Photointerrupter, double-layer mold type

RPI-122

The RPI-122 is an ultra-small size, double–layer mold photointerrupter.

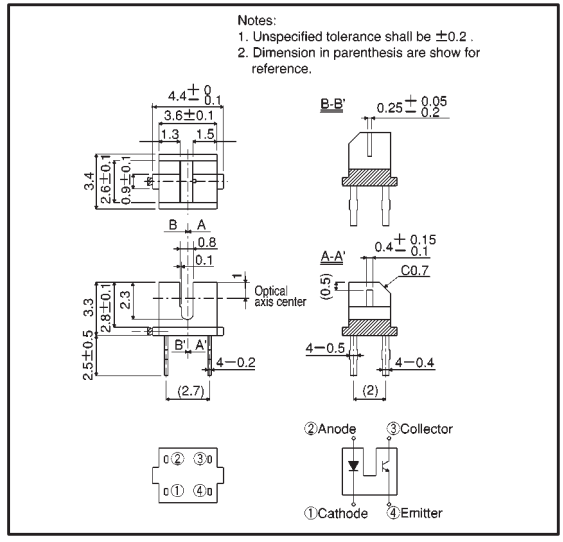
●Applications

Optical control equipment
Cameras
Floppy disk drives

●Features

1) Ultra-small.
2) Minimal influence from stray light.
3) Low collector-emitter saturation voltage.

●External dimensions (Units: mm)



●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Input(LED)	Forward current	I_F	50	mA
	Reverse voltage	V_R	5	V
	Power dissipation	P_D	80	mW
Output (photo-transistor)	Collector-emitter voltage	V_{CEO}	30	V
	Emitter-collector voltage	V_{ECO}	4.5	V
	Collector current	I_C	30	mA
	Collector power dissipation	P_C	80	mW
Operating temperature		Topr	−25～+85	℃
Storage temperature		Tstg	−40～+100	℃

●Electrical and optical characteristics (Ta = 25°C)

	Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input characteristics	Forward voltage	V_F	—	1.3	1.6	V	I_F=50mA
	Reverse current	I_R	—	—	10	μA	V_R=5V
Output characteristics	Dark current	I_{CEO}	—	—	0.5	μA	V_{CE}=10V
	Peak sensitivity wavelength	λP	—	800	—	nm	—
Transfer characteristics	Collector current	I_C	0.18	—	1.08	mA	V_{CE}=0.7V, I_F=3mA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.3	V	I_F=20mA, I_C=0.3mA
	Response time	tr・tf	—	10	—	μs	V_{CC}=5V, I_F=20mA, R_L=100Ω

●Electrical and optical characteristic curves

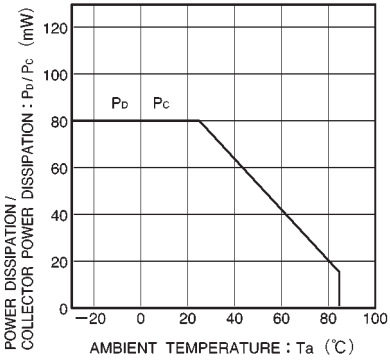


Fig.1 Output vs. ambient temperature

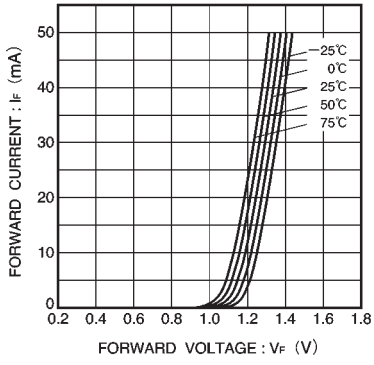


Fig.2 Forward current vs. forward voltage

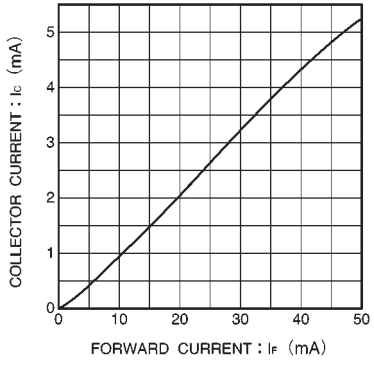


Fig.3 Collector current vs. forward current

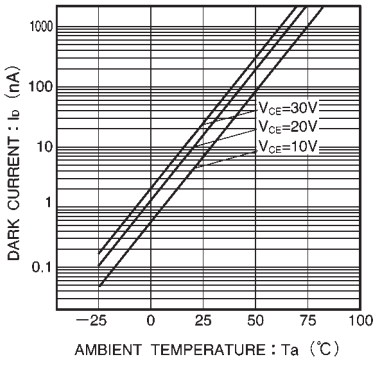


Fig.4 Dark current vs. ambient temperature

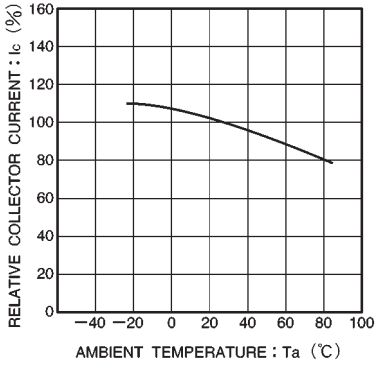


Fig.5 Relative output vs. ambient temperature

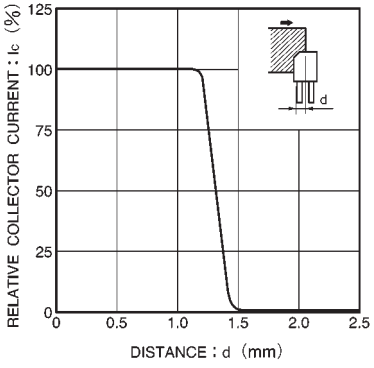


Fig.6 Relative output current vs. distance (I)

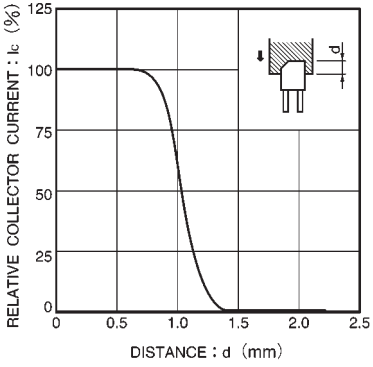


Fig.7 Relative output current vs. distance (Ⅱ)

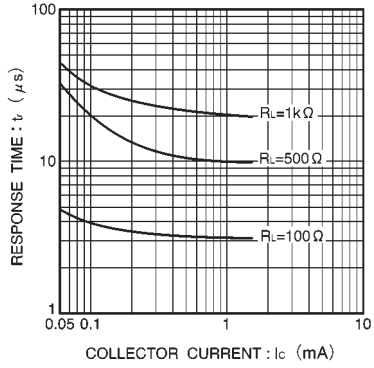


Fig.8 Response time vs. collector current

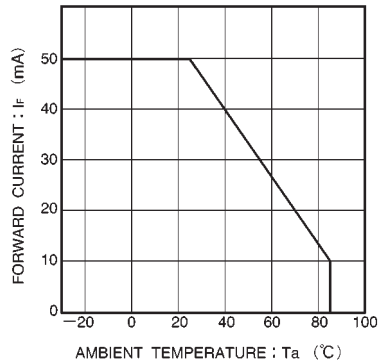


Fig.9 Forward current falloff

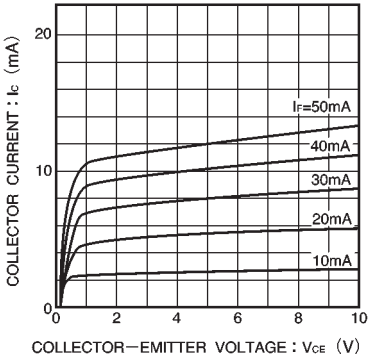
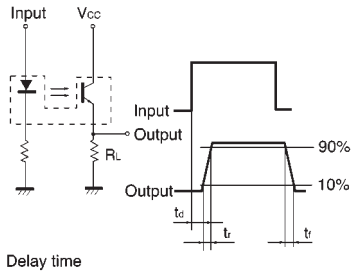


Fig.10 Output characteristics



td : Delay time
tr : Rise time (time for output current to rise from 10% to 90% of peak current)
tf : Fall time (time for output current to fall from 90% to 10% of peak current)

Fig.11 Response time measurement circuit