

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**

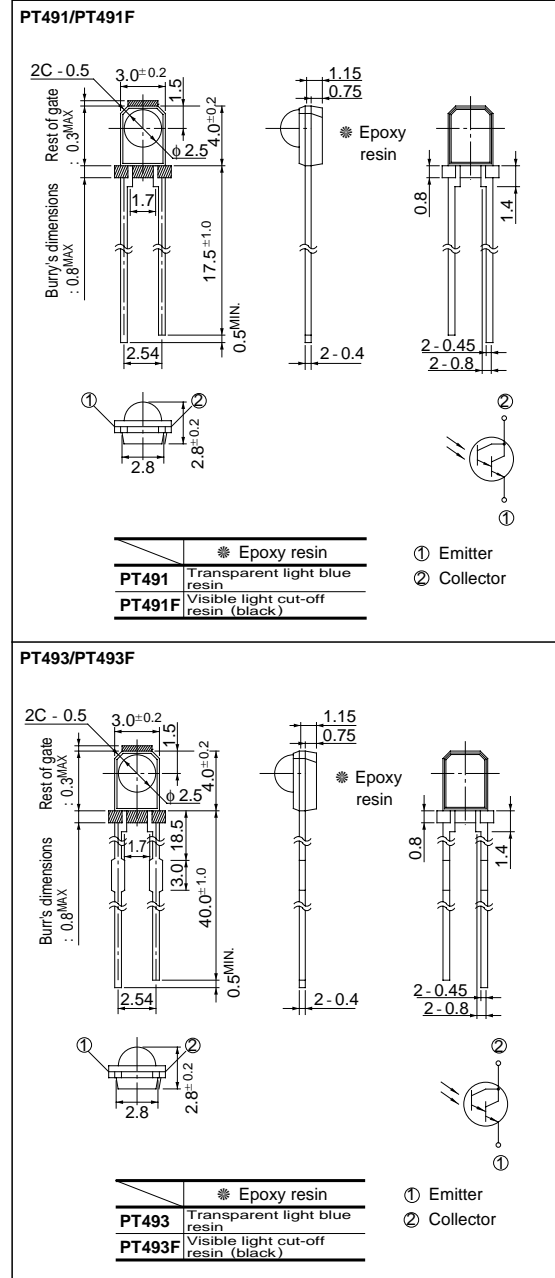
■ Applications

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	PT491/PT493	$V_{CE} = 2\text{V}$	0.3	0.6	1.3	mA
	PT491F/PT493F	$E_V = 21\text{x}$	0.2	0.4	0.8	mA
Collector dark current	I_{CEO}	$V_{CE} = 10\text{V}, E_e = 0$	-	-	10^{-6}	A
*2Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 0.8\text{mA}, E_e = 1\text{mW/cm}^2$	-	-	1.0	V
Peak sensitivity wavelength	PT491/PT493	-	-	800	-	nm
	PT491F/PT493F		-	860	-	nm
Response time	Rise time	$V_{CE} = 2\text{V}, I_C = 5\text{mA}$	-	80	400	μs
	Fall time	$R_L = 100\Omega$		70	350	
Half intensity angle	$\Delta\theta$	-	-	± 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

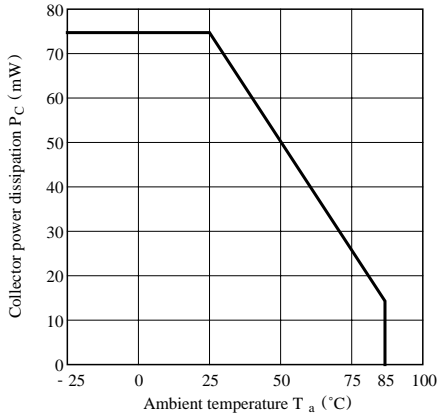


Fig. 2 Collector Dark Current vs. Ambient Temperature

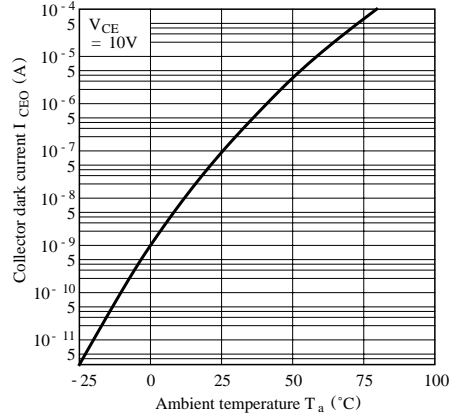


Fig. 3 Relative Collector Current vs. Ambient Temperature

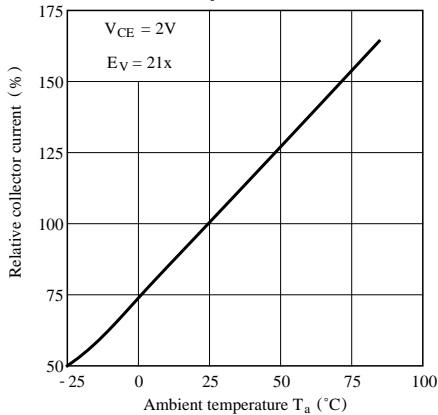


Fig. 4 Collector Current vs. Irradiance

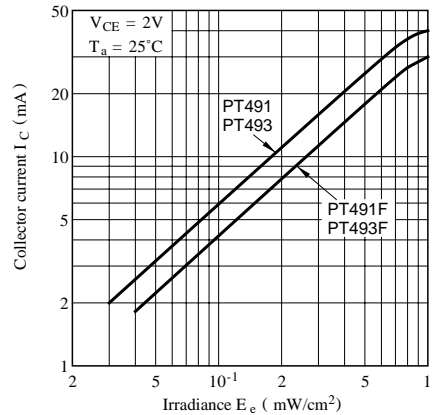


Fig. 5-a Collector Current vs. Collector-emitter Voltage (PT491/PT493)

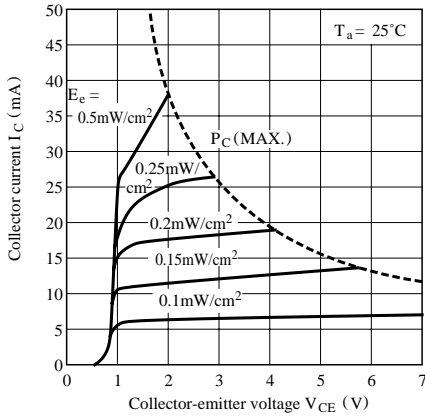


Fig. 5-b Collector Current vs. Collector-emitter Voltage (PT491F/PT493F)

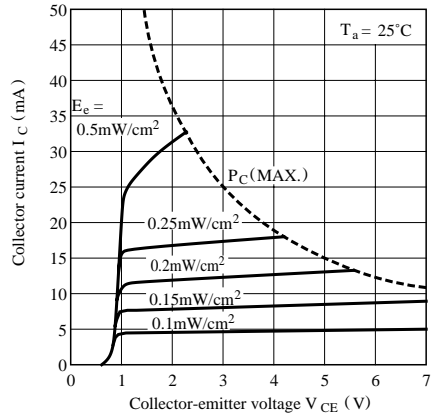


Fig. 6 Spectral Sensitivity

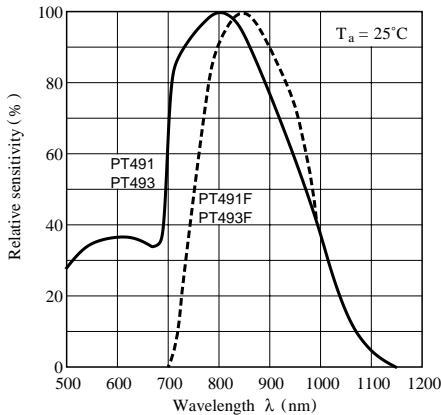
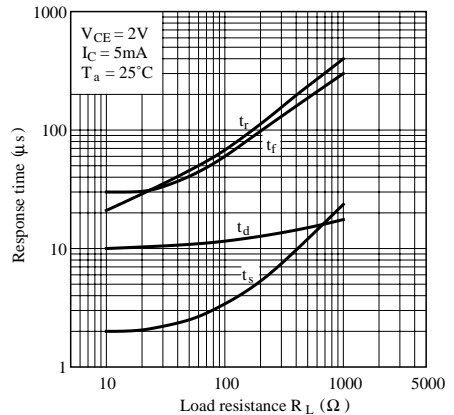


Fig. 7 Response Time vs. Load Resistance



Test Circuit for Response Time

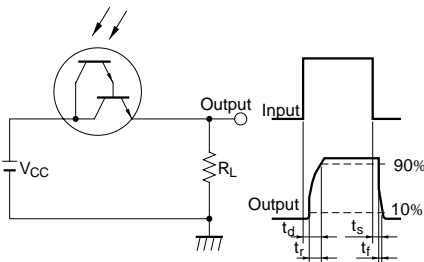


Fig. 8 Sensitivity Diagram (T_a = 25°C)

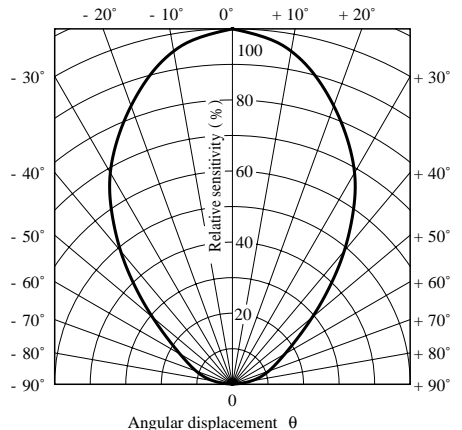


Fig. 9 Collector-emitter Saturation Voltage vs. Irradiance (PT491/PT493)

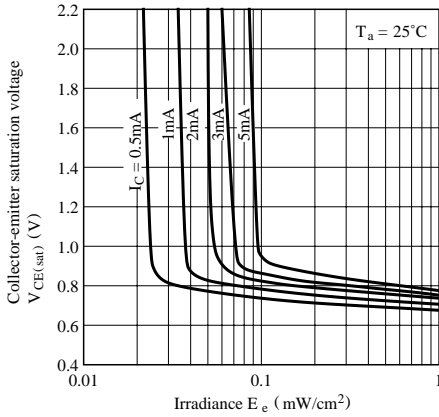
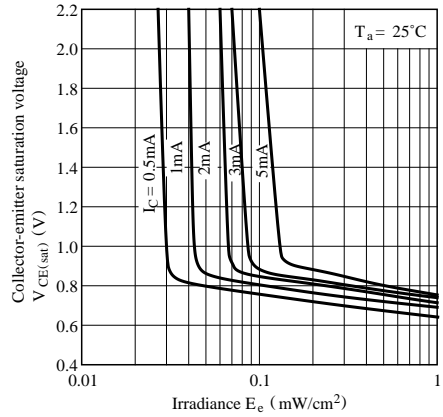


Fig.10 Collector-emitter Saturation Voltage vs. Irradiance (PT491F/PT493F)



Please refer to the chapter “Precautions for Use.”

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