

PT370/PT371 PT372

Compact, Stem Type Phototransistor

Features

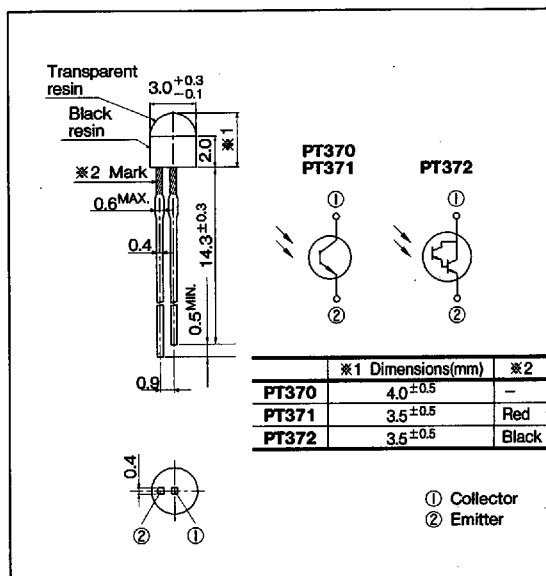
1. $\phi 3\text{mm}$ compact, resin stem type
2. Acceptance **PT370** $\Delta\theta$: TYP. $\pm 45^\circ$
PT371 $\Delta\theta$: TYP. $\pm 65^\circ$
PT372 $\Delta\theta$: TYP. $\pm 70^\circ$
3. Single phototransistor output: **PT370/PT371**
 Darlington phototransistor output: **PT372**

Applications

1. Floppy disk drives
2. VCRs
3. Automatic stroboscopes
4. Optoelectronic switches, optoelectronic counters

Outline Dimensions

(Unit : mm)



Absolute Maximum Ratings

(Ta = 25°C)

Parameter	Symbol	Rating	Unit
Collector-emitter voltage	V _{CEO}	35	V
Emitter-collector voltage	V _{ECO}	6	V
Collector current	I _C	20	mA
		50	
Collector power dissipation	P _C	75	mW
Operating temperature	T _{opr}	-25 to +85	°C
Storage temperature	T _{stg}	-25 to +85	°C
*1 Soldering temperature	T _{sol}	260	°C

*1 For 3 seconds at the position of 1.5mm from the bottom face of resin package

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■ Electro-optical Characteristics

(T_a = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*2 Collector current	PT370	I _c	*3 E _v = 100 lx, V _{CE} = 5V (PT372 : V _{CE} = 2V)	100	300	900	μA
	PT371			100	—	900	
	PT372			3.0	—	23	mA
Collector dark current	PT370/PT371	I _{CEO}	E _e = 0, V _{CE} = 20V	—	2.0	100	nA
	PT372		E _e = 0, V _{CE} = 10V	—	—	1.0	μA
Collector-emitter saturation voltage	PT370/PT371	V _{CE(sat)}	*3 E _e = 10mW/cm ² , I _c = 0.5mA	—	0.2	0.4	V
	PT372		*3 E _e = 1mW/cm ² , I _c = 2.5mA	—	0.8	1.0	
Peak sensitivity wavelength		λ _p	—	—	800	—	nm
Response time	Rise time	PT370/PT371	V _{CC} = 20V, I _c = 1mA, R _L = 1kΩ	—	10	40	μs
		PT372	V _{CE} = 2V, I _c = 10mA, R _L = 100Ω	—	100	400	μs
	Fall time	PT370/PT371	V _{CC} = 20V, I _c = 1mA, R _L = 1kΩ	—	8	35	μs
		PT372	V _{CE} = 2V, I _c = 10mA, R _L = 100Ω	—	100	400	μs
Half intensity angle	PT370	Δθ	—	—	±45	—	°
	PT371			—	±65	—	
	PT372			—	±70	—	

*2 The collector current (I_c) shall be classified into the ranks as follows before delivery.

Rank	Collector current I _c		
	PT370 (μA)	PT371 (μA)	PT372 (mA)
A	100 to 216	100 to 244	3.0 to 9.66
B	170 to 320	192 to 463	7.14 to 23.0
C	252 to 533	363 to 900	—
D	419 to 900	—	—

*3 E_v, E_e : Illuminance, irradiance by CIE standard light source A (tungsten lamp)

Fig. 1 Collector Power Dissipation vs. Ambient Temperature

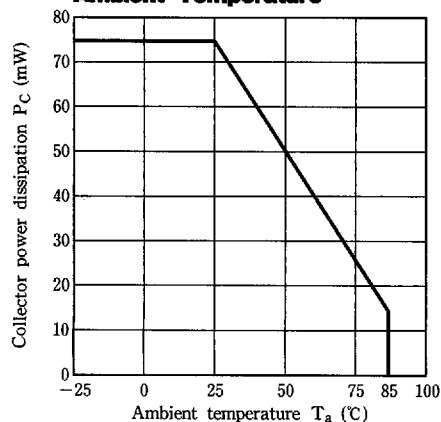


Fig.2-a Collector Dark Current vs. Ambient Temperature (PT370/PT371)

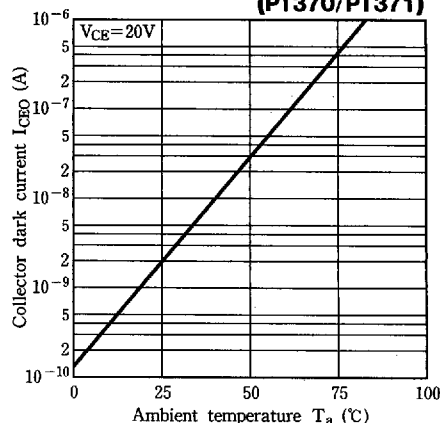


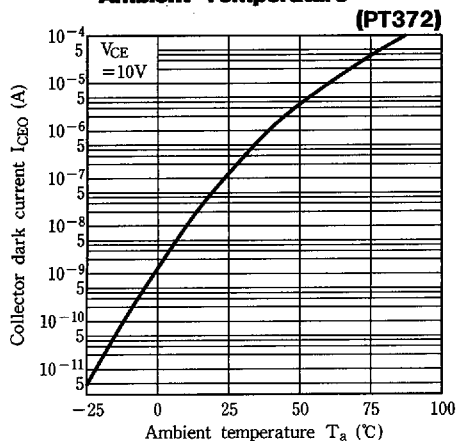
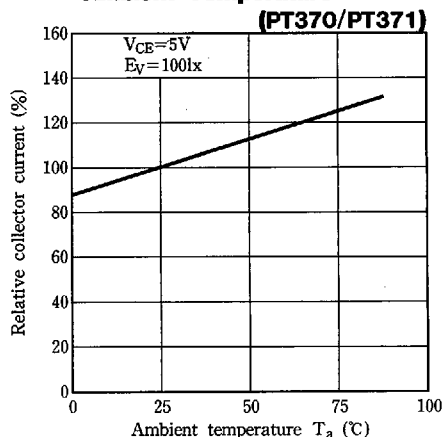
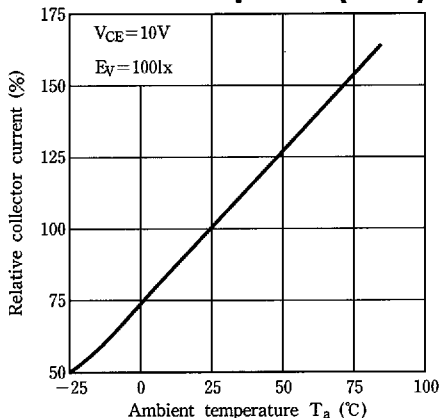
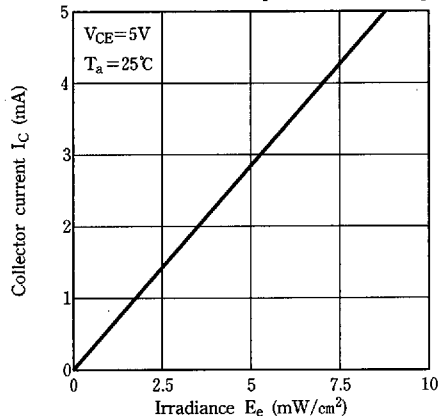
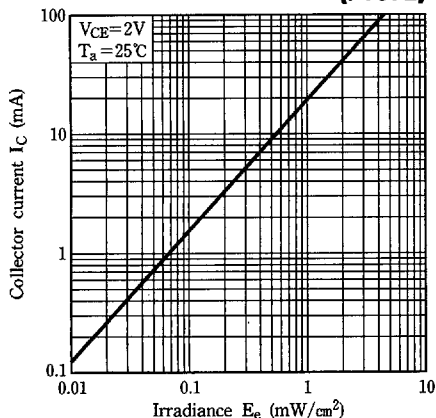
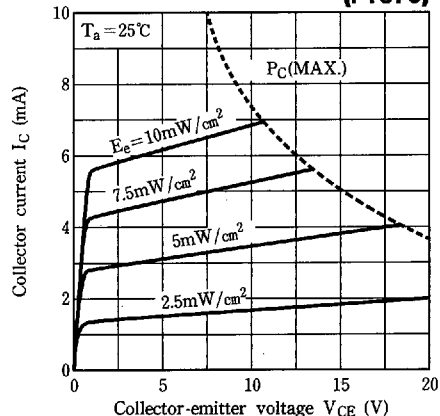
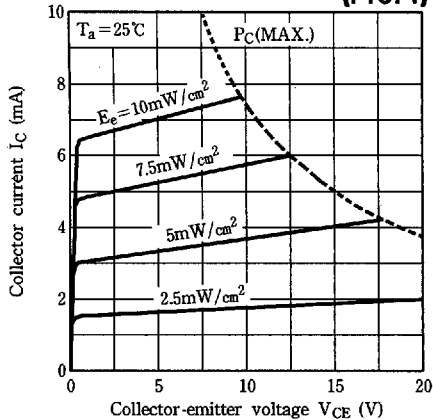
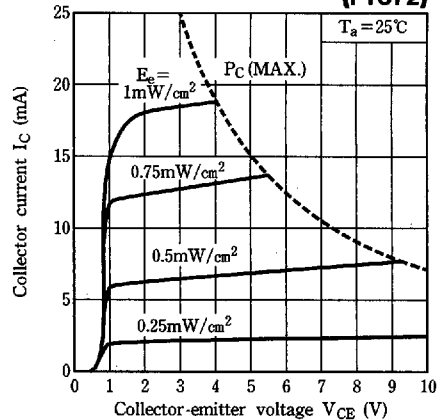
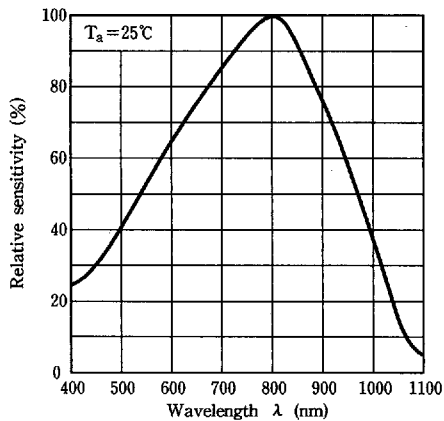
Fig.2-b Collector Dark Current vs. Ambient Temperature**Fig.3-a Relative Collector Current vs. Ambient Temperature****Fig.3-b Relative Collector Current vs. Ambient Temperature (PT372)****Fig.4-a Collector Current vs. Irradiance****Fig.4-b Collector Current vs. Irradiance (PT372)****Fig.5-a Collector Current vs. Collector-emitter Voltage**

Fig.5-b Collector Current vs. Collector-emitter Voltage

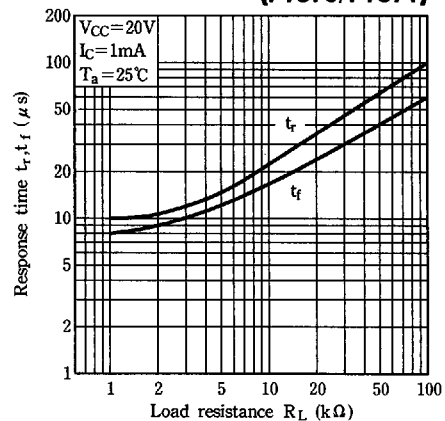
(PT371)

**Fig.5-c Collector Current vs. Collector-emitter Voltage**

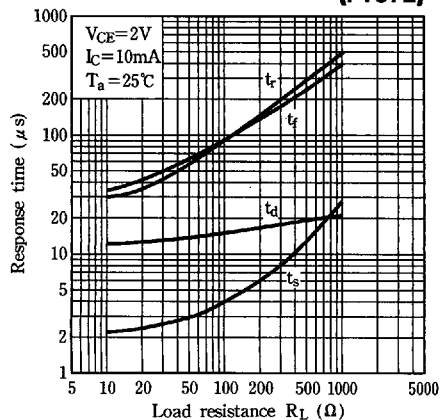
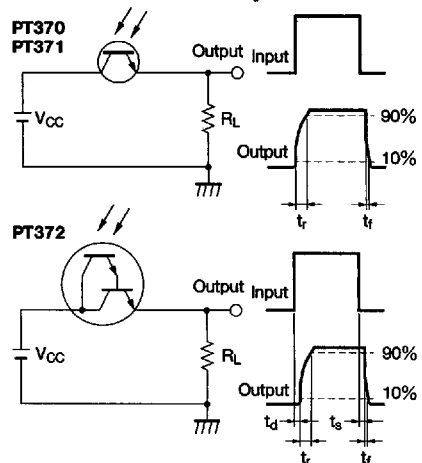
(PT372)

**Fig. 6 Spectral Sensitivity****Fig.7-a Response Time vs. Load Resistance**

(PT370/PT371)

**Fig.7-b Response Time vs. Load Resistance**

(PT372)

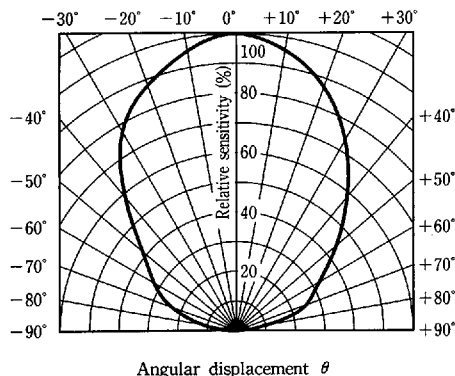
**Test Circuit for Response Time**

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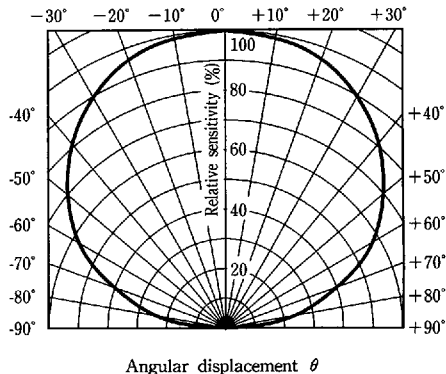
Phototransistors

Fig.8-a Sensitivity Diagram

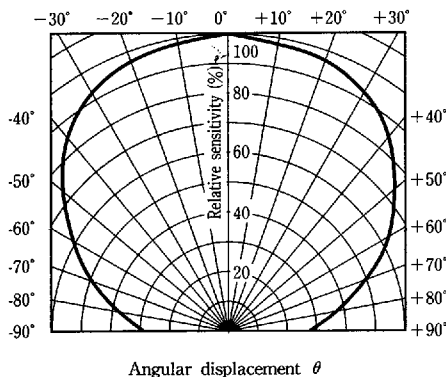
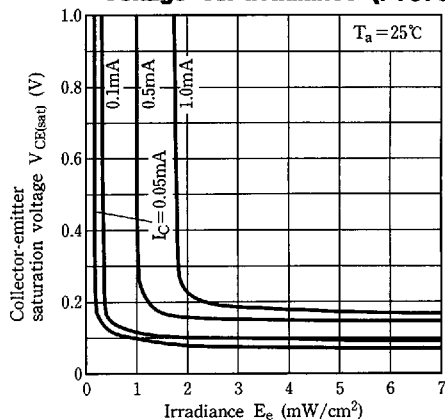
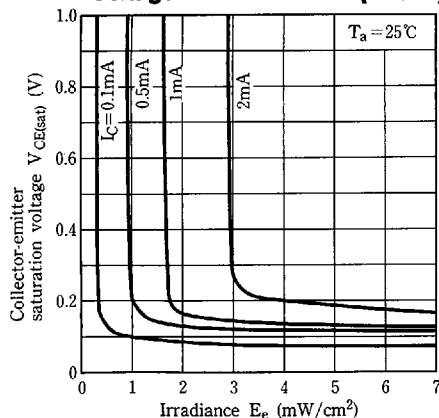
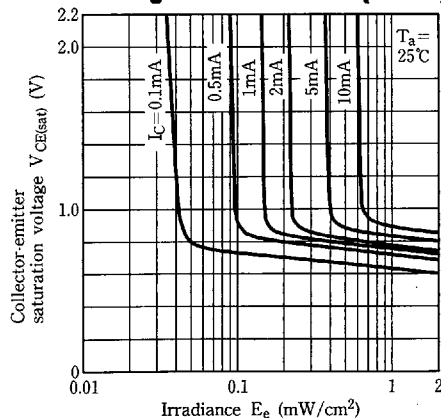
(PT370)

 $(T_a = 25^\circ\text{C})$ **Fig.8-b Sensitivity Diagram**

(PT371)

 $(T_a = 25^\circ\text{C})$ **Fig.8-c Sensitivity Diagram**

(PT372)

 $(T_a = 25^\circ\text{C})$ **Fig.9-a Collector-emitter Saturation Voltage vs. Irradiance (PT370)****Fig.9-b Collector-emitter Saturation Voltage vs. Irradiance (PT371)****Fig.9-c Collector-emitter Saturation Voltage vs. Irradiance (PT372)**

● Please refer to the chapter "Precautions for Use." (Page 78 to 93)