# PT481/PT481F/ PT483F1

## Narrow Acceptance High Sensitivity Phototransistor

### ■ Features

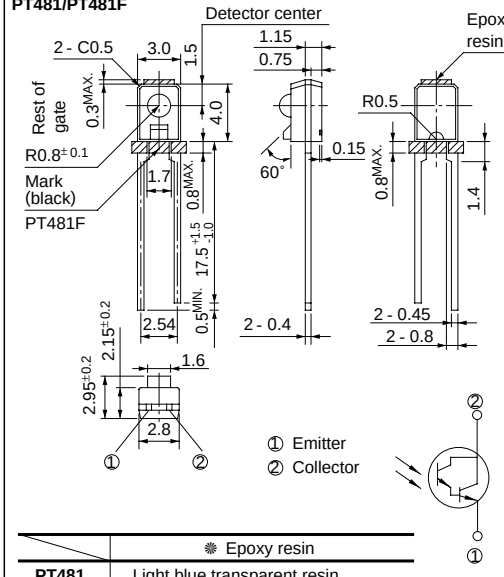
1. Epoxy resin package
2. Narrow acceptance (Δθ : Typ. ± 13˚)
3. High sensitivity
   ($I_C$ : MIN. 1.5mA at $E_e$ = 0.1mW/cm$^2$) : **PT481/PT483F1**
   ($I_C$ : MIN. 0.9mA at $E_e$ = 0.1mW/cm$^2$) : **PT481F**
4. Visible light cut-off type : **PT481F/PT483F1**
5. Long lead pin type : **PT483F1**

### ■ Applications

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

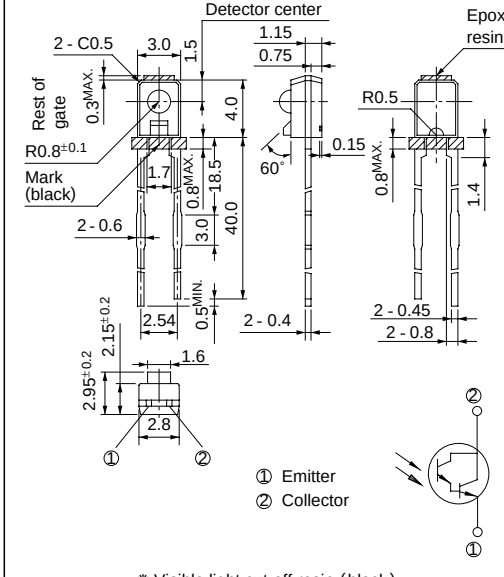
### ■ Outline Dimensions (Unit : mm)

**PT481/PT481F**




| | ✵ Epoxy resin |
|---|---|
| **PT481** | Light blue transparent resin |
| **PT481F** | Visible light cut-off resin (black) |

**PT483F1**




✵ Visible light cut-off resin (black)

### ■ 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 |
| *1Soldering temperature | $T_{sol}$ | 260 | ˚C |

*1 For 3 seconds 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 |
|---|---|---|---|---|---|---|---|
| *2 Collector current | **PT481** | $I_C$ | $V_{CE}$ = 2V, $E_e$ = 0.1mW/cm² | 1.5 | 10 | 25 | mA |
| | **PT481F** | | | 0.9 | - | 27 | mA |
| | **PT483F1** | | | 1.5 | - | 4.0 | mA |
| Collector dark current | | $I_{CEO}$ | $V_{CE}$ = 10V, $E_e$ = 0 | - | - | $10^{-6}$ | A |
| *2 Collector-emitter saturation voltage | | $V_{CE(sat)}$ | $I_c$ = 2.5mA, $E_e$ = 1mW/cm² | - | 0.7 | 1.0 | V |
| Peak emission wavelength | **PT481** | $\lambda_p$ | - | - | 800 | - | nm |
| | **PT481F/PT483F1** | | | - | 860 | - | nm |
| Response time | Rise time | $t_r$ | $V_{CE}$ = 2V, $I_C$ = 10mA, $R_L$ = 100Ω | - | 80 | - | μs |
| | Fall time | $t_f$ | | - | 70 | - | μs |

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

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

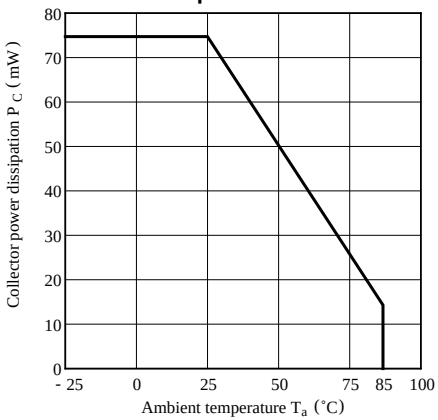



**Fig. 2 Collector Dark Current vs. Ambient Temperature**

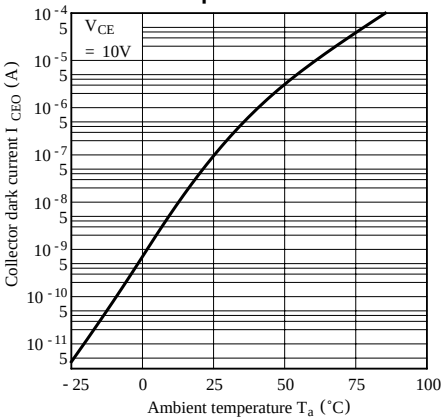



**Fig. 3 Relative Collector Current vs. Ambient Temperature**

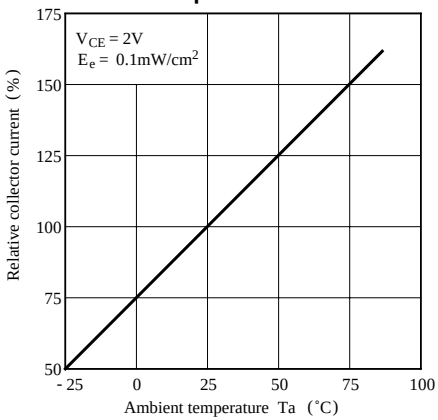
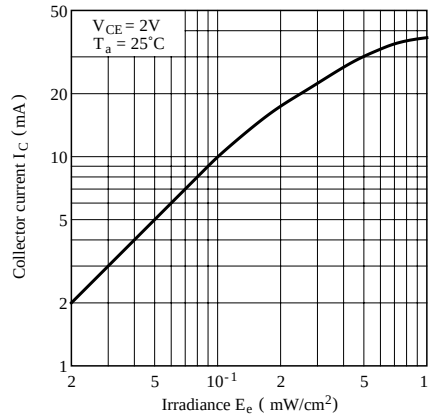
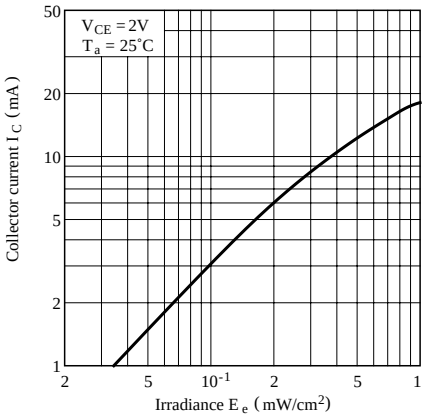


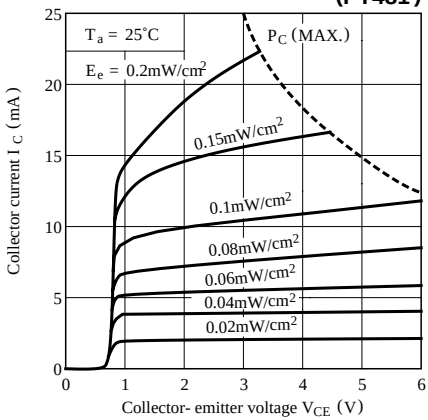

**Fig.4-a Collector Current vs. Irradiance (PT481)**



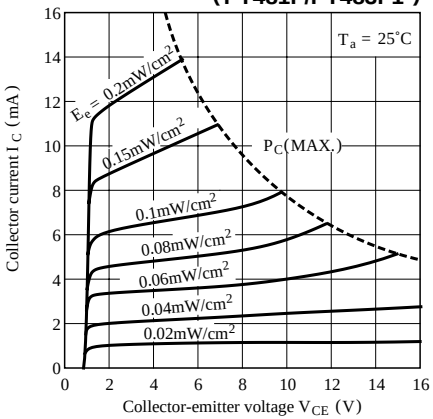
### Fig.4-b Collector Current vs. Irradiance (PT481F/PT483F1)



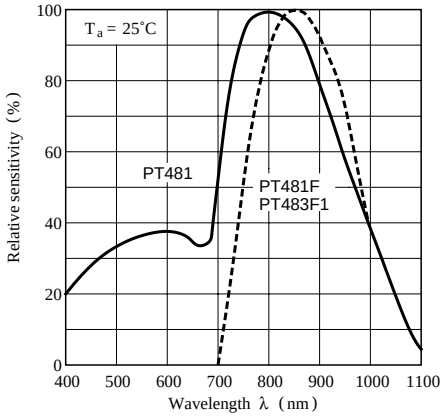

### Fig.5-a Collector Current vs. Collector-emitter Voltage (PT481)



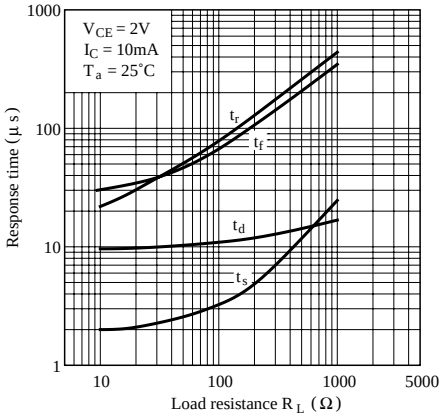

### Fig.5-b Collector Current vs. Collector-emitter Voltage (PT481F/PT483F1)




### Fig. 6 Spectral Sensitivity




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




### Test Circuit for Response Time

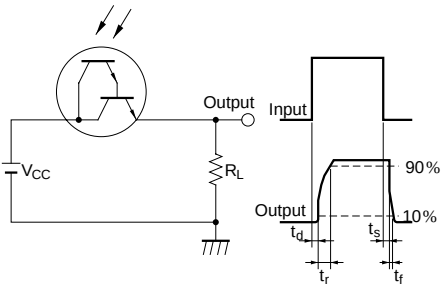


**Fig. 8 Sensitivity Diagram**

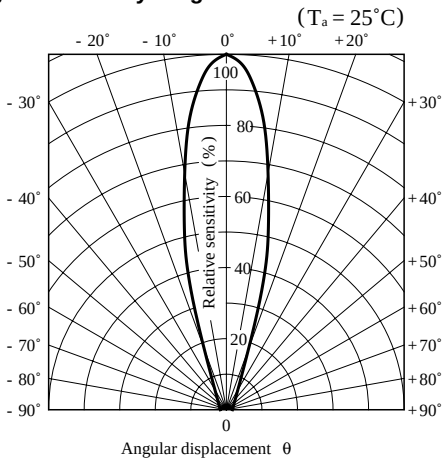



**Fig.9-a Collector-emitter Saturation Voltage vs. Irradiance (PT481)**

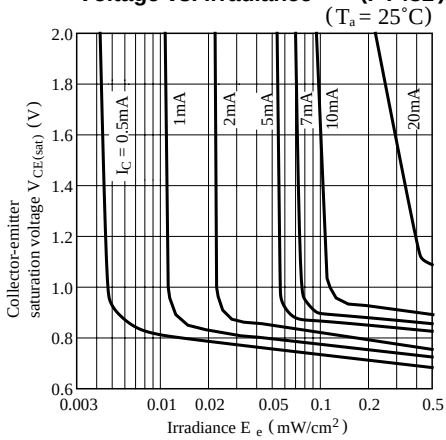



**Fig.9-b Collector-emitter Saturation Voltage vs. Irradiance (PT481F/PT483F1)**

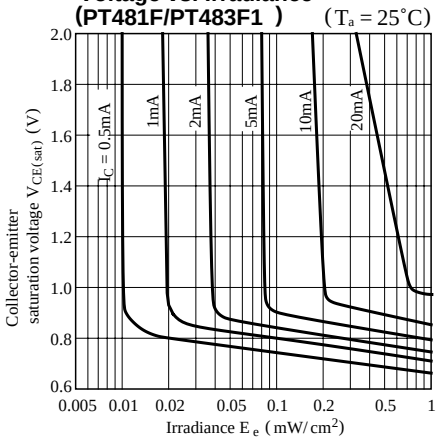
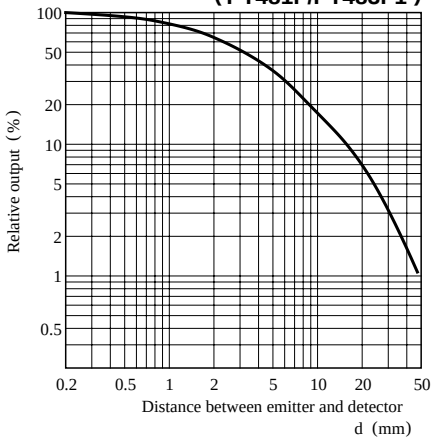



**Fig.10 Relative Output vs. Distance (Emitter : GL480) (PT481F/PT483F1)**




● Please refer to the chapter " Precautions for Use."

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