

Photointerrupter, Taller 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_{CE0}	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
Soldering temperture	T_{sol}	260 / 3 *	°C / s

* 1.6mm from the body bottom.

Applications

Reel count sensor for VCR
DVD

Features

- 1) Tall package (Optical axis 20.75mm).
- 2) Small package due to the double-layer mold.
- 3) PPS package for heat resistance.

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	0.2	0.7	2.0	mA	$V_{CE}=5V, I_F=20mA$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	0.4	V	$I_F=20mA, I_C=0.1mA$
Response time	Rise time	t_r	10	-	μs	$V_{CC}=5V, I_F=20mA, R_L=100\Omega$
	Fall time	t_f	10	-	μs	
Infrared light emitter diode						
Cut-off frequency	f_c	-	1	-	MHz	$I_F=50mA$
Peak light emitting wavelength	λ_P	-	950	-	nm	* Non-coherent Infrared light emitting diode used.
Photo transistor						
Response time	t_r-t_f	-	10	-	μs	$V_{CC}=5V, I_C=1mA, R_L=100\Omega$ * This product is not designed to be protected against electromagnetic wave.
Maximum sensitivity wavelength	λ_P	-	800	-	nm	-

Electrical and optical characteristics curves

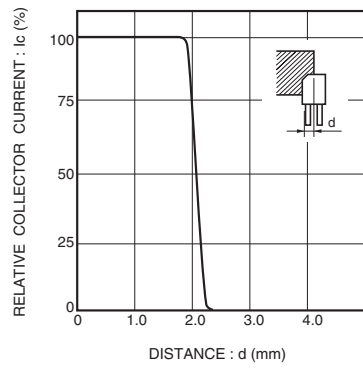


Fig.1 Relative output vs. distance (I)

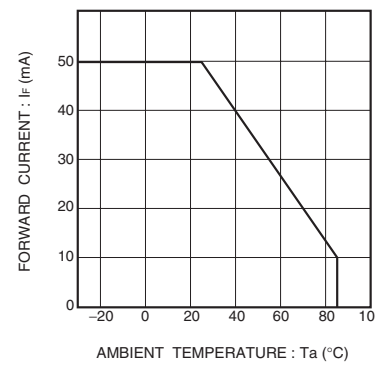


Fig.2 Forward current falloff

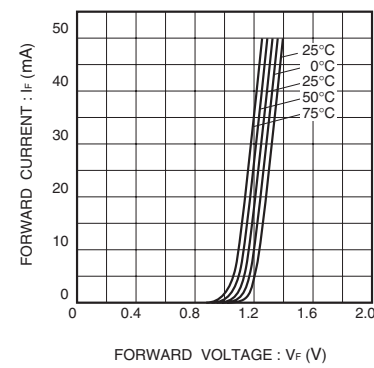


Fig.3 Forward current vs. forward voltage

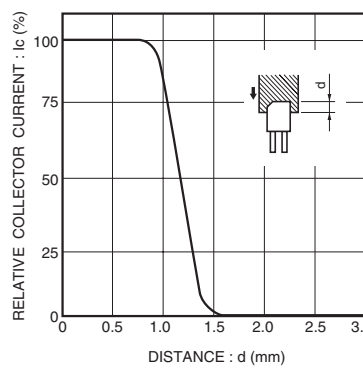


Fig.4 Relative output vs. distance (II)

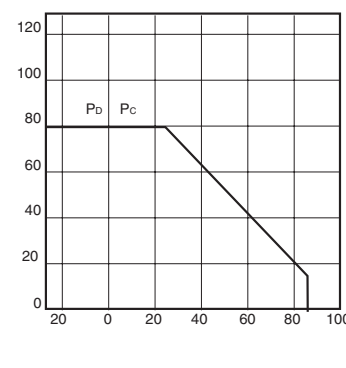


Fig.4 Power dissipation / collector power dissipation vs. ambient temperature

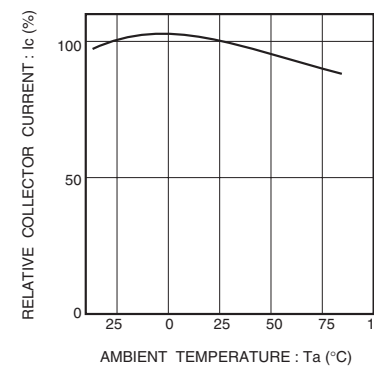


Fig.5 Relative output vs. ambient temperature

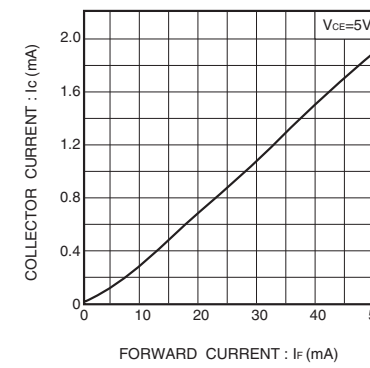


Fig.7 Collector current vs. forward current

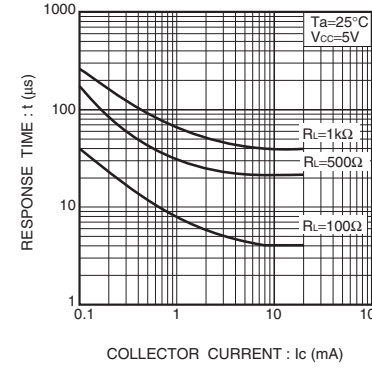


Fig.8 Response time vs. collector current

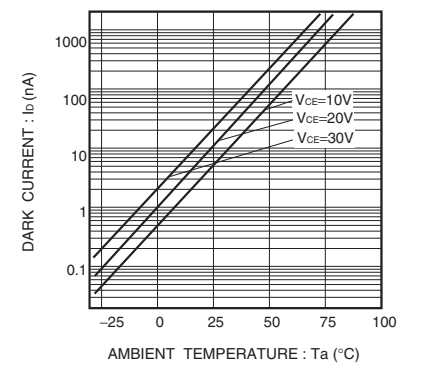


Fig.9 Dark current vs. ambient temperature

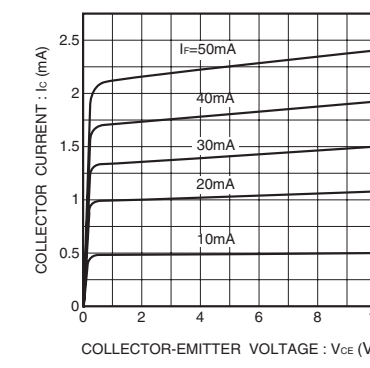


Fig.10 Output characteristics

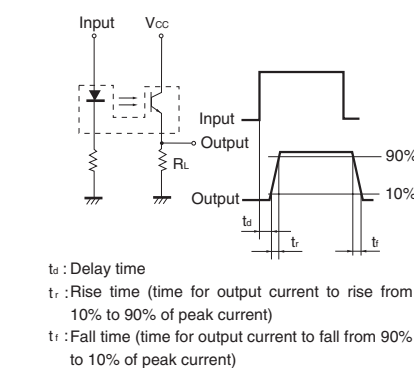
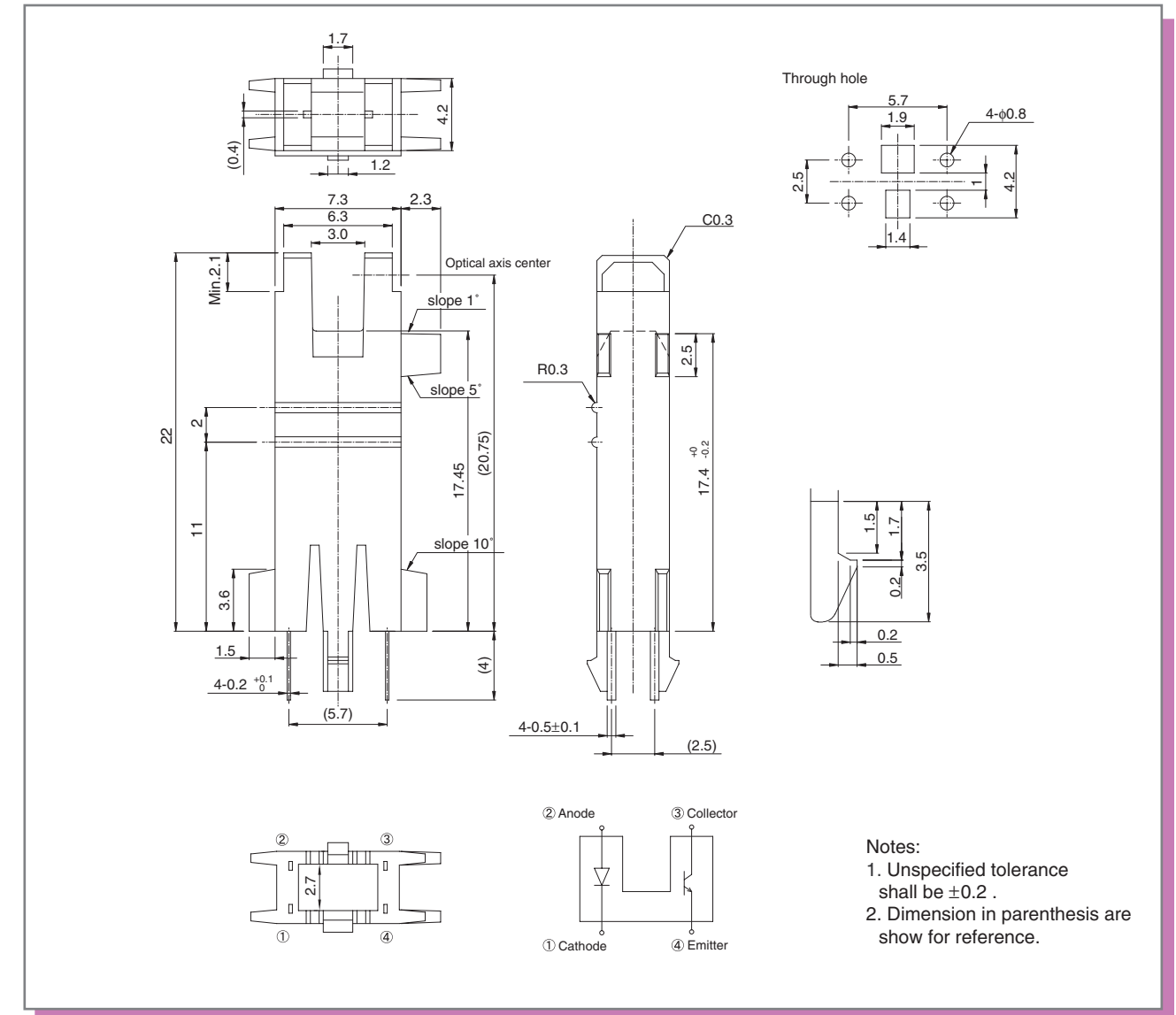


Fig.11 Response time measurement circuit

External dimensions (Unit : mm)



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

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