PT4110/PT4110F

Side View and Thin Flat Type Phototransistors

■ Features

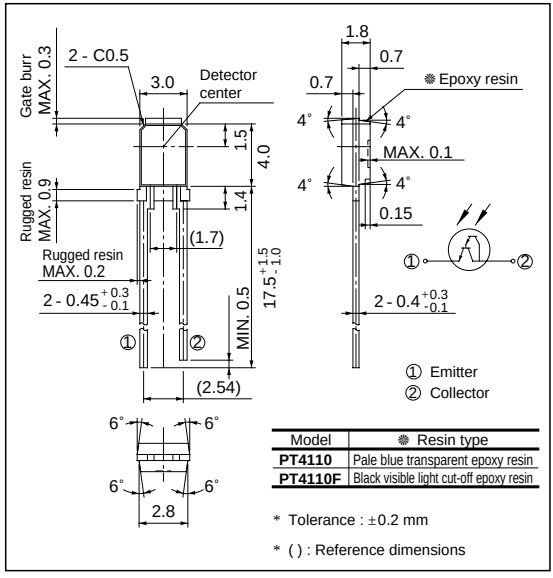
1. Compact and thin flat package
2. Wide beam angle
   (Half intensity angle : ± 70˚)
3. Visible light cut-off type available (**PT4110F**)

■ Applications

1. Optoelectronic switches
2. Encoders

■ Outline Dimensions

(Unit : mm)



Model	❁ Resin type
PT4110	Pale blue transparent epoxy resin
PT4110F	Black visible light cut-off epoxy resin

* Tolerance : ±0.2 mm

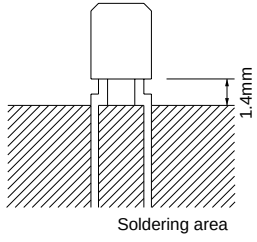
* ( ) : Reference dimensions

■ 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_{ECO}	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

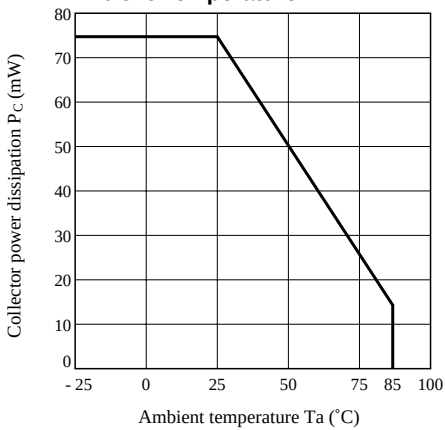


Fig. 2 Dark Current vs. Ambient Temperature

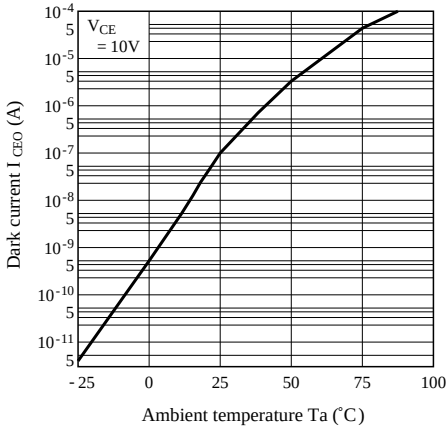


Fig. 3 Relative Collector Current vs. Ambient Temperature

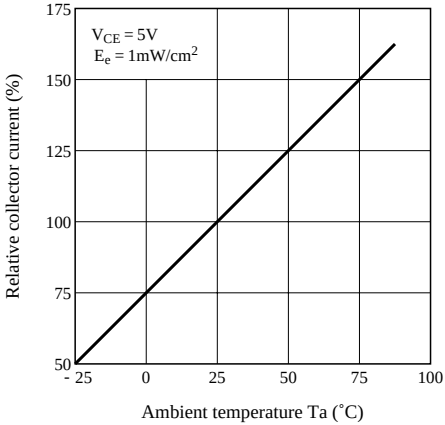


Fig. 4-a Collector Current vs. Irradiance (PT4110)

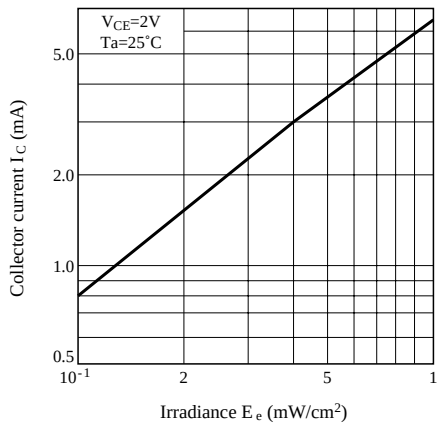


Fig. 4-b Collector Current vs. Irradiance (PT4110F)

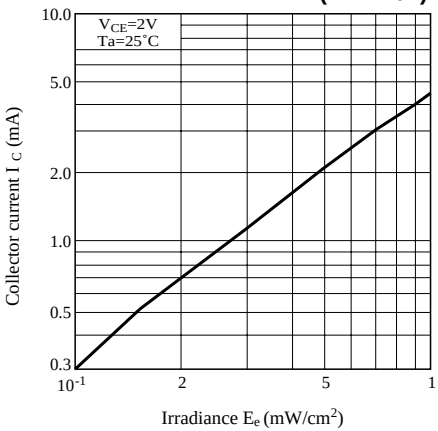


Fig. 5-a Collector Current vs. Collector-Emitter voltage (PT4110)

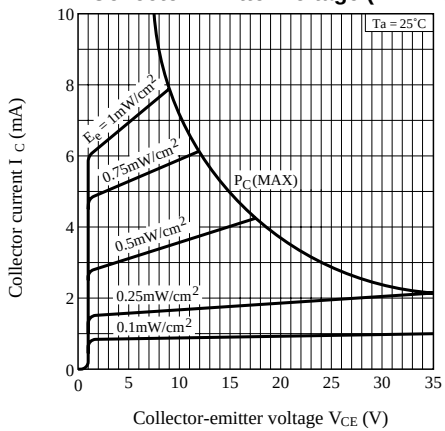


Fig. 5-b Collector Current vs. Collector-Emitter voltage (PT4110F)

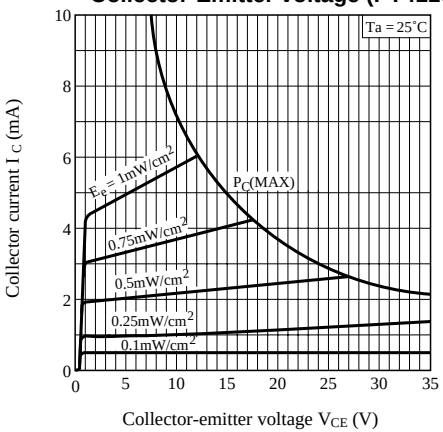


Fig. 6 Spectral Sensitivity

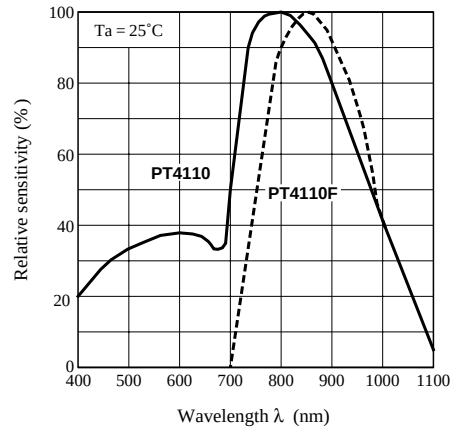
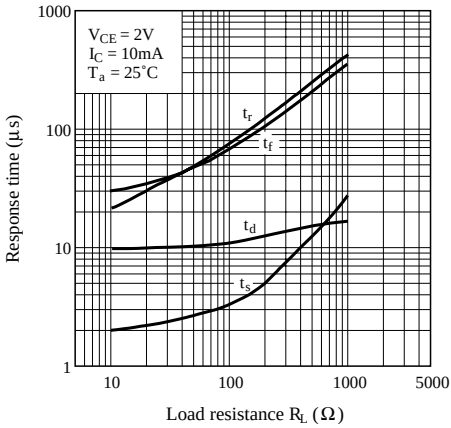


Fig. 7 Response Time vs. Load Resistance



Test Circuit for Response Time

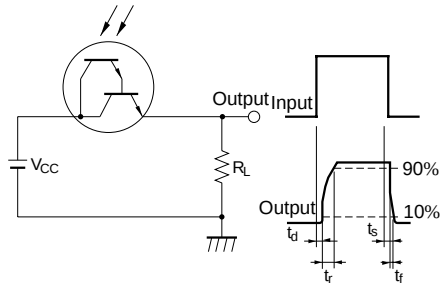


Fig. 8 Radiation Diagram (Ta = 25˚C)

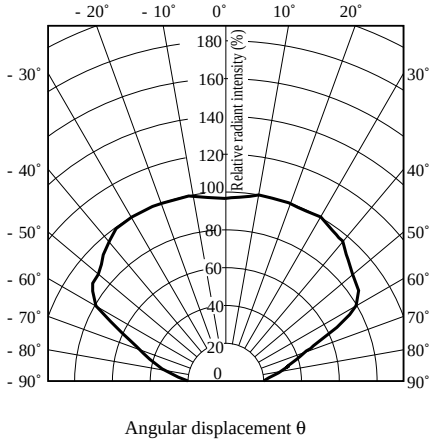
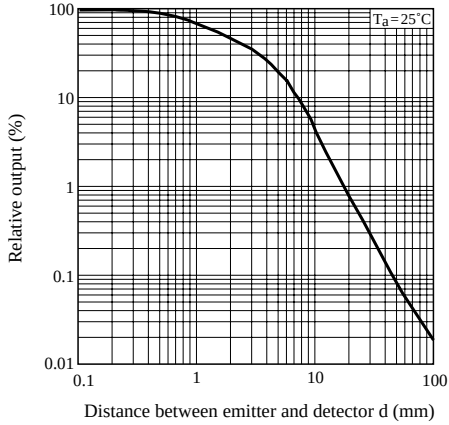


Fig. 9 PT4110 Relative Output vs. Distance (Detector : GL4110)



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