

Photointerrupter, Small type



Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Input (LED)	Forward current	I <sub>F</sub>	50 mA
	Reverse voltage	V <sub>R</sub>	5 V
	Power dissipation	P <sub>D</sub>	80 mW
Output (photo-transistor)	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 +85	°C

Applications

- Floppy disk drives
- Printers
- Facsimiles
- VCR

Features

- Positioning pin enables precision mounting.
- Gap between emitter and detector is 3.0mm.
- Compact

Electrical and optical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	
Input charac-teristics	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
Output charac-teristics	Dark current	I <sub>CEO</sub>	-	0.5	μA	V <sub>CE</sub> =10V	
	Peak sensitivity wavelength	λ <sub>P</sub>	-	800	nm	-	
Transfer charac-teristics	Collector current	I <sub>C</sub>	0.2	1.0	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> =0.1mA
	Response time	t <sub>r</sub> -t <sub>f</sub>	-	10	-	μs	V <sub>CC</sub> =5V, I <sub>F</sub> =20mA, R <sub>L</sub> =100Ω
Infrared light emitter diode	Cut-off frequency	f <sub>c</sub>	1	-	MHz	I <sub>F</sub> =50mA	
	Peak light emitting wavelength	λ <sub>P</sub>	-	950	nm	* Non-coherent Infrared light emitting diode used.	
Photo transistor	Response time	t <sub>r</sub> -t <sub>f</sub>	-	10	μs	V <sub>CC</sub> =5V, I <sub>C</sub> =1mA, R <sub>L</sub> =100Ω	
	Maximum sensitivity wavelength	λ <sub>P</sub>	-	800	nm	* This product is not designed to be protected against electromagnetic wave.	

Electrical and optical characteristics curves

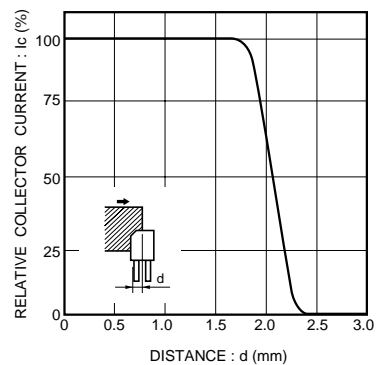


Fig.1 Relative output current vs. distance (I)

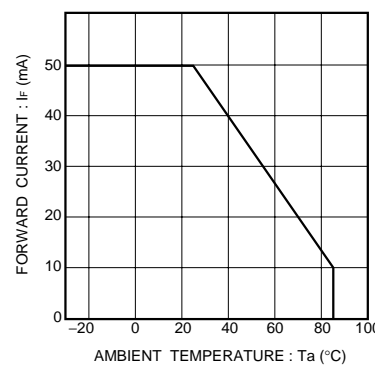


Fig.2 Forward current falloff

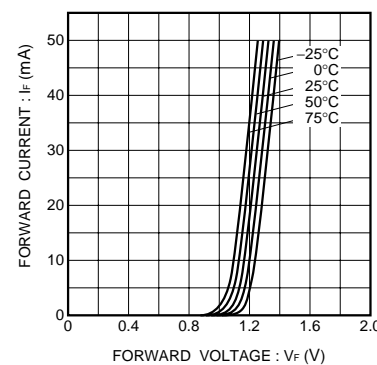


Fig.3 Forward current vs. forward voltage

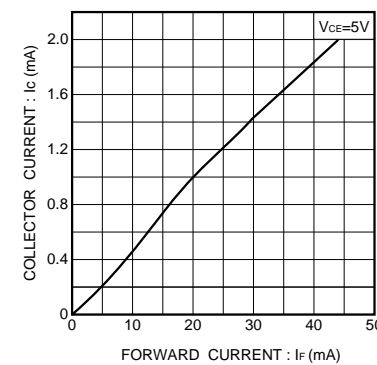


Fig.7 Collector current vs. forward current

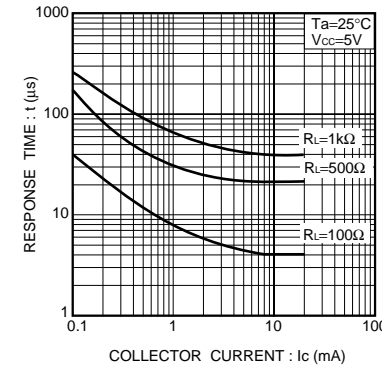


Fig.8 Response time vs. collector current

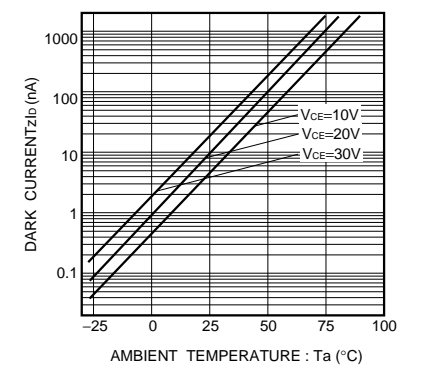


Fig.9 Dark current vs. ambient temperature

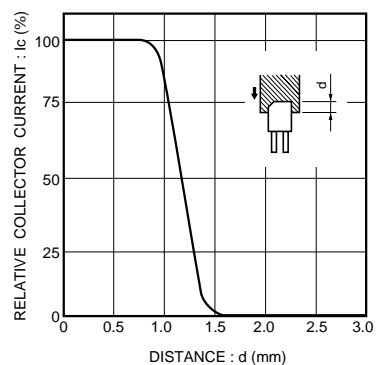


Fig.4 Relative output current vs. distance (II)

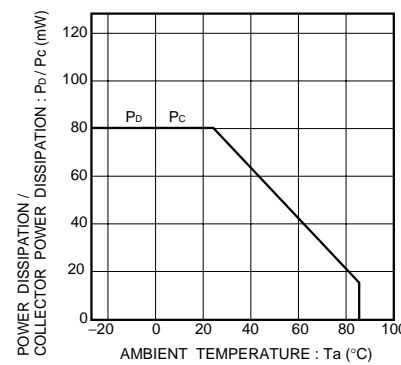


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

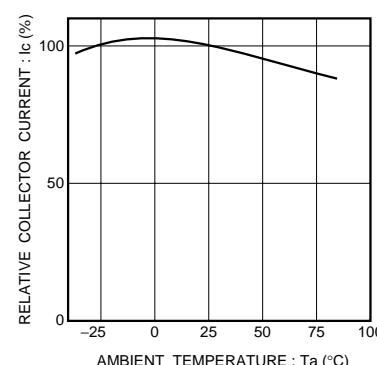


Fig.6 Relative output vs. ambient temperature

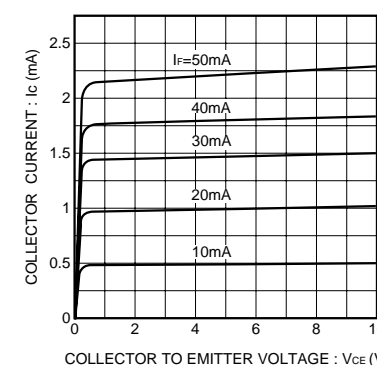


Fig.10 Output characteristics

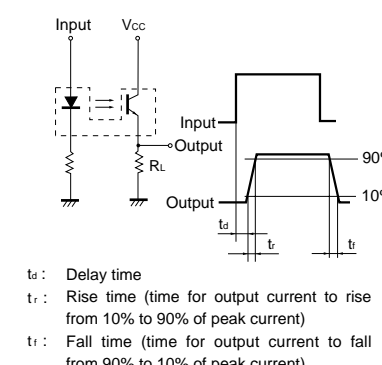
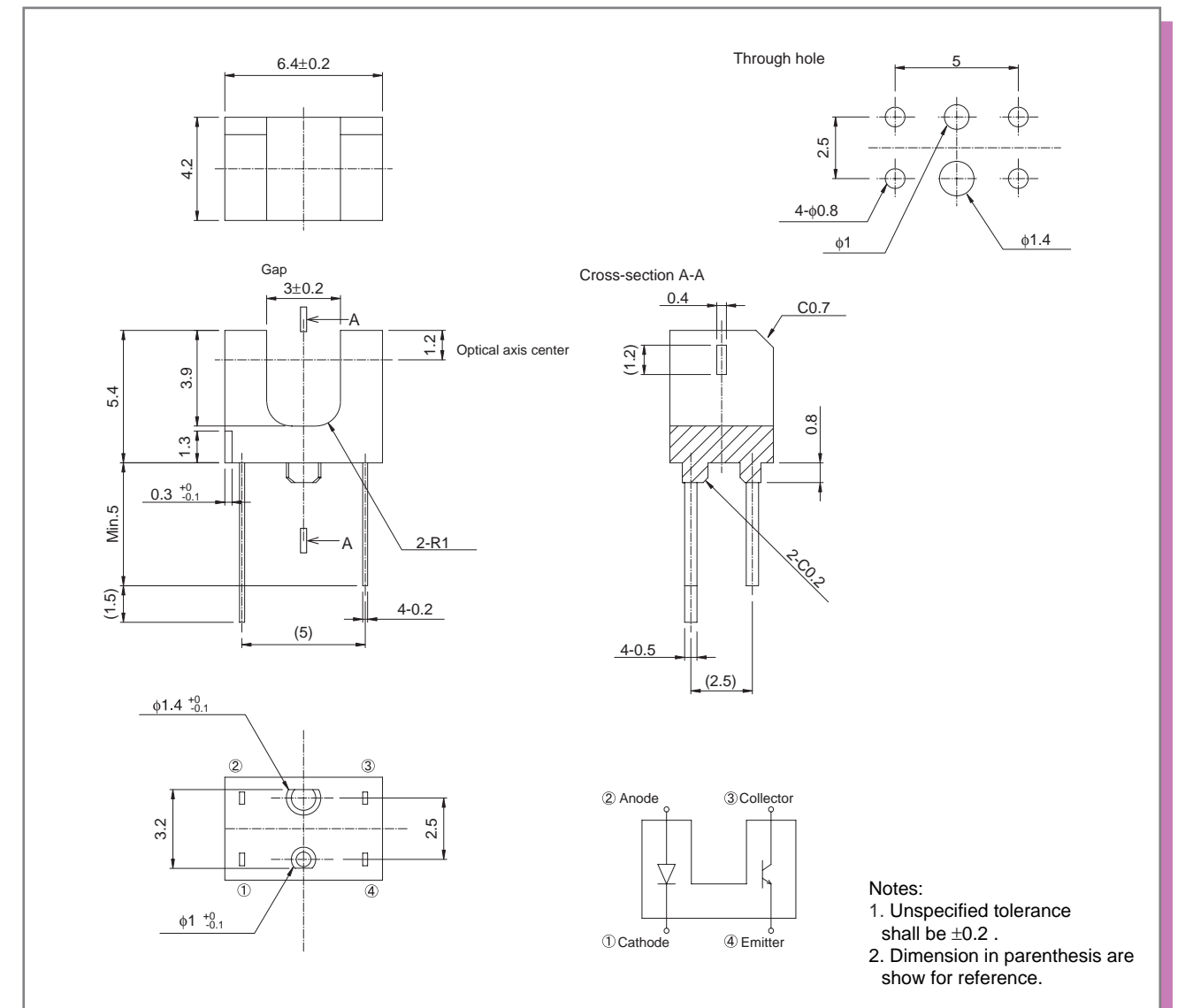


Fig.11 Response time measurement circuit

External dimensions (Unit : mm)



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

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