

# RPI-441C1

## Photointerrupter, Small type



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

Parameter	Symbol	Limits	Unit
Forward current	$I_f$	50	mA
Reverse voltage	$V_R$	5	V
Power dissipation	$P_D$	80	mW
Collector-emitter voltage	$V_{CE0}$	30	V
Emitter-collector voltage	$V_{EC0}$	4,5	V
Collector current	$I_C$	30	mA
Collector power dissipation	$P_C$	80	mW
Operating temperature	$T_{opr}$	-25 to +85	°C
Storage temperature	$T_{stg}$	-30 to +85	°C

### Applications

Optical control equipment  
Facsimiles  
Printers

### Features

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

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	$V_f$	1,3	1,6	-	V	$I_f=50mA$
Reverse current	$I_R$	-	10	-	$\mu A$	$V_R=5V$
Dark current	$I_{C0}$	-	0,5	-	$\mu A$	$V_{CE}=10V$
Peak sensitivity wavelength	$\lambda_p$	-	800	-	nm	-
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	$t_{rf}$	-	10	-	$\mu s$	$V_{CE}=5V, I_f=20mA, R_L=100\Omega$
Cut-off frequency	$f_c$	-	1	-	MHz	$I_f=50mA$
Peak light emitting wavelength	$\lambda_p$	-	950	-	nm	$\lambda$ Nonchalcogen Infrared light emitting diode used.
Response time	$t_{rf}$	-	10	-	$\mu s$	$V_{CE}=5V, I_C=1mA, R_L=100\Omega$ * This product is not designed to be protected against electromagnetic wave.
Maximum sensitivity wavelength	$\lambda_p$	-	800	-	nm	-

### Electrical and optical characteristics curves

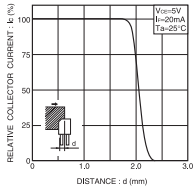


Fig.1 Relative output current vs. distance (l)

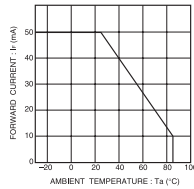


Fig.2 Forward current falloff

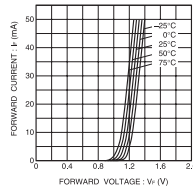


Fig.3 Forward current vs. forward voltage

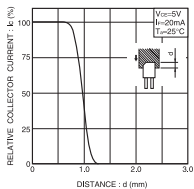


Fig.4 Relative output current vs. distance (l)

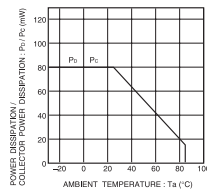


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

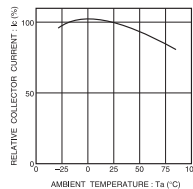


Fig.6 Relative output current vs. ambient temperature

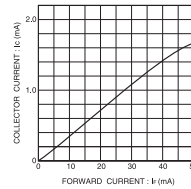


Fig.7 Collector current vs. forward current

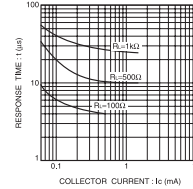


Fig.8 Response time vs. collector current

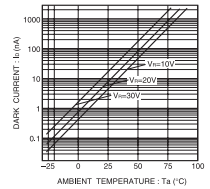


Fig.9 Dark current vs. ambient temperature

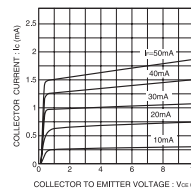


Fig.10 Output characteristics

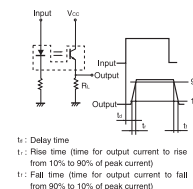
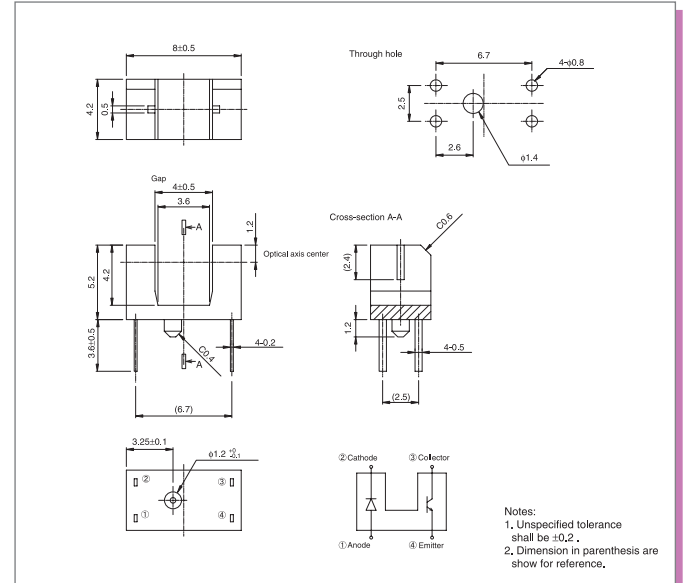


Fig.11 Response time measurement circuit

### External dimensions (Unit : mm)



Notes:  
1. Unspecified tolerance shall be  $\pm 0.2$ .  
2. Dimension in parenthesis are show for reference.

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