

# PT491/PT491F PT493/PT493F

## ■ Features

1. Epoxy resin package
2. Compact
3. Intermediate acceptance ( $\Delta\theta$  : TYP.  $\pm 40^\circ$ )
4. Long lead pin type : **PT493/PT493F**
5. Visible light cut-off type : **PT491F/PT493F**

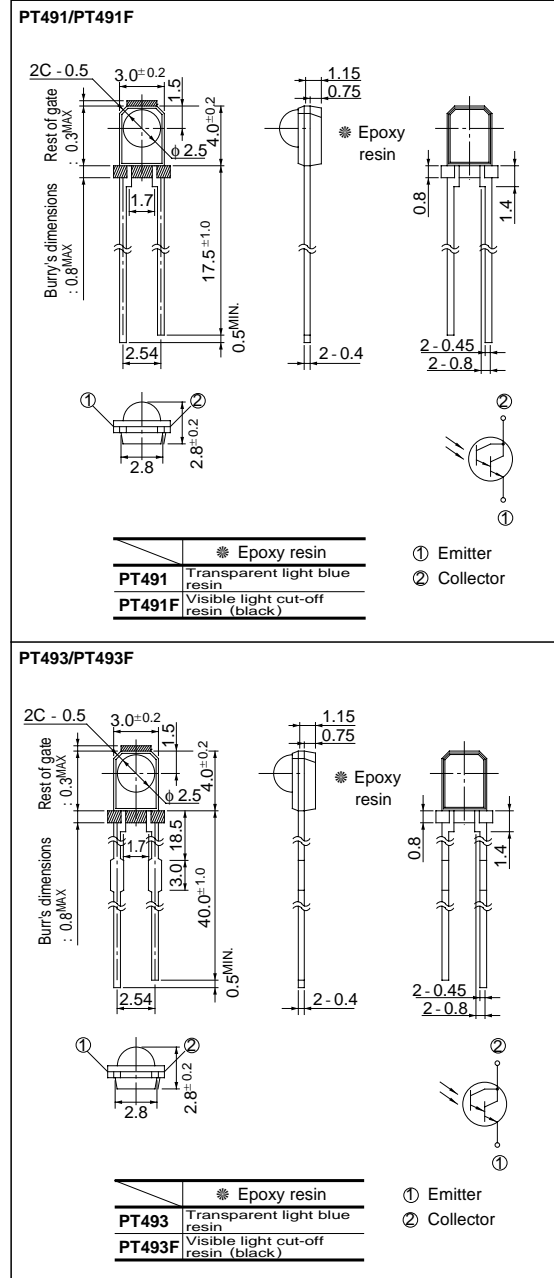
## ■ Applications

1. VCRs
2. Optoelectronic switches

## Intermediate Acceptance High Sensitivity Phototransistor

## ■ 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	$I_C$	50	mA
Collector power dissipation	$P_C$	75	mW
Operating temperature	$T_{opr}$	-25 to +85	°C
Storage temperature	$T_{stg}$	-40 to +85	°C
*1 Soldering temperature	$T_{sol}$	260	°C

\*1 For 3 seconds at the position of 1.4mm from the surface of resin edge

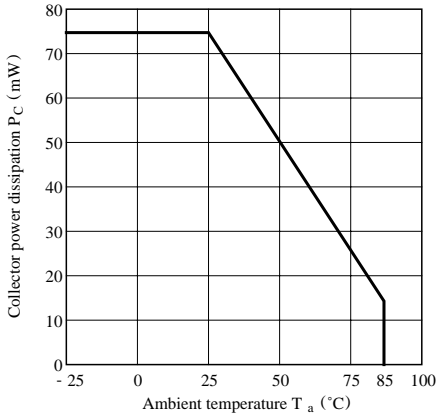
**Electro-optical Characteristics**

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

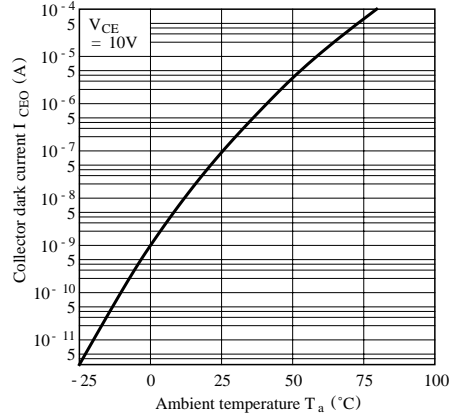
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*2Collector current	$I_C$	$V_{CE} = 2V$ $E_V = 21x$	0.3	0.6	1.3	mA
			0.2	0.4	0.8	mA
Collector dark current	$I_{CEO}$	$V_{CE} = 10V, E_e = 0$	-	-	$10^{-6}$	A
*2Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 0.8mA,$ $E_e = 1mW/cm^2$	-	-	1.0	V
Peak sensitivity wavelength	$\lambda_p$	-	-	800	-	nm
			-	860	-	nm
Response time	Rise time	$V_{CE} = 2V, I_C = 5mA$ $R_L = 100\Omega$	-	80	400	$\mu s$
	Fall time		-	70	350	
Half intensity angle	$\Delta\theta$	-	-	$\pm 40$	-	$^\circ$

\*2  $E_e, E_V$  : Illuminance, irradiance by CIE standard light source A (tungsten lamp)

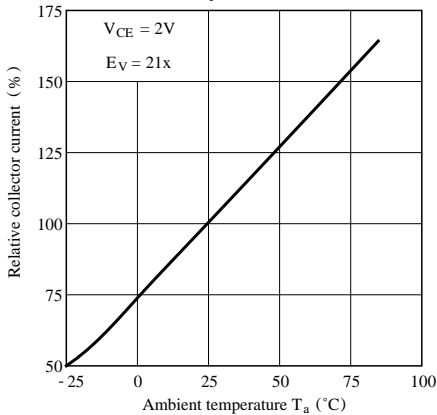
**Fig. 1 Collector Power Dissipation vs. Ambient Temperature**



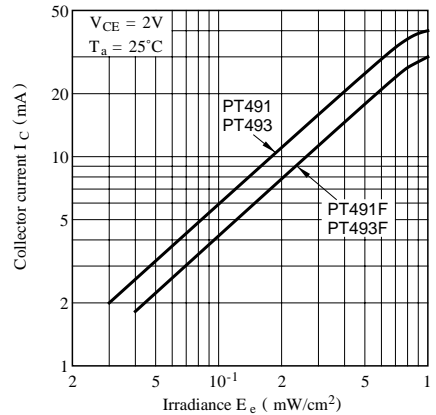
**Fig. 2 Collector Dark Current vs. Ambient Temperature**



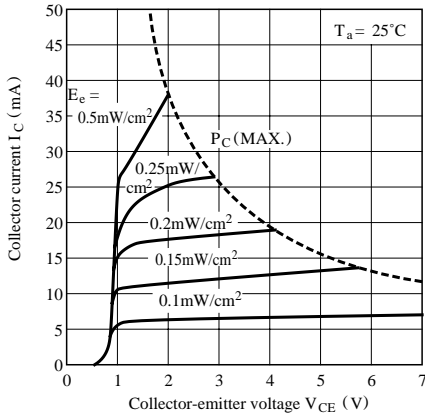
**Fig. 3 Relative Collector Current vs. Ambient Temperature**



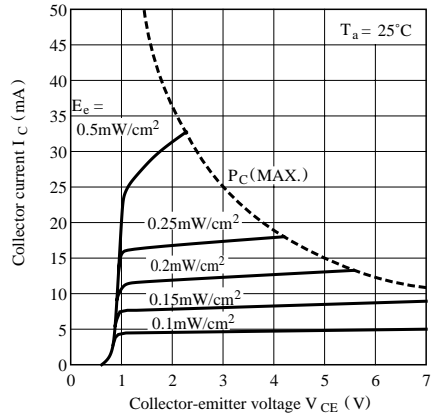
**Fig. 4 Collector Current vs. Irradiance**



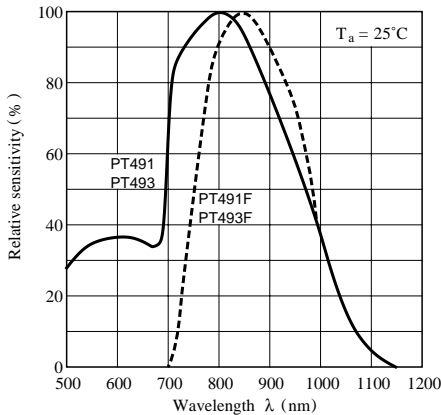
**Fig. 5-a Collector Current vs. Collector-emitter Voltage (PT491/PT493)**



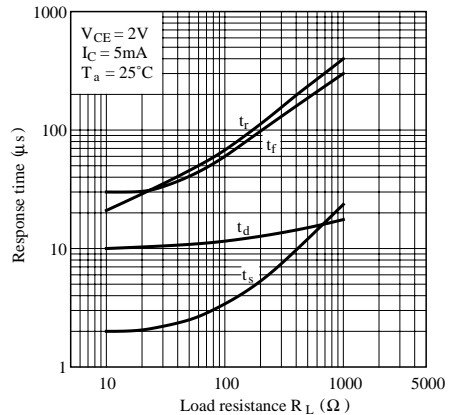
**Fig. 5-b Collector Current vs. Collector-emitter Voltage (PT491F/PT493F)**



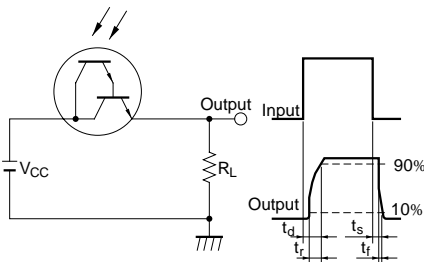
**Fig. 6 Spectral Sensitivity**



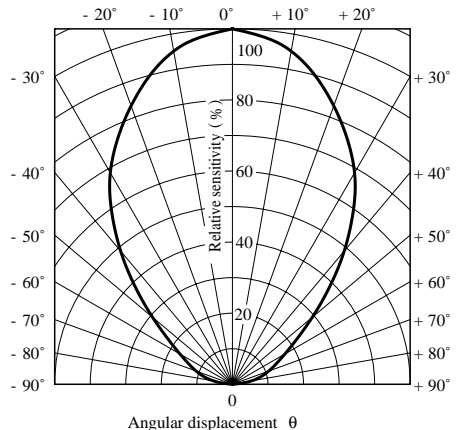
**Fig. 7 Response Time vs. Load Resistance**



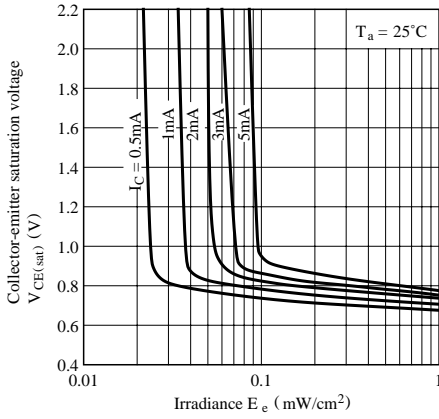
**Test Circuit for Response Time**



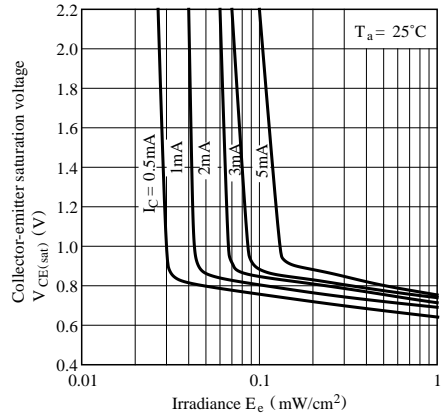
**Fig. 8 Sensitivity Diagram (T\_a = 25°C)**



**Fig. 9 Collector-emitter Saturation Voltage vs. Irradiance (PT491/PT493)**



**Fig.10 Collector-emitter Saturation Voltage vs. Irradiance (PT491F/PT493F)**



Please refer to the chapter “Precautions for Use.”