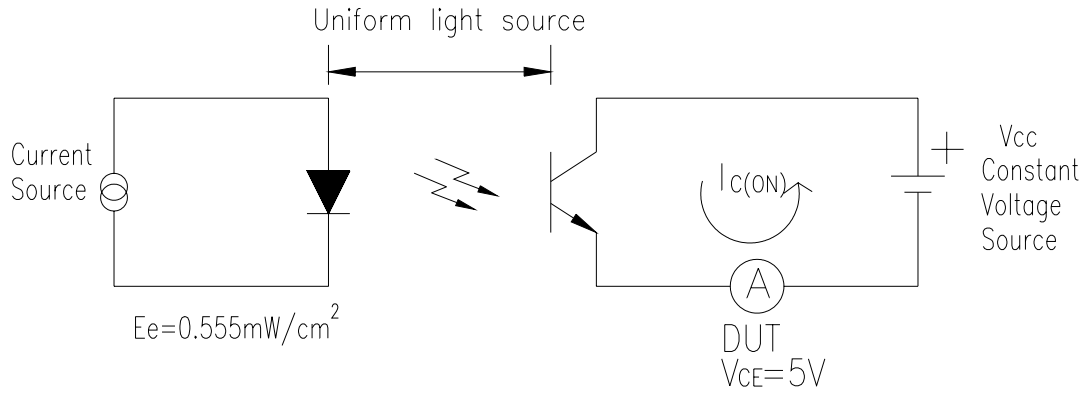


Fig.6 Collector Current vs. Collector-Emmitter Voltage



**Test method**

Light current test method for PT:



**Ranks**

| Color code | Parameter | Symbol      | Min  | Max  | Unit | Test condition                                  |
|------------|-----------|-------------|------|------|------|---|
| Black      | 7-3       | $I_{C(ON)}$ | 0.52 | 1.22 | mA   | $V_{CE}=5V$<br>$E_e=0.555\text{mW}/\text{cm}^2$ |
| Black      | 7-2       |             | 0.87 | 1.74 |      |   |
| Black      | 7-1       |             | 1.22 | 2.26 |      |   |
| Black      | 6-2       |             | 1.56 | 3.04 |      |   |
| Black      | 6-1       |             | 1.74 | 3.48 |      |   |

Device No:DPT-092-082

**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<br>Sizes | Failure<br>Judgement<br>Criteria  | Ac/Re |
|-----|------------------------------------|---|-----------------------|-----------------|---|-------|
| 1   | Solder Heat                        | TEMP:260°C±5°C  | 10sec                 | 22pcs           | More than<br>90% of lead<br>to be covered<br>by soldering                   | 0/1   |
| 2   | Temperature Cycle                  | H : +85°C    30mins<br>↑<br>↓    5mins<br>L : -55°C    30mins | 50Cycle               | 22pcs           |   | 0/1   |
| 3   | Thermal Shock                      | H :+100°C    5mins<br>↑<br>↓   10secs<br>L :-10°C    5mins    | 50Cycle               | 22pcs           | $I_R \geq U \times 2$<br>$E_e \leq L \times 0.8$<br>$V_F \geq U \times 1.2$ | 0/1   |
| 4   | High Temperature<br>Storage        | TEMP. : +100°C  | 1000hrs               | 22pcs           | U : Upper   | 0/1   |
| 5   | Low Temperature<br>Storage         | TEMP. : -55°C   | 1000hrs               | 22pcs           | Specification<br>Limit  | 0/1   |
| 6   | DC Operating Life                  | $V_{CE}=5V$   | 1000hrs               | 22pcs           | L : Lower<br>Specification<br>Limit   | 0/1   |
| 7   | High Temperature/<br>High Humidity | 85°C / 85% R.H  | 1000hrs               | 22pcs           |   | 0/1   |

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