

Photointerrupter, Ultraminiature 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	$T_{op}$	-25 to +85	°C
Storage temperature	$T_{stg}$	-40 to +100	°C

Applications

- Optical control equipment
- Cameras
- Floppy disk drives

Features

- Ultra-small.
- Minimal influence from stray light.
- Low collector-emitter saturation voltage.

Electrical and optical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	$V_f$	-	1.3	1.6	V	$I_f=50\text{mA}$
Reverse current	$I_R$	-	-	10	$\mu\text{A}$	$V_R=5\text{V}$
Dark current	$I_{CDO}$	-	-	0.5	$\mu\text{A}$	$V_{CE}=10\text{V}$
Peak sensitivity wavelength	$\lambda_p$	-	800	-	nm	-
Collector current	$I_C$	0.18	-	1.08	mA	$V_{CE}=0.7\text{V}, I_f=3\text{mA}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	0.3	V	$I_f=20\text{mA}, I_C=0.3\text{mA}$
Response time	$t_{rd}$	-	10	-	$\mu\text{s}$	$V_{CC}=5\text{V}, I_f=20\text{mA}, R_L=100\Omega$
Cut-off frequency	$f_c$	-	1	-	MHz	$I_f=50\text{mA}$
Peak light emitting wavelength	$\lambda_p$	-	950	-	nm	* Non-coherent infrared light emitting diode used.
Response time	$t_{rd}$	-	10	-	$\mu\text{s}$	$V_{CC}=5\text{V}, I_C=1\text{mA}, R_L=100\Omega$ * This product is not designed to be protected against electromagnetic wave.
Maximum sensitivity wavelength	$\lambda_p$	-	800	-	nm	-

Electrical and optical characteristics curves

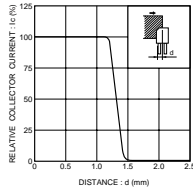


Fig.1 Relative output current vs. distance (I)

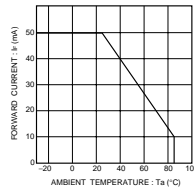


Fig.2 Forward current falloff

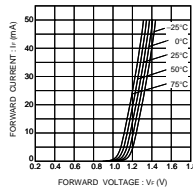


Fig.3 Forward current vs. forward voltage

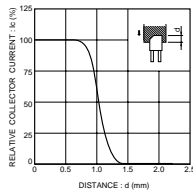


Fig.4 Relative output current vs. distance (II)

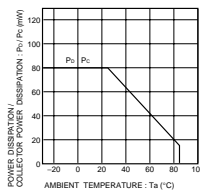


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

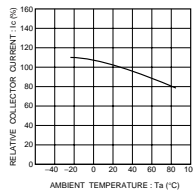
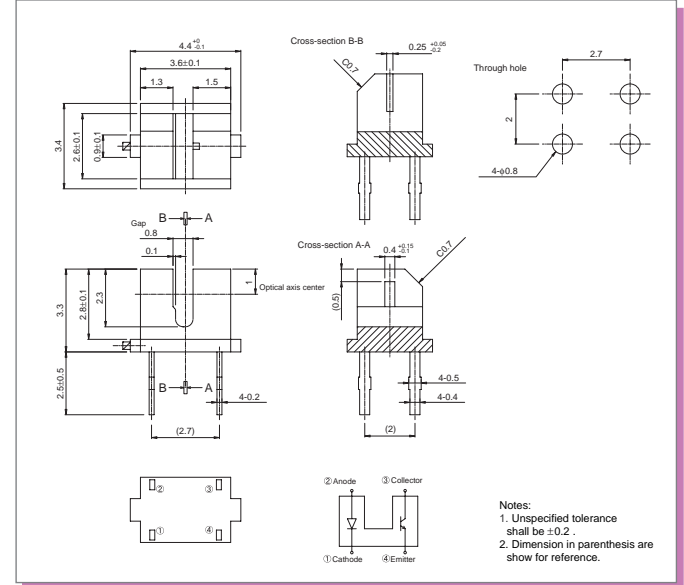


Fig.6 Relative output vs. ambient temperature

External dimensions (Unit : mm)



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

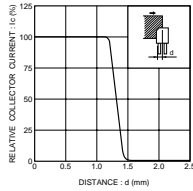


Fig.7 Collector current vs. forward current

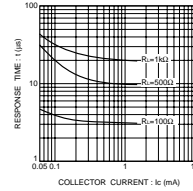


Fig.8 Response time vs. collector current

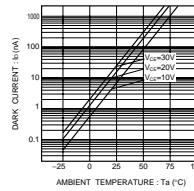


Fig.9 Dark current vs. ambient temperature

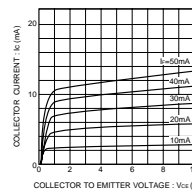


Fig.10 Output characteristics

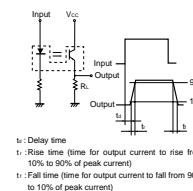


Fig.11 Response time measurement circuit

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