

# PT480/PT480F

## Narrow Acceptance Phototransistor

### ■ Features

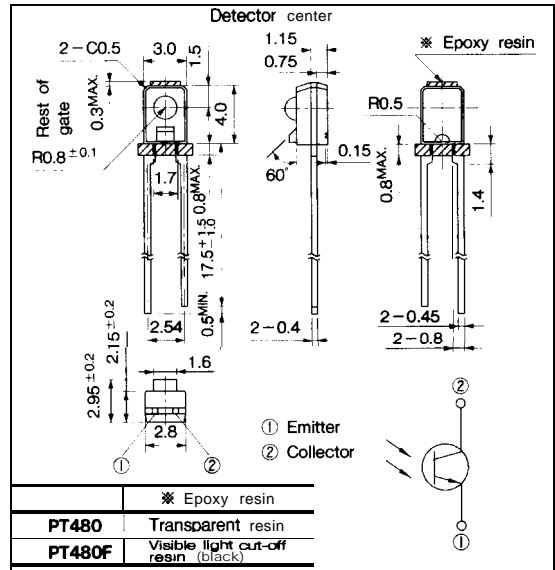
1. Epoxy resin package
2. Narrow acceptance ( $\Delta\theta$ : TYP.  $\pm 13^\circ$ )
3. Visible light cut-off type :PT480F

### ■ Applications

1. VCRs, cassette tape recorders
2. Floppy disk drives
3. Optoelectronic switches
4. Automatic stroboscopes

### ■ 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           | $I_C$     | 20         | 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 5 wends at the position of 1.4mm from the bottom face of resin package

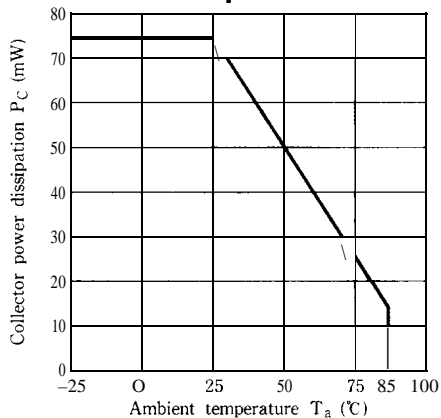
### ■ Electro-optical Characteristics

(Ta= 25°C)

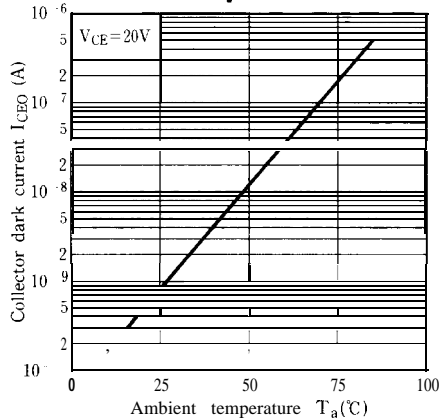
| Parameter                              | Symbol        | Conditions                 | MIN. | TYP.      | MAX.      | Unit    |
|--|---------------|----------------------------|------|-----------|-----------|---------|
| *Collector current                     | PT480         | $V_{CE}=5V$                | 0.4  | 1.7       | 6.0       | mA      |
|  | PT480F        | $E_e=1mW/cm^2$             | 0.25 | 0.8       | 3.0       | mA      |
| Collector dark current                 | $I_{CEO}$     | $V_{CE}=20V, E_e=0$        | —    | $10^{-9}$ | $10^{-7}$ | A       |
| *2Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=0.5mA, E_e=10mW/cm^2$ | —    | 0.1       | 0.4       | v       |
| Peak sensitivity wavelength            | PT480         | $\lambda_P$                | —    | 800       | —         | nm      |
|  | PT480F        |                            | —    | 860       | —         | nm      |
| Response time                          | Rise time     | $t_r$                      | —    | 3         | —         | $\mu s$ |
|  | Fall time     | $t_f$                      | —    | 3.5       | —         | $\mu s$ |

\*2  $E_e$ : Irradiance by CIE standard light source A (tungsten lamp)

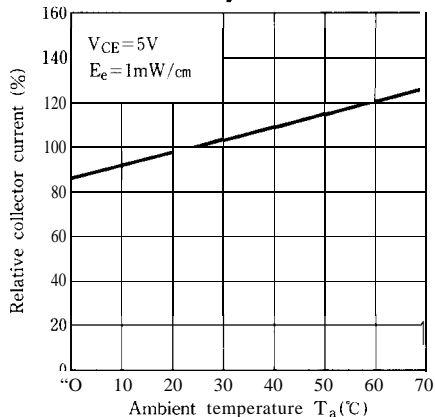
**Fig. 1 Collector Power Dissipation vs. Ambient Temperature**



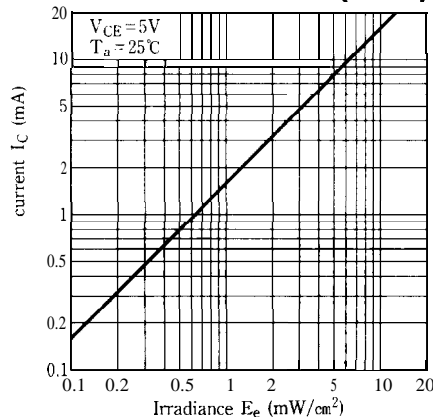
**Fig. 2 Collector Dark Current vs. Ambient Temperature**



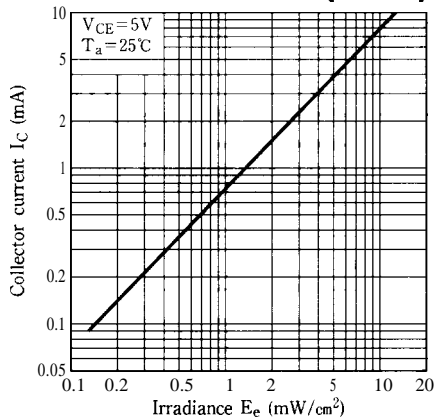
**Fig. 3 Relative Collector Current vs. Ambient Temperature**



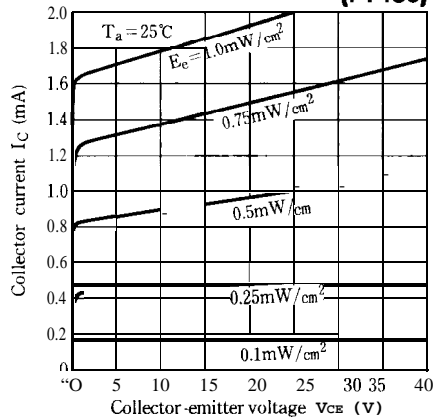
**Fig.4-a Collector Current vs. Irradiance (PT480)**



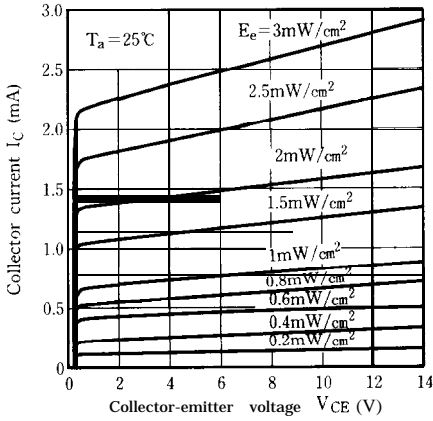
**Fig.4-b Collector Current vs. Irradiance (PT480F)**



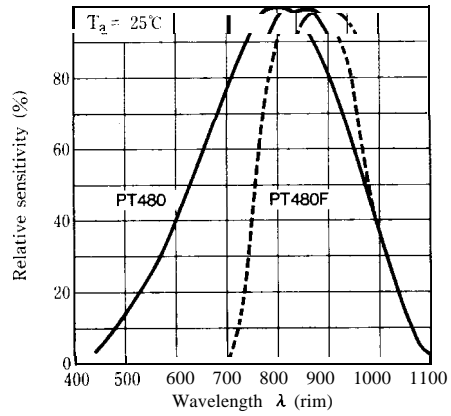
**Fig.5-a Collector Current vs. Collector-emitter Voltage (PT480)**



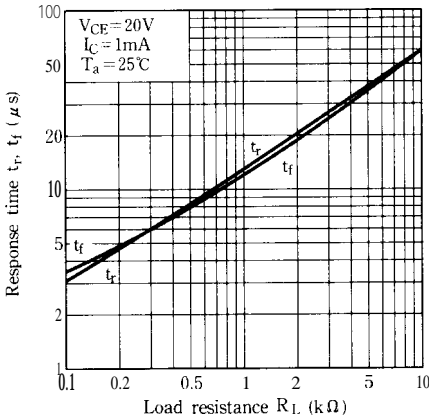
**Fig.5-b Collector Current vs. Collector-emitter Voltage (PT480F)**



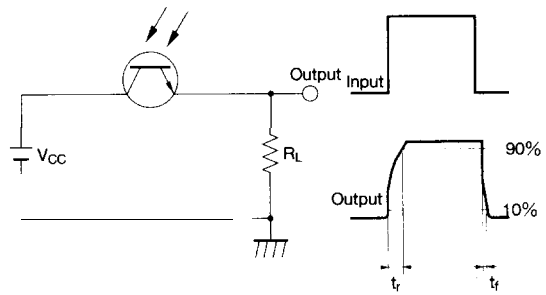
**Fig. 6 Spectral Sensitivity**



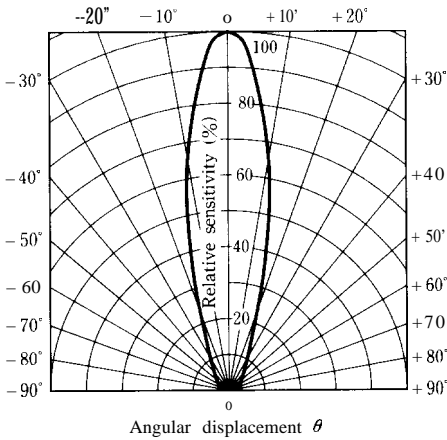
**Fig. 7 Response Time vs. Load Resistance**



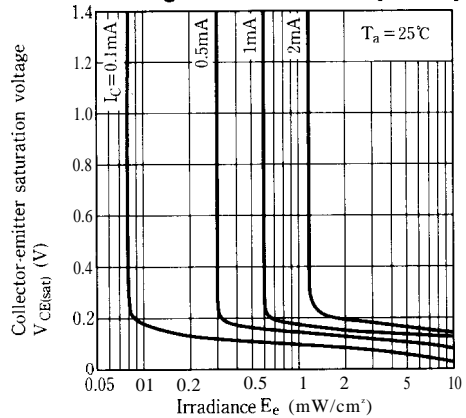
**Test Circuit for Response Time**



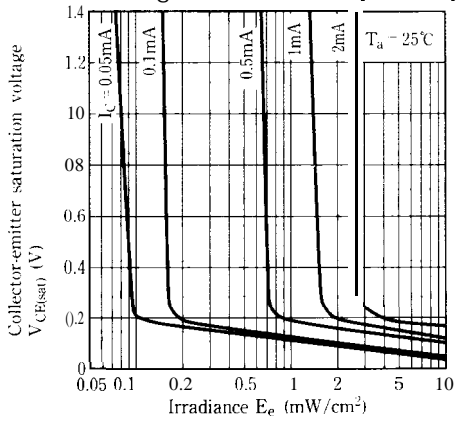
**Fig. 8 Sensitivity Diagram (T<sub>a</sub> = 25°C)**



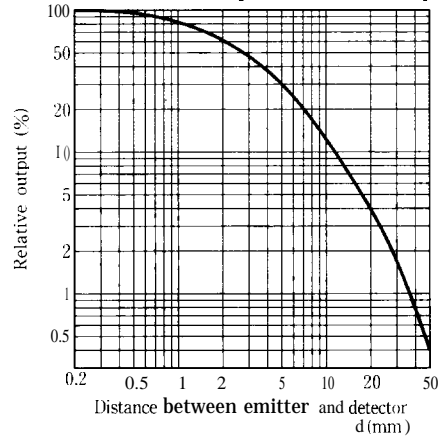
**Fig.9-a Collector-emitter Saturation Voltage vs. Irradiance (PT480)**



**Fig.9-b Collector-emitter Saturation**  
Voltage ve. Irradiance (PT480F)



**Fig.10 Relative Output vs. Distance**  
(Emitter : GL480)



● Please refer to the chapter “Precautions for Use.” (Page 78 to 93)