



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

Optical control equipment
Facsimiles
Printers

Features

- 1) Compact with a 4mm gap.
- 2) High precision position detection (slit width of 0.5mm).
- 3) Minimal influence from stray light.
- 4) Low collector-emitter 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_{CEO}	-	-	0.5	μA	$V_{CE}=10\text{V}$
	Peak sensitivity wavelength	λ_P	-	800	-	nm	-
Transfer characteristics	Collector current	I_C	0.2	0.55	-	mA	$V_{CE}=5\text{V}, I_F=20\text{mA}$
	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+tf}	-	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+tf}	-	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

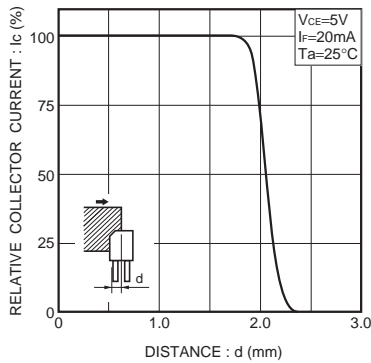


Fig.1 Relative output current vs. distance (I)

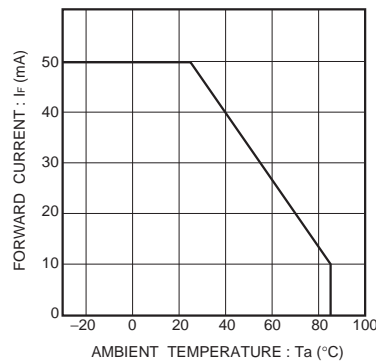


Fig.2 Forward current falloff

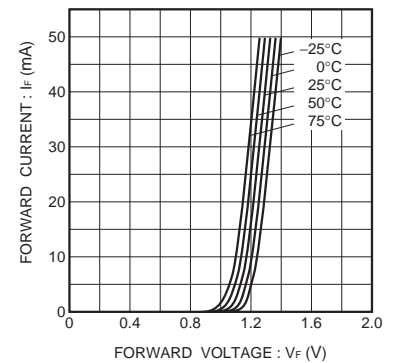


Fig.3 Forward current vs. forward voltage

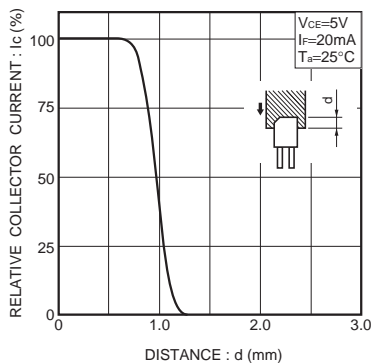


Fig.4 Relative output current vs. distance (II)

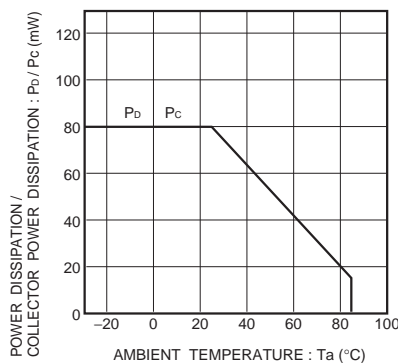


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

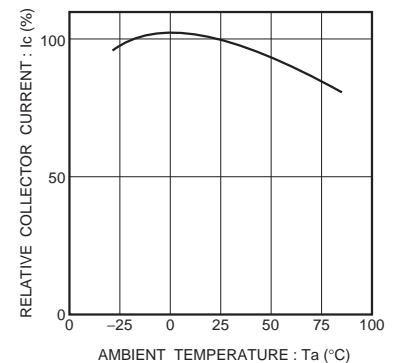
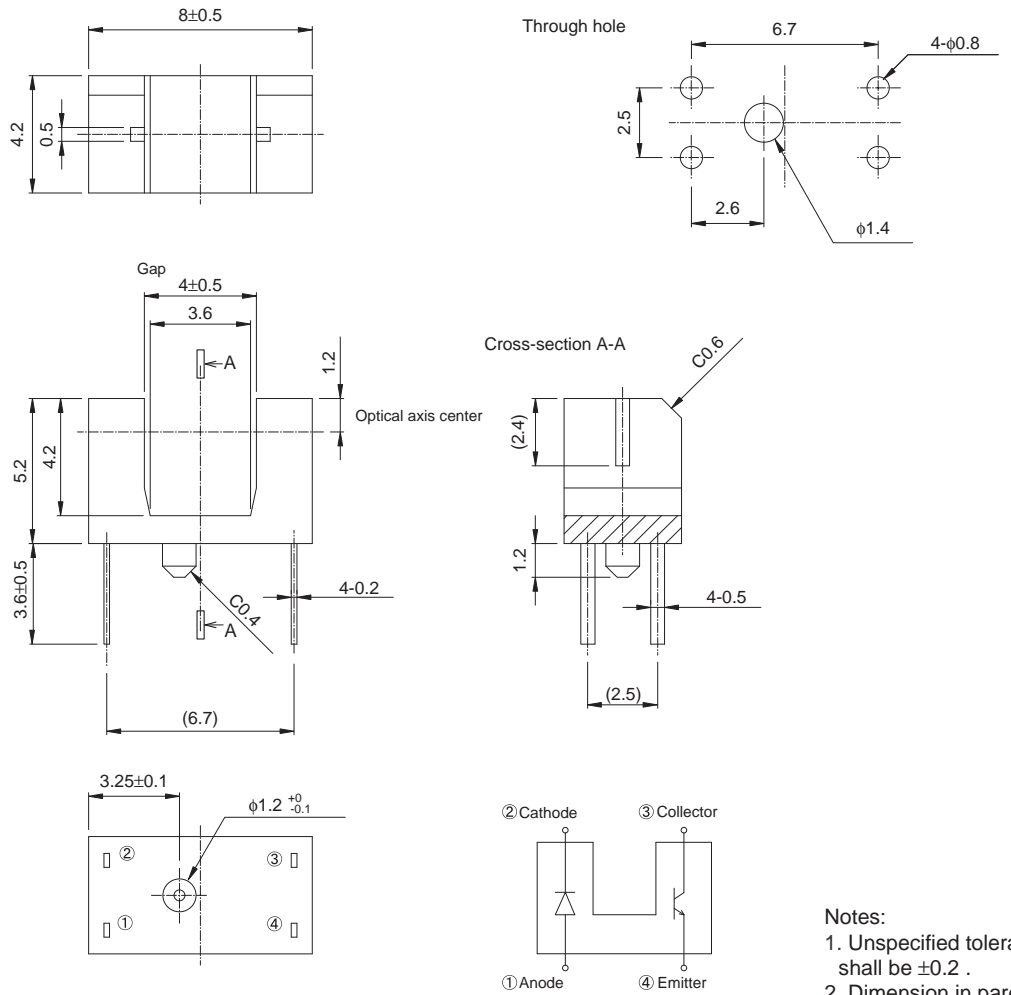


Fig.6 Relative output vs. ambient temperature

External dimensions (Unit : mm)



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

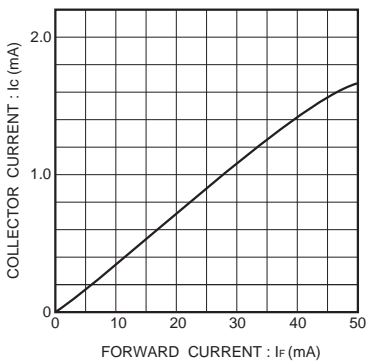


Fig.7 Collector current vs. forward current

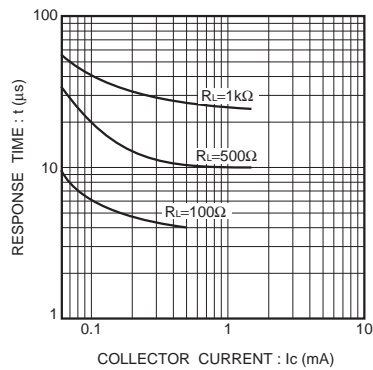


Fig.8 Response time vs. collector current

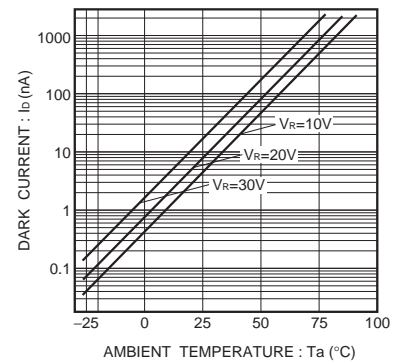


Fig.9 Dark current vs. ambient temperature

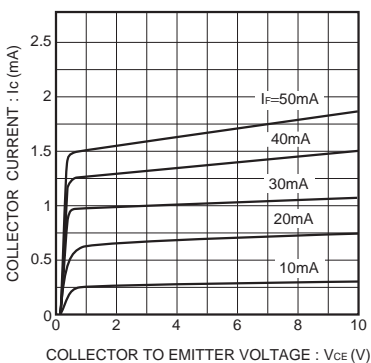
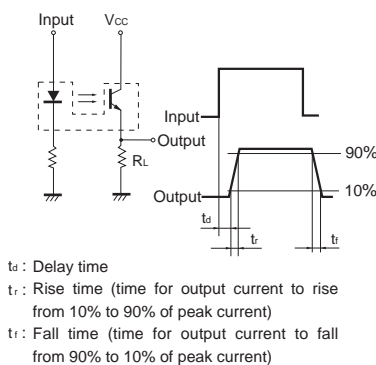


Fig.10 Output characteristics



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

Notes

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