

# PT4800/PT4800F/PT4810 PT4810F/PT4850F

## Thin Type Phototransistor

### ■ Features

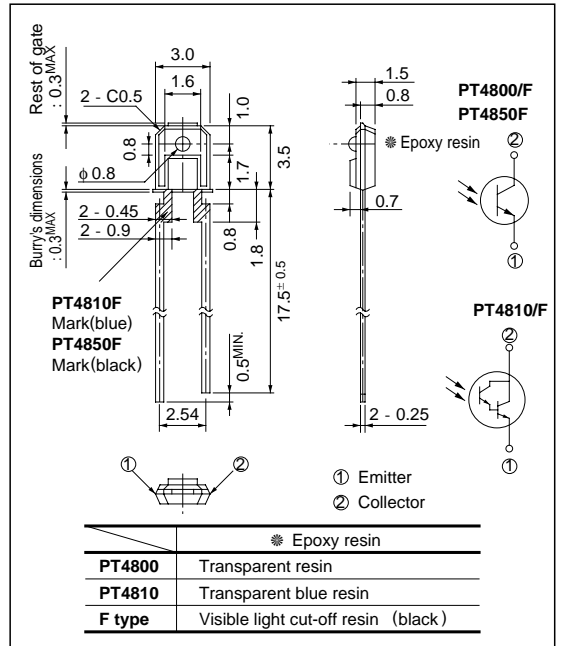
- Thin type package (Thickness : 1.5mm)
- Visible light cut-off type :  
**PT4800F/PT4810F/PT4850F**
- Single phototransistor output :  
**PT4800/PT4800F/PT4850F**  
Darlington phototransistor output:  
**PT4810/PT4810F**
- Thin type

### ■ Applications

- VCRs
- Floppy disk drives

### ■ Outline Dimensions

(Unit : mm)



### ■ Absolute Maximum Ratings

(Ta = 25°C)

Parameter	Symbol	Rating	Unit
Collector-emitter voltage	V <sub>CEO</sub>	35	V
Emitter-collector voltage	V <sub>ECO</sub>	6	V
Collector current	I <sub>C</sub>	20	mA
		50	
Collector power dissipation	P <sub>C</sub>	75	mW
Operating temperature	T <sub>opr</sub>	-25 to +85	°C
Storage temperature	T <sub>stg</sub>	-40 to +85	°C
*1 Soldering temperature	T <sub>sol</sub>	260	°C

\*1 For 3 seconds at the position of 1.8mm from the bottom face of resin package

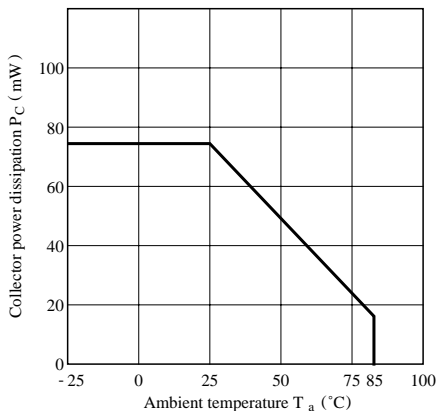
## Electro-optical Characteristics

(Ta = 25°C)

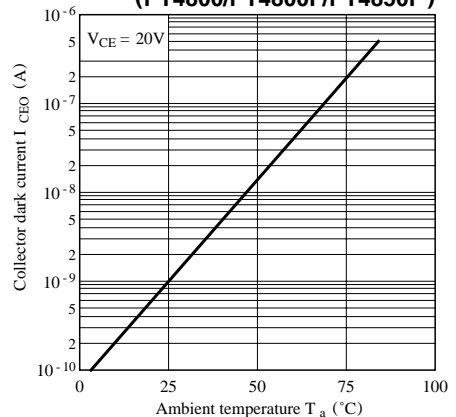
Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*2Collector current	PT4800	I <sub>C</sub>	E <sub>e</sub> = 1mW/cm <sup>2</sup> V <sub>CE</sub> = 5V	0.12	0.4	1.0	mA
	PT4800F			0.08	0.25	0.75	mA
	PT4850F			0.12	-	0.56	mA
	PT4810		E <sub>e</sub> = 0.1mW/cm <sup>2</sup> V <sub>CE</sub> = 2V	0.45	-	7.0	mA
	PT4810F			0.27	-	6.0	mA
Collector dark current	PT4800/PT4800F	I <sub>CEO</sub>	E <sub>e</sub> = 0, V <sub>CE</sub> = 20V	-	-	0.1	mA
	PT4850F		E <sub>e</sub> = 0, V <sub>CE</sub> = 10V	-	-	1.0	mA
	PT4810/PT4810F						
*2Collector-emitter saturation voltage	PT4800/PT4800F	V <sub>CE</sub> (sat)	E <sub>e</sub> = 10mW/cm <sup>2</sup> I <sub>C</sub> = 0.5mA	-	-	0.4	V
	PT4850F		E <sub>e</sub> = 1mW/cm <sup>2</sup> I <sub>C</sub> = 2.5mA	-	-	1.0	V
	PT4810/PT4810F						
Collector-emitter breakdown voltage		BV <sub>CEO</sub>	I <sub>C</sub> = 0.1mA E <sub>e</sub> = 0	35	-	-	V
Emitter-collector breakdown voltage		BV <sub>ECO</sub>	I <sub>E</sub> = 0.01mA E <sub>e</sub> = 0	6	-	-	V
Peak sensitivity wavelength	PT4800	λ <sub>p</sub>	-	-	800	-	nm
	PT4800F			-	860	-	nm
	PT4850F			-	860	-	nm
	PT4810			-	800	-	nm
	PT4810F			-	860	-	nm
Response time	Rise time	PT4800/PT4800F	V <sub>CE</sub> = 2V, I <sub>C</sub> = 2mA R <sub>L</sub> = 100Ω	-	3.0	-	μs
		PT4850F					
	Fall time	PT4810/PT4810F	V <sub>CE</sub> = 2V I <sub>C</sub> = 10mA R <sub>L</sub> = 100Ω	-	80	400	μs
		PT4800/PT4800F					
Fall time	PT4850F	V <sub>CE</sub> = 2V, I <sub>C</sub> = 2mA R <sub>L</sub> = 100Ω	-	3.5	-	μs	
	PT4810/PT4810F						V <sub>CE</sub> = 2V I <sub>C</sub> = 10mA R <sub>L</sub> = 100Ω
Half intensity angle		Δθ	-	-	± 35	-	°

\*2 E<sub>e</sub> : Irradiance by CIE standard light source A (tungsten lamp)

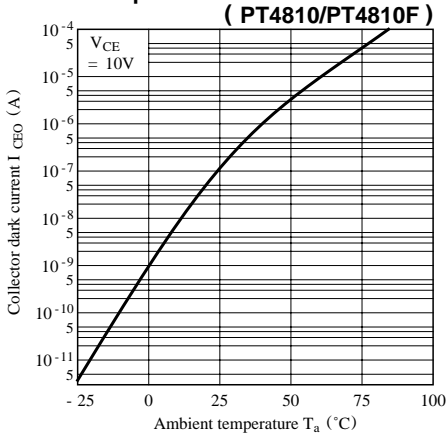
### Fig. 1 Collector Power Dissipation vs. Ambient Temperature



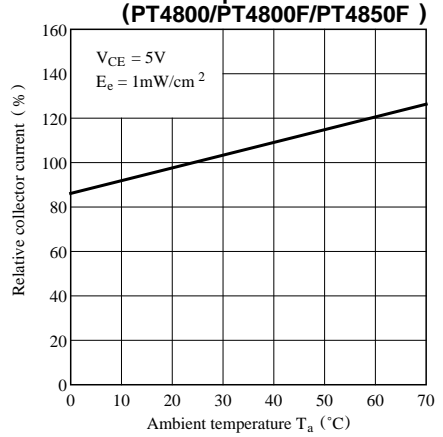
### Fig. 2-a Collector Dark Current vs. Ambient Temperature (PT4800/PT4800F/PT4850F)



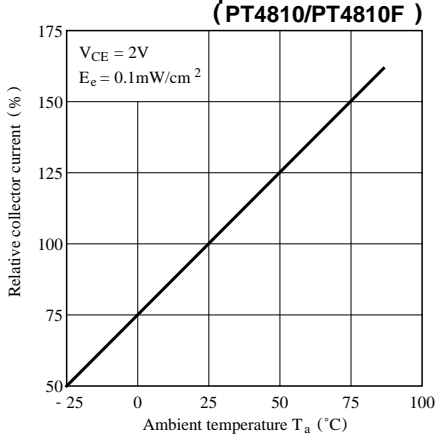
**Fig. 2-b Collector Dark Current vs. Ambient Temperature**



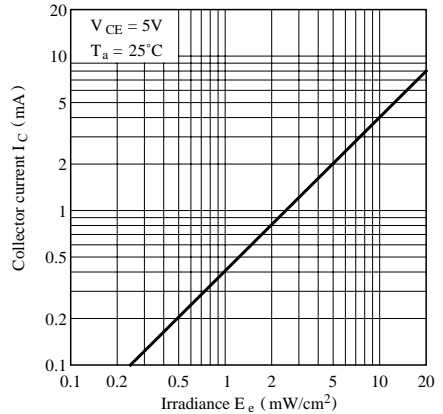
**Fig. 3-a Relative Collector Current vs. Ambient Temperature**



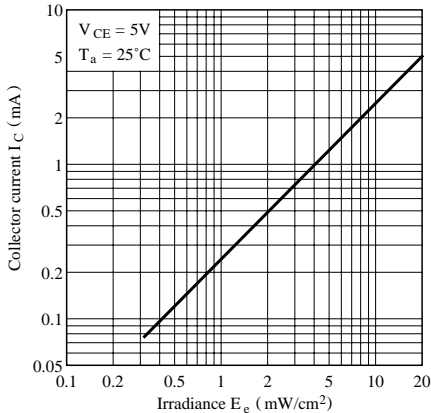
**Fig. 3-b Relative Collector Current vs. Ambient Temperature**



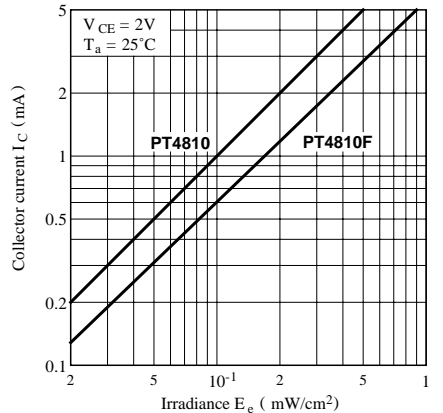
**Fig. 4-a Collector Current vs. Irradiance**



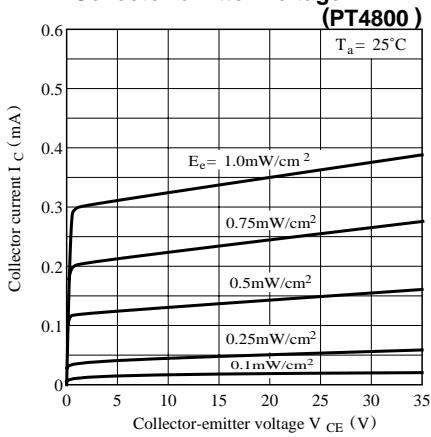
**Fig. 4-b Collector Current vs. Irradiance**



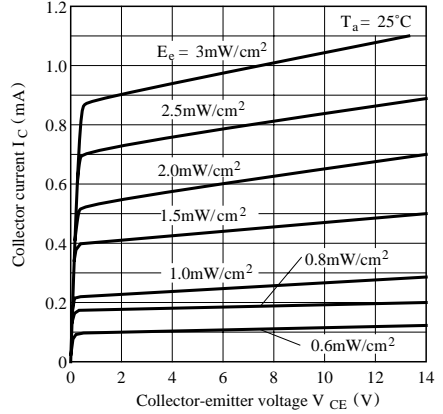
**Fig. 4-c Collector Current vs. Irradiance**



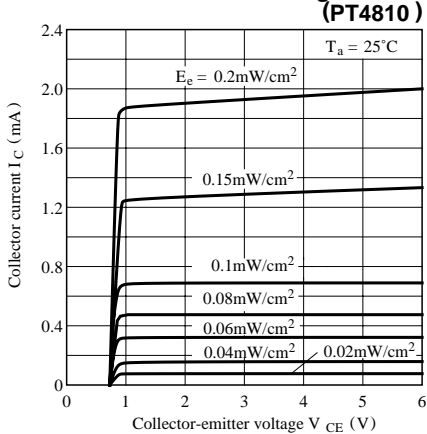
**Fig. 5-a Collector Current vs. Collector-emitter Voltage**



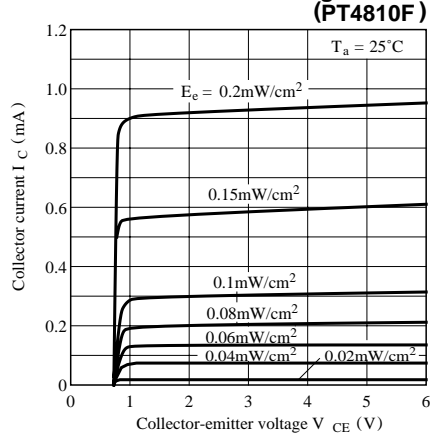
**Fig. 5-b Collector Current vs. Collector-emitter Voltage**



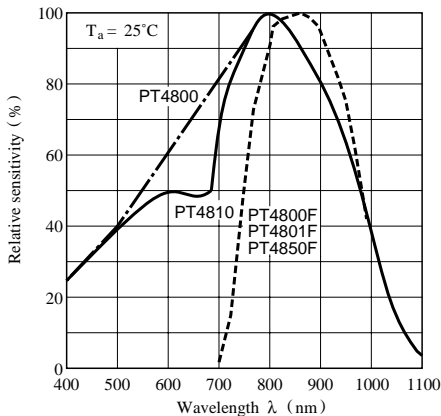
**Fig. 5-c Collector Current vs. Collector-emitter Voltage**



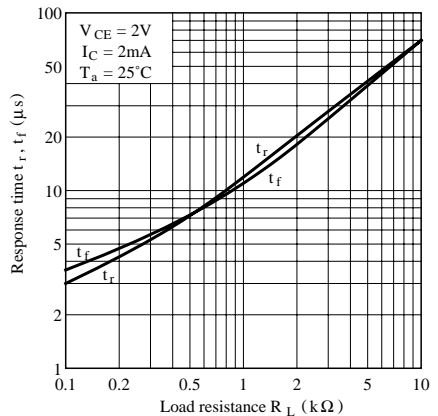
**Fig. 5-d Collector Current vs. Collector-emitter Voltage**



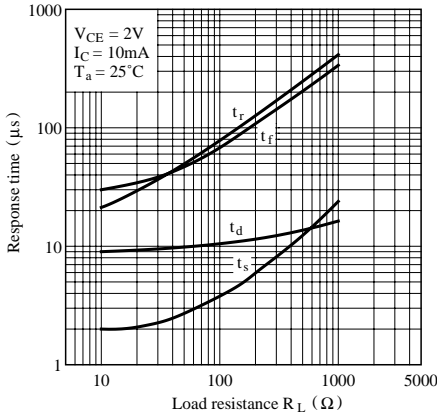
**Fig. 6 Spectral Sensitivity**



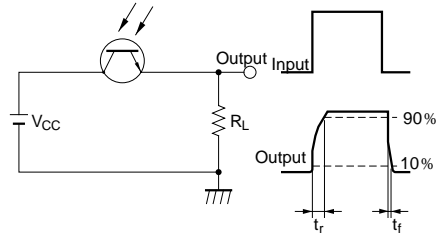
**Fig. 7-a Response Time vs. Load Resistance**



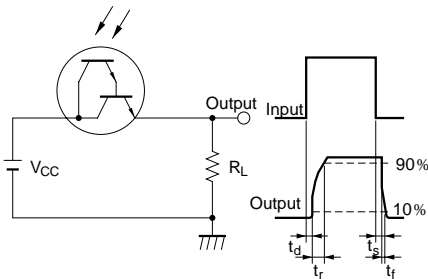
**Fig. 7-b Response Time vs. Load Resistance (PT4810/ PT4810F)**



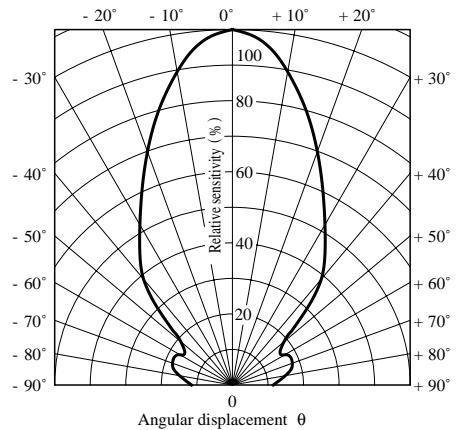
**Test Circuit for Response Time (PT4800/ PT4800F/ PT4850F)**



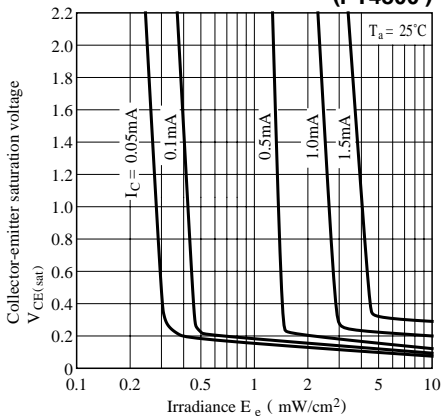
**Test Circuit for Response Time (PT4810/ PT4810F)**



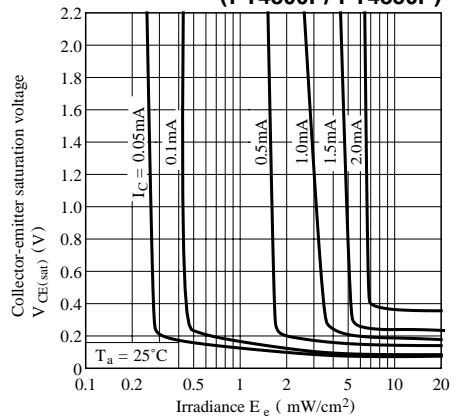
**Fig. 8 Sensitivity Diagram ( $T_a = 25^\circ\text{C}$ )**



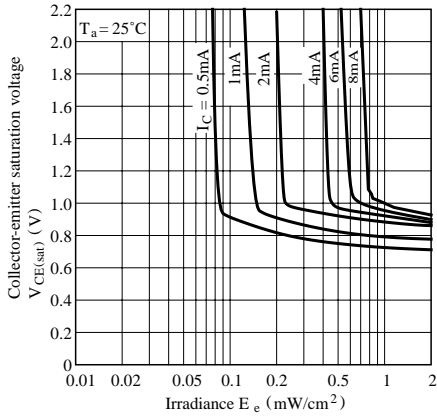
**Fig. 9-a Collector-emitter Saturation Voltage vs. Irradiance (PT4800)**



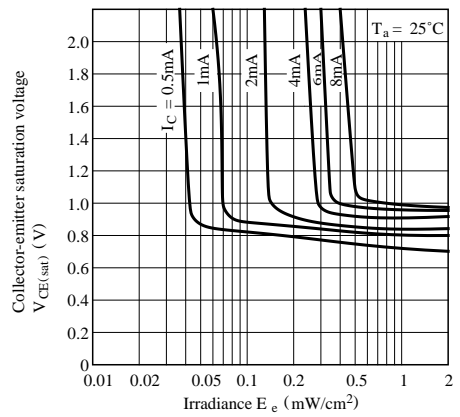
**Fig. 9-b Collector-emitter Saturation Voltage vs. Irradiance (PT4800F/ PT4850F)**



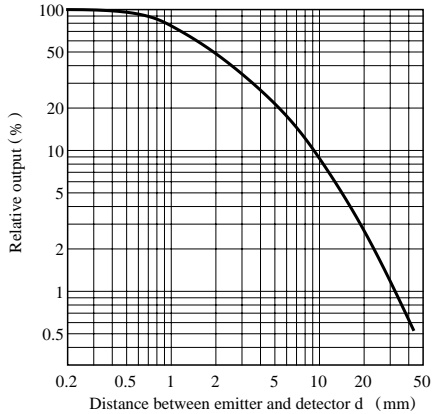
**Fig. 9-c Collector-emitter Saturation Voltage vs. Irradiance (PT4810)**



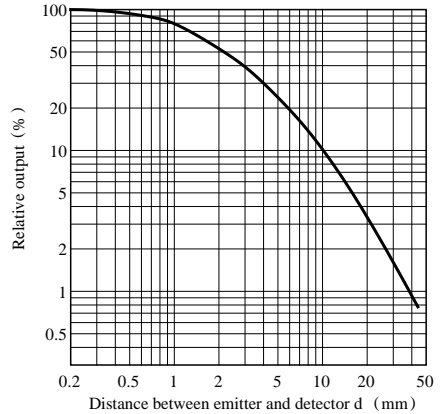
**Fig.9-d Collector-emitter Saturation Voltage vs. Irradiance (PT4810F)**



**Fig.10-a Relative Output vs. Distance (PT4800F) (Emitter : GL4800)**



**Fig.10-b Relative Output vs. Distance (PT4810F) (Emitter : GL4800)**



● Please refer to the chapter “Precautions for Use”