

PT460/PT460F/PT461 PT461F/PT465F

Duble-end Type Phototransistor

■ Features

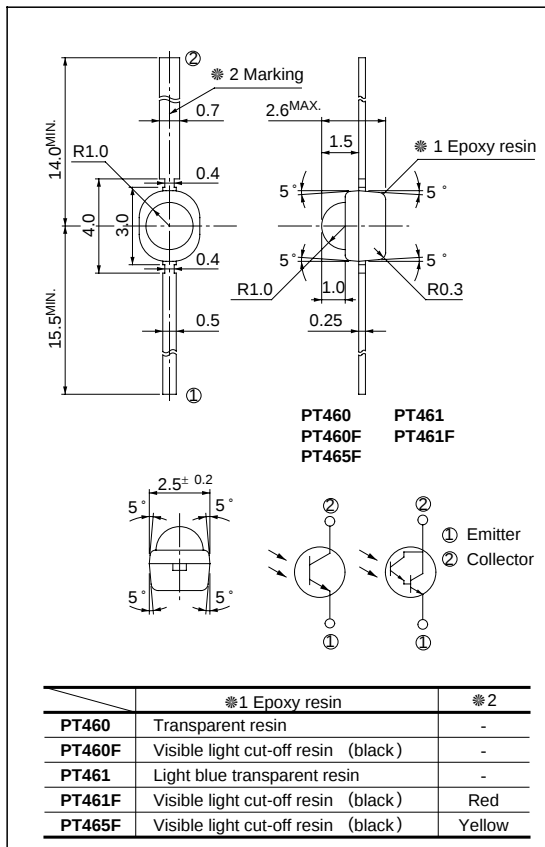
1. Compact double-end type package
2. Taping package (2 000pcs./reel) (PT xxx T)
3. Visible light cut-off type
(PT460F / PT461F / 465F)

■ Applications

1. Floppy disk drives
2. VCRs
3. Audio equipment

■ 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	*1	I_C	20	mA
	*2		50	
Collector power dissipation	*1	P_C	50	mW
	*2		100	
Operating temperature		T_{opr}	- 25 to + 85	°C
Storage temperature		T_{stg}	- 40 to + 85	°C
*3 Soldering temperature		T_{sol}	260	°C

*1 PT460/460F/465F

*2 PT461/461F

*3 For 3 seconds at the position of 2.5mm from the edge of resin package

■ Electro-optical Characteristics

(Ta= 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector current	PT460	I _C	^{*4} E _e = 1mW/cm ² V _{CE} = 5V	0.18	-	1.20	mA
	PT460F			0.11	-	0.90	
	PT465F			0.11	-	0.50	
	PT461		^{*4} E _e = 0.01mW/cm ² V _{CE} = 5V	0.20	-	1.20	
	PT461F			0.14	-	0.98	
Collector dark current	PT460/460F/465F	I _{CEO}	E _e = 0, V _{CE} = 20V	-	-	0.1	μA
	PT461/461F		E _e = 0, V _{CE} = 10V	-	-	1.0	
Collector-emitter saturation voltage	PT460/PT460F	V _{CE(sat)}	E _e = 10mW/cm ² I _C = 0.5mA	-	0.2	0.4	V
	PT465F		E _e = 1mW/cm ² I _C = 2.5mA	-	-	-	
	PT461/PT461F			-	-	1.2	
Collector-emitter breakdown voltage		BV _{CEO}	I _C = 0.1mA, E _e = 0	35	-	-	V
Emitter-collector breakdown voltage		BV _{ECO}	I _C = 0.01mA, E _e = 0	6	-	-	V
Peak sensitivity wavelength	PT460/PT461	λ _p	-	-	800	-	nm
	PT460F/461F/465F			-	860	-	
Response time	Rise time	PT460/460F/465F	V _{CE} = 20V, I _C = 1mA R _L = 1kΩ	-	10	40	μs
	Fall time			-	8	35	
Response time	Rise time	PT461/461F	V _{CE} = 2V, I _C = 10mA R _L = 100Ω	-	400	2 000	μs
	Fall time			-	300	1 500	
Half sensitivity angle		Δθ	-	-	± 50	-	°

^{*4}E_e : Irradiance by CIE standard light source A (Tungsten Lamp)

Fig. 1-a Collector Power Dissipation vs. Ambient Temperature
(PT460/460F/465F)

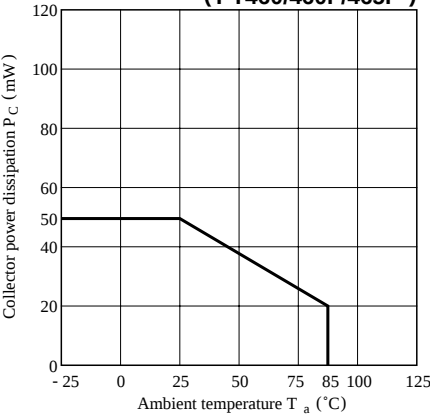


Fig. 1-b Collector Power Dissipation vs. Ambient Temperature
(PT461/461F)

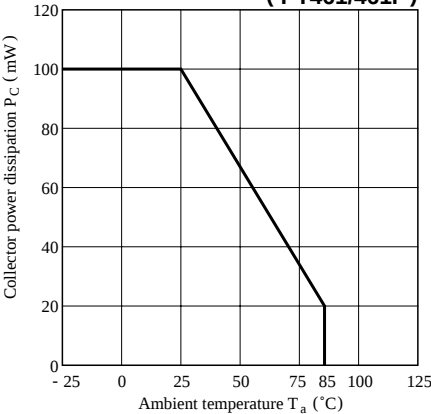


Fig. 2-a Collector Dark Current vs. Ambient Temperature
(PT460/460F/465F)

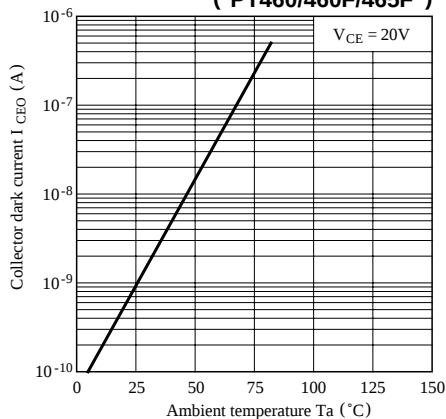


Fig. 2-b Collector Dark Current vs. Ambient Temperature
(PT461/461F)

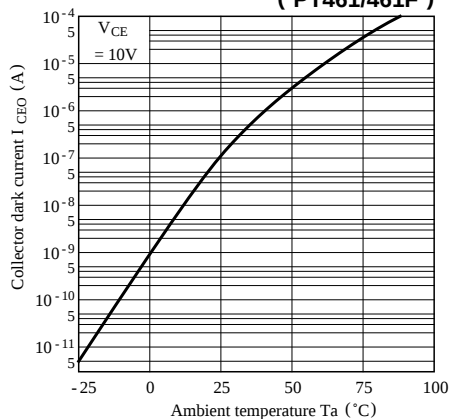


Fig. 3-a Relative Collector Current vs. Ambient Temperature
(PT460/460F/465F)

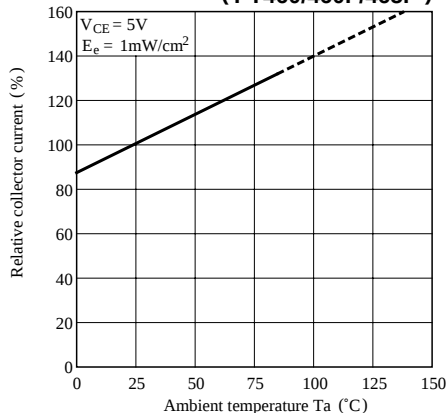


Fig. 3-b Relative Collector Current vs. Ambient Temperature
(PT461/461F)

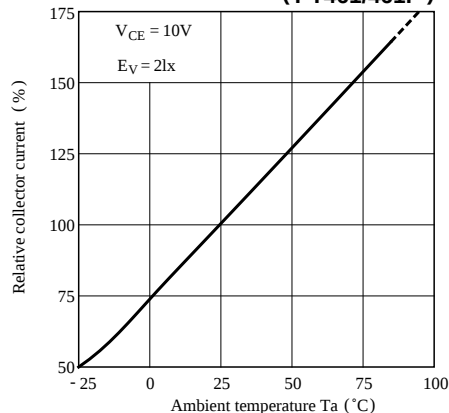


Fig. 4-a Collector Current vs. Irradiance
(PT460/460F/465F)

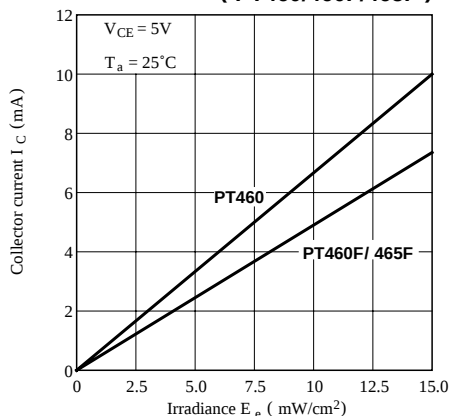


Fig. 4-b Collector Current vs. Irradiance
(PT461/461F)

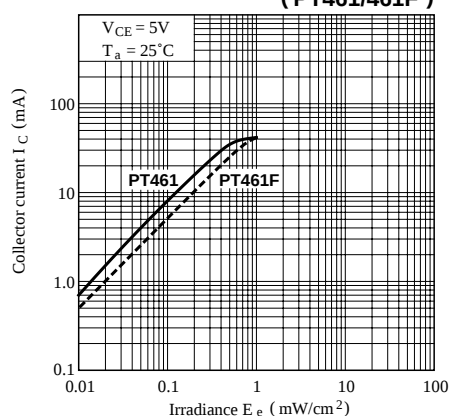


Fig. 5-a Collector Current vs. Collector-emitter Voltage (PT460)

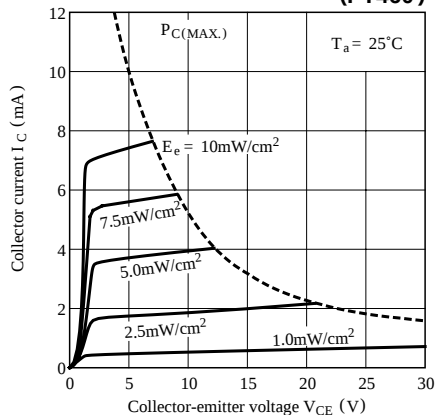


Fig. 5-b Collector Current vs. Collector-emitter Voltage (PT460F/465F)

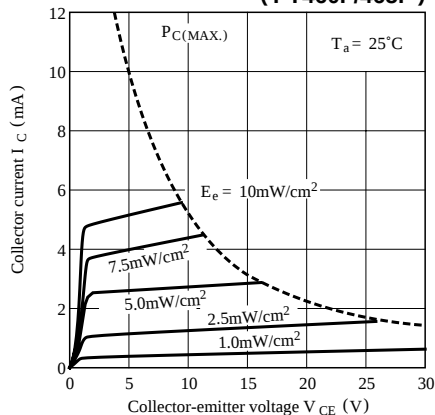


Fig. 5-c Collector Current vs. Collector-emitter Voltage (PT461)

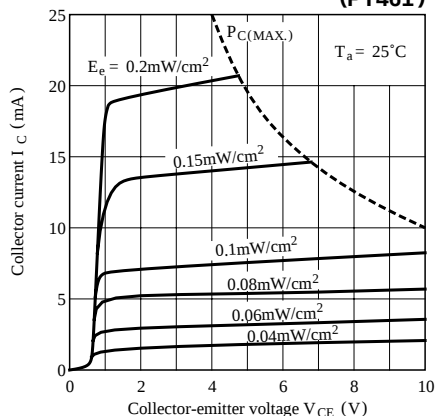


Fig. 5-d Collector Current vs. Collector-emitter Voltage (PT461F)

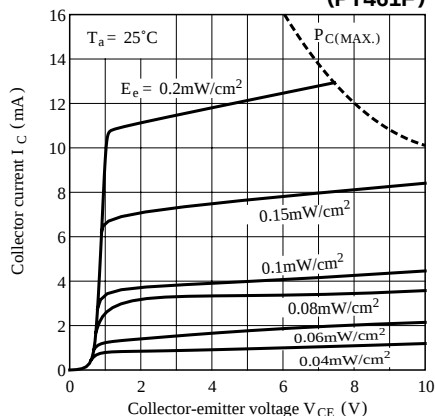


Fig. 6-a Spectral Sensitivity (PT460/460F/465F)

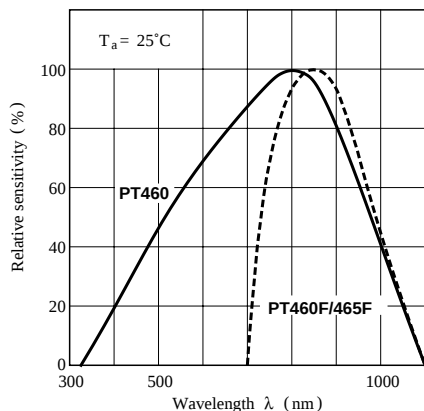
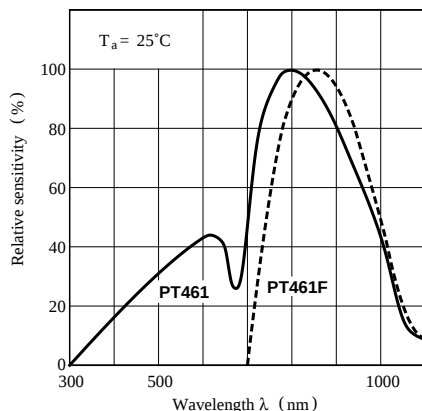
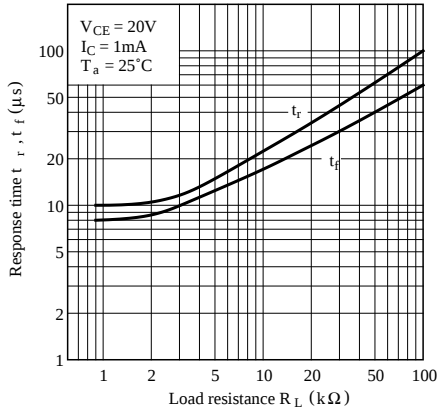


Fig. 6-b Spectral Sensitivity (PT461/461F)

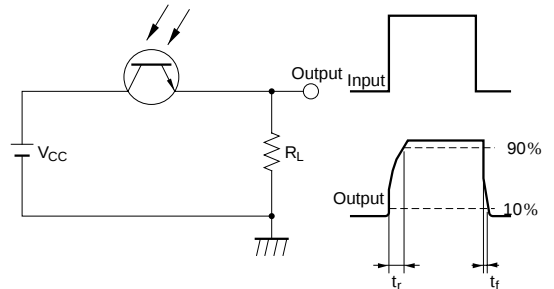


**Fig. 7-a Response Time vs.
Load Resistance**

(PT460/PT460F/465F)

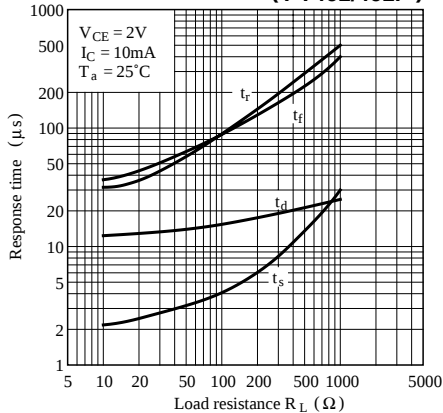


**Test Circuit for Response Time
(PT460/460F/465F)**



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

(PT461/461F)



**Test Circuit for Response Time
(PT461/461F)**

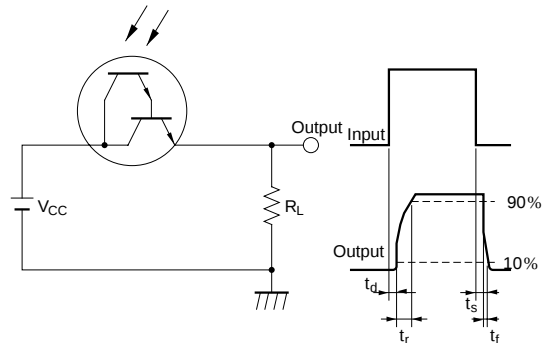
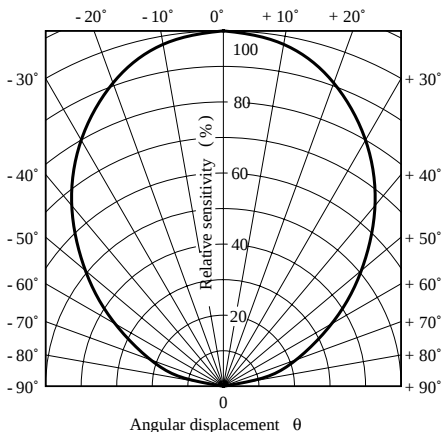


Fig. 8 Sensitivity Diagram



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

(PT460)

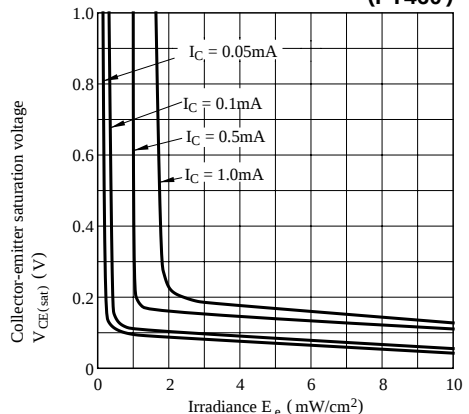


Fig. 9-b Collector-emitter Saturation Voltage vs. Irradiance (PT460F/465F)

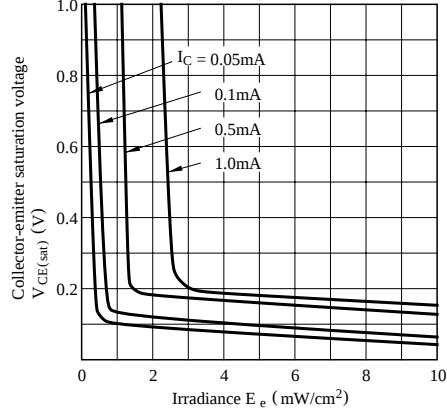


Fig. 9-c Collector-emitter Saturation Voltage vs. Irradiance (PT461)

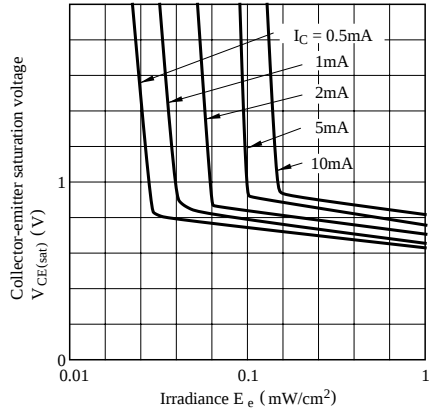
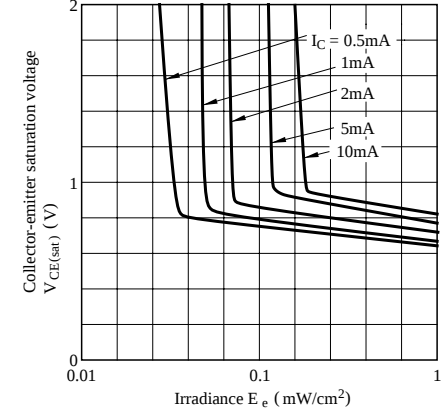
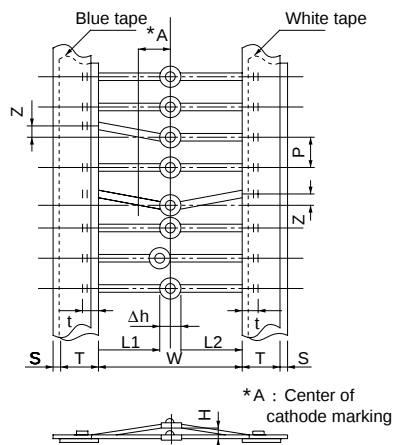


Fig. 9-d Collector-emitter Saturation Voltage vs. Irradiance (PT461F)



■ Taping Specifications (PT_{xxx} T)

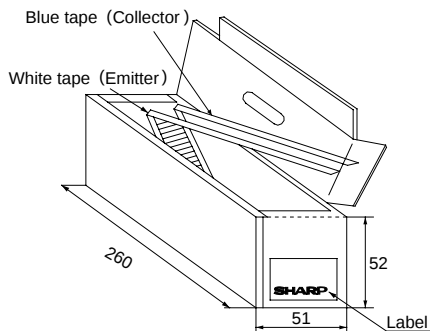


W	(Note 1) p	L2-L1	T	Z	Δ h	S	(Note 2) t	H	A
26 ^{+1.5} _{-0.0}	5 ^{+0.5} _{-0.5}	-	6 ⁺¹⁰ ₋₁₀	1.2 ^{MAX}	0.5 ^{MAX}	0.8 ^{MAX}	0.5 ^{MIN}	2.5 ^{MAX}	(4.5)

(Note 1) Tolerance of 20 pitches is ± 2 mm.

(Note 2) The lead's overlapping length on the tape.

■ Packing Specification (PT_{xxx} T)



(1) Packing form

Box type

- The tape is zigzag-folded with 50 pcs. of phototransistor per fold.
- Phototransistor inserting portions for 50 to 60 pcs. on the tape's starting and ending parts are not stuffed.
- For the taping of collector pin, blue tape is used, and for emitter pin, white tape is used.

(2) Packing quantity

2 000 pcs. per box