

PT550/PT550F

TO-18 Type Phototransistor with Base Terminal

■ Features

1. High sensitivity

$$\left(\begin{array}{l} \text{PT550 } I_C : \text{MIN.}3\text{mA at } E_e = 0.1\text{mW/cm}^2 \\ \text{PT550F } I_C : \text{MIN.}3\text{mA at } E_e = 1\text{mW/cm}^2 \end{array} \right)$$

2. Narrow acceptance : **PT550**

$$(\Delta\theta : \text{TYP.} \pm 6^\circ)$$

Wide acceptance : **PT550F**

$$(\Delta\theta : \text{TYP.} \pm 50^\circ)$$

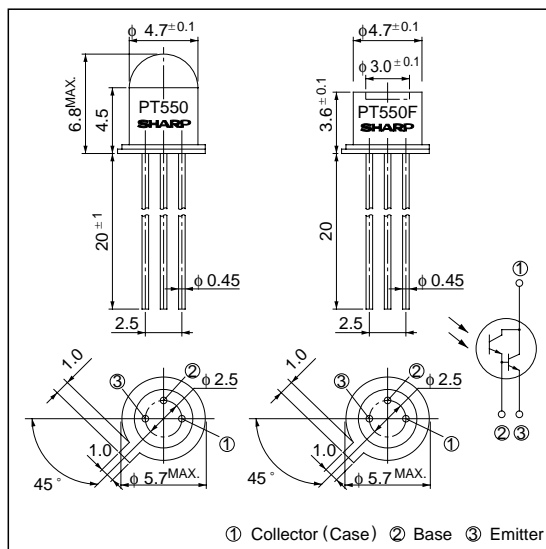
3. TO - 18 type standard package

■ Applications

1. Optoelectronic switches, optoelectronic counters
2. Smoke detectors
3. Infrared applied systems

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit
Collector-emitter voltage	V_{CE0}	35	V
Emitter-collector voltage	V_{ECO}	6	V
Collector-base voltage	V_{CBO}	35	V
Collector current	I_C	100	mA
Collector power dissipation	P_C	150	mW
Operating temperature	T_{opr}	- 25 to + 125	$^\circ\text{C}$
Storage temperature	T_{stg}	- 55 to + 150	$^\circ\text{C}$
*1 Soldering temperature	T_{sol}	260	$^\circ\text{C}$

*1 For 10 seconds at the position of 1.3mm from the bottom face of can package

■ Electro-optical Characteristics

($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Conditions		MIN.	TYP.	MAX.		Unit
		PT550	PT550F			PT550	PT550F	
*2 Collector current	I_C	$V_{CE} = 5\text{V}$ $E_e = 0.1\text{mW/cm}^2$	$V_{CE} = 5\text{V}$ $E_e = 1\text{mW/cm}^2$	3	20	142	150	mA
Collector dark current	I_{CEO}	$V_{CE} = 10\text{V}, E_e = 0, I_B = 0$		-	10^{-7}	10^{-6}		A
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1\text{mA}, I_B = 0$ $E_e = 0.1\text{mW/cm}^2$	$I_C = 1\text{mA}, I_B = 0$ $E_e = 1\text{mW/cm}^2$	-	-	1.0		V
Peak sensitivity wavelength	λ_P			-	800			nm
Response time	Rise time	t_r	$V_{CC} = 15\text{V}, I_C = 1\text{mA}, R_L = 1\text{k}\Omega$	-	350			μs
	Fall time	t_f		-	300			μs

*2 E_e : Irradiance by CIE standard light source A (tungsten lamp)

Fig. 1 Collector Power Dissipation vs. Ambient Temperature

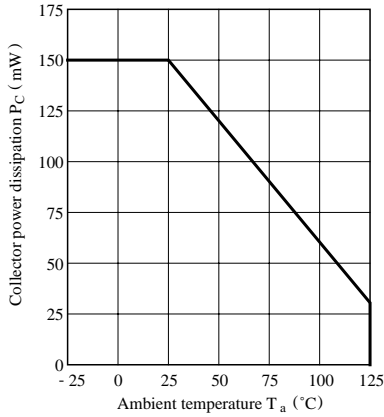


Fig. 2 Collector Dark Current vs. Ambient Temperature

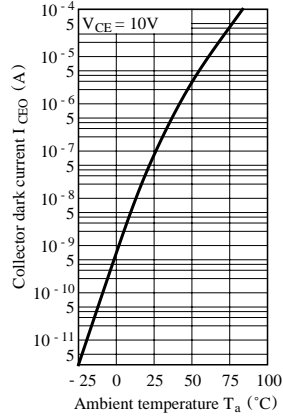


Fig. 3 Relative Collector Current vs. Ambient Temperature

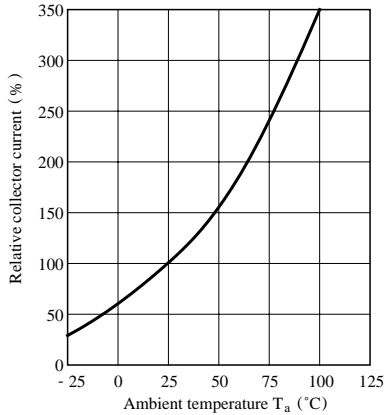


Fig.4-a Collector Current vs. Irradiance (PT550)

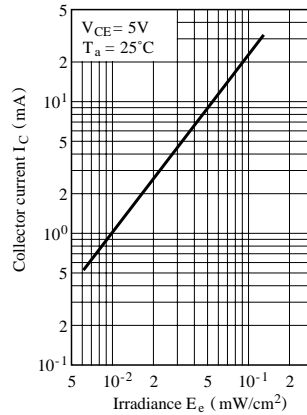


Fig.4-b Collector Current vs. Irradiance (PT550F)

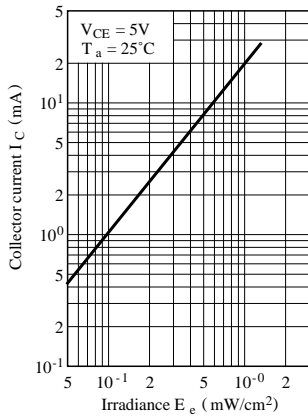


Fig.5-a Collector Current vs. Collector-emitter Voltage (PT550)

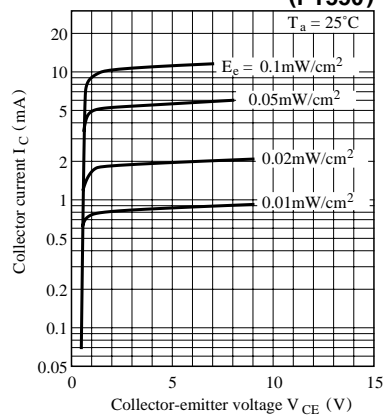


Fig.5-b Collector Current vs. Collector-emitter Voltage (PT550F)

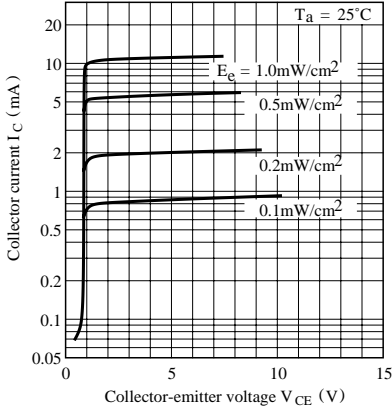


Fig. 6 Spectral Sensitivity

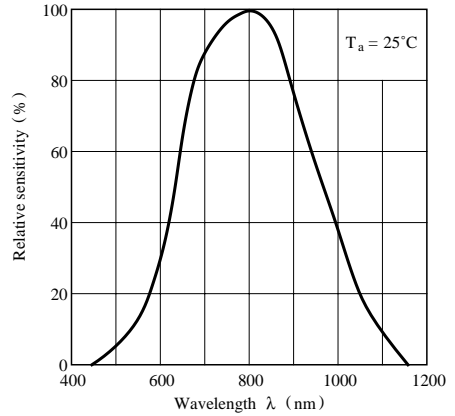
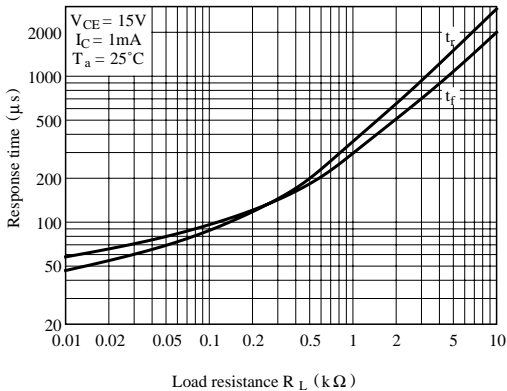


Fig. 7 Response Time vs. Load Resistance



Test Circuit for Response Time

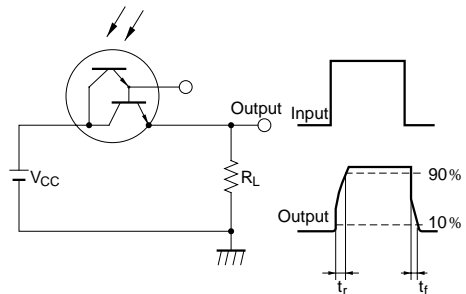


Fig.8-a Sensitivity Diagram (PT550) (T_a = 25°C)

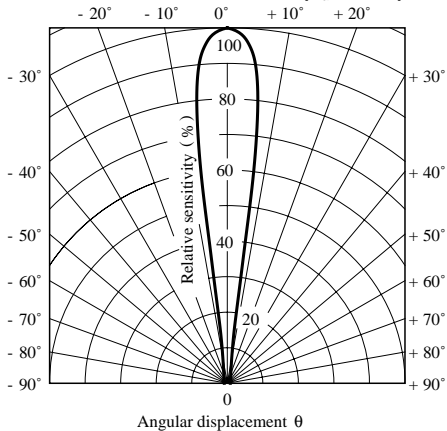


Fig.8-b Sensitivity Diagram (PT550F) (T_a = 25°C)

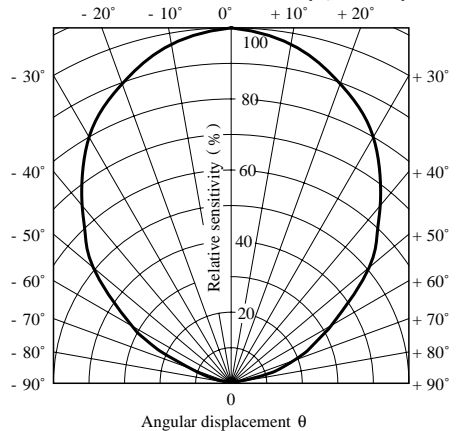


Fig.9-a Collector-emitter Saturation Voltage vs. Irradiance (PT550)

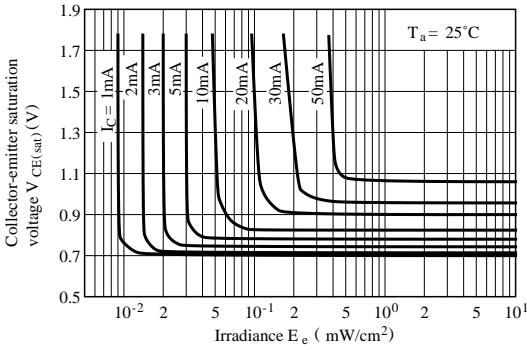
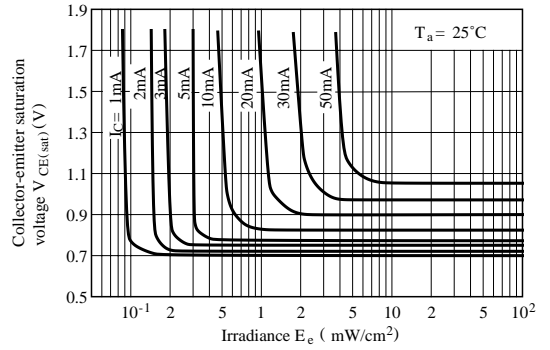


Fig.9-b Collector-emitter Saturation Voltage vs. Irradiance (PT550F)



● Please refer to the chapter “Precautions for Use.”