

PT4800F Datasheet



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| | |
|------------------------------|---|
| DiGi Electronics Part Number | PT4800F-DG |
| Manufacturer | Sharp Microelectronics |
| Manufacturer Product Number | PT4800F |
| Description | SENSOR PHOTO 860NM SIDE VIEW RAD |
| Detailed Description | Phototransistors 860nm Side View Radial |

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Purchase and inquiry

Manufacturer Product Number:

PT4800F

Series:

-

Voltage - Collector Emitter Breakdown (Max):

35 V

Current - Dark (I_d) (Max):

100 nA

Viewing Angle:

70°

Mounting Type:

Through Hole

Operating Temperature:

-25°C ~ 85°C (TA)

Manufacturer:

Sharp Microelectronics

Product Status:

Obsolete

Current - Collector (I_c) (Max):

20 mA

Wavelength:

860nm

Power - Max:

75 mW

Orientation:

Side View

Package / Case:

Radial

Environmental & Export classification

RoHS Status:

RoHS non-compliant

ECCN:

EAR99

Moisture Sensitivity Level (MSL):

1 (Unlimited)

HTSUS:

8541.49.7080

PT4800/PT4800F/PT4810 PT4810F/PT4850F

Thin Type Phototransistor

■ Features

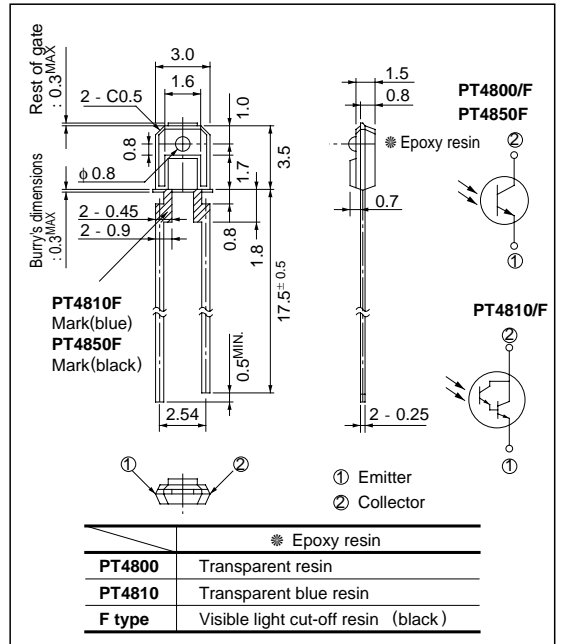
- Thin type package (Thickness : 1.5mm)
- Visible light cut-off type :
PT4800F/PT4810F/PT4850F
- Single phototransistor output :
PT4800/PT4800F/PT4850F
Darlington phototransistor output:
PT4810/PT4810F
- Thin type

■ Applications

- VCRs
- Floppy disk drives

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(Ta = 25°C)

| Parameter | Symbol | Rating | Unit |
|-----------------------------|------------------|-------------|------|
| Collector-emitter voltage | V _{CEO} | 35 | V |
| Emitter-collector voltage | V _{ECO} | 6 | V |
| Collector current | I _C | 20 | mA |
| | | 50 | |
| 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 1.8mm from the bottom face of resin package

Electro-optical Characteristics

(Ta = 25°C)

| Parameter | | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|--|----------------|--------------------------|--|------|------|------|------|
| *2Collector current | PT4800 | I _C | E _e = 1mW/cm ² V _{CE} = 5V | 0.12 | 0.4 | 1.0 | mA |
| | PT4800F | | | 0.08 | 0.25 | 0.75 | mA |
| | PT4850F | | | 0.12 | - | 0.56 | mA |
| | PT4810 | | E _e = 0.1mW/cm ² V _{CE} = 2V | 0.45 | - | 7.0 | mA |
| | PT4810F | | | 0.27 | - | 6.0 | mA |
| Collector dark current | PT4800/PT4800F | I _{CEO} | E _e = 0, V _{CE} = 20V | - | - | 0.1 | mA |
| | PT4850F | | E _e = 0, V _{CE} = 10V | - | - | 1.0 | mA |
| | PT4810/PT4810F | | | | | | |
| *2Collector-emitter saturation voltage | PT4800/PT4800F | V _{CE} (sat) | E _e = 10mW/cm ² I _C = 0.5mA | - | - | 0.4 | V |
| | PT4850F | | E _e = 1mW/cm ² I _C = 2.5mA | - | - | 1.0 | V |
| | PT4810/PT4810F | | | | | | |
| Collector-emitter breakdown voltage | | BV _{CEO} | I _C = 0.1mA E _e = 0 | 35 | - | - | V |
| Emitter-collector breakdown voltage | | BV _{ECO} | I _E = 0.01mA E _e = 0 | 6 | - | - | V |
| Peak sensitivity wavelength | PT4800 | λ _p | - | - | 800 | - | nm |
| | PT4800F | | | - | 860 | - | nm |
| | PT4850F | | | - | 860 | - | nm |
| | PT4810 | | | - | 800 | - | nm |
| | PT4810F | | | - | 860 | - | nm |
| Response time | Rise time | t _r | V _{CE} = 2V, I _C = 2mA R _L = 100Ω | - | 3.0 | - | μs |
| | | | V _{CE} = 2V I _C = 10mA R _L = 100Ω | - | 80 | 400 | μs |
| | Fall time | t _f | V _{CE} = 2V, I _C = 2mA R _L = 100Ω | - | 3.5 | - | μs |
| | | | V _{CE} = 2V I _C = 10mA R _L = 100Ω | - | 70 | 350 | μs |
| Half intensity angle | | Δθ | - | - | ± 35 | - | ° |

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

Fig. 1 Collector Power Dissipation vs. Ambient Temperature

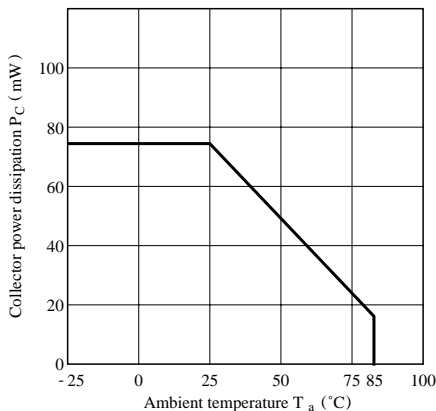


Fig. 2-a Collector Dark Current vs. Ambient Temperature (PT4800/PT4800F/PT4850F)

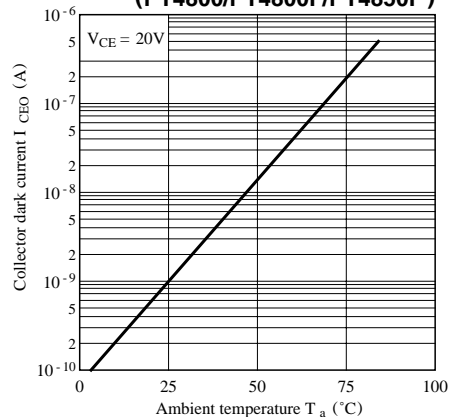


Fig. 2-b Collector Dark Current vs. Ambient Temperature

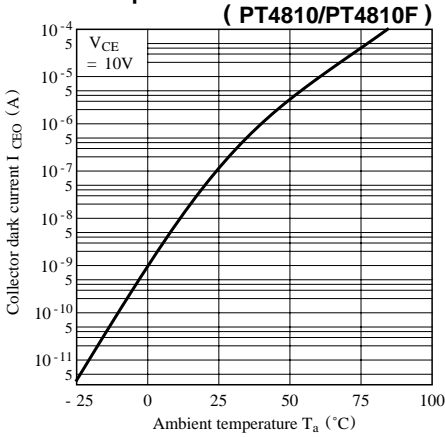


Fig. 3-a Relative Collector Current vs. Ambient Temperature

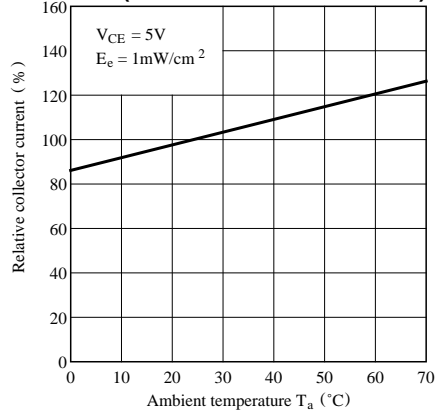


Fig. 3-b Relative Collector Current vs. Ambient Temperature

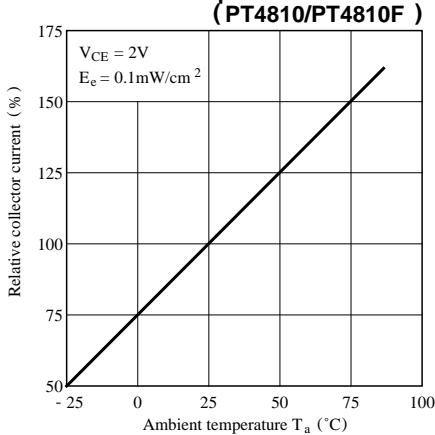


Fig. 4-a Collector Current vs. Irradiance

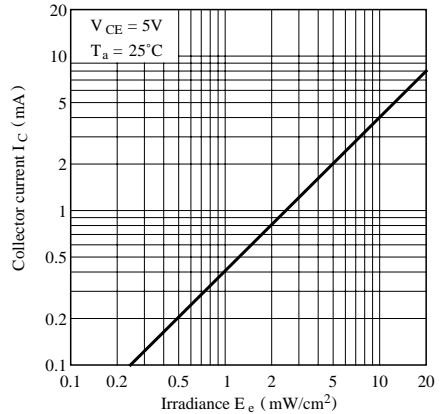


Fig. 4-b Collector Current vs. Irradiance

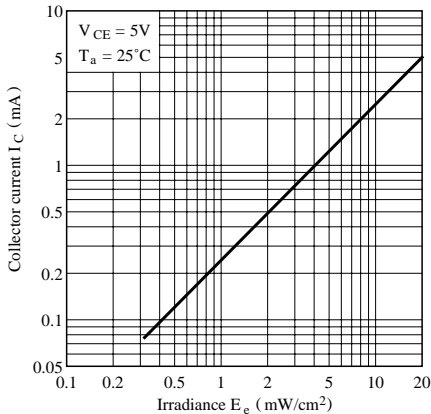


Fig. 4-c Collector Current vs. Irradiance

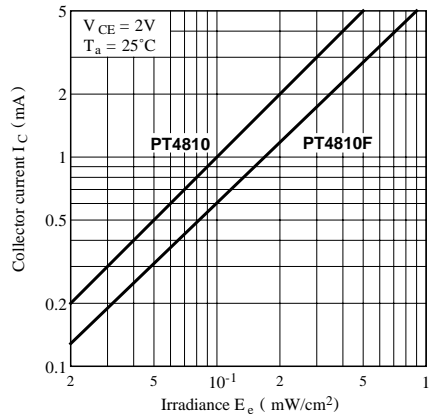


Fig. 5-a Collector Current vs. Collector-emitter Voltage

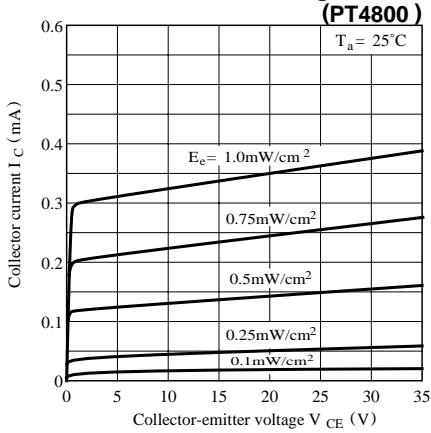


Fig. 5-b Collector Current vs. Collector-emitter Voltage

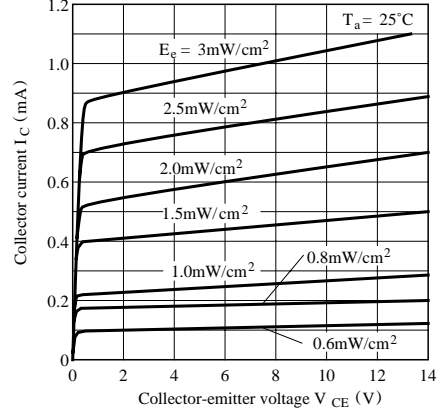


Fig. 5-c Collector Current vs. Collector-emitter Voltage

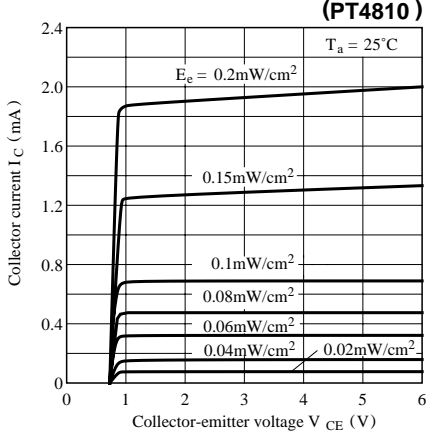


Fig. 5-d Collector Current vs. Collector-emitter Voltage

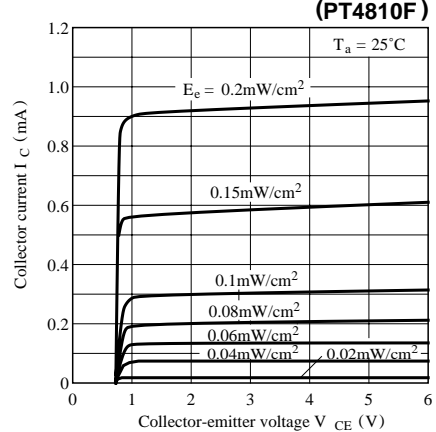


Fig. 6 Spectral Sensitivity

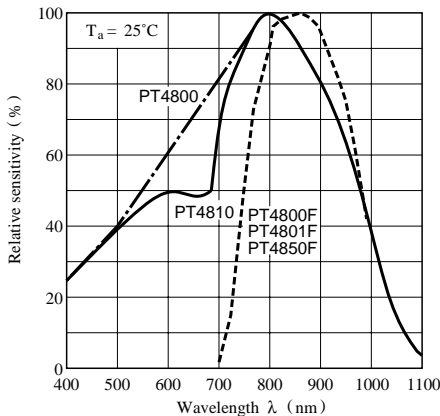


Fig. 7-a Response Time vs. Load Resistance

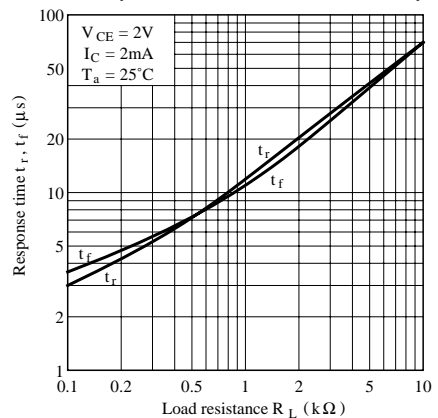
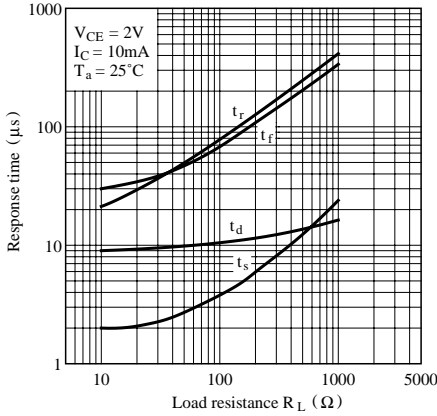
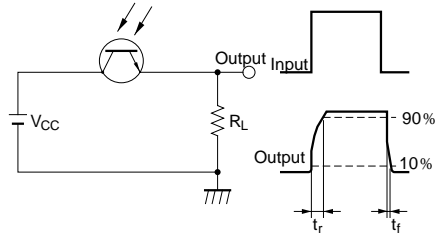


Fig. 7-b Response Time vs. Load Resistance (PT4810/ PT4810F)



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



Test Circuit for Response Time (PT4810/ PT4810F)

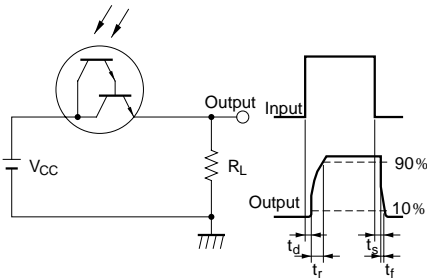


Fig. 8 Sensitivity Diagram ($T_a = 25^\circ\text{C}$)

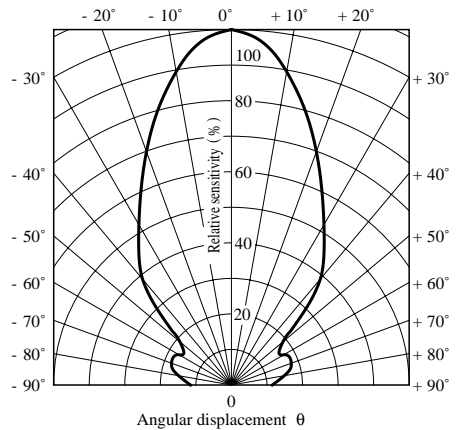


Fig. 9-a Collector-emitter Saturation Voltage vs. Irradiance (PT4800)

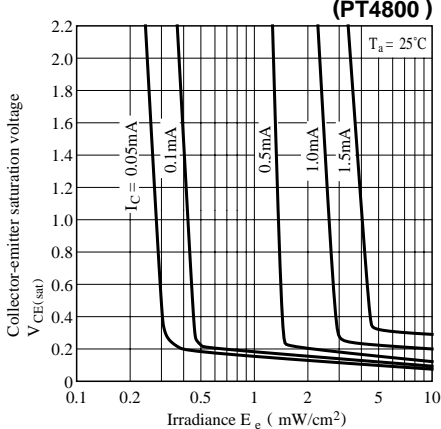


Fig. 9-b Collector-emitter Saturation Voltage vs. Irradiance (PT4800F/ PT4850F)

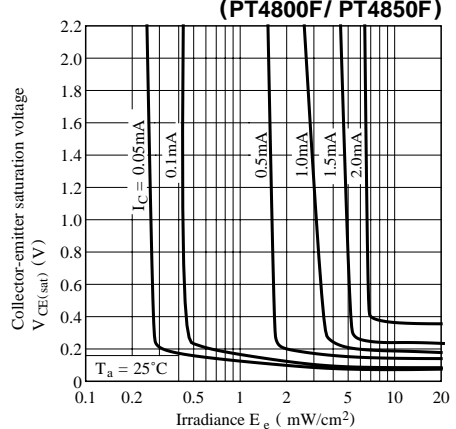


Fig. 9-c Collector-emitter Saturation Voltage vs. Irradiance (PT4810)

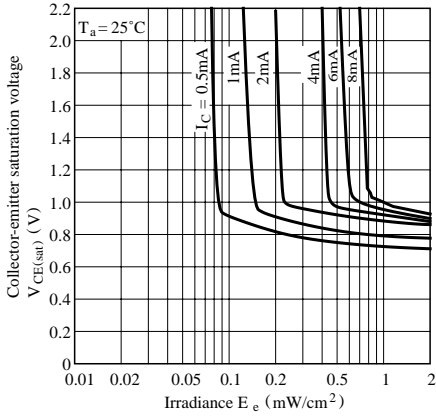


Fig.9-d Collector-emitter Saturation Voltage vs. Irradiance (PT4810F)

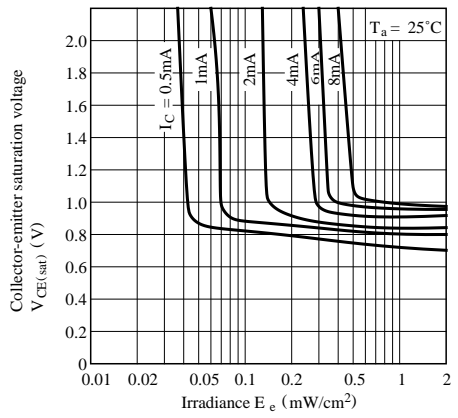


Fig.10-a Relative Output vs. Distance (PT4800F) (Emitter : GL4800)

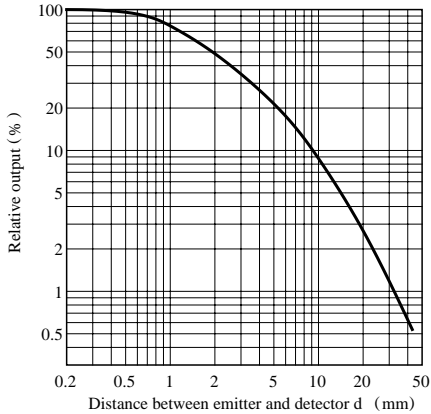
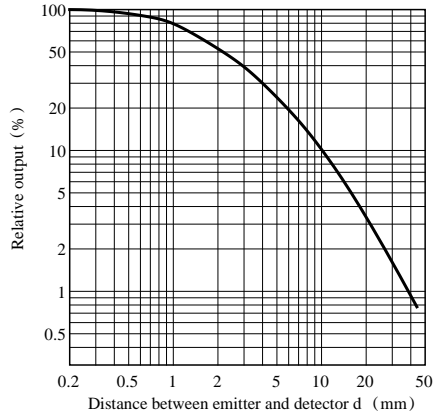


Fig.10-b Relative Output vs. Distance (PT4810F) (Emitter : GL4800)



● Please refer to the chapter “Precautions for Use”

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