

Photointerrupter, Small type



Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
<b>Input (LED)</b>			
Forward current	I <sub>F</sub>	50	mA
Reverse voltage	V <sub>R</sub>	5	V
Power dissipation	P <sub>D</sub>	80	mW
<b>Output (photo-transistor)</b>			
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 +100	°C

Applications

Floppy disk drives  
Printers  
CD-ROM

Features

- 1) Compact package based on the double-mold method.
- 2) High resolution (slit width = 0.4mm)
- 3) Gap between emitter and detector is 2.0mm.

Electrical and optical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
<b>Input charac-teristics</b>						
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
<b>Output charac-teristics</b>						
Dark current	I <sub>CEO</sub>	-	-	0.5	μA	V <sub>CE</sub> =10V
Peak sensitivity wavelength	λ <sub>P</sub>	-	800	-	nm	-
<b>Transfer charac-teristics</b>						
Collector current	I <sub>C</sub>	0.5	-	-	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> =0.3mA
Response time	tr+tf	-	10	-	μs	V <sub>CC</sub> =5V, I <sub>F</sub> =20mA, R <sub>L</sub> =100Ω
<b>Infrared light emitter diode</b>						
Cut-off frequency	f <sub>c</sub>	-	1	-	MHz	I <sub>F</sub> =50mA * Non-coherent Infrared light emitting diode used.
Peak light emitting wavelength	λ <sub>P</sub>	-	950	-	nm	-
<b>Photo transistor</b>						
Response time	tr+tf	-	10	-	μs	V <sub>CC</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

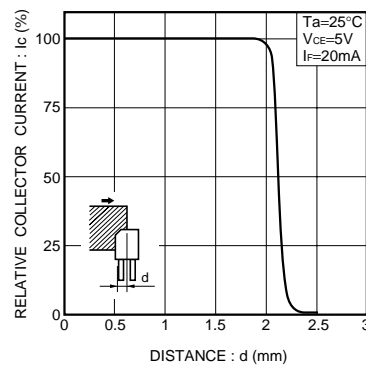


Fig.1 Relative output current vs. distance (I)

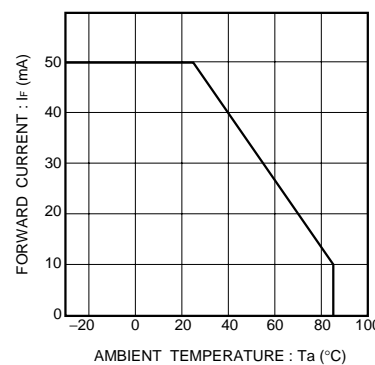


Fig.2 Forward current falloff

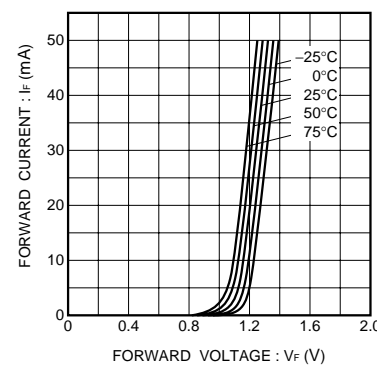


Fig.3 Forward current vs. forward voltage

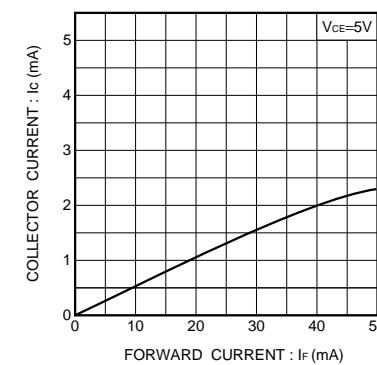


Fig.7 Collector current vs. forward current

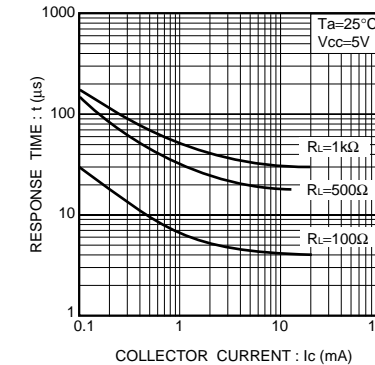


Fig.8 Response time vs. collector current

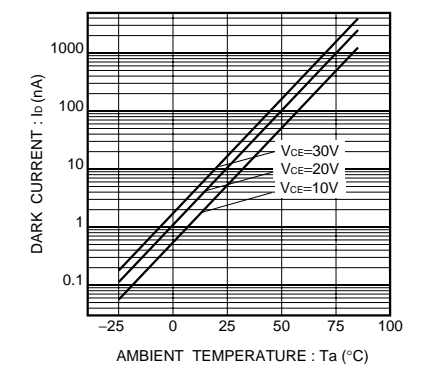


Fig.9 Dark current vs. ambient temperature

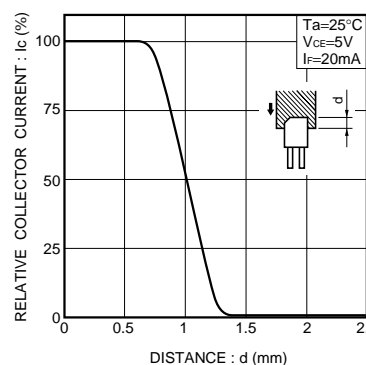


Fig.4 Relative output current vs. distance (II)

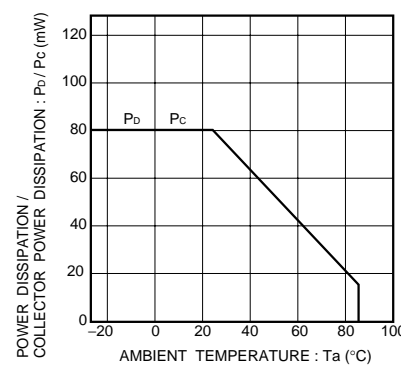


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

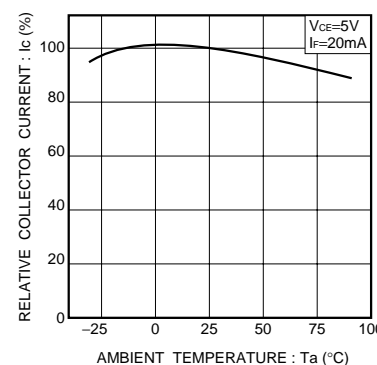


Fig.6 Relative output vs. ambient temperature

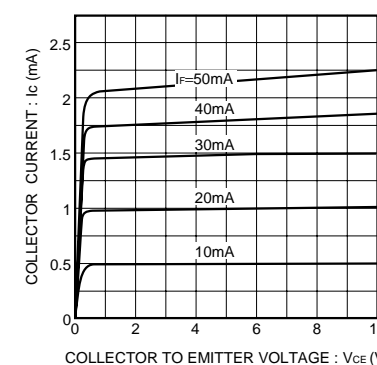


Fig.10 Output characteristics

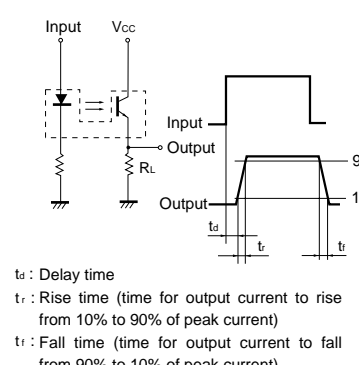
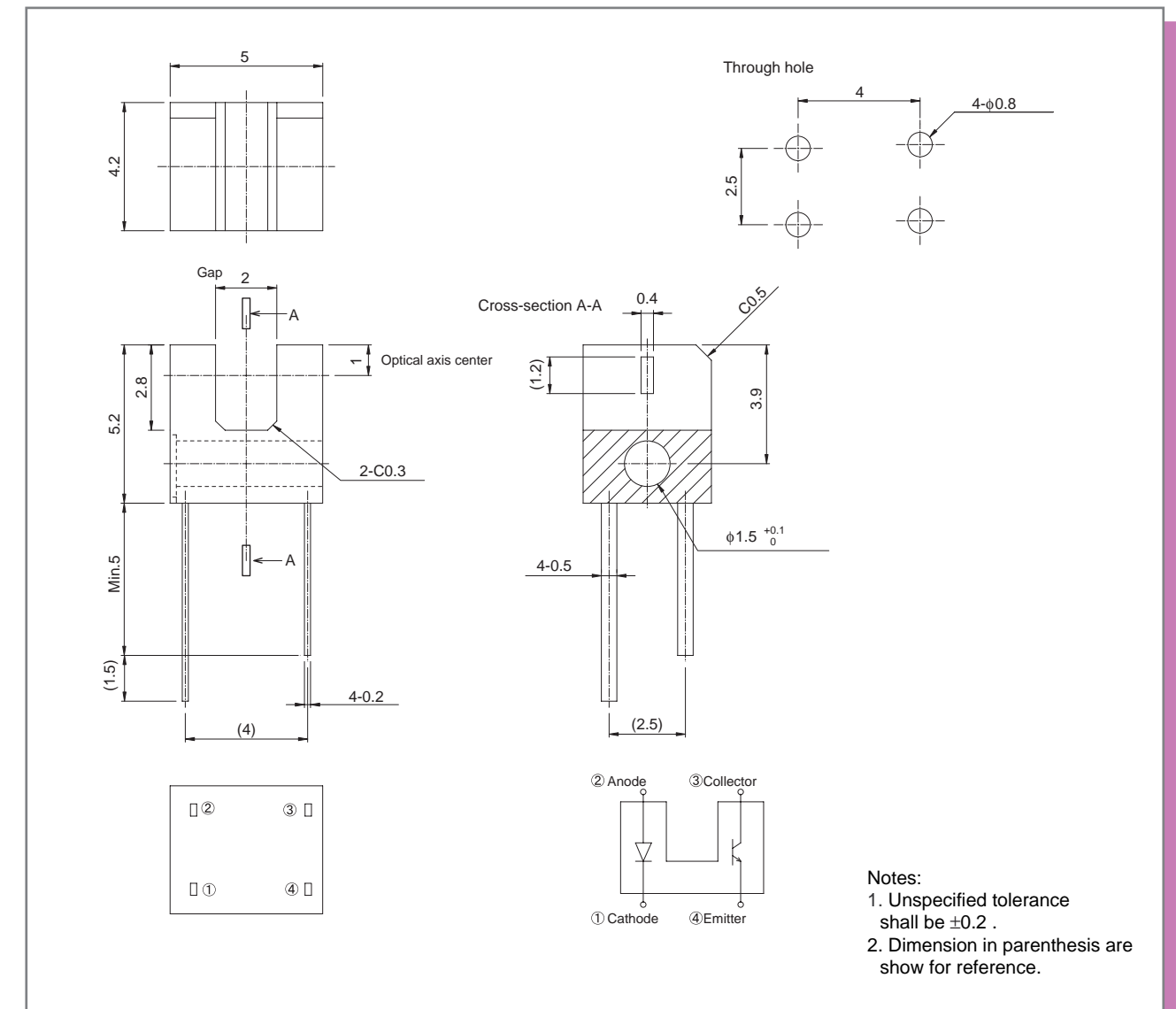


Fig.11 Response time measurement circuit

External dimensions (Unit : mm)



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

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