PT550/PT550F

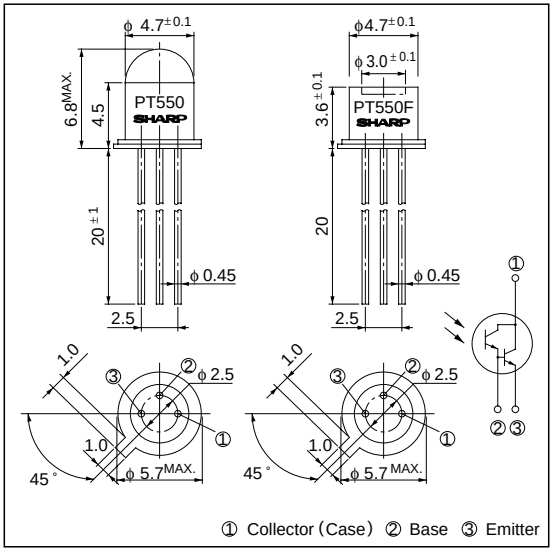
TO-18 Type Phototransistor with Base Terminal

■ Features

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

■ Outline Dimensions

(Unit : mm)



■ Applications

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

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

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

" In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that occur in equipment using any of SHARP's devices, shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest version of the device specification sheets before using any SHARP's device."

Fig. 1 Collector Power Dissipation vs. Ambient Temperature

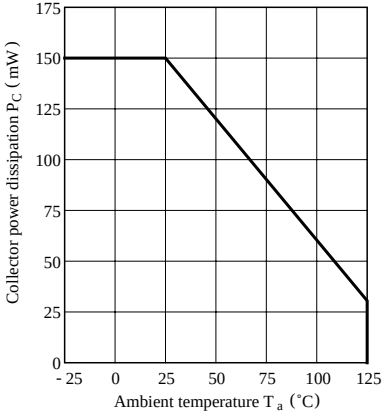


Fig. 2 Collector Dark Current vs. Ambient Temperature

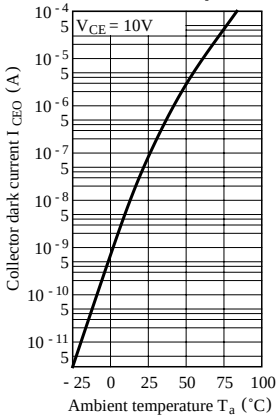


Fig. 3 Relative Collector Current vs. Ambient Temperature

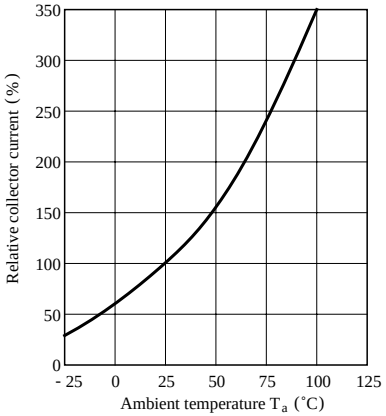


Fig.4-a Collector Current vs. Irradiance (PT550)

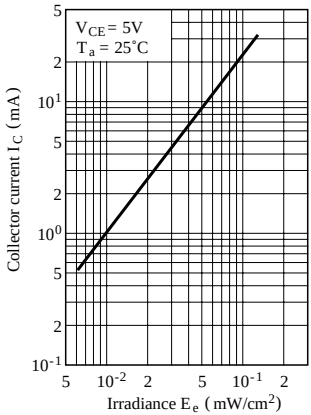


Fig.4-b Collector Current vs. Irradiance (PT550F)

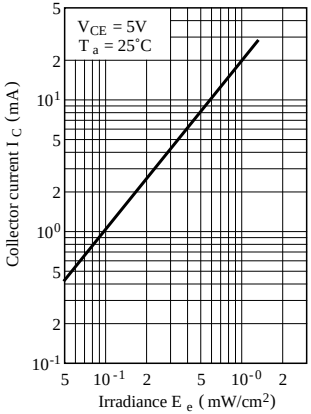


Fig.5-a Collector Current vs. Collector-emitter Voltage (PT550)

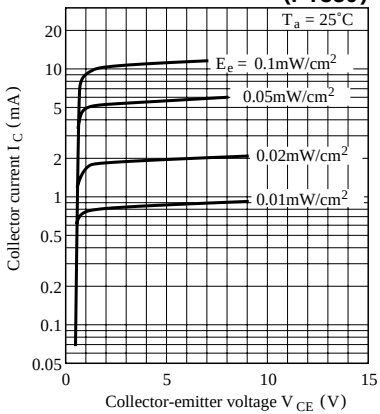


Fig.5-b Collector Current vs. Collector-emitter Voltage (PT550F)

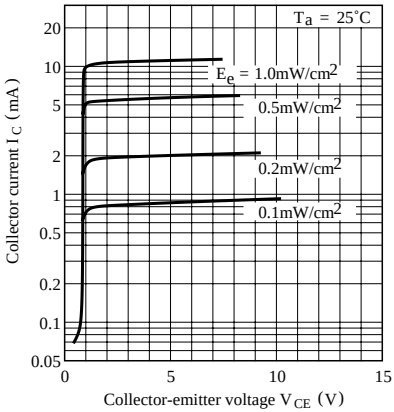


Fig. 6 Spectral Sensitivity

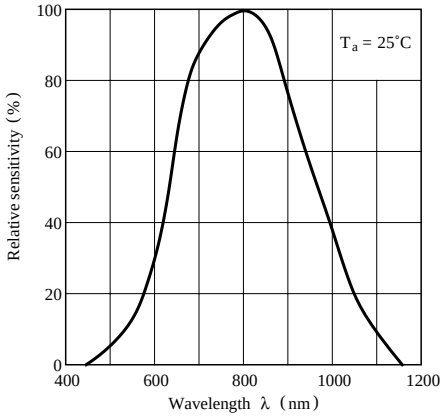
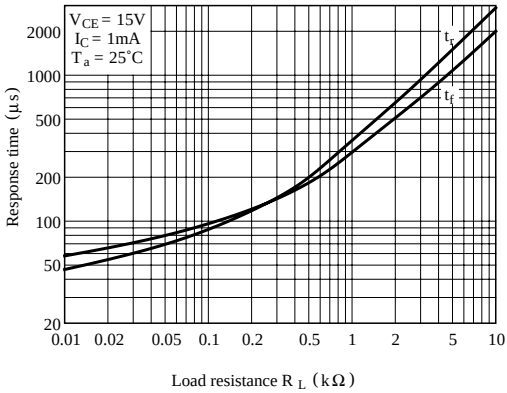


Fig. 7 Response Time vs. Load Resistance



Test Circuit for Response Time

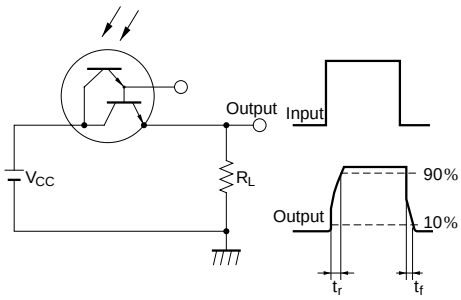


Fig.8-a Sensitivity Diagram (PT550) (Ta = 25˚C)

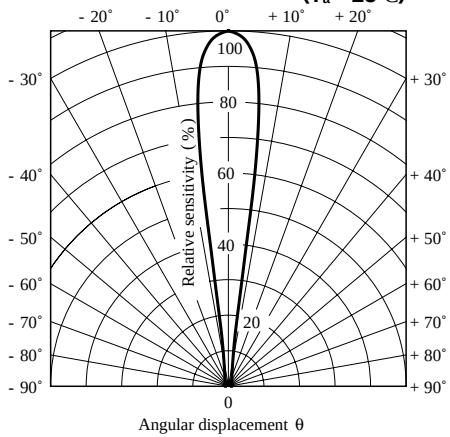


Fig.8-b Sensitivity Diagram (PT550F) (Ta = 25˚C)

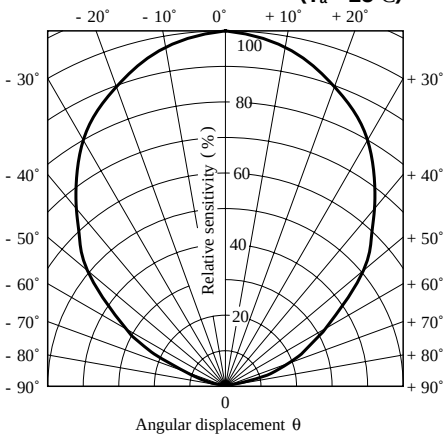


Fig.9-a Collector-emitter Saturation Voltage vs. Irradiance (PT550)

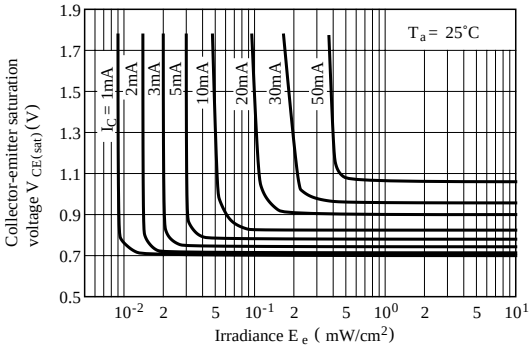
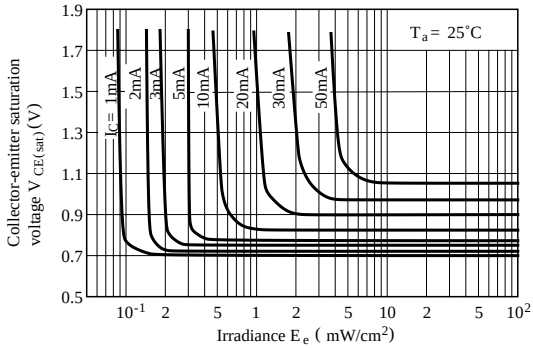


Fig.9-b Collector-emitter Saturation Voltage vs. Irradiance (PT550F)



● Please refer to the chapter " Precautions for Use."