



# EVERLIGHT ELECTRONICS CO., LTD.

DEVICE NUMBER : DPT-092-120      REV : 1.0  
ECN : \_\_\_\_\_      PAGE : 1/7

## Phototransistor

MODEL NO : PT928-6C/F1

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### ■ Features :

- Wide angle of half sensitivity  $\theta = 50^\circ$
- High sensitivity
- Fast response time

### ■ Description :

The **PT928-6C/F1** is a high speed and high sensitivity single phototransistor ; molded in a water clear plastic package with spherical side view lens.

The device is spectrally matched with IR emitters.

### ■ Applications :

- Mouse
- Optoelectronic switch
- Photo interrupter

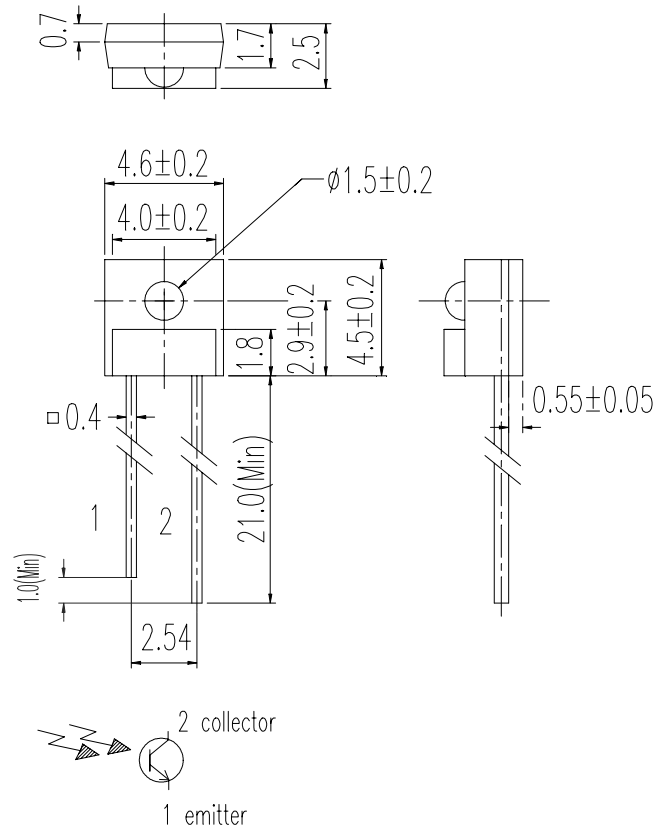
PART NO.	CHIP	LENS COLOR
	MATERIAL	
PT	Silicon	Water clear

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### ■ Package Dimension :



### ■ Notes :

- All dimensions are in millimeter.
- General tolerance:  $\pm 0.1$  mm
- Lead spacing is measured where the lead emerge from the package.
- Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
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- When using this product , please observe the absolute maximum ratings and the instructions for use outlined in these specification sheets. EVERIGHT 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.



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### ■ Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector Power Dissipation	$P_D$	75	mW
Collector-Emitter Voltage	$V_{CEO}$	30	V
Emitter-Collector Voltage	$V_{ECO}$	5	V
Collector Current	$I_C$	20	mA
Operating Temperature	$T_{opr}$	-25~+85	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-40~+85	$^\circ\text{C}$
Soldering Temperature (1/16 inch from body for 5 seconds)	$T_{sol}$	260	$^\circ\text{C}$

### ■ Electronic Optical Characteristics :

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition	
Collector Dark Current	$I_{CEO}$	-	-	100	nA	$V_{CE}=20\text{V}, E_e=0\text{mW}/\text{cm}^2$	
C-E Saturation Voltage	$V_{CE(Sat)}$	-	-	0.4	V	$I_C=0.5\text{mA}, E_e=10\text{mW}/\text{cm}^2$	
Collector Current	$I_{C(ON)}$	0.52	-	3.48	mA	$V_{CE}=5\text{V}, E_e=0.555\text{mW}/\text{cm}^2$	
Wavelength of Peak Sensitivity	$\lambda_p$	-	860	-	nm	---	
Response Time	Rise Time	$t_r$	-	15	-	$\mu\text{Sec}$	$V_{CE}=5\text{V}$ $I_C=1\text{mA}$ $R_L=1000\Omega$
	Fall Time	$t_f$	-	15	-	$\mu\text{Sec}$	
Half sensitivity angle	$2\theta_{1/2}$	-	50	-	Deg	---	



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### ■ Typical Electrical/Optical/Characteristics Curves For PT

Fig.1 Collector Power Dissipation vs. Ambient Temperature

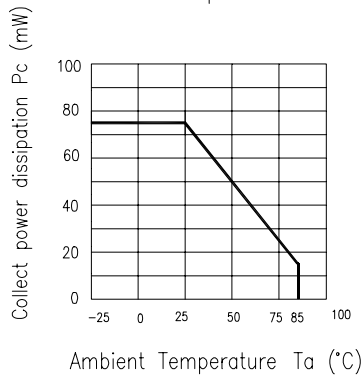


Fig.2 Collector Dark Current vs. Ambient Temperature

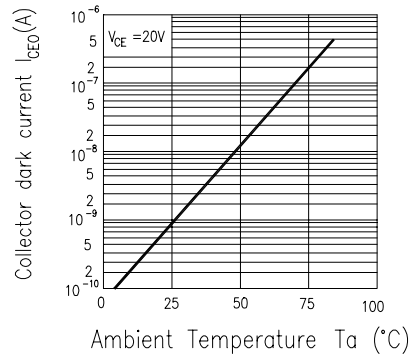


Fig. 3 Relative Collector Current vs. Ambient Temperature

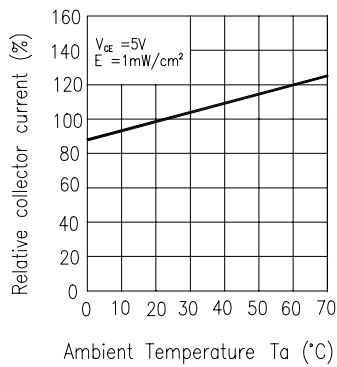


Fig.4 Collector Current vs. Irradiance

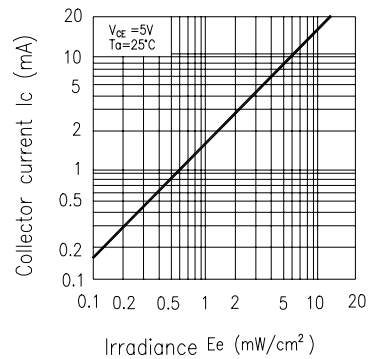


Fig.5 Spectral Sensitivity

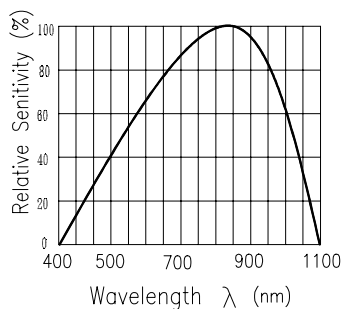
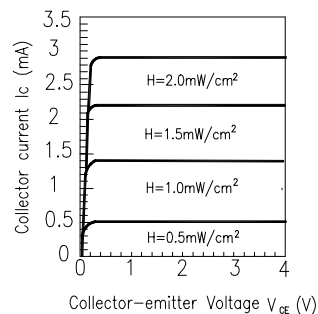


Fig.6 Collector Current vs. Collector-emitter Voltage





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## Phototransistor

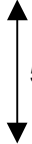

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### ■ Reliability Test Item And Condition

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

Confidence level:90%

LTPD:10%

NO.	Item	Test Conditions	Test Hours/ Cycle	Sample Size	Failure Judgement Criteria	Ac/Re
1	Solder Heat	TEMP : 260°C ± 5 °C	5 sec	22 PCs	$I_{c(on)} \leq L \times 0.8$  L :Lower specification limit	0/1
2	Temperature Cycle	H : +85°C    30 min  L : -55°C    30 min	50 cycle	22 PCs		0/1
3	Thermal Shock	H : +100°C    5 min  L : -10°C    30 min	50 cycle	22 PCs		0/1
4	High Temperature Storage	TEMP. : +100°C	1000 hrs	22 PCs		0/1
5	Low Temperature Storage	TEMP. : -55°C	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°C / 85% R.H.	1000 hrs	22 PCs		0/1

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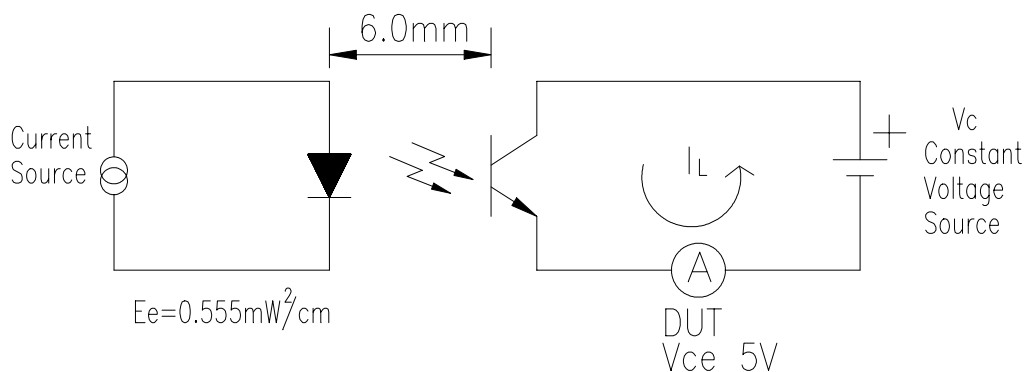
### ■ Test Method For On State Collector Current :

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

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

Unit : mA

Light current test method for PT:



### ■ To Distinguish Intensity:

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

#### Ranks

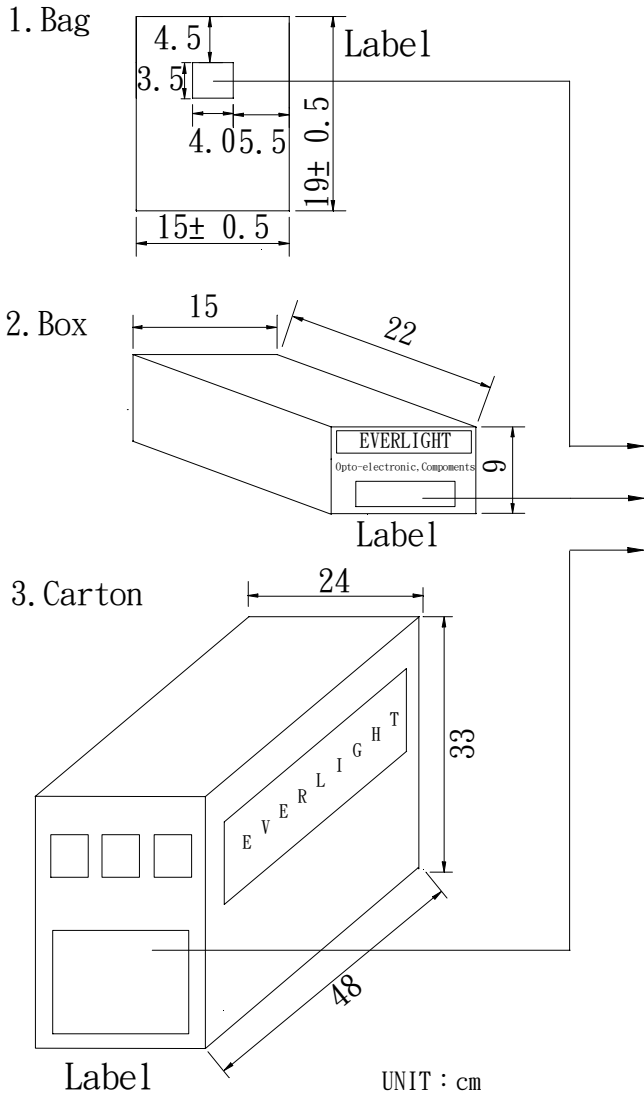
Color Code	Ranks	Symbol	Min	Typ	Max	Unit	Test Condition
Red	7-3	$I_{C(ON)}$	0.52	---	1.22	mA	$E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$
Blue	7-2	$I_{C(ON)}$	0.87	---	1.74	mA	$E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$
Yellow	7-1	$I_{C(ON)}$	1.22	---	2.26	mA	$E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$
Silver	6-2	$I_{C(ON)}$	1.56	---	3.04	mA	$E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$
Green	6-1	$I_{C(ON)}$	1.74	---	3.48	mA	$E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$



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### ■ Packing Specifications



EVERLIGHT

CPN:

P/N:



PT928-6C/F1

QTY:



LOT NO:

CAT:

HUE:

REF:

MADE IN TAIWAN

CPN : Customer's Production Number

P/N : Production 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 , 5Bags/1Box

2.10Boxes/1Carton

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