PT430/PT430F

Narrow Acceptance Phototransistor T-41-61

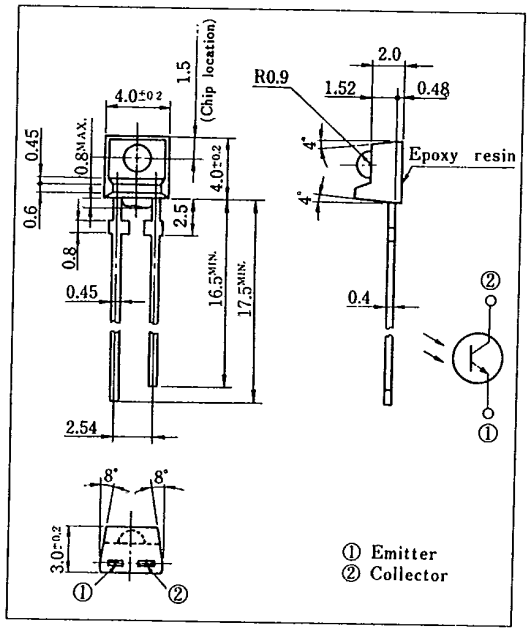
■ Features

1. Narrow acceptance epoxy resin package ($\Delta\theta$: TYP. ±13°)
2. Visible light cut-off type : PT430F

■ Applications

1. VCRs, cassete tape recorders
2. Optoelectronic switches, optoelectronic counters
3. Automatic stroboscopes

■ 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
Collector power dissipation	P_C	75	mW
Operating temperature	T_{opr}	−25~+85	°C
Storage temperature	T_{stg}	−40~+85	°C
*1 Soldering temperature	T_{sol}	260	°C

*1 For 3 seconds at the position of 2.5mm from the bottom face of resin package

■ Electro-optical Characteristics (Ta=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*2 Collector current	PT430	I_C	V_{CE}=5V, E_e=1mW/cm²	0.4	1.7	6.0	mA
	PT430F			0.25	0.8	3.0	mA
Collector dark current		I_{CEO}	V_{CE}=20V, E_e=0	—	10^{-9}	10^{-7}	A
*2 Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C=0.5mA, E_e=10mW/cm²	—	0.1	0.4	V
Peak sensitivity wavelengh	PT430	λ_P		—	800	—	nm
	PT430F			—	860	—	nm
Response time (Rise)		t_r	V_{CE}=2V, I_C=2mA, R_L=100Ω	—	3	—	μs
Response time (Fall)		t_f		—	3.5	—	μs

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

Fig. 1 Collector Power Dissipation vs. Ambient Temperature

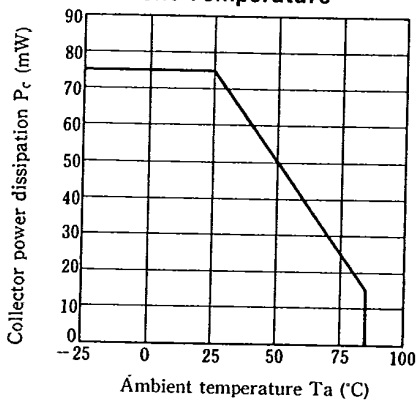


Fig. 2 Collector Dark Current vs. Ambient Temperature

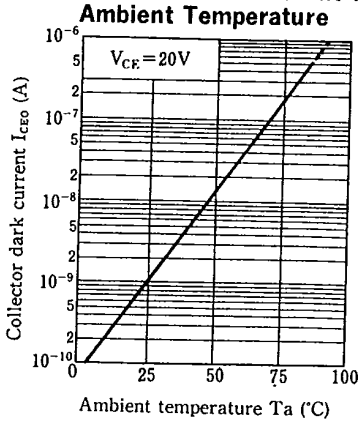


Fig. 3 Relative Collector Current vs. Ambient Temperature

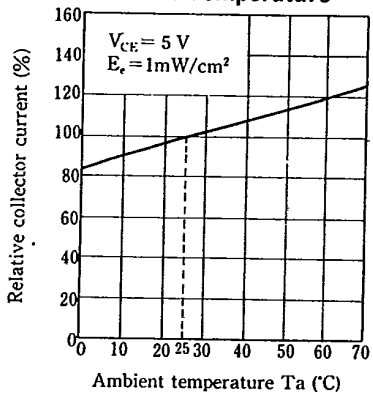
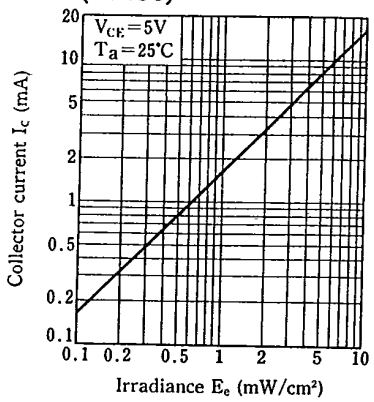


Fig. 4 Collector Current vs. Irradince (PT430)



5

Fig. 5 Collector Current vs. Irradiance (PT430F)

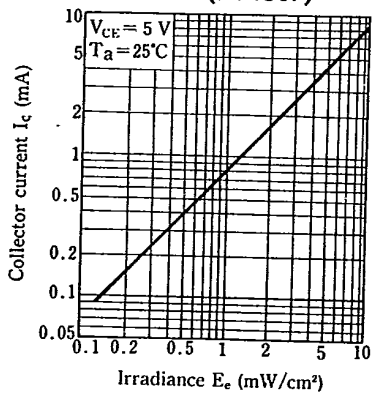


Fig. 6 Collector Current vs. Collector-emitter Voltage (PT430)

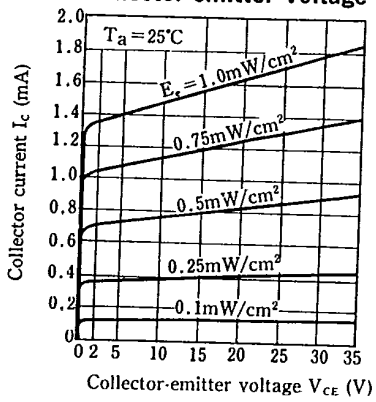


Fig. 7 Collector Current vs. Collector-emitter Voltage (PT430F)

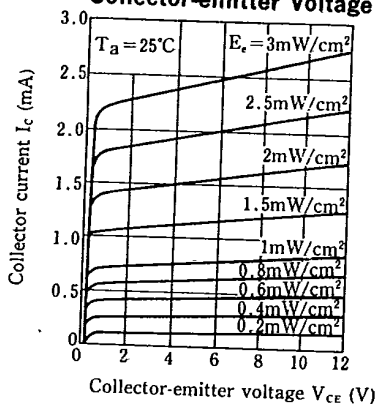


Fig. 8 Spectral Sensitivity (PT430)

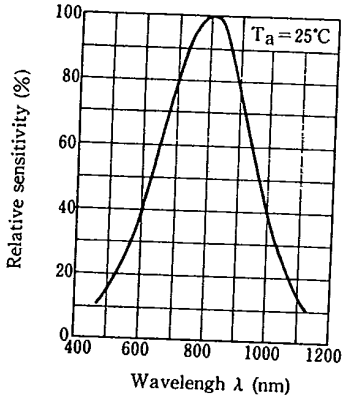


Fig. 9 Spectral Sensitivity (PT430F)

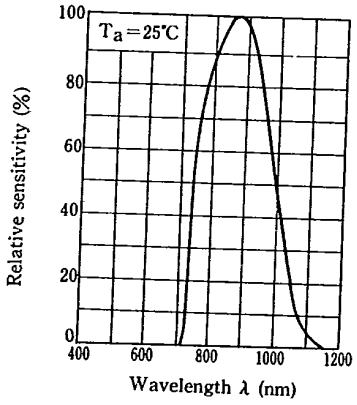
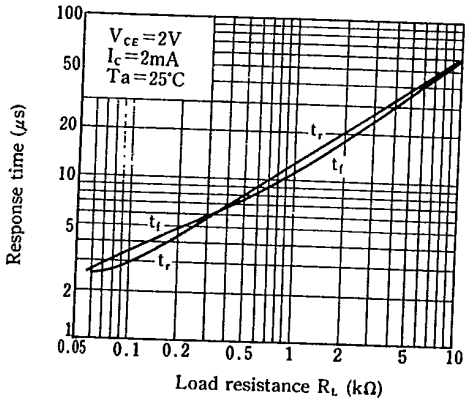


Fig. 10 Response Time vs. Load Resistance



Test Circuit for Response Time

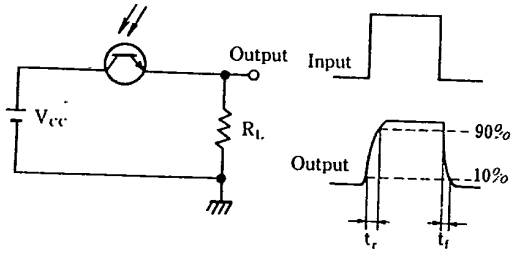


Fig. 11 Sensitivity Diagram

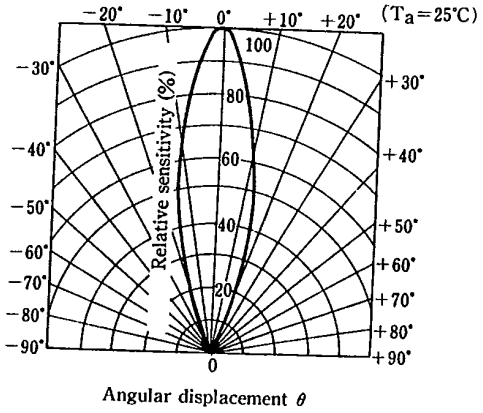


Fig. 12 Collector-emitter Saturation Voltage vs. Irradiance (PT430)

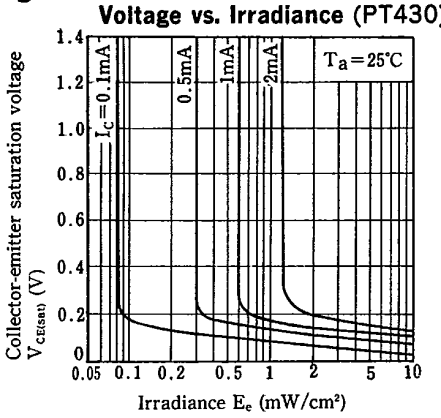


Fig. 13 Collector-emitter Saturation Voltage vs. Irradiance (PT430F)

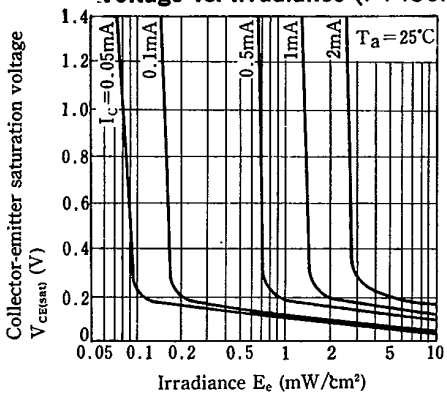


Fig. 14 Relative Output vs. Distance (Emitter : (GL430))

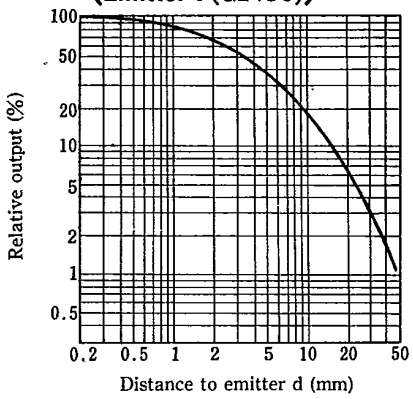
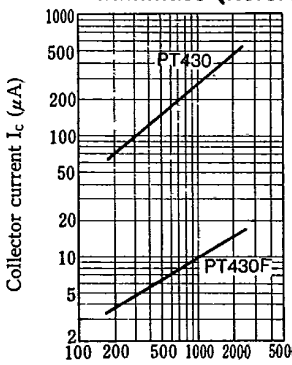


Fig. 15 Collector Current vs. Illuminace (Reference)



(Test Condition)
V_{CE}=2V, Ta=25°C
Light source :
White fluorescent lamp
Sharp FLR 40 SW/M

(Note)
Comparison between outputs of transparent resin molded type phototransistor (PT430) and visible light cut-off resin molded type (PT430F)

5