

PT4800 Datasheet



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DiGi Electronics Part Number	PT4800-DG
Manufacturer	Sharp Microelectronics
Manufacturer Product Number	PT4800
Description	SENSOR PHOTO 800NM SIDE VIEW RAD
Detailed Description	Phototransistors 800nm Side View Radial

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Manufacturer Product Number:

PT4800

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:

800nm

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

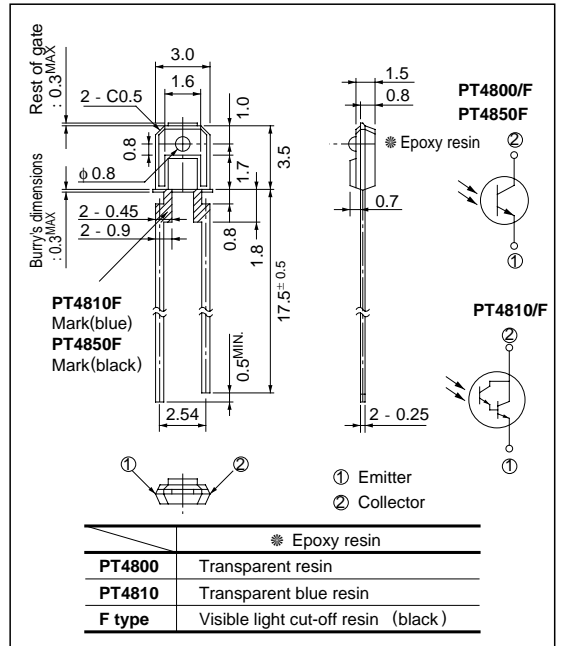
- Thin type package (Thickness : 1.5mm)
- Visible light cut-off type :
PT4800F/PT4810F/PT4850F
- Single phototransistor output :
PT4800/PT4800F/PT4850F
Darlington phototransistor output:
PT4810/PT4810F
- Thin type

■ 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

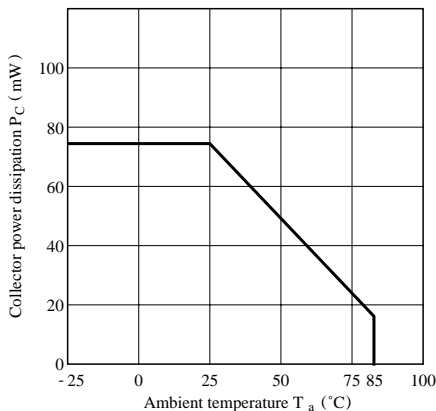


Fig. 2-a Collector Dark Current vs. Ambient Temperature (PT4800/PT4800F/PT4850F)

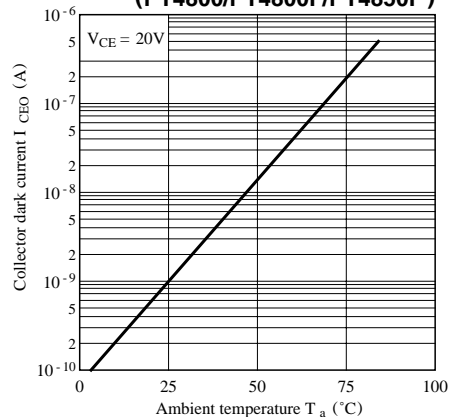


Fig. 2-b Collector Dark Current vs. Ambient Temperature

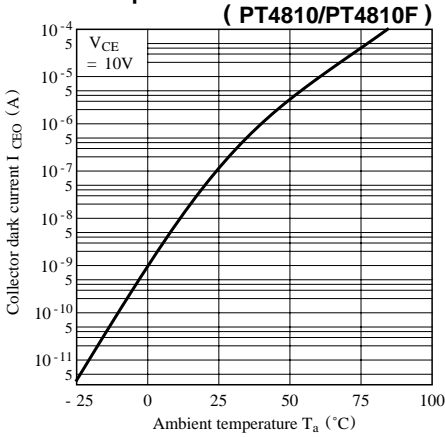


Fig. 3-a Relative Collector Current vs. Ambient Temperature

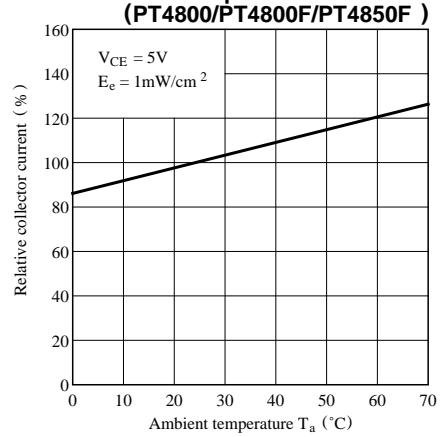


Fig. 3-b Relative Collector Current vs. Ambient Temperature

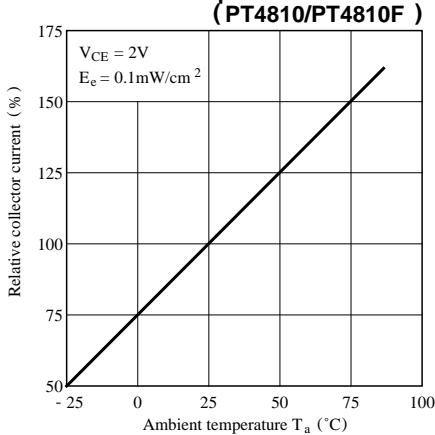


Fig. 4-a Collector Current vs. Irradiance

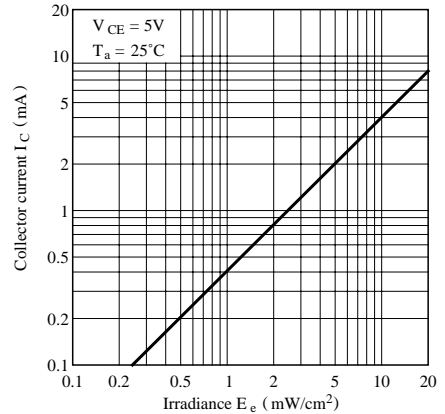


Fig. 4-b Collector Current vs. Irradiance

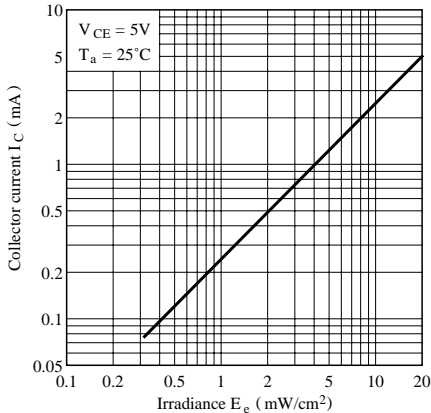


Fig. 4-c Collector Current vs. Irradiance

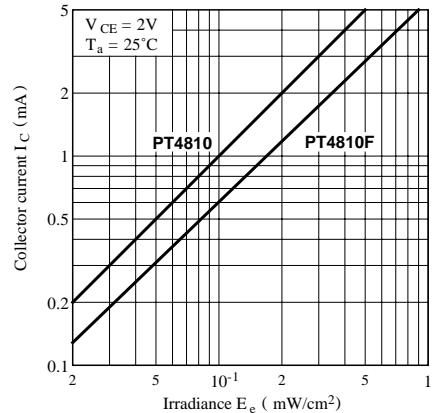


Fig. 5-a Collector Current vs. Collector-emitter Voltage

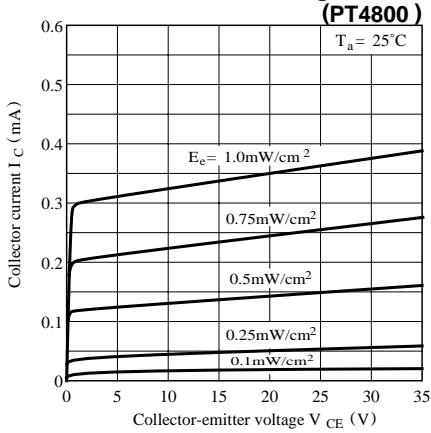


Fig. 5-b Collector Current vs. Collector-emitter Voltage

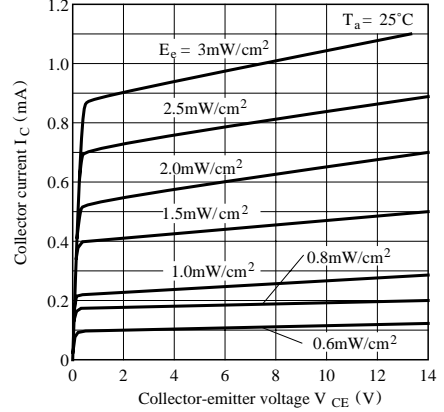


Fig. 5-c Collector Current vs. Collector-emitter Voltage

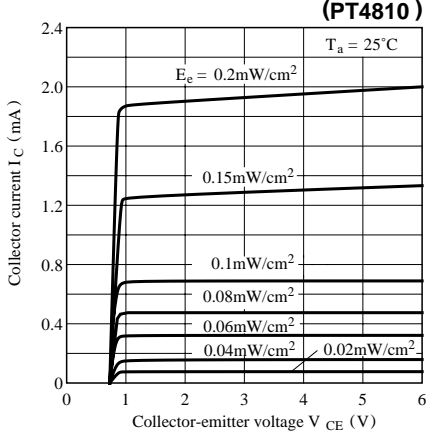


Fig. 5-d Collector Current vs. Collector-emitter Voltage

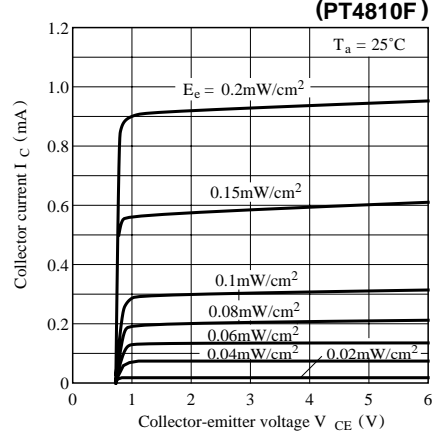


Fig. 6 Spectral Sensitivity

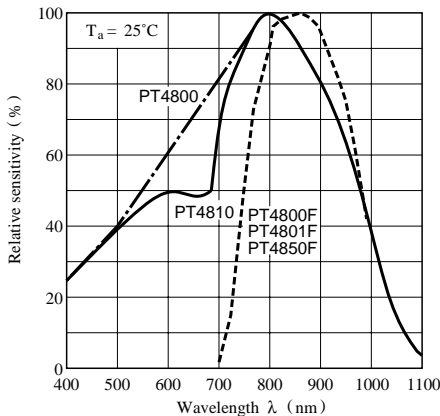


Fig. 7-a Response Time vs. Load Resistance

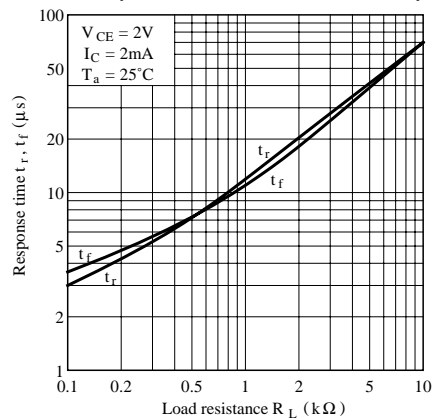
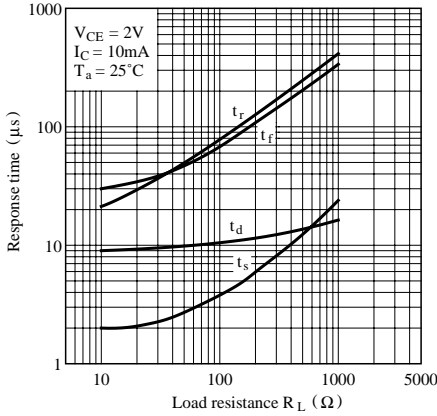
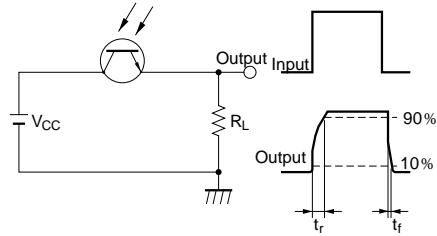


Fig. 7-b Response Time vs. Load Resistance (PT4810/ PT4810F)



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



Test Circuit for Response Time (PT4810/ PT4810F)

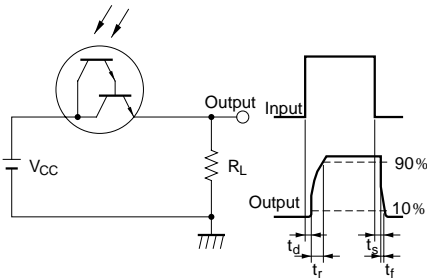


Fig. 8 Sensitivity Diagram ($T_a = 25^\circ\text{C}$)

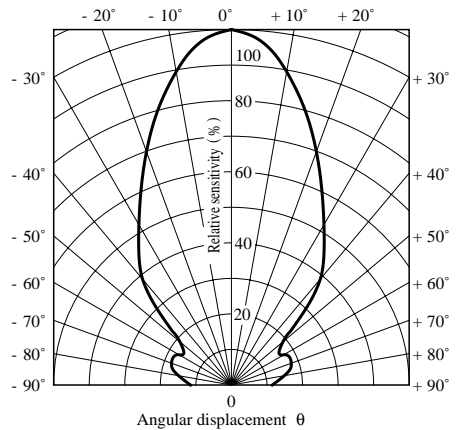


Fig. 9-a Collector-emitter Saturation Voltage vs. Irradiance (PT4800)

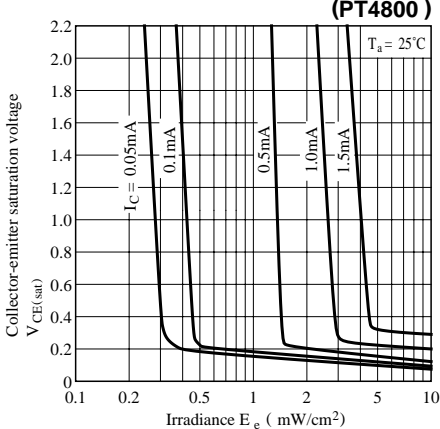


Fig. 9-b Collector-emitter Saturation Voltage vs. Irradiance (PT4800F/ PT4850F)

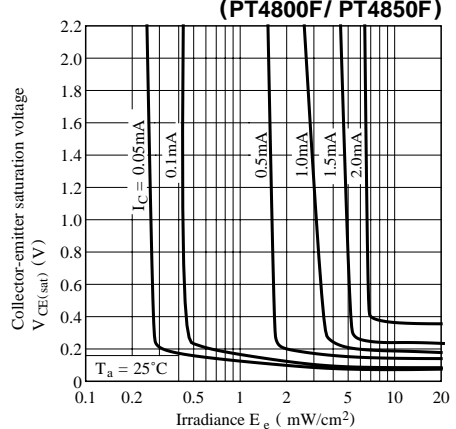


Fig. 9-c Collector-emitter Saturation Voltage vs. Irradiance (PT4810)

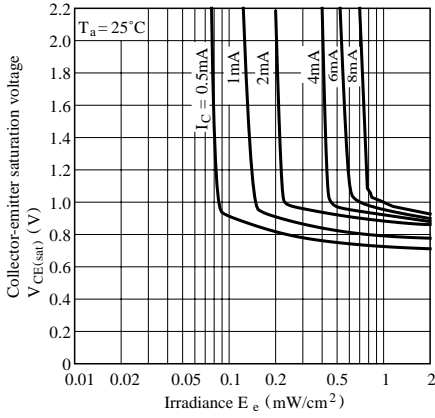


Fig.9-d Collector-emitter Saturation Voltage vs. Irradiance (PT4810F)

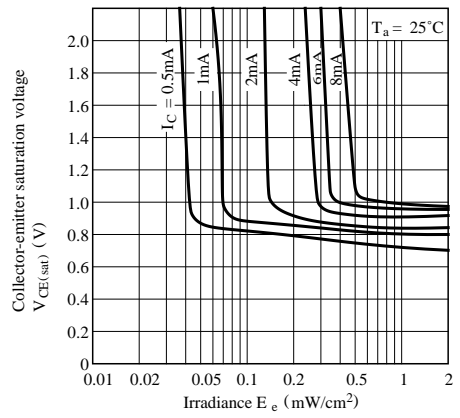


Fig.10-a Relative Output vs. Distance (PT4800F) (Emitter : GL4800)

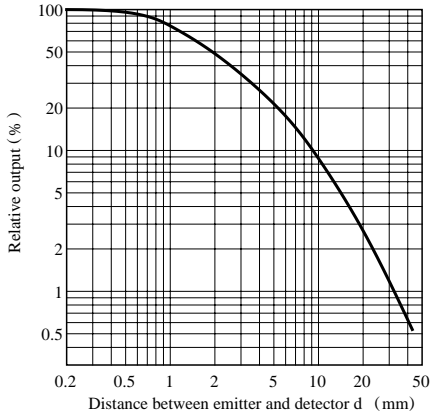
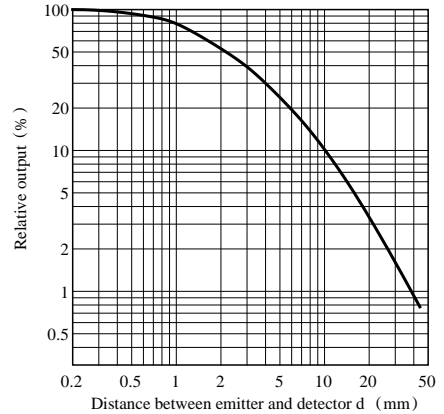


Fig.10-b Relative Output vs. Distance (PT4810F) (Emitter : GL4800)



● Please refer to the chapter “Precautions for Use”

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