

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 _{CEO}	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 +85	°C

Applications

- Floppy disk drives
- Movie equipment
- Cameras
- Printers

Features

- 1) Compact package based on the double-mold.
- 2) Method High resolution (slit width = 2.0mm)
- 3) Gap between emitter and detector is 2.0mm.

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 =50mA
	Reverse current	I _R	-	10	μA	V _R =5V
Output characteristics	Dark current	I _{CEO}	-	0.5	μA	V _{CE} =10V
	Peak sensitivity wavelength	λ _P	800	-	nm	-
Transfer characteristics	Collector current	I _C	0.35	1.2	mA	V _{CE} =5V, I _F =20mA
	Collector-emitter saturation voltage	V _{CE(sat)}	-	0.4	V	I _F =20mA, I _C =0.2mA
Infrared light emitting diode	Response time	t _r +t _f	10	-	μs	V _{CC} =5V, I _F =20mA, R _L =100Ω
	Cut-off frequency	f _c	1	-	MHz	I _F =50mA * Non-coherent Infrared light emitting diode used.
Photo transistor	Peak light emitting wavelength	λ _P	950	-	nm	-
	Response time	t _r +t _f	10	-	μs	V _{CC} =5V, I _C =1mA, R _L =100Ω * This product is not designed to be protected against electromagnetic wave.
Maximum sensitivity wavelength	λ _P	800	-	nm	-	

Electrical and optical characteristics curves

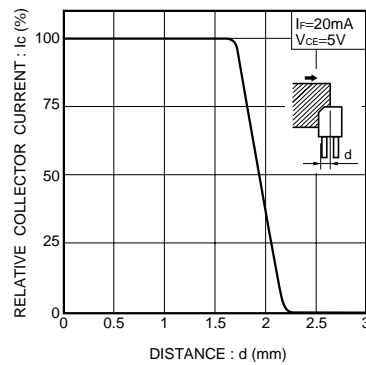


Fig.1 Relative output current vs. distance (I)

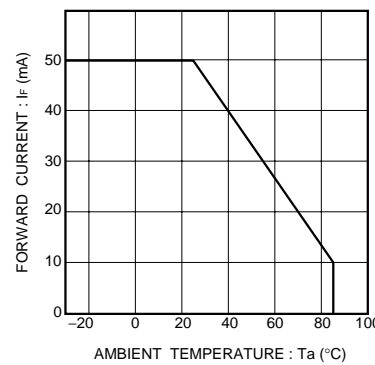


Fig.2 Forward current falloff

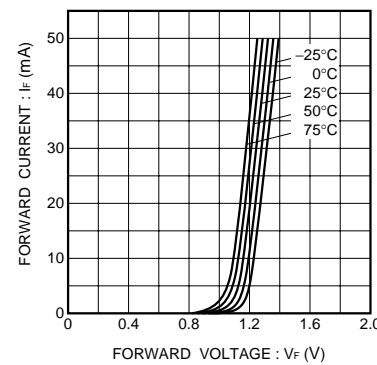


Fig.3 Forward current vs. forward voltage

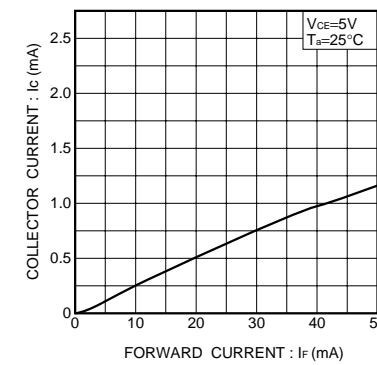


Fig.7 Collector current vs. forward current

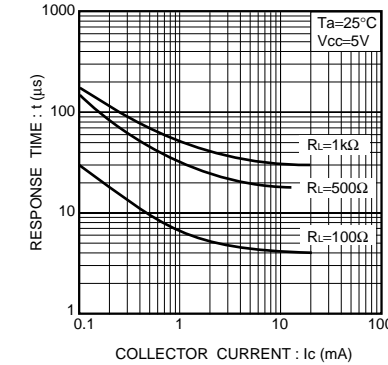


Fig.8 Response time vs. collector current

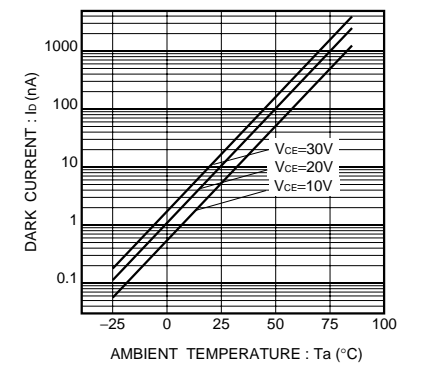


Fig.9 Dark current vs. ambient temperature

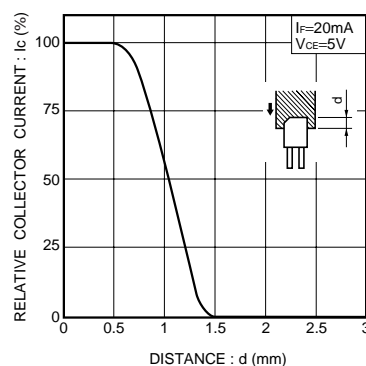


Fig.4 Relative output current vs. distance (II)

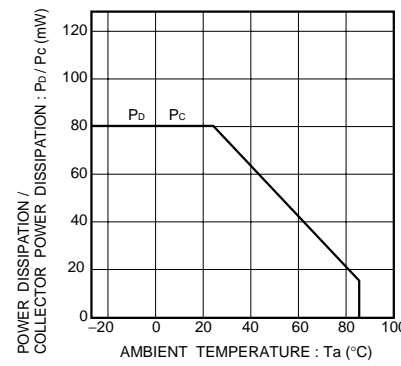


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

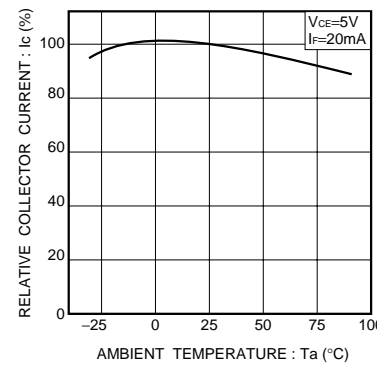


Fig.6 Relative output vs. ambient temperature

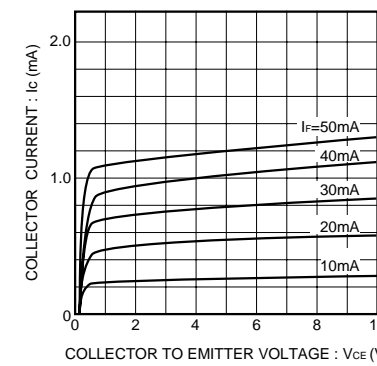
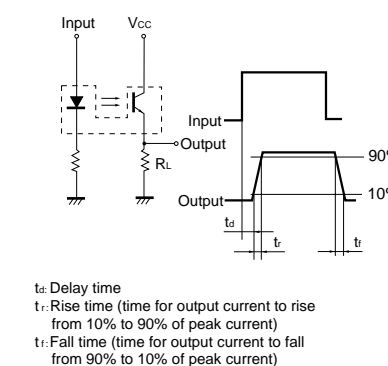


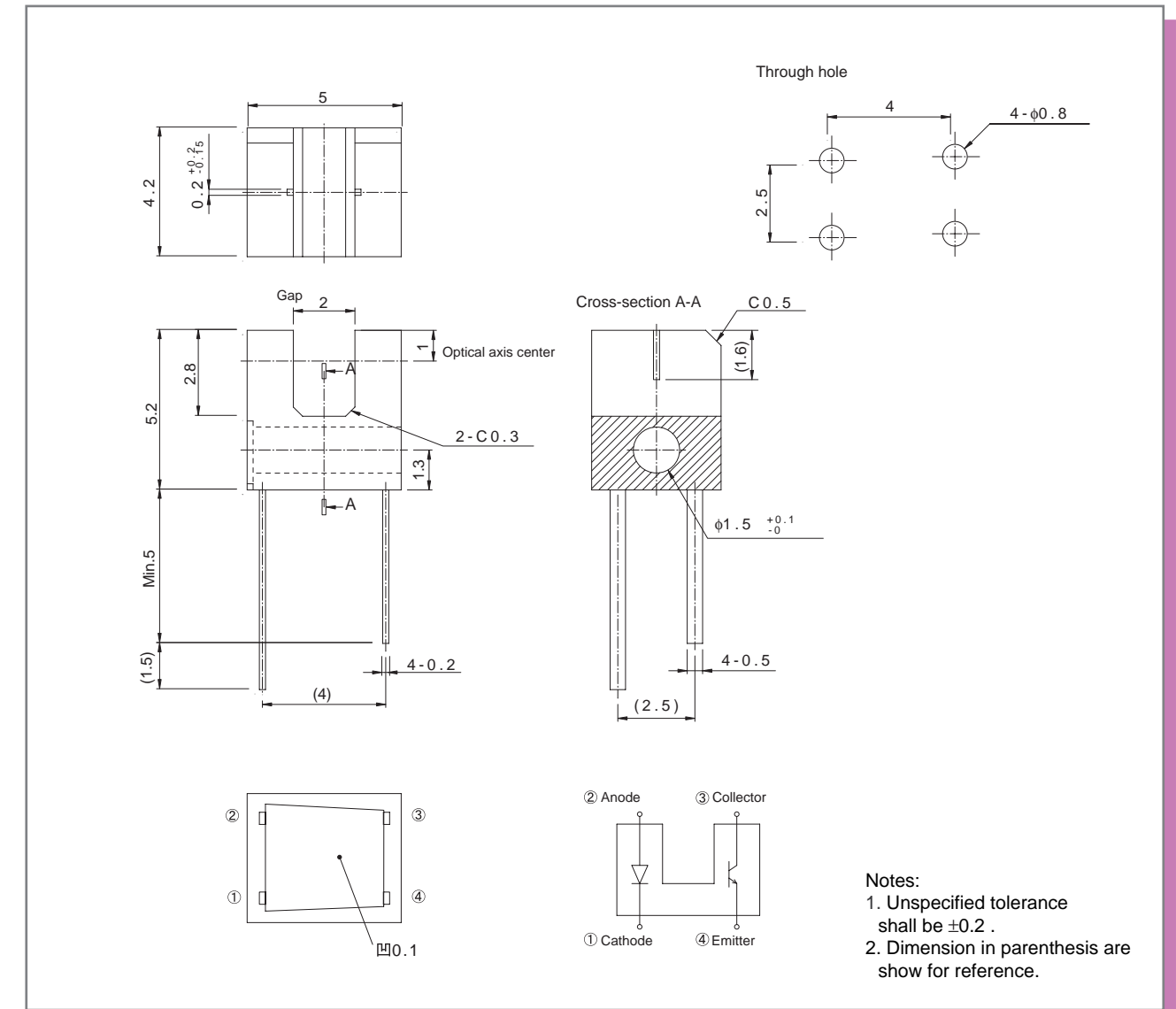
Fig.10 Output characteristics



t_d Delay time
 t_r Rise time (time for output current to rise from 10% to 90% of peak current)
 t_f Fall time (time for output current to fall from 90% to 10% of peak current)

Fig.11 Response time measurement circuit

External dimensions (Unit : mm)



Notes:
 1. Unspecified tolerance shall be ±0.2.
 2. Dimension in parenthesis show for reference.

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