

# m4800/n4800F/m4810 PT4810F/PT4850F

## Thin Type Phototransistor

### ■ Features

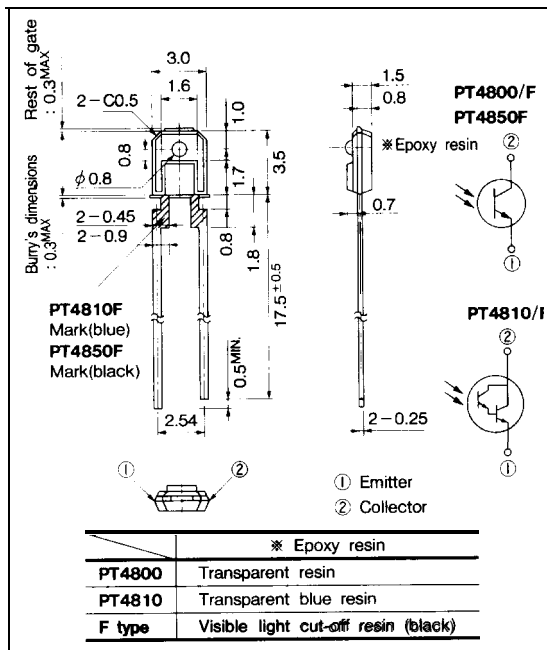
- Thin type package (Thickness :1.5mm)
- Visible light cut-off type :  
PT4800F/PT4810 OF/PT4850F
- Single phototransistor output :  
PT4800/PT4800F/PT4850F  
Darlington phototransistor output :  
PT4810/PT4810F
- Thin type

### ■ Applications

- VCRs
- Floppy disk drives

### ■ Outline Dimensions

(Unit : mm)



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Phototransistors

### ■ 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 <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
*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

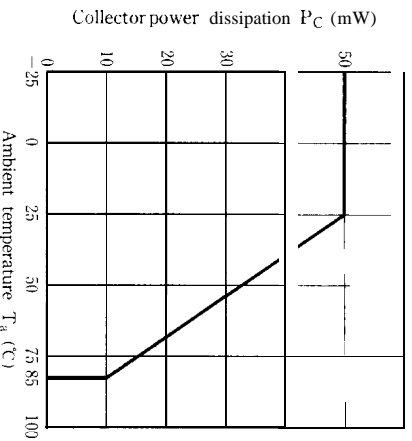
## ■ Electro-optical Characteristics

(T<sub>a</sub> = 25°C)

Characteristics	Symbol	Unit	PT4800	PT4800F	PT4810	PT4810F	PT4850F
*%Collector current	I <sub>c</sub>	E <sub>c</sub> = 1mW/cm <sup>2</sup>	0.12	0.4	1.0	1.0	1.0
		V <sub>CE</sub> = 5V	0.08	0.25	0.75	0.75	0.75
		E <sub>c</sub> = 0.1mW/cm <sup>2</sup>	0.12	—	0.56	0.56	0.56
		V <sub>CE</sub> = 9V	0.45	—	7.0	7.0	7.0
Collector dark current	I <sub>CEO</sub>	μA	—	—	—	—	
**Collector-emitter voltage	V <sub>CE</sub> (sat)	E <sub>c</sub> = 0, V <sub>CE</sub> = 20V	—	—	—	—	0.1
		I <sub>B</sub> = 0, V <sub>CE</sub> = 10V	—	—	—	—	1.0
		E <sub>c</sub> = 10mW/cm <sup>2</sup> I <sub>B</sub> = 0.5mA	—	—	—	—	0.4
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	E <sub>c</sub> = 0.1mW/cm <sup>2</sup> I <sub>B</sub> = 0	—	—	—	—	1.0
		I <sub>C</sub> = 0.1mA	—	—	—	—	1.0
Emitter-collector breakdown voltage	BV <sub>ECO</sub>	E <sub>c</sub> = 0.1mW/cm <sup>2</sup> I <sub>B</sub> = 0	—	—	—	—	—
		I <sub>C</sub> = 0.1mA	—	—	—	—	—
Peak sensitivity wavelength	λ <sub>p</sub>	PT4800	—	800	—	—	—
		PT4800F	—	860	—	—	—
		PT4850F	—	860	—	—	—
		PT4810	—	800	—	—	—
		PT4810F	—	860	—	—	—
Response time	t <sub>r</sub>	PT4800/PT4800F	—	—	80	—	400
		PT4850F	—	—	3.5	—	—
		PT4810/PT4810F	—	—	70	—	350
Half intensity angle	Δθ	PT4800/PT4800F	—	—	—	—	—
		PT4850F	—	—	—	—	—
		PT4810/PT4810F	—	—	—	—	—

\*2 E<sub>c</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)**

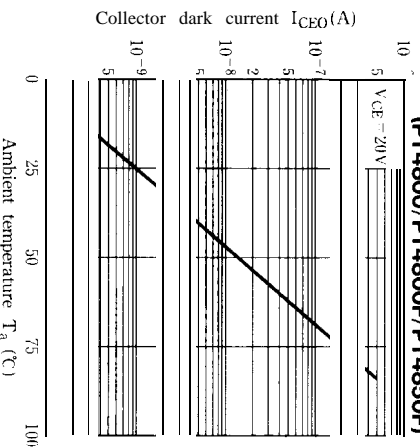


Fig. 2-b Collector Dark Current vs. Ambient Temperature

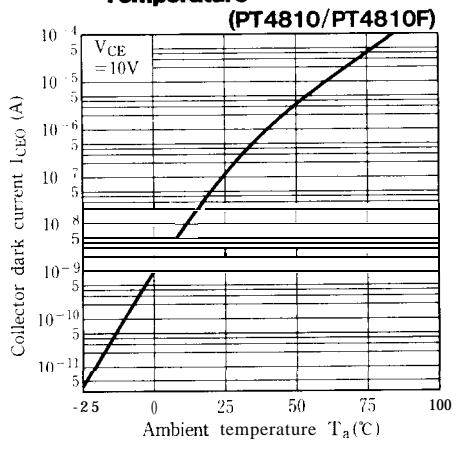


Fig. 3-a Relative Collector Current vs. Ambient Temperature

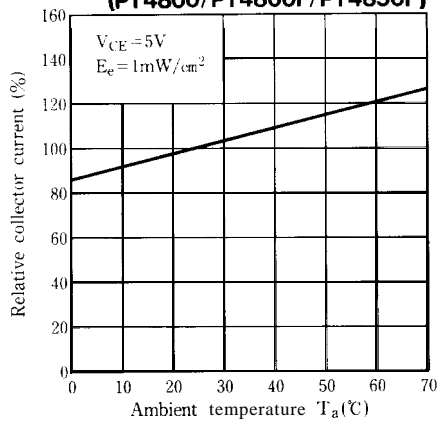


Fig. 3-b Relative Collector Current vs. Ambient Temperature

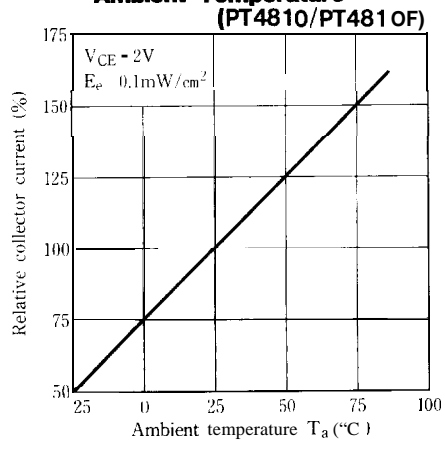


Fig. 4-a Collector Current vs. Irradiance

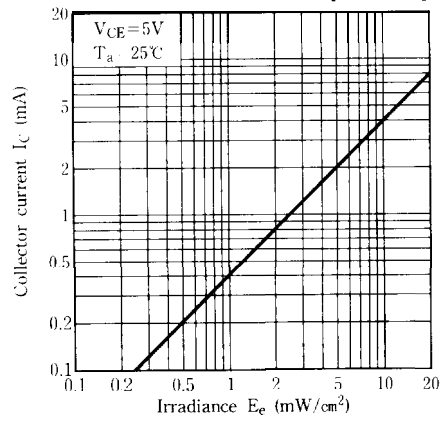


Fig. 4-b Collector Current vs. Irradiance

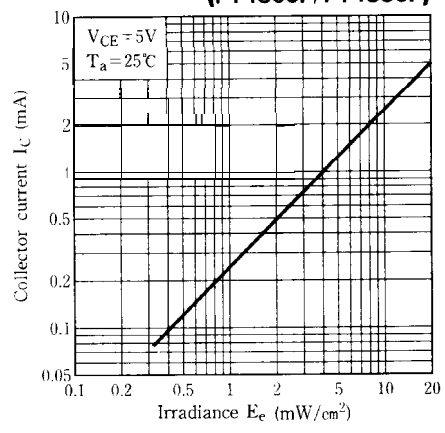
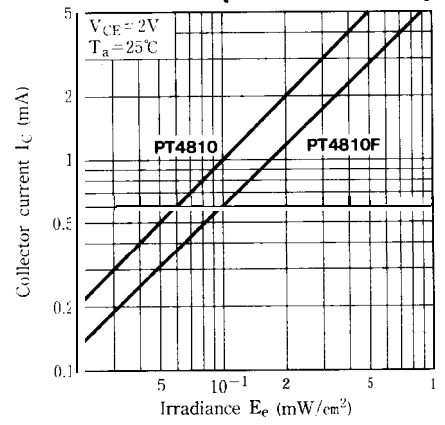


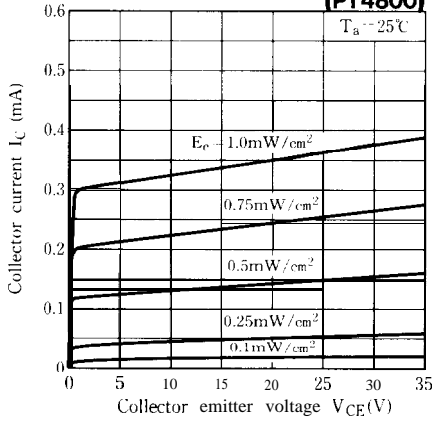
Fig. 4-c Collector Current vs. Irradiance



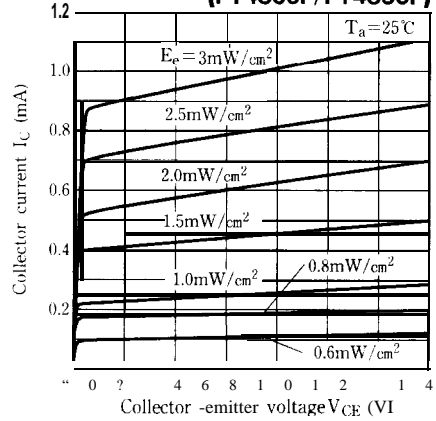
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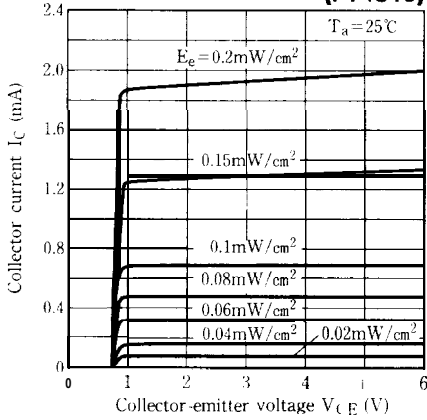
**Fig. 5-a Collector Current vs. Collector-emitter Voltage (PT4800)**



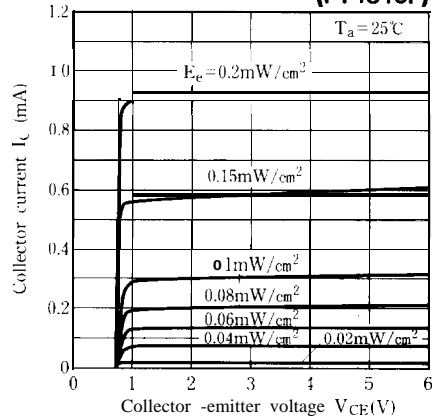
**Fig. 5-b Collector Current vs. Collector-emitter Voltage (PT4800F/PT4850F)**



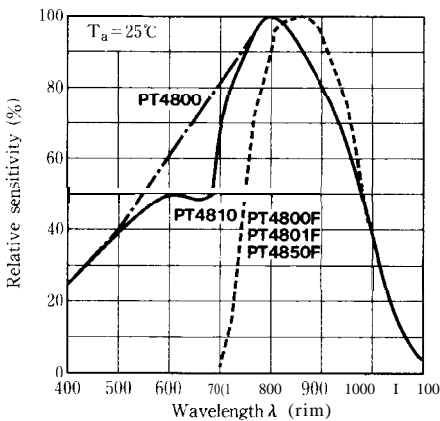
**Fig. 5-c Collector Current vs. Collector-emitter Voltage (PT4810)**



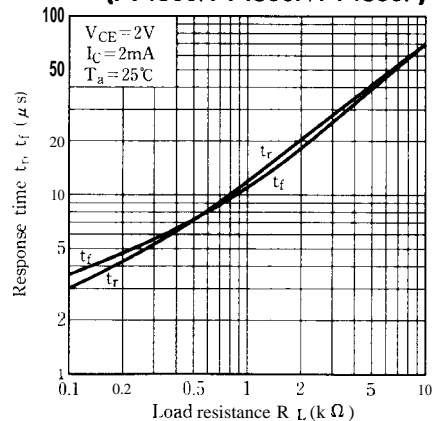
**Fig. 5-d Collector Current vs. Collector-emitter Voltage (PT4810F)**



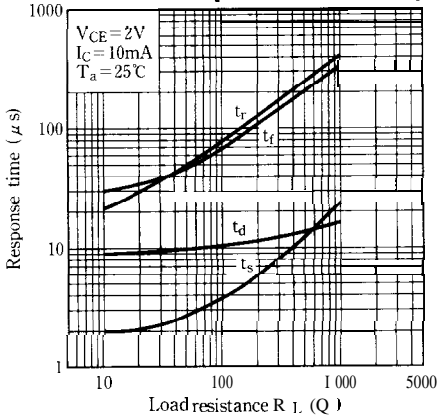
**Fig. 6 Spectral Sensitivity**



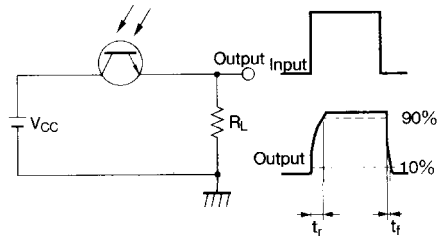
**Fig. 7-a Response Time vs. Load Resistance (PT4800/PT4800F/PT4850F)**



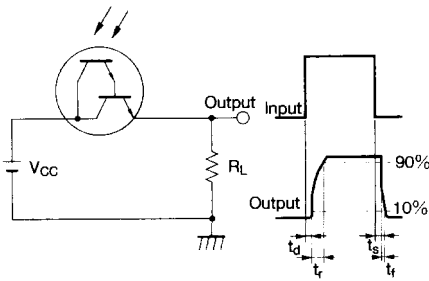
**Fig. 7-b Response Time vs. Load Resistance (PT4810/PT4810F)**



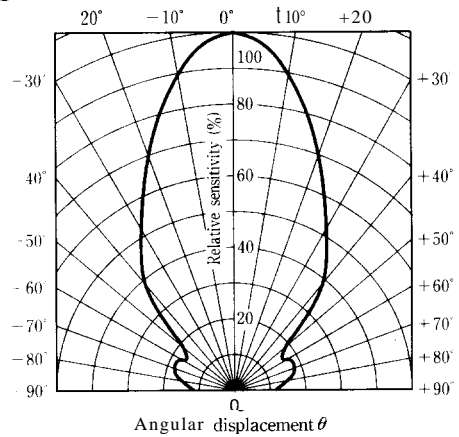
**Test Circuit for Response Time (PT4800/PT4800F/PT4850F)**



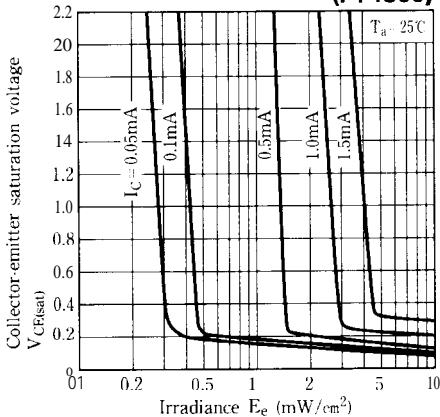
**Test Circuit for Response Time (PT4810/PT4810F)**



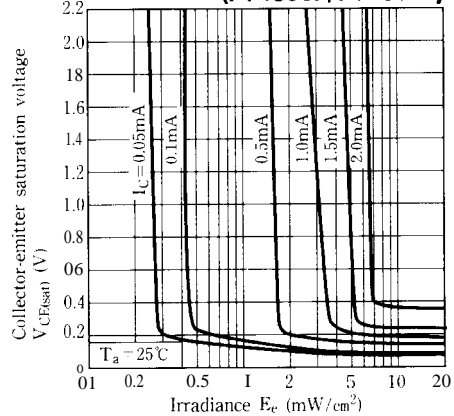
**Fig. 8 Sensitivity diagram ( $T_a = 25^\circ C$ )**



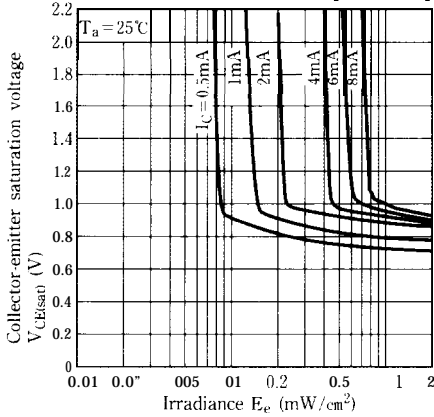
**Fig. 9-a Collector-emitter Saturation voltage vs. Irradiance (PT4800)**



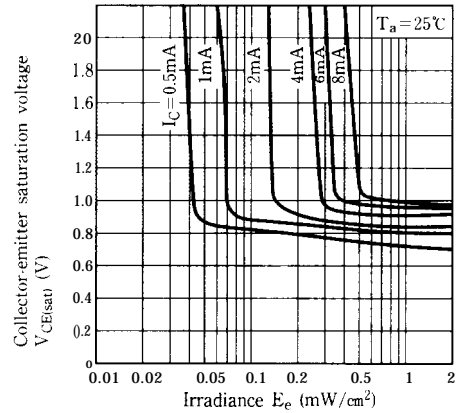
**Fig. 9-b Collector-emitter Saturation Voltage vs. Irradiance (PT4800F/PT4850F)**



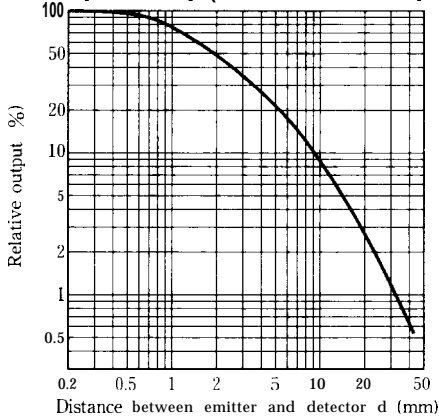
**Fig. 9-c Collector-emitter Saturation Voltage vs. Irradiance (PT4810)**



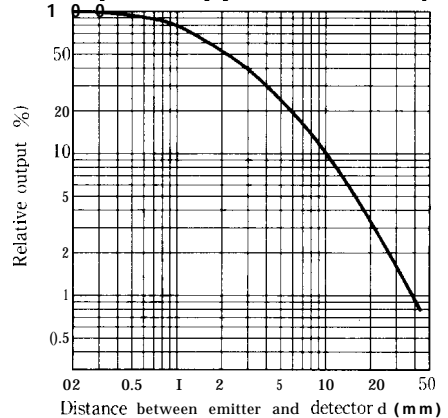
**Fig.9-d Collector-emitter Saturation Voltage vs. Irradiance (PT4810F)**



**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” (Page 78 to 93)