

PT491/PT491F PT493/PT493F

Intermediate Acceptance High Sensitivity Phototransistor

■ Features

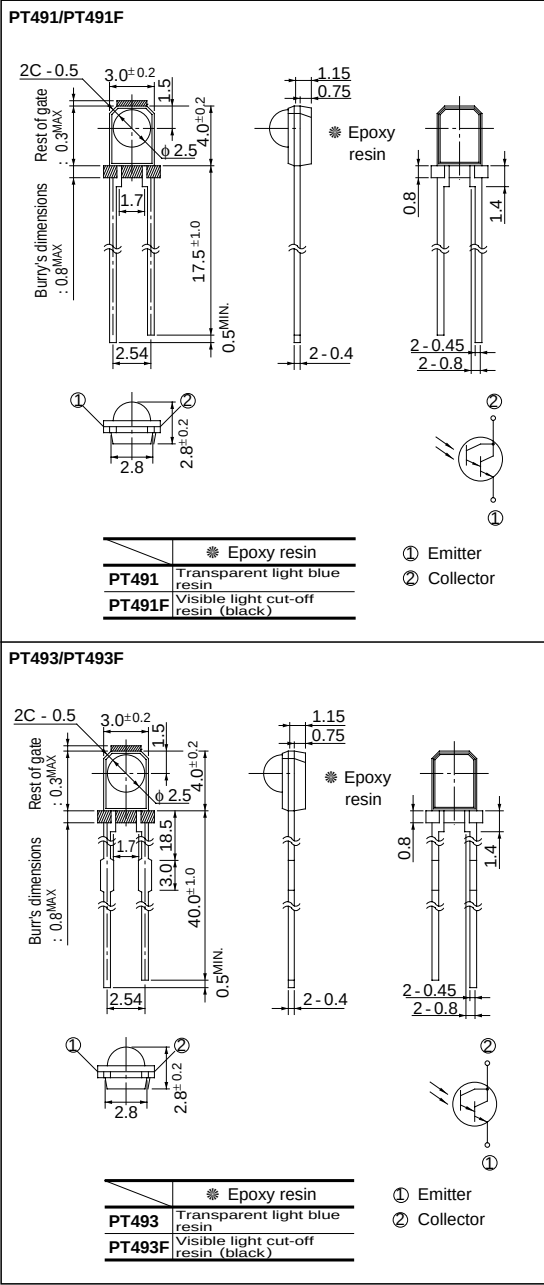
- 1. Epoxy resin package
- 2. Compact
- 3. Intermediate acceptance ($\Delta\theta$: TYP. $\pm 40^\circ$)
- 4. Long lead pin type : **PT493/PT493F**
- 5. Visible light cut-off type : **PT491F / PT493F**

■ Applications

- 1. VCRs
- 2. Optoelectronic switches

■ 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

(Ta = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*2Collector current	PT491/PT493	I _C	V _{CE} = 2V	0.3	0.6	1.3	mA
	PT491F/PT493F		E _V = 2lx	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	PT491/PT493	λ _p	-	-	800	-	nm
	PT491F/PT493F			-	860	-	nm
Response time	Rise time	t _r	V _{CE} = 2V, I _C = 5mA R _L = 100Ω	-	80	400	μs
	Fall time	t _f			70	350	
Half intensity angle		Δθ	-	-	± 40	-	°

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

Fig. 1 Collector Power Dissipation vs. Ambient Temperature

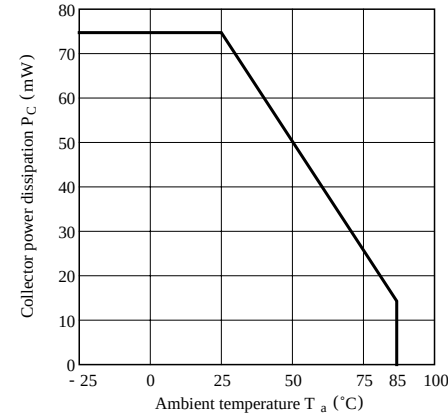


Fig. 2 Collector Dark Current vs. Ambient Temperature

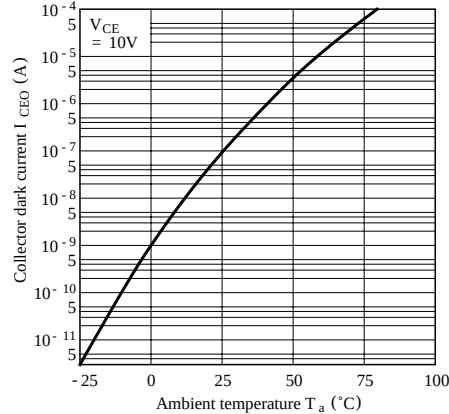


Fig. 3 Relative Collector Current vs. Ambient Temperature

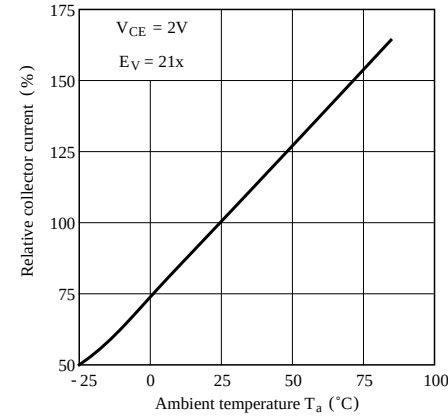


Fig. 4 Collector Current vs. Irradiance

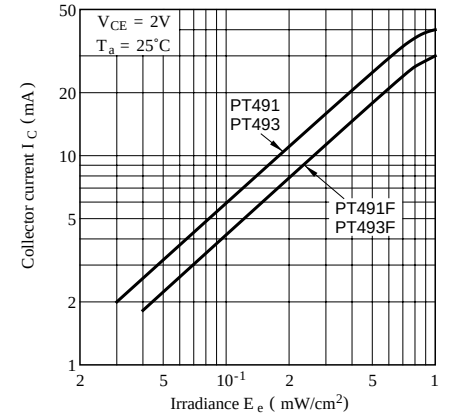


Fig. 5-a Collector Current vs. Collector-emitter Voltage (PT491/PT493)

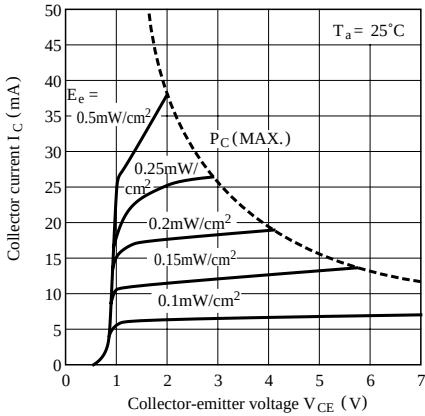


Fig. 5-b Collector Current vs. Collector-emitter Voltage (PT491F/PT493F)

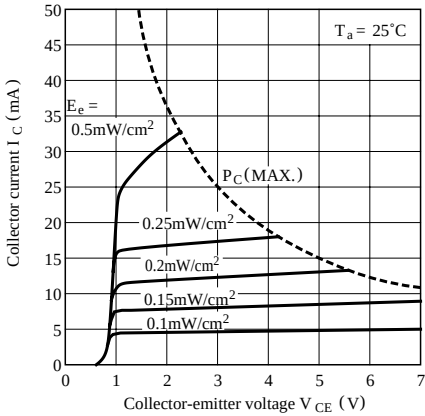


Fig. 6 Spectral Sensitivity

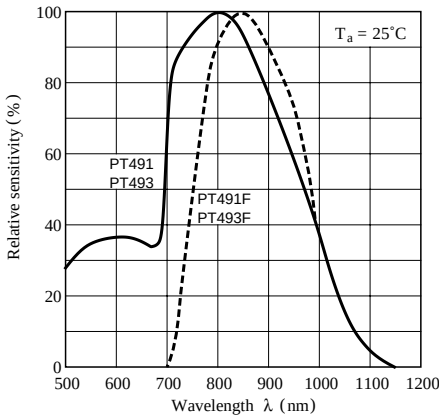
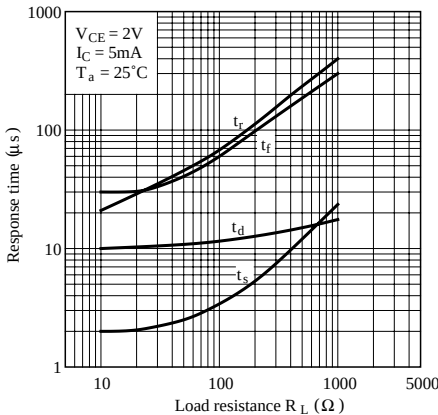


Fig. 7 Response Time vs. Load Resistance



Test Circuit for Response Time

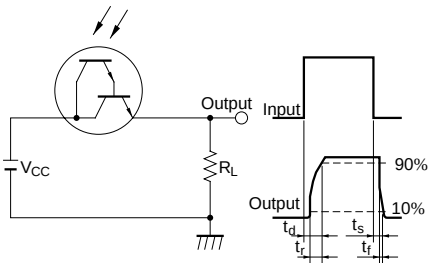


Fig. 8 Sensitivity Diagram ($T_a = 25^\circ\text{C}$)

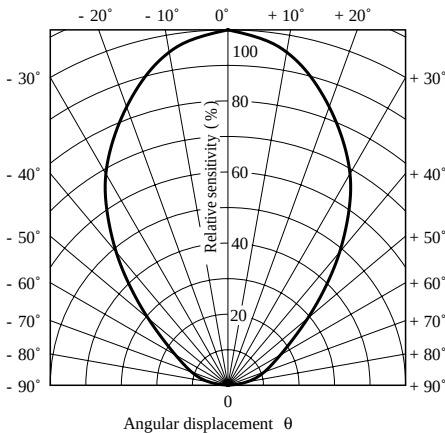


Fig. 9 Collector-emitter Saturation Voltage
vs. Irradiance (PT491/PT493)

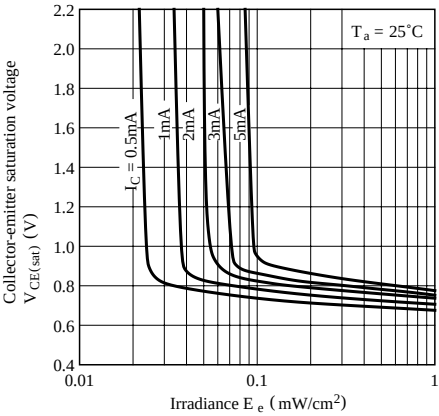
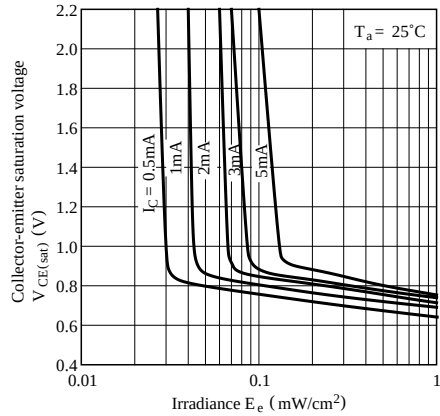


Fig.10 Collector-emitter Saturation Voltage
vs. Irradiance (PT491F/PT493F)



Please refer to the chapter “Precautions for Use.”