

# RPI-5100

## Actuator-type photointerrupter



### Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Forward current	I <sub>f</sub>	50	mA
Reverse voltage	V <sub>r</sub>	5	V
Power dissipation	P <sub>d</sub>	80	mW
Collector-emitter voltage	V <sub>ceo</sub>	30	V
Emitter-collector voltage	V <sub>eco</sub>	4.5	V
Collector current	I <sub>c</sub>	30	mA
Collector power dissipation	P <sub>c</sub>	80	mW
Operating temperature	T <sub>opr</sub>	-25 to +85	°C
Storage temperature	T <sub>stg</sub>	-30 to +85	°C

### Applications

Optical control equipment  
Facsimiles  
Plain paper copiers

### Features

- 1) Compact.
- 2) Minimal influence from stray light.
- 3) Equipped with an actuator mount.

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V <sub>f</sub>	-	1.3	1.6	V	I <sub>f</sub> =50mA
Reverse current	I <sub>r</sub>	-	-	10	µA	V <sub>r</sub> =5V
Dark current	I <sub>ceo</sub>	-	-	0.5	µA	V <sub>ce</sub> =10V
Peak sensitivity wavelength	λ <sub>p</sub>	-	800	-	nm	-
Collector current	I <sub>c</sub>	0.2	1.0	-	mA	V <sub>ce</sub> =5V, I <sub>f</sub> =20mA
Collector-emitter saturation voltage	V <sub>ce(sat)</sub>	-	-	0.4	V	I <sub>f</sub> =20mA, I <sub>c</sub> =0.1mA
Response time	t <sub>rtf</sub>	-	10	-	µs	V <sub>ce</sub> =5V, I <sub>f</sub> =20mA, R <sub>L</sub> =100Ω
Cut-off frequency	f <sub>c</sub>	-	1	-	MHz	I <sub>f</sub> =50mA
Peak light emitting wavelength	λ <sub>p</sub>	-	950	-	nm	* Non-coherent infrared light emitting diode used.
Response time	t <sub>rtf</sub>	-	10	-	µs	V <sub>ce</sub> =5V, I <sub>c</sub> =1mA, R <sub>L</sub> =100Ω * This product is not designed to be protected against electromagnetic wave.
Maximum sensitivity wavelength	λ <sub>p</sub>	-	800	-	nm	-

### Electrical and optical characteristics curves

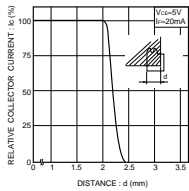


Fig.1 Relative output current vs. distance (I)

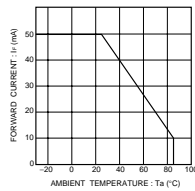


Fig.2 Forward current falloff

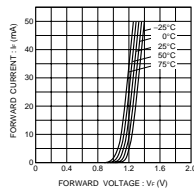


Fig.3 Forward current vs. forward voltage

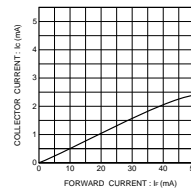


Fig.7 Collector current vs. forward current

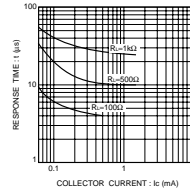


Fig.8 Response time vs. collector current

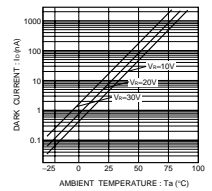


Fig.9 Dark current vs. ambient temperature

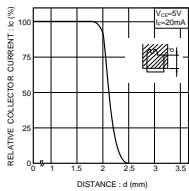


Fig.4 Relative output current vs. distance (II)

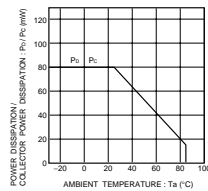


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

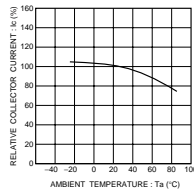


Fig.6 Relative output vs. ambient temperature

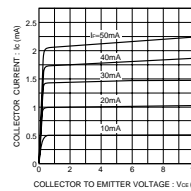


Fig.10 Output characteristics

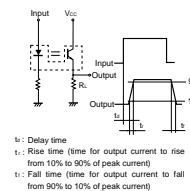
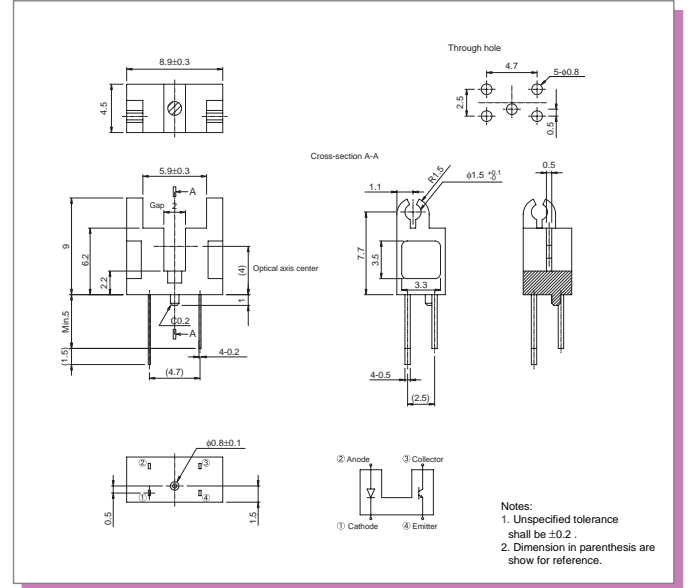


Fig.11 Response time measurement circuit

### External dimensions (Unit : mm)



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