

Photo interrupter, double-layer mold type

RPI-124

The RPI-124 is an ultra-small size, double-layer mold photointerrupter.

●External dimensions (Units: mm)

●Applications

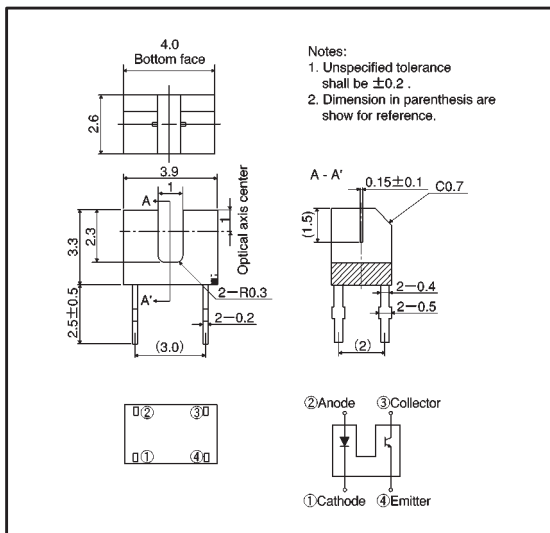
Optical control equipment

Cameras

Floppy disk drives

●Features

- 1) Ultra-small.
- 2) High-precision position detection (slit width = 0.15 mm).
- 3) Minimal influence from stray light.
- 4) Low collector-emitter saturation voltage.



●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		T_{opr}	$-25 \sim +85$	°C
Storage temperature		T_{stg}	$-30 \sim +100$	°C

●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	$I_F=50\text{mA}$
	Reverse current	I_R	—	—	10	μA	$V_R=5\text{V}$
Output characteristics	Dark current	I_{CE0}	—	—	0.5	μA	$V_{CE}=10\text{V}$
	Peak sensitivity wavelength	λ_P	—	800	—	nm	—
Transfer characteristics	Collector current	I_C	0.3	—	1.5	mA	$V_{CC}=5\text{V}$, $I_F=20\text{mA}$
	Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.3	V	$I_F=20\text{mA}$, $I_C=0.15\text{mA}$
	Response time	$t_r \cdot t_f$	—	10	—	μs	$V_{CC}=5\text{V}$, $I_F=20\text{mA}$, $R_L=100\Omega$

●Electrical and optical characteristic curves

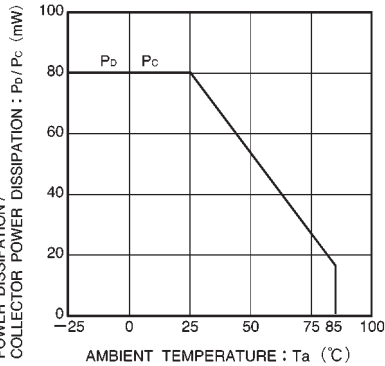


Fig.1 Power dissipation / collector power dissipation vs. ambient temperature

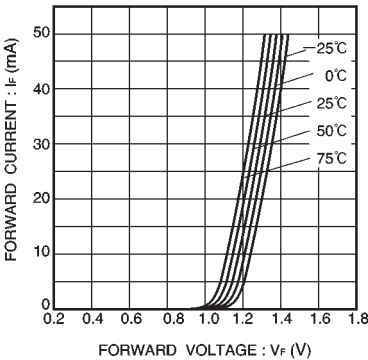


Fig.2 Forward current vs. forward voltage

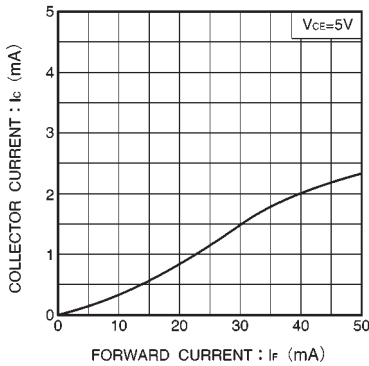


Fig.3 Collector current vs. forward current

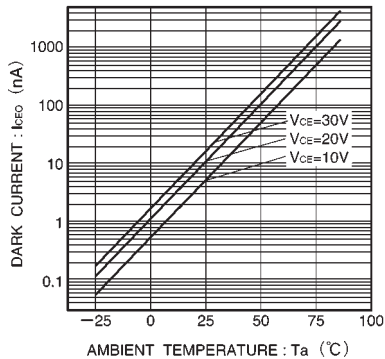


Fig.4 Dark current vs. ambient temperature

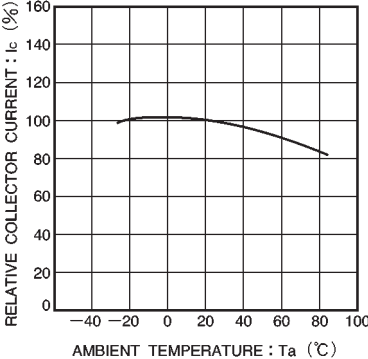


Fig.5 Relative output vs. ambient temperature

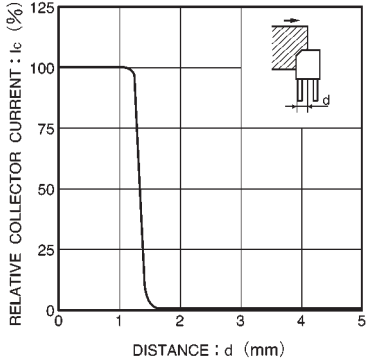


Fig.6 Relative output current vs. distance (I)

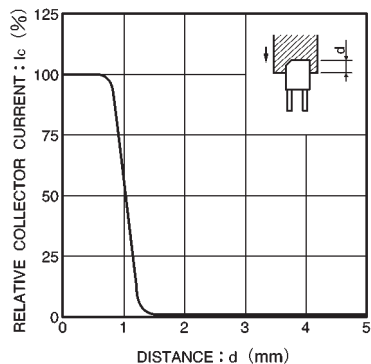


Fig.7 Relative output current vs. distance (II)

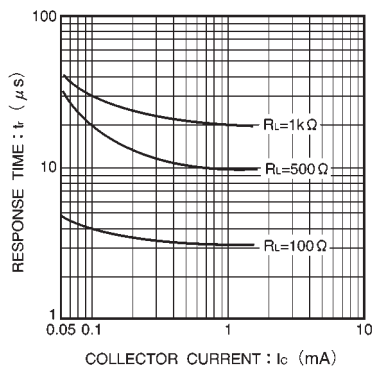


Fig.8 Response time vs. collector current

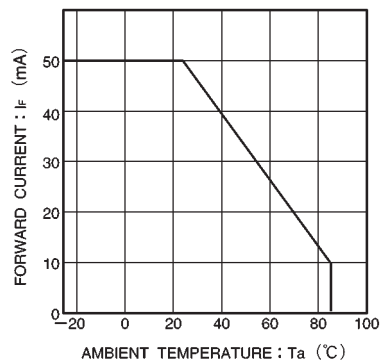


Fig.9 Forward current falloff

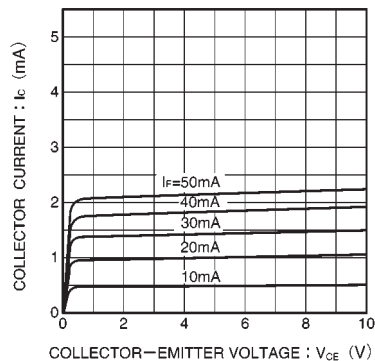


Fig.10 Output characteristics

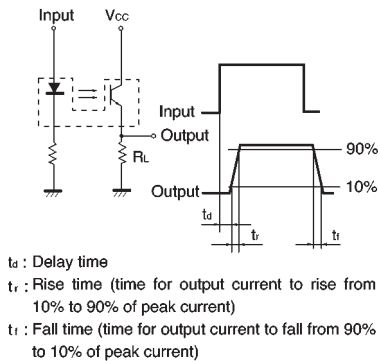


Fig.11 Response time measurement circuit