

Photointerrupter, General 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>CE0</sub>	30 V
	Emitter-collector voltage	V <sub>E0C</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>	-40 to +85	°C
Soldering temperture	T <sub>sol</sub>	260 / 3 *	°C / s

\* 1mm from the body bottom.

Applications

Printers  
Facsimiles  
AV equipment

Features

- 1) Heat resistance (170°C).
- 2) Small gap (0.5mm) and good accuracy.
- 3) Quick response time.
- 4) Filter against visible ray is built-in.

Electrical and optical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	
Input characteristics	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 characteristics	Dark current	I <sub>CE0</sub>	-	-	0.5	μA	V <sub>CE</sub> =10V
	Peak sensitivity wavelength	λ <sub>P</sub>	-	800	-	nm	-
Transfer characteristics	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>	-	0.1	0.5	V	I <sub>F</sub> =20mA, I <sub>C</sub> =0.5mA
	Response time	Rise time	t <sub>r</sub>	-	10	-	μs
Fall time		t <sub>f</sub>	-	10	-	μs	
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 * 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

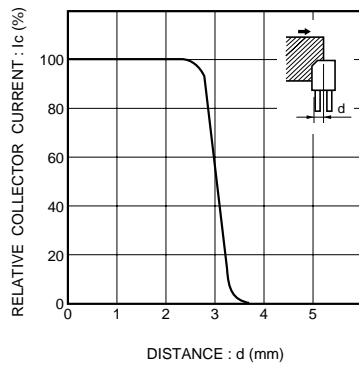


Fig.1 Relative output vs. distance (I)

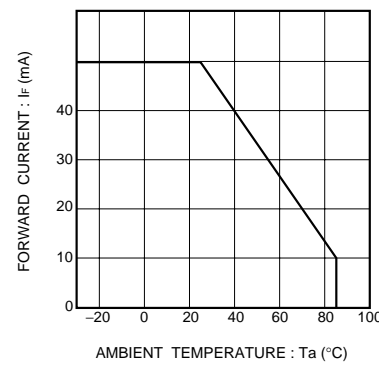


Fig.2 Forward current falloff

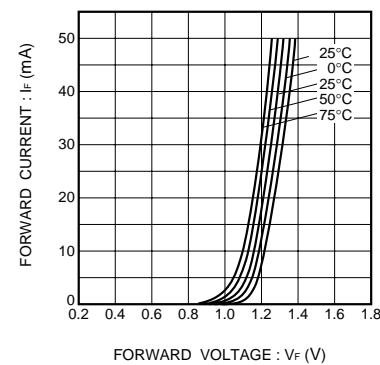


Fig.3 Forward current vs. forward voltage

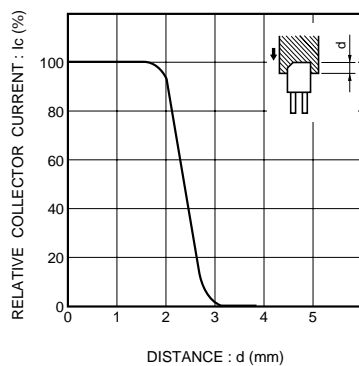


Fig.4 Relative output vs. distance (II)

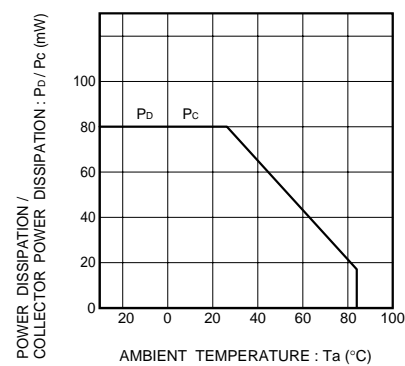


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

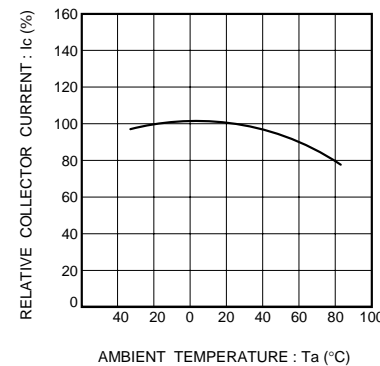


Fig.6 Relative output vs. ambient temperature

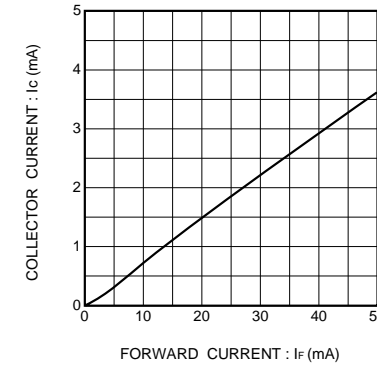


Fig.7 Collector current vs. forward current

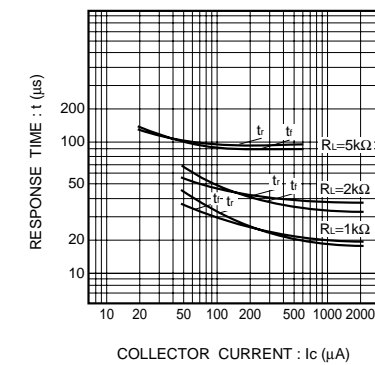


Fig.8 Response time vs. collector current

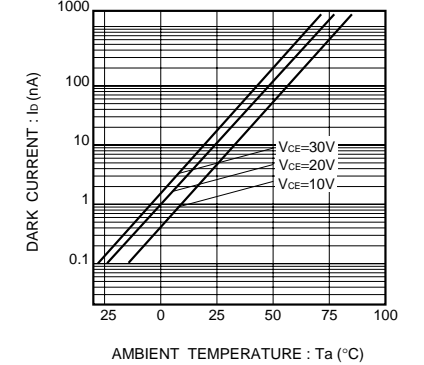


Fig.9 Dark current vs. ambient temperature

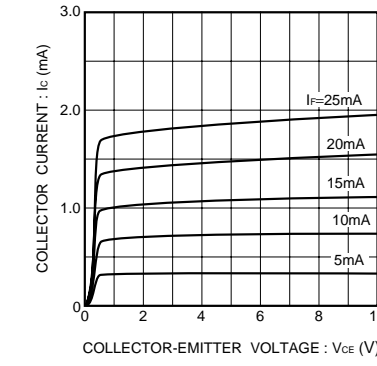


Fig.10 Output characteristics

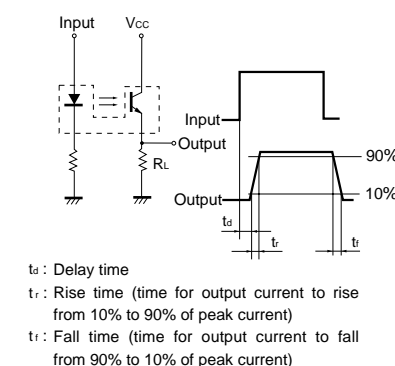
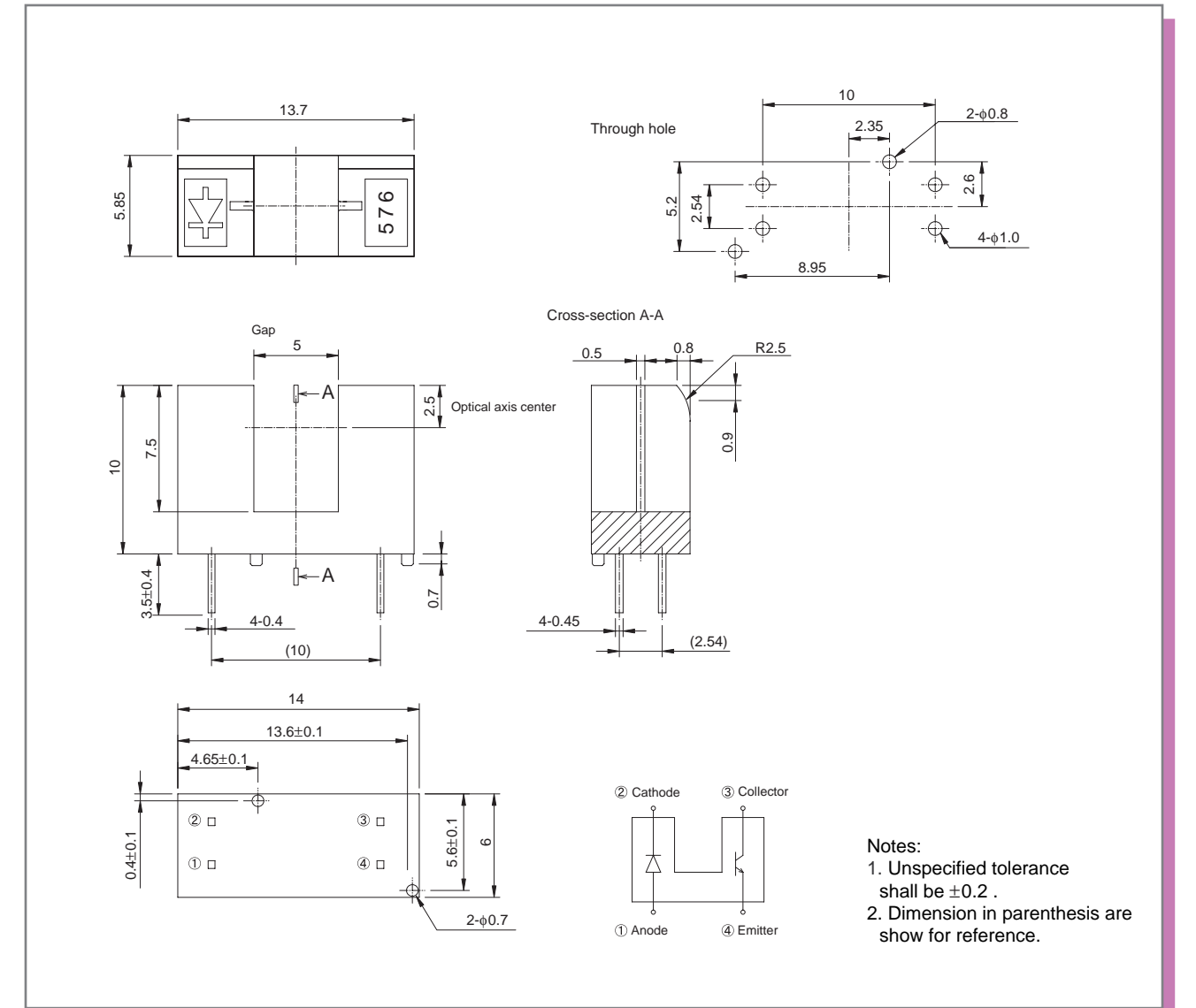


Fig.11 Response time measurement circuit

External dimensions (Unit : mm)



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

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