

PT460/PT460F/PT461 PT461F/PT465F

Duble-end Type Phototransistor

Features

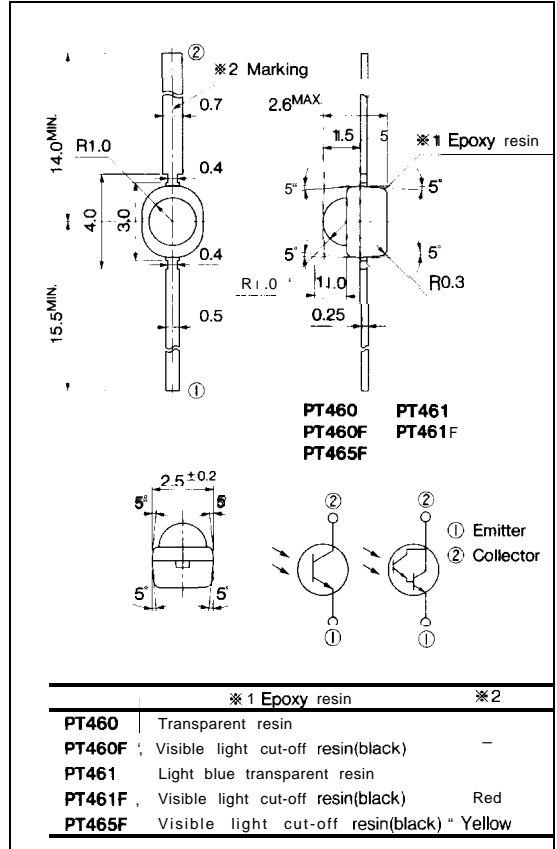
1. Compact double-end type package
2. Taping package (2 000pcs./reel) (PTX X X T)
3. Visible light cut-off type
(PT460F/PT461F/465F)

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	20	mA
	*2	50	
Collector power dissipation	*1	50	mW
	*2	100	
Operating temperature	T _{opr}	-25 to +85	°C
Storage temperature	T _{stg}	-40 to +85	°C
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

($T_a = 25^\circ\text{C}$)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector current	PT460	I_C	* $E_e = 1\text{mW}/\text{cm}^2$ $V_{CE} = 5\text{V}$	0.18	—	1.20	mA
	PT460F			0.11	—	0.90	
	PT465F			0.11	—	0.50	
	PT461		* $E_e = 0.01\text{mW}/\text{cm}^2$ $V_{CE} = 5\text{V}$	0.20	—	1.20	
	PT461F			0.14	—	0.98	
Collector dark current	PT460/460F/465F	I_{CEO}	$E_e = 0, V_{CE} = 20\text{V}$	—	—	0.1	μA
	PT461/461F		$E_e = 0, V_{CE} = 10\text{V}$	—	—	1.0	
Collector -emitter saturation voltage	PT460/PT460F PT465F	$V_{CE(sat)}$	$E_e = 10\text{mW}/\text{cm}^2$ $I_C = 0.5\text{mA}$	—	0.2	0.4	V
	PT461/PT461F		$E_e = 1\text{mW}/\text{cm}^2$ $I_C = 2.5\text{mA}$	—	—	1.2	
Collector -emitter breakdown voltage		BV_{CEO}	$I_C = 0.1\text{mA}, E_e = 0$	35	—	—	V
Emitter-collector breakdown voltage		BV_{ECO}	$I_C = 0.01\text{mA}, E_e = 0$	6	—	—	V
Peak sensitivity wavelength		λ_p	—	—	800	—	nm
				PT460/PT461 PT460F/461F/465F	—	860	
Response time	Rise time	t_r	$V_{CE} = 20\text{V}, I_C = 1\text{mA}$ $R_L = 1\text{k}\Omega$	—	10	40	μs
	Fall time			PT460/460F/465F	—	8	
Response time	Rise time	t_r	$V_{CE} = 2\text{V}, I_C = 10\text{mA}$ $R_L = 100\Omega$	—	400	2 000	μs
	Fall time			PT461/461F	—	300	
Half sensitivity angle		$\Delta\theta$	—	—	± 50	—	

*4 E_e : CIE



rs

Ph

Fig. 1-a Collector Power Dissipation vs. Ambient Temperature

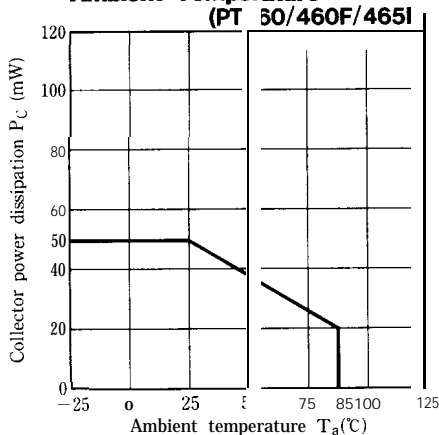


Fig. 1-b Collector Power Dissipation vs. Ambient Temperature

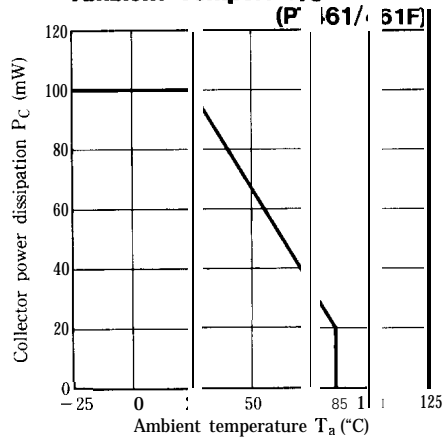


Fig. 2-a **Collector Dark Current vs. Ambient Temperature (PT460/460F/465F)**

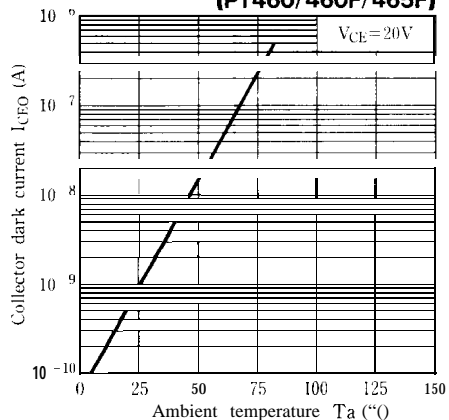


Fig. 2-b **Collector Dark Current vs. Ambient Temperature (PT461 /461 F)**

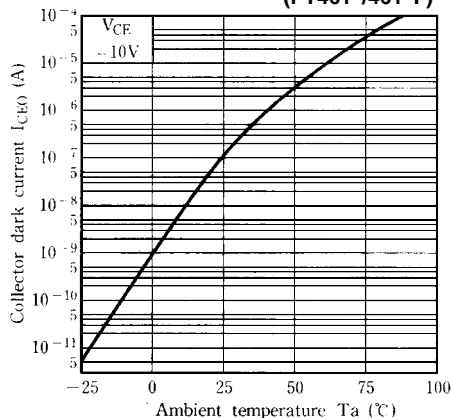


Fig. 3-a **Relative Collector Current vs. Ambient Temperature (PT460/460F/465F)**

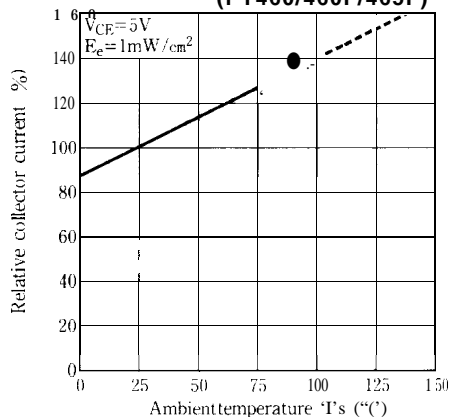


Fig. 3-b **Relative Collector Current vs. Ambient Temperature (PT461/461F)**

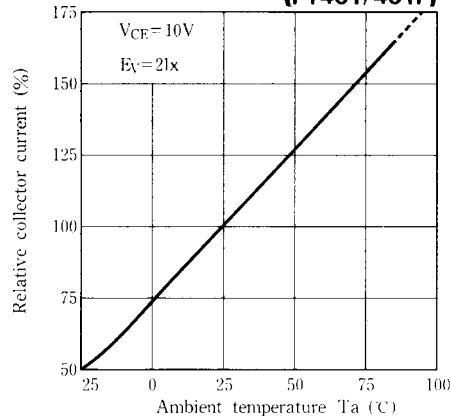


Fig. 4-a **Collector current vs. Irradiance (PT460/460F/465F)**

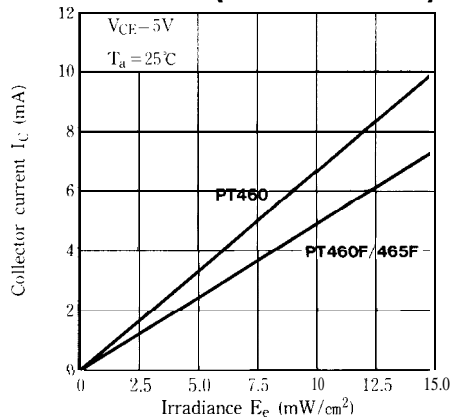


Fig. 4-b **Collector Current vs. Irradiance (PT461/461F)**

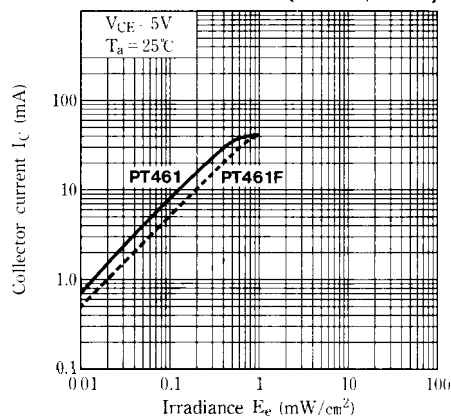


Fig. 5-a Collector Current vs. Collector-emitter Voltage
(PT460)

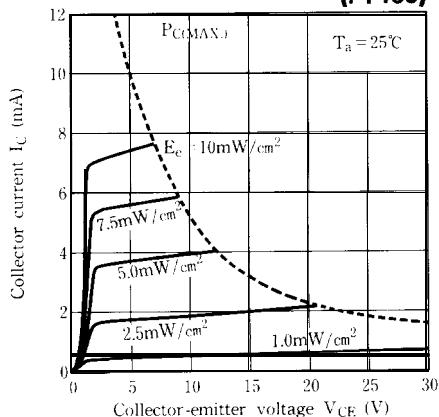


Fig. 5-b Collector Current vs. Collector-emitter Voltage
(PT460F/465F)

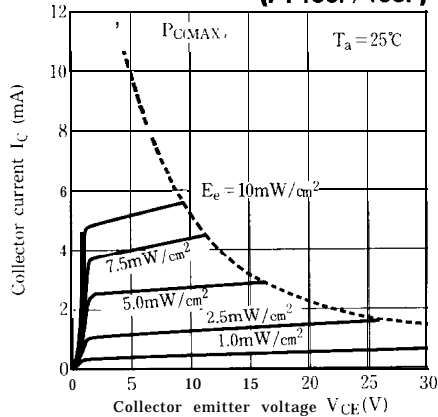


Fig. 5-c Collector current vs. Collector-emitter Voltage
(PT461)

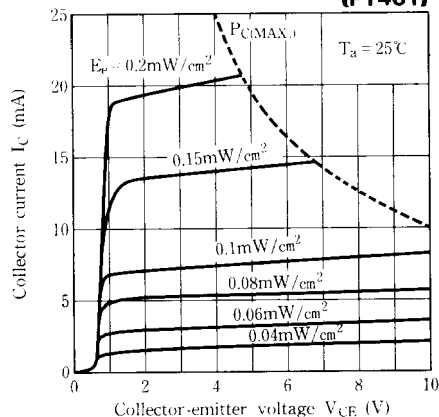


Fig. 5-d Collector Current vs. Collector-emitter Voltage
(PT461F)

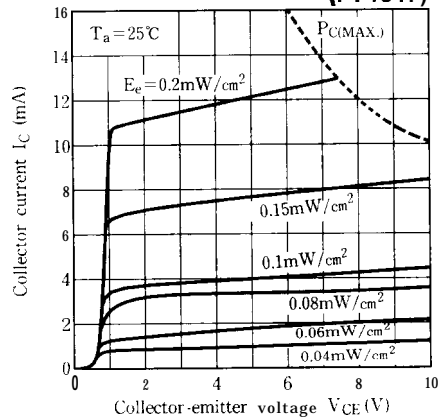


Fig. 6-a Spectral Sensitivity
(PT460/460F/465F)

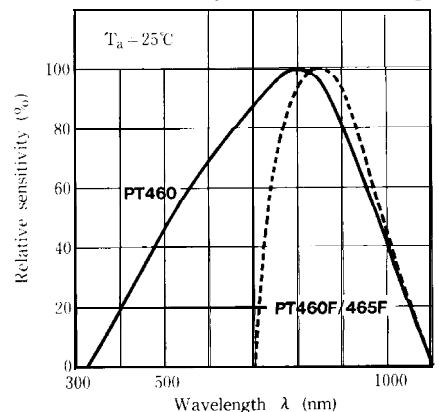
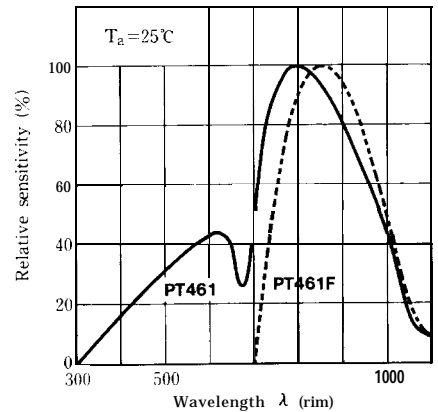


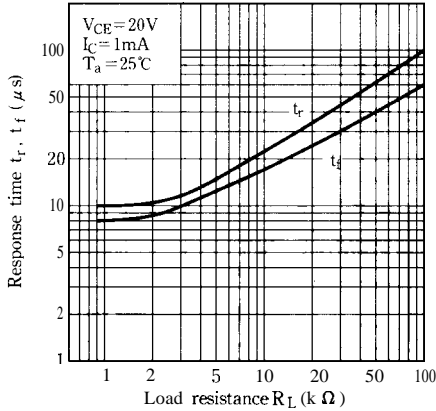
Fig. 6-b Spectral Sensitivity
(PT461/461F)



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Phototransistors

Fig. 7-a Response Time vs. Load Resistance (PT460/PT460F/465F)



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

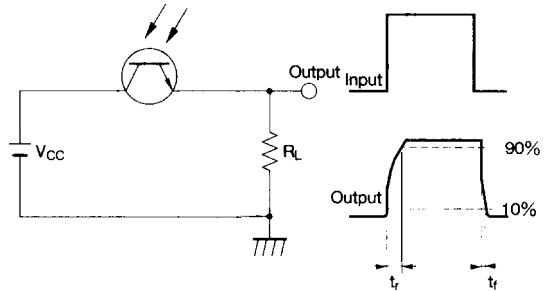
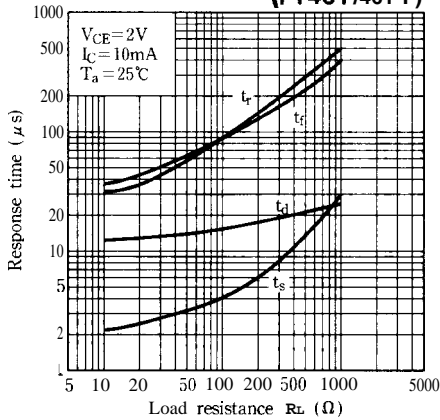


Fig. 7-b Response Time vs. Load Resistance (PT461/461 F)



Test Circuit for Response Time (PT461/461 F)

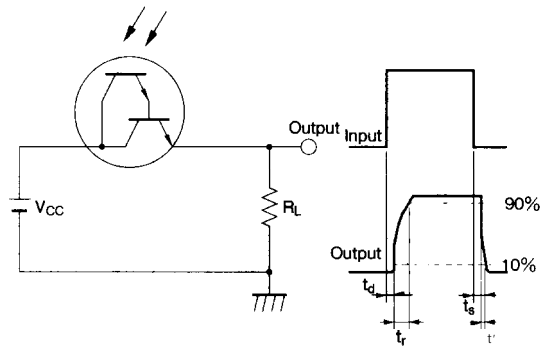


Fig. 8 Sensitivity Diagram

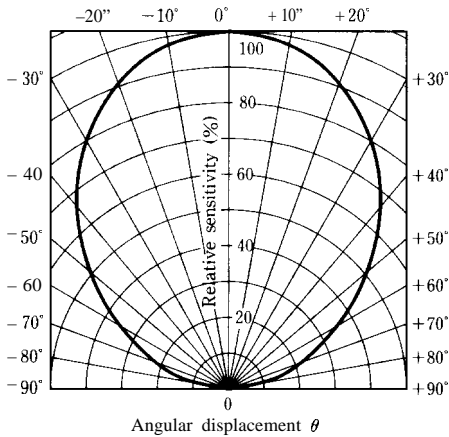


Fig. 9-a Collector-emitter Saturation Voltage vs. Irradiance (PT460)

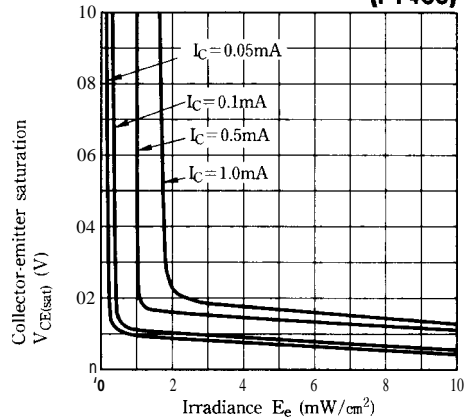


Fig. 9-b Collector-emitter Saturation Voltage vs. Irradiance (PT460F/465F)

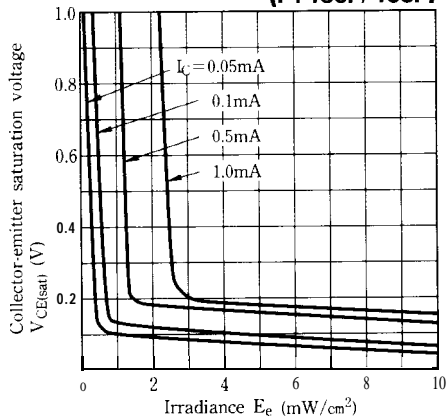


Fig. 9-c Collector-emitter Saturation Voltage vs. Irradiance (PT461)

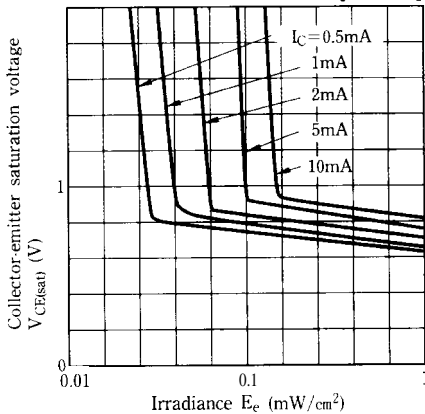
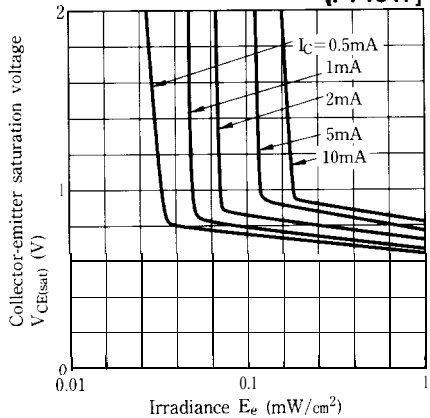
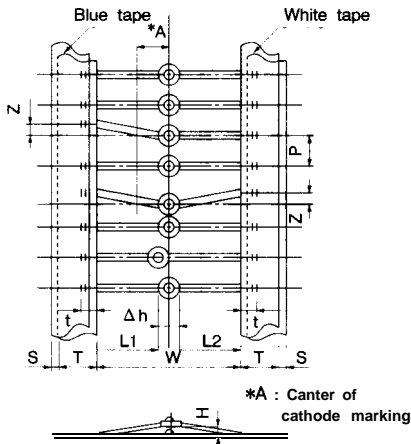


Fig. 9-d Collector-emitter Saturation voltage vs. Irradiance (PT461F)



■ Taping Specifications (PT×××T)

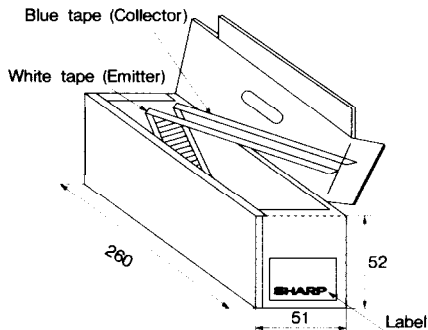


W	(Note 1) Φ	L2-L1	T	Z	Δh	S	(Note 2) t	H	A
$26^{+1.5}_{-0.0}$	$5^{+0.5}_{-0.5}$	-	6^{+10}_{-10}	1.2 ^{MAX}	0.5 ^{MAX}	0.8 ^{MAX}	0.5 ^{MIN}	2.5 ^{MAX}	(4.5)

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

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

■ Packing Specification (PT×× XT)



(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

. Please refer to the chapter "Precautions for Use." (Page 78 to 93)