Photointerrupter, double-layer mold type RPI-441C1

The RPI-441C1 is a compact, double-layer mold photointerrupter.

While the gap has a width of 4 mm, the body has the compact dimensions of 8 mm (w) \times 5.2 mm (h) \times 4.2 mm (d).

Applications

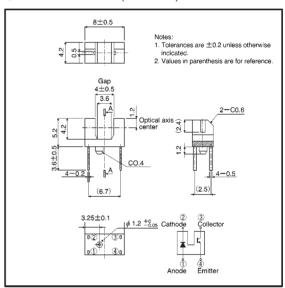
Optical control equipment

Facsimiles, printers

Features

- 1) Compact with a 4 mm gap.
- High precision position detection (slit width of 0.5 mm).
- 3) Minimal influence from stray light.
- 4) Low collector-emitter voltage.

External dimensions (Units: mm)



●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Input(LED)	Forward current	lF	50	mA
	Reverse voltage	VR	5	V
	Power dissipation	P□	80	mW
Output (photo- (transistor)	Collector-emitter voltage	VCEO	30	V
	Emitter-collector voltage	Veco	4.5	V
	Collector current	lc	30	mA
	Collector power dissipation	Pc	80	mW
Operating temperature		Topr	-25~ + 85	°C
Storage temperature		Tstg	−30~+85	°

Sensors RPI-441C1

Electrical and optical characteristics (Ta = 25°C)

Parameter		Symbol	Min.	Тур.	Max.	Unit	Conditions
Input charac- teristics	Forward volatge	VF	_	1.3	1.6	٧	I==50mA
	Reverse current	le	_	_	10	μΑ	V _R =5V
Output charac- teristics	Dark current	Iceo	_	_	0.5	μΑ	V _{CE} =10V
	Peak sensitivity wavelength	λp	_	800	_	nm	_
Transfer charac- teristics	Collector current	lc	0.2	1.0	_	mA	VcE=5V, IF=20mA
	Collector-emitter saturation voltage	VCE(sat)	_	_	0.4	٧	I==20mA, Ic=0.1mA
	Response time	tr • tf	_	10	_	μS	Vcc=5V, I _F =20mA, R _L =100 Ω

Electrical and optical characteristic curves

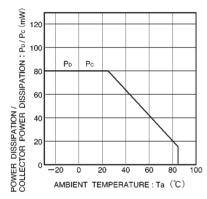


Fig.1 Power dissipation and collector power dissipation vs. ambient temperature

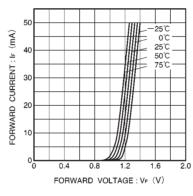


Fig.2 Forward current vs. forward voltage

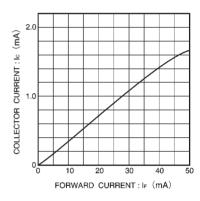


Fig.3 Collector current vs. forward current

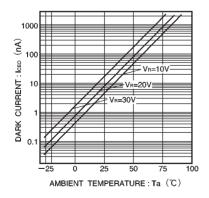


Fig.4 Dark current vs. ambient temperature

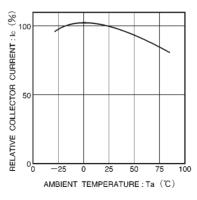


Fig.5 Relative output vs. ambient temperature

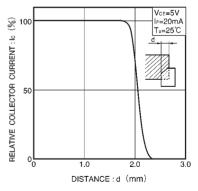


Fig.6 Relative output vs. distance (I)

Sensors RPI-441C1

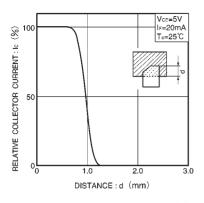


Fig.7 Relative output vs. distance (II)

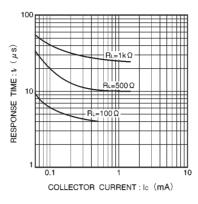


Fig.8 Response time vs. collector current

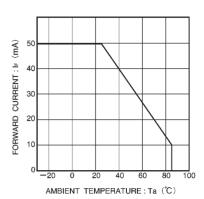


Fig.9 Forward current vs. ambient temperature

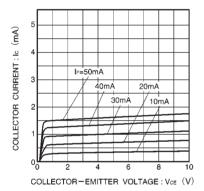
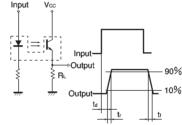


Fig.10 Output characteristics



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

Fig.11 Response time measurement circuit