Photointerrupter, double-layer mold type
RPI-221

The RPI-221 is an ultra-small size, double–layer mold photointerrupter.
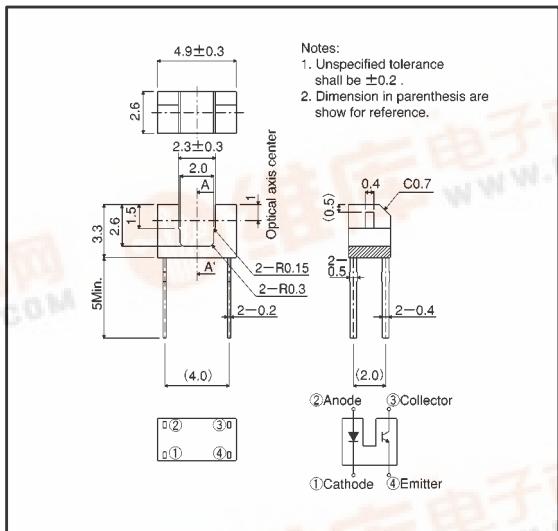
●Applications
Optical control equipment
Cameras
Floppy disk drives

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

●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	λ_P	—	800	—	nm	—
Transfer characteristics	Collector current	I_C	0.2	1.0	—	mA	V_{CE}=5V, I_F=20mA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.4	V	I_F=20mA, I_C=0.1mA
	Response time	tr・tf	—	10	—	μS	V_{CC}=5V, I_F=20mA, R_L=100Ω

●Electrical and optical characteristic curves
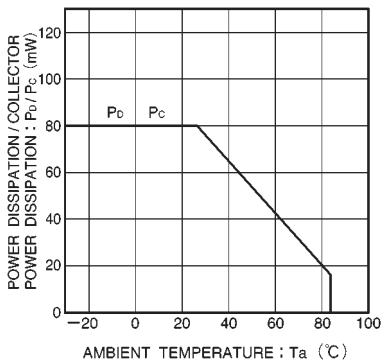
Fig.1 Power dissipation / collector power dissipation vs. ambient temperature
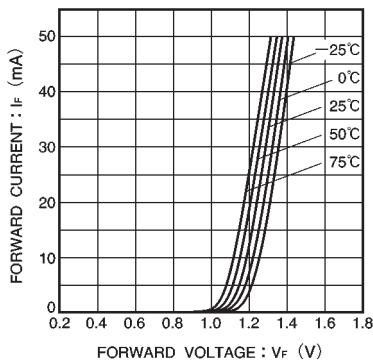
Fig.2 Forward current vs. forward voltage
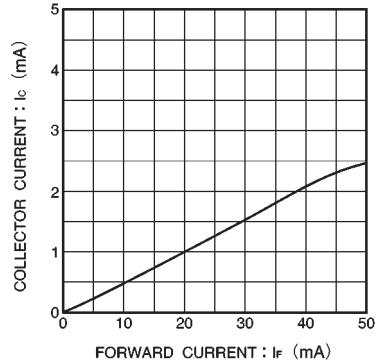
Fig.3 Collector current vs. forward current
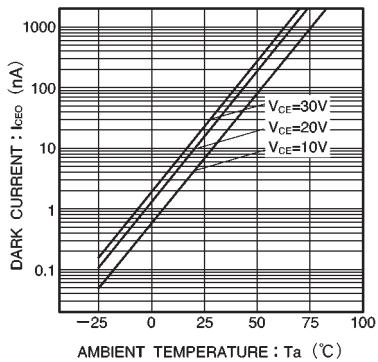
Fig.4 Dark current vs. ambient temperature
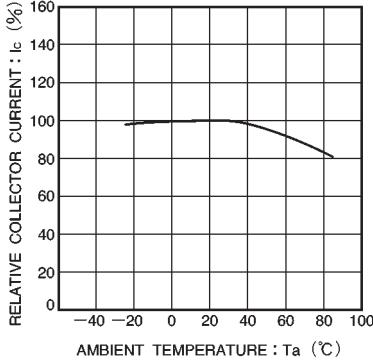
Fig.5 Relative output vs. ambient temperature

Fig.6 Relative output vs. distance (I)

Fig.7 Relative output vs. distance （Ⅱ）

Fig.8 Response time vs. output current

Fig.9 Forward current falloff

Fig.10 Output characteristics

Fig.11 Response time measurement circuit
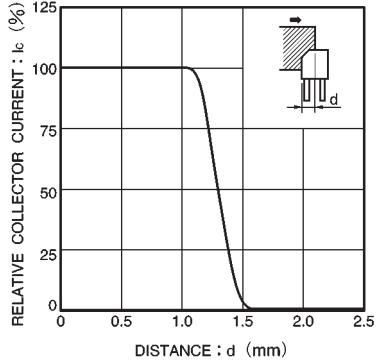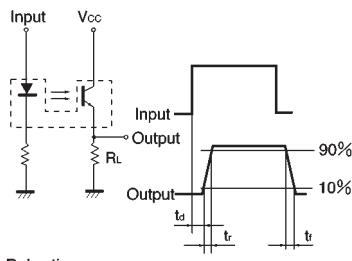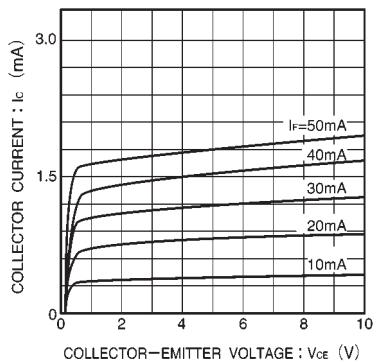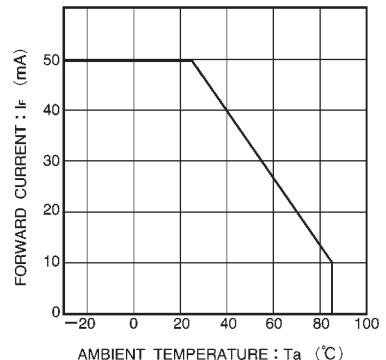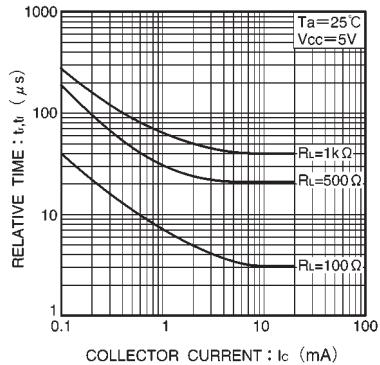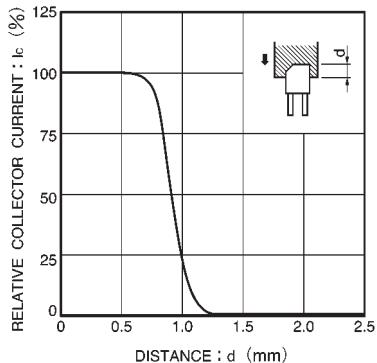
t_d : Delay time

t_r : Rise time (time for output current to rise from 10% to 90% of peak current)

t_f : Fall time (time for output current to fall from 90% to 10% of peak current)