

# Technical Data Sheet

## 1.5mm Side Looking Phototransistor

---

### PT928-6C

#### Features

- Fast response time
- High sensitivity
- Small junction capacitance
- Pb free

#### 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

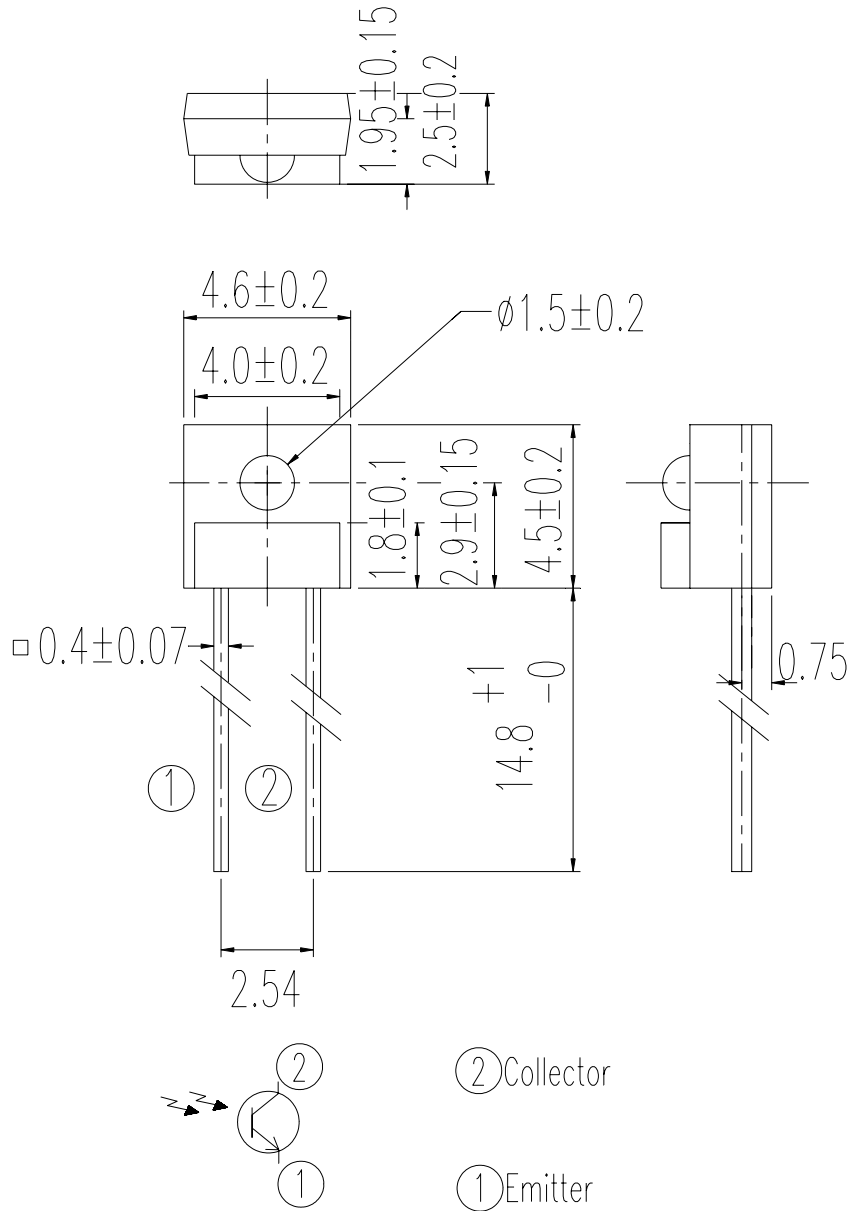
- Optoelectronic switch
- VCR , Video Camera
- Floppy disk drive
- Infrared applied system

#### Device Selection Guide

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

---

**Package Dimensions**



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

**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) 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 Ee=1mW/cm <sup>2</sup>	---	---	0.4	V
Rise Time	t <sub>r</sub>	V <sub>CE</sub> =5V 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> V <sub>CE</sub> =20V	---	---	100	nA
On State Collector Current	I <sub>C(on)</sub>	Ee=0.555mW/cm <sup>2</sup> 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

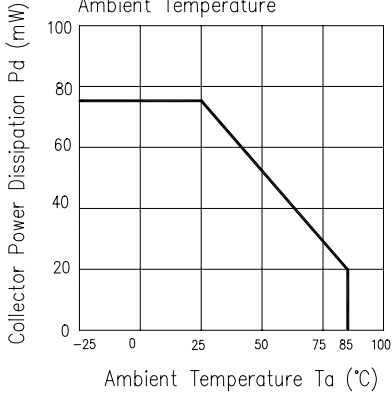


Fig.2 Collector Dark Current vs. Ambient Temperature

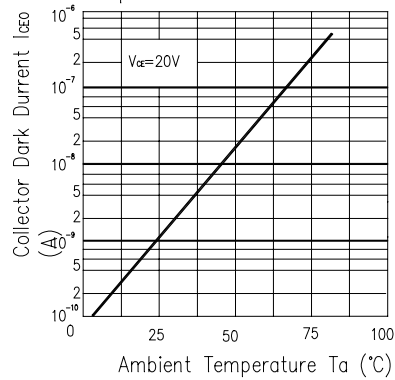


Fig.3 Relative Collector Current vs. Ambient Temperature

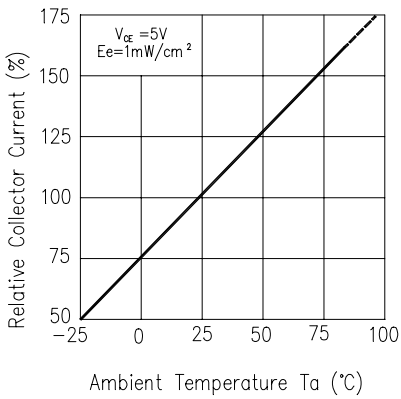


Fig.4 Collector Current vs. Irradiance

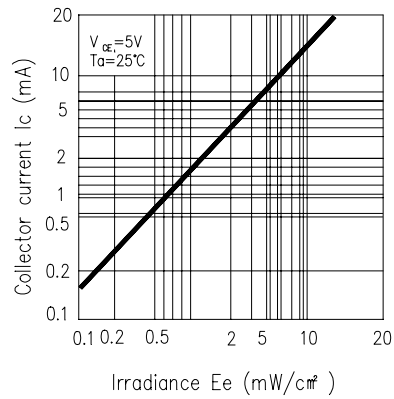


Fig.5 Spectral Sensitivity

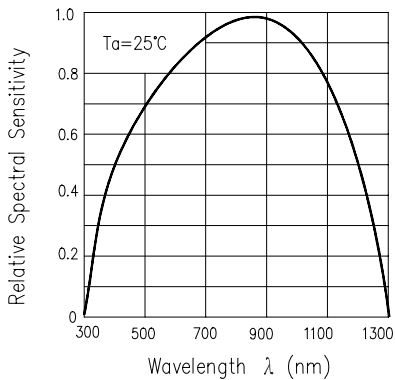
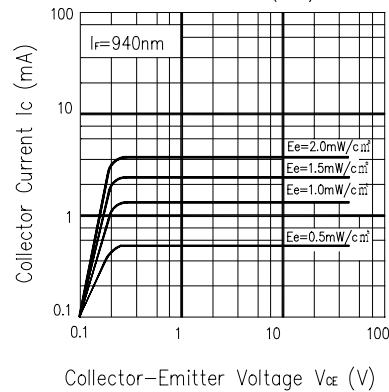
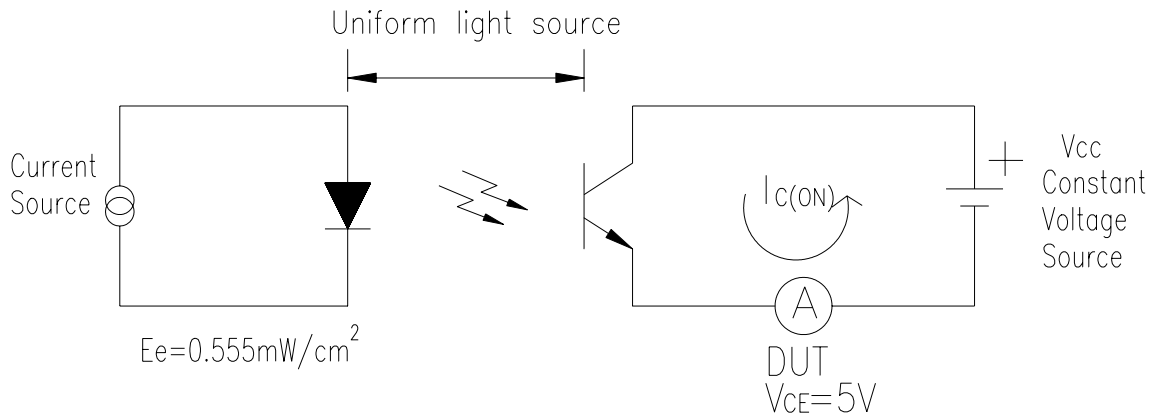


Fig.6 Collector Current vs. Collector Current I\_c (mA)



**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	$V_{CE}=5V$ $E_e=0.555\text{mW}/\text{cm}^2$
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		

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

---