

PT4110/PT4110F

Side View and Thin Flat Type Phototransistors

■ Features

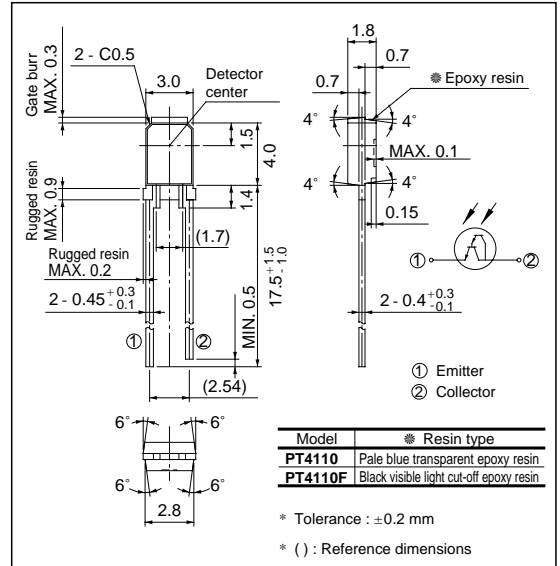
1. Compact and thin flat package
2. Wide beam angle
(Half intensity angle : $\pm 70^\circ$)
3. Visible light cut-off type available (**PT4110F**)

■ Applications

1. Optoelectronic switches
2. Encoders

■ Outline Dimensions

(Unit : mm)

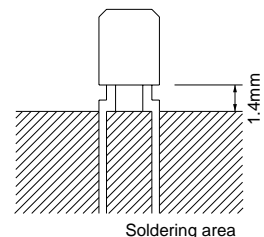


■ Absolute Maximum Ratings

(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	50	mA
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 MAX. 5 seconds at the position of 1.4 mm from the resin edge



Electro-optical Characteristics

(Ta = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector current	PT4110	I _C	^{*2} E _e = 1mW/cm ² V _{CE} = 5V	4.0	-	25	mA
	PT4110F			2.5	-	19	mA
Dark current		I _{CEO}	E _e = 0, V _{CE} = 10V	-	-	1.0	μA
Collector-emitter saturation voltage		V _{CE(sat)}	^{*2} E _e = 1mW/cm ² I _C = 2.5mA	-	-	1.2	V
Collector-emitter breakdown voltage		BV _{CEO}	I _C = 0.1mA ^{*2} E _e = 0	35	-	-	V
Emitter-collector breakdown voltage		BV _{EBO}	I _E = 0.01mA ^{*2} E _e = 0	6	-	-	V
Peak sensitivity wavelength	PT4110	λ _p	-	-	800	-	nm
	PT4110F			-	860	-	
Response time	Rise Time	t _r	V _{CE} = 2V, I _C = 10mA R _L = 100Ω	-	60	-	μs
	Fall Time	t _f		-	53	-	μs
Half intensity angle		Δθ	-	-	± 70	-	°

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

Fig. 1 Collector Power Dissipation vs. Ambient Temperature

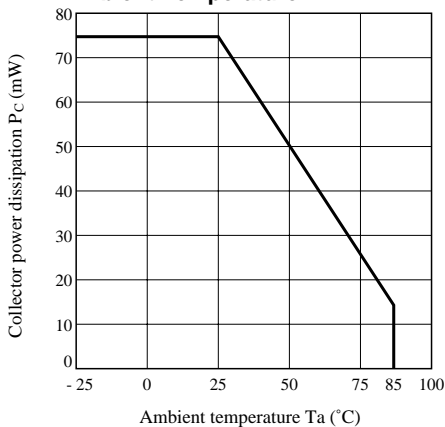


Fig. 2 Dark Current vs. Ambient Temperature

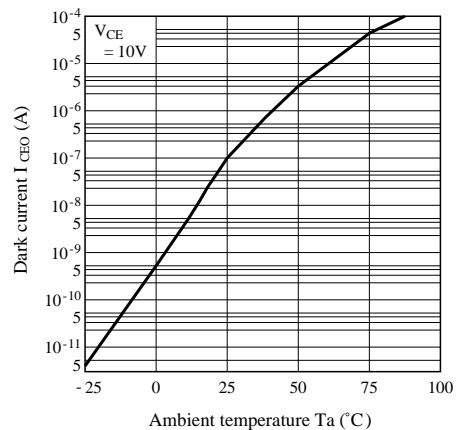


Fig. 3 Relative Collector Current vs. Ambient Temperature

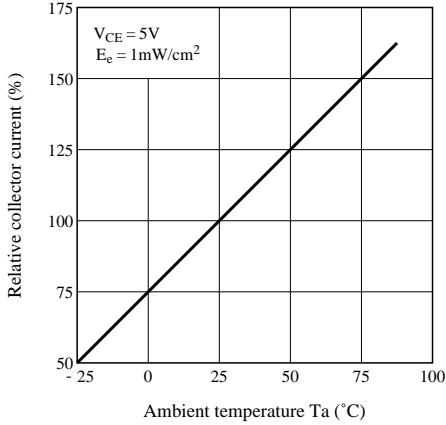


Fig. 4-a Collector Current vs. Irradiance (PT4110)

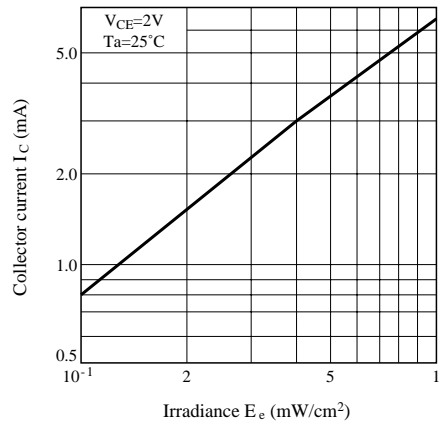


Fig. 4-b Collector Current vs. Irradiance (PT4110F)

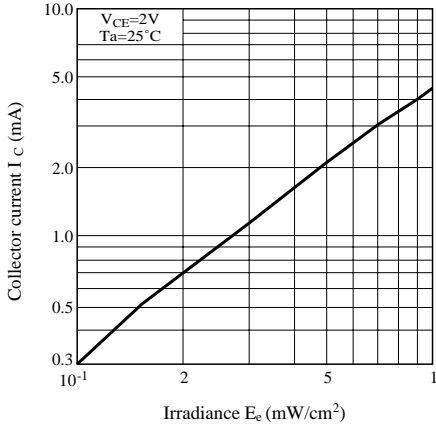


Fig. 5-a Collector Current vs. Collector-Emitter voltage (PT4110)

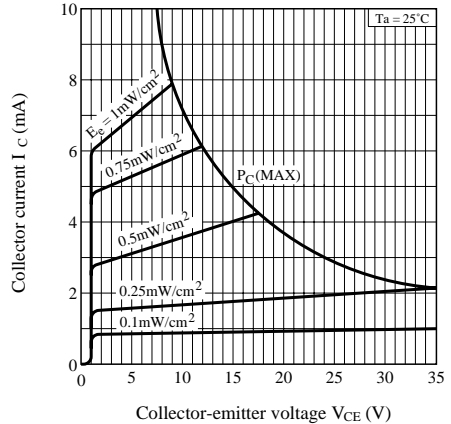


Fig. 5-b Collector Current vs. Collector-Emitter voltage (PT4110F)

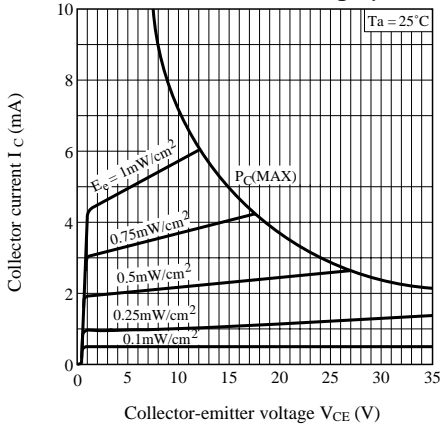


Fig. 6 Spectral Sensitivity

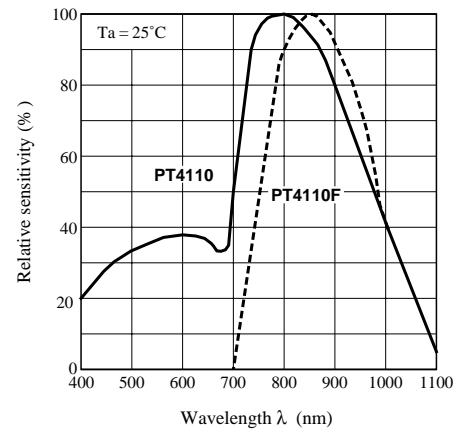
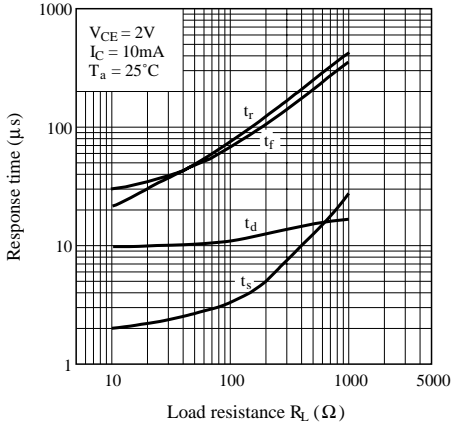


Fig. 7 Response Time vs. Load Resistance



Test Circuit for Response Time

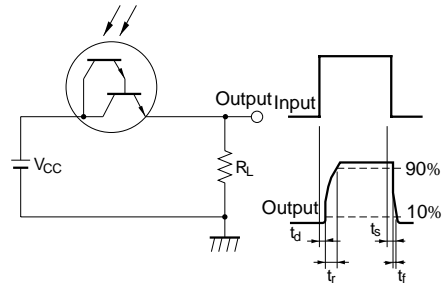


Fig. 8 Radiation Diagram ($T_a = 25^\circ\text{C}$)

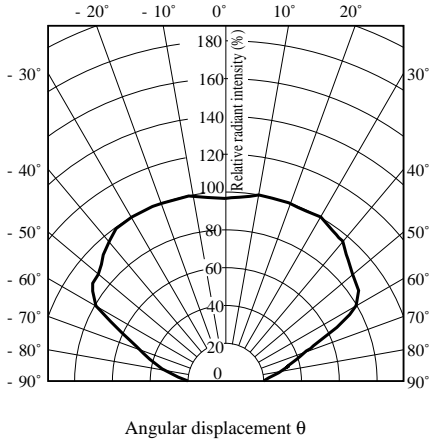
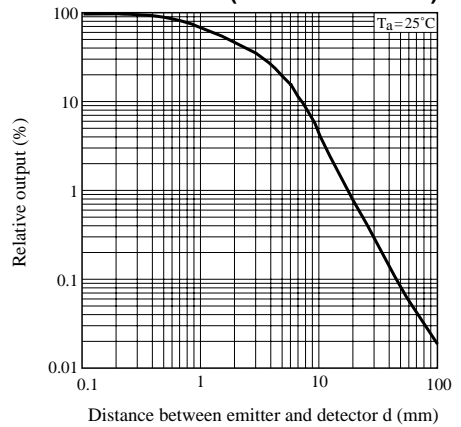


Fig. 9 PT4110 Relative Output vs. Distance (Detector : GL4110)



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