

Photointerrupter, Small type



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_{CE0}	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 to +85	°C
Storage temperature	T_{stg}	-30 to +100	°C

Applications

- Optical control equipment
- Cameras
- Floppy disk drives
- Digital video disc

Features

- 1) Ultra-small.
- 2) Minimal influence from stray light.
- 3) Low collector-emitter saturation voltage.

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	$I_F=50\text{mA}$
Reverse current	I_R	-	-	10	μA	$V_R=5\text{V}$
Output characteristics						
Dark current	I_{CE0}	-	-	0.5	μA	$V_{CE}=10\text{V}$
Peak sensitivity wavelength	λ_P	-	800	-	nm	-
Transfer characteristics						
Collector current	I_C	0.18	0.3	0.95	mA	$V_{CE}=5\text{V}, I_F=10\text{mA}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	0.4	V	$I_F=20\text{mA}, I_C=0.1\text{mA}$
Response time	t_{r-f}	-	10	-	μs	$V_{CC}=5\text{V}, I_F=20\text{mA}, R_L=100\Omega$
Infrared light emitter diode						
Cut-off frequency	f_c	-	1	-	MHz	$I_F=50\text{mA}$ * Non-coherent Infrared light emitting diode used.
Peak light emitting wavelength	λ_P	-	950	-	nm	-
Photo transistor						
Response time	t_{r-f}	-	10	-	μs	$V_{CC}=5\text{V}, I_C=1\text{mA}, R_L=100\Omega$ * This product is not designed to be protected against electromagnetic wave.
Maximum sensitivity wavelength	λ_P	-	800	-	nm	-

Electrical and optical characteristics curves

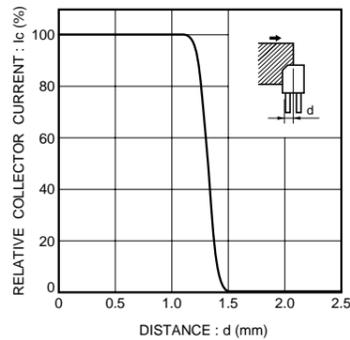


Fig.1 Relative output current vs. distance (I)

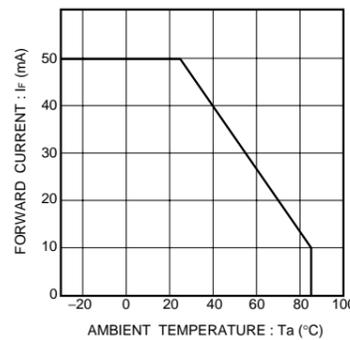


Fig.2 Forward current falloff

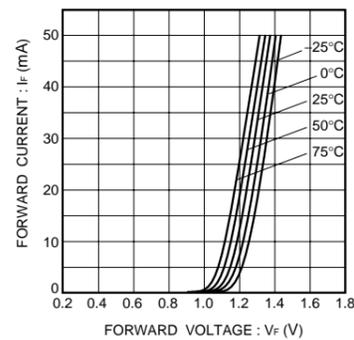


Fig.3 Forward current vs. forward voltage

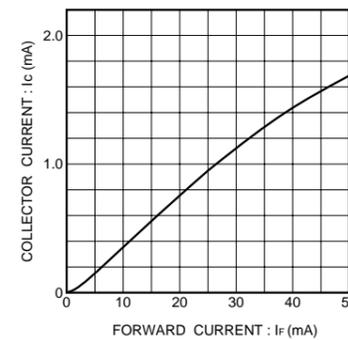


Fig.7 Collector current vs. forward current

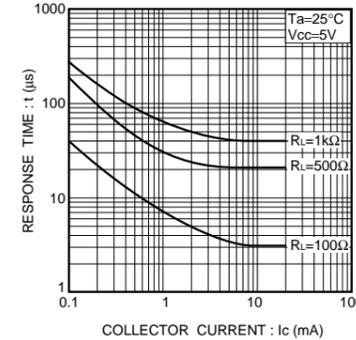


Fig.8 Response time vs. collector current

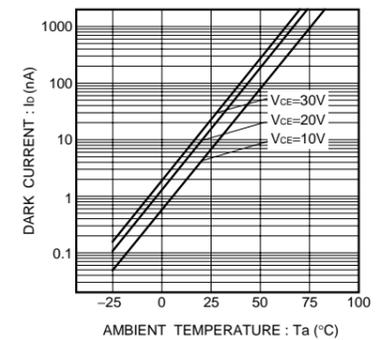


Fig.9 Dark current vs. ambient temperature

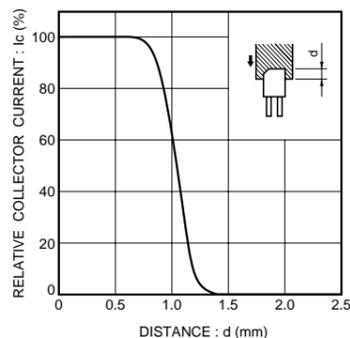


Fig.4 Relative output current vs. distance (II)

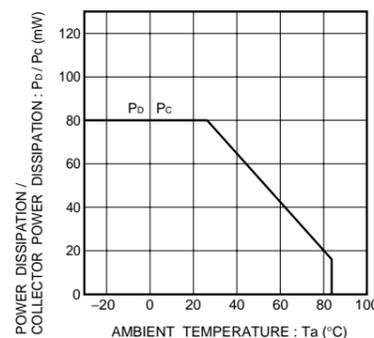


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

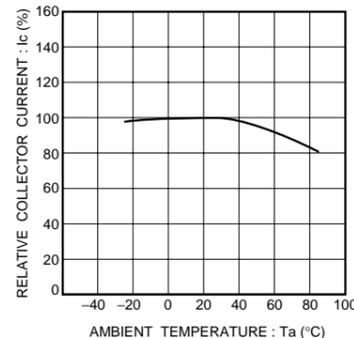


Fig.6 Relative output vs. ambient temperature

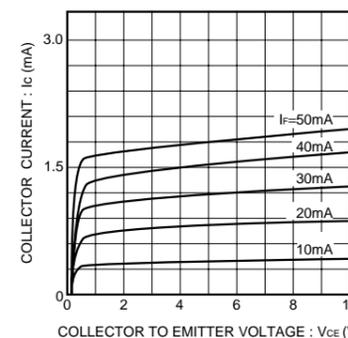


Fig.10 Output characteristics

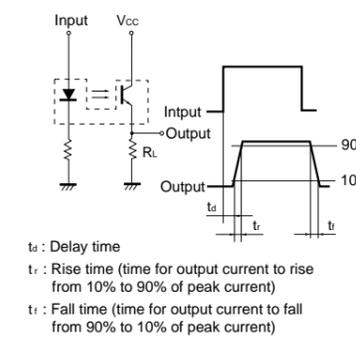
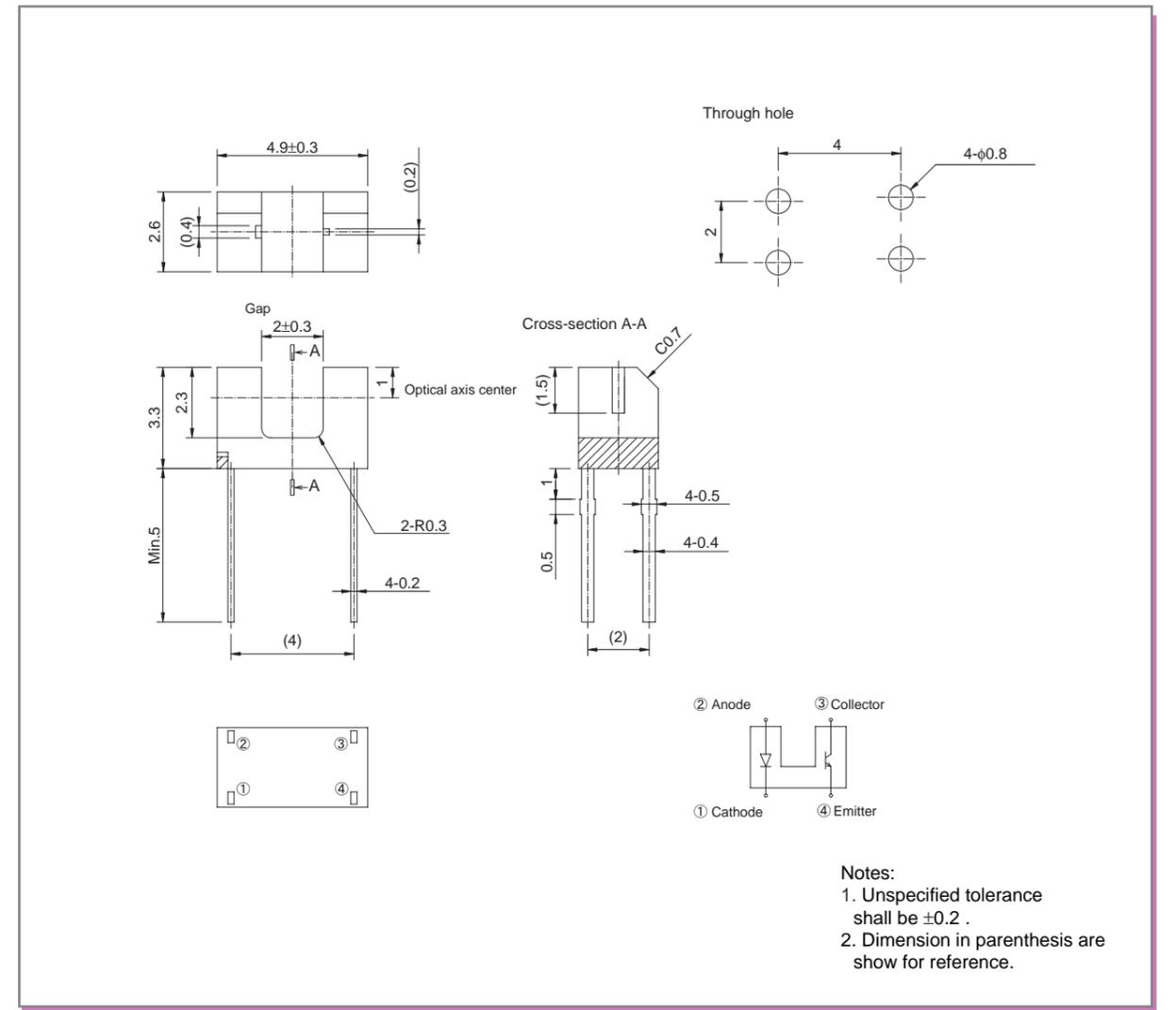


Fig.11 Response time measurement circuit

External dimensions (Unit : mm)



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