

# PT550/PT550F

## TO-18 Type Phototransistor with Base Terminal

### ■ Features

- High sensitivity  
 ( **PT550**  $I_C$  : MIN.3mA at  $E_e = 0.1\text{mW/cm}^2$  )  
 ( **PT550F**  $I_C$  : MIN.3mA at  $E_e = 1\text{mW/cm}^2$  )
- Narrow acceptance : **PT550**  
 ( $\Delta\theta$  : TYP.  $\pm 6^\circ$ )  
 Wide acceptance : **PT550F**  
 ( $\Delta\theta$  : TYP.  $\pm 50^\circ$ )
- TO - 18 type standard package

### ■ Applications

- Optoelectronic switches, optoelectronic counters
- Smoke detectors
- Infrared applied systems

### ■ Absolute Maximum Ratings

(Ta = 25°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	°C
Storage temperature	$T_{stg}$	- 55 to + 150	°C
*1 Soldering temperature	$T_{sol}$	260	°C

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

### ■ Electro-optical Characteristics

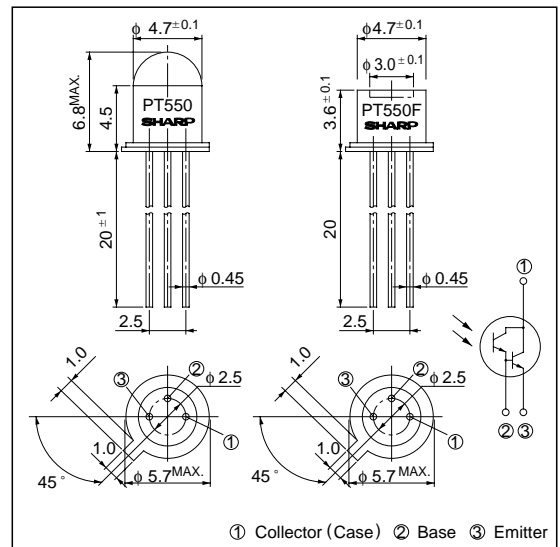
(Ta = 25°C)

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	$\lambda_P$	-		-	800	-		nm
Response time	Rise time	$V_{CC} = 15\text{V}, I_C = 1\text{mA}, R_L = 1\text{k}\Omega$		-	350	-		$\mu\text{s}$
	Fall time			-	300	-		$\mu\text{s}$

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

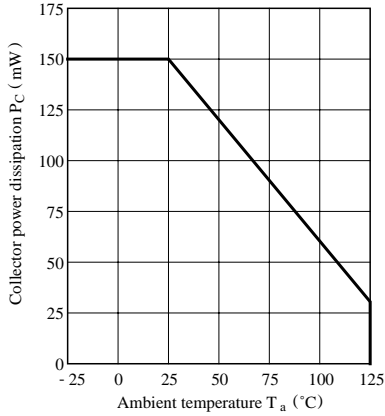
### ■ Outline Dimensions

(Unit : mm)

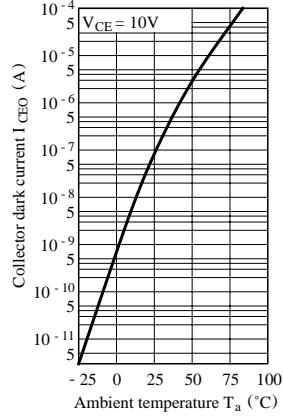


① Collector (Case) ② Base ③ Emitter

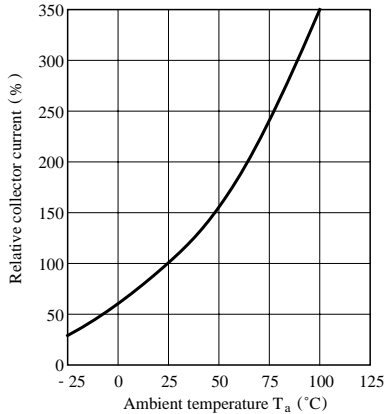
**Fig. 1 Collector Power Dissipation vs. Ambient Temperature**



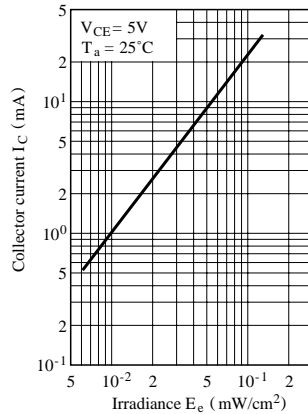
**Fig. 2 Collector Dark Current vs. Ambient Temperature**



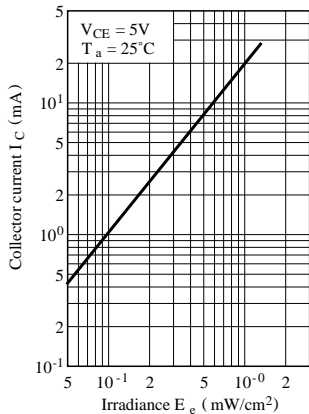
**Fig. 3 Relative Collector Current vs. Ambient Temperature**



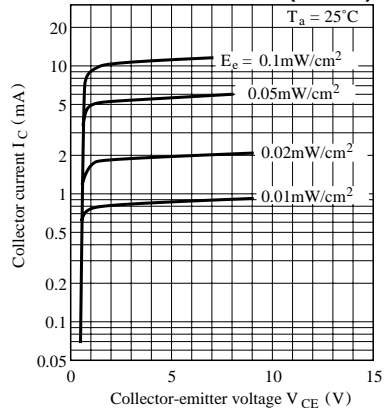
**Fig.4-a Collector Current vs. Irradiance (PT550)**



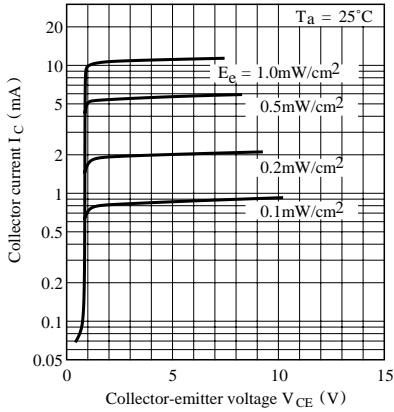
**Fig.4-b Collector Current vs. Irradiance (PT550F)**



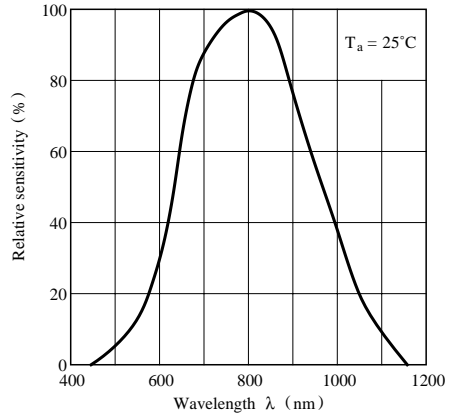
**Fig.5-a Collector Current vs. Collector-emitter Voltage (PT550)**



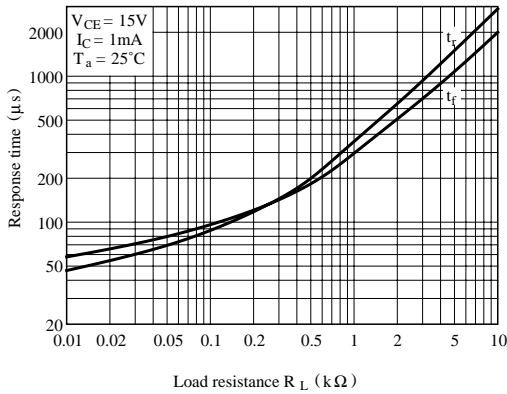
**Fig.5-b Collector Current vs. Collector-emitter Voltage (PT550F)**



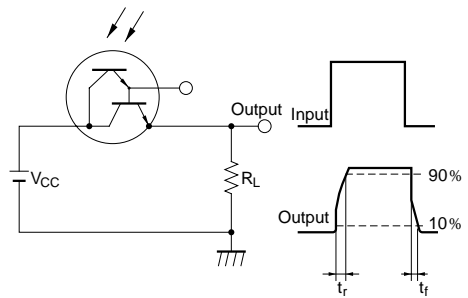
**Fig. 6 Spectral Sensitivity**



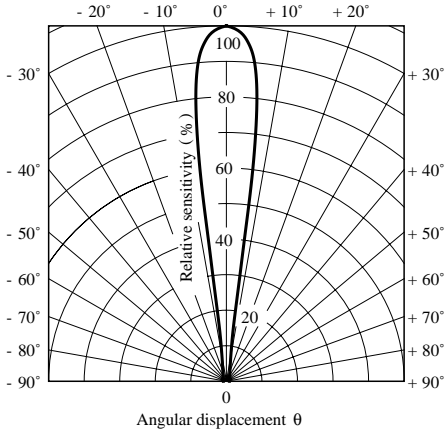
**Fig. 7 Response Time vs. Load Resistance**



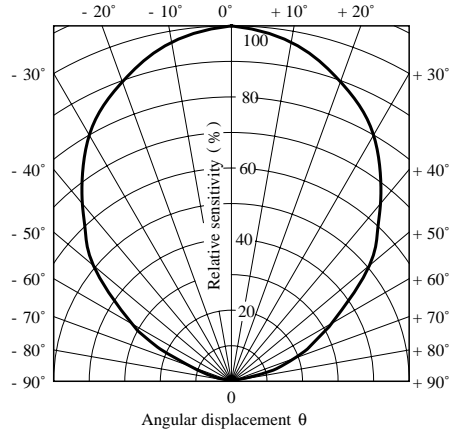
**Test Circuit for Response Time**



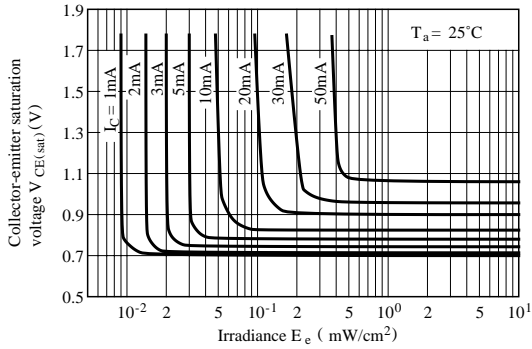
**Fig.8-a Sensitivity Diagram (PT550) (T\_a = 25°C)**



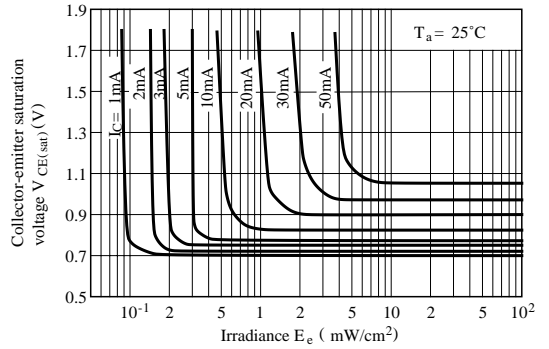
**Fig.8-b Sensitivity Diagram (PT550F) (T\_a = 25°C)**



**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.”

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