

Photointerrupter, Taller type



Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Forward current	$I_F$	50	mA
Reverse voltage	$V_R$	5	V
Power dissipation	$P_D$	80	mW
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
Forward voltage	$V_F$	-	1.3	1.6	V	$I_F=50\text{mA}$
Reverse current	$I_R$	-	-	10	$\mu\text{A}$	$V_R=5\text{V}$
Dark current	$I_{CEO}$	-	-	0.5	$\mu\text{A}$	$V_{CE}=10\text{V}$
Peak sensitivity wavelength	$\lambda_P$	-	800	-	nm	-
Collector current	$I_C$	0.2	0.7	2.0	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	Rise time	$t_r$	10	-	$\mu\text{s}$	$V_{CC}=5\text{V}, I_F=20\text{mA}, R_L=100\Omega$
	Fall time	$t_f$	10	-	$\mu\text{s}$	
Cut-off frequency	$f_c$	-	1	-	MHz	$I_F=50\text{mA}$
Peak light emitting wavelength	$\lambda_P$	-	950	-	nm	* Non-coherent Infrared light emitting diode used.
Response time	$t_{r-tf}$	-	10	-	$\mu\text{s}$	$V_{CC}=5\text{V}, I_C=1\text{mA}, R_L=100\Omega$ * This product is not designed to be protected against electromagnetic wave.
Maximum sensitivity wavelength	$\lambda_P$	-	800	-	nm	-

Electrical and optical characteristics curves

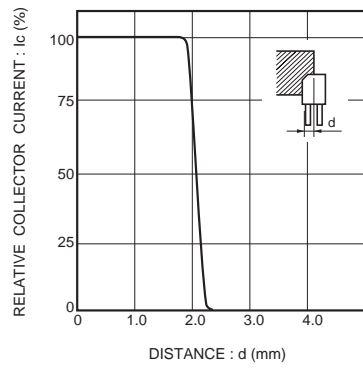


Fig.1 Relative output vs. distance ( I )

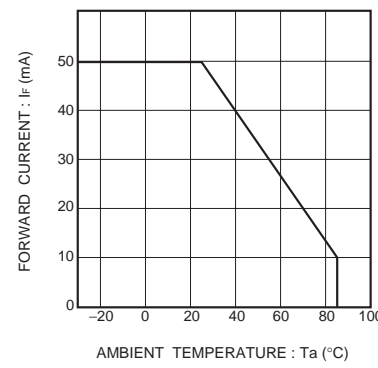


Fig.2 Forward current falloff

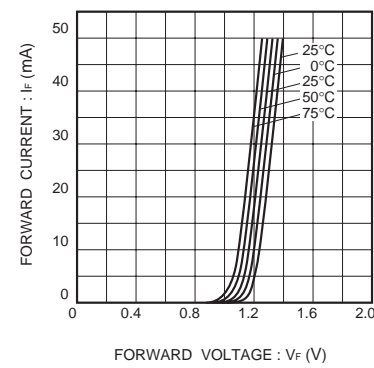


Fig.3 Forward current vs. forward voltage

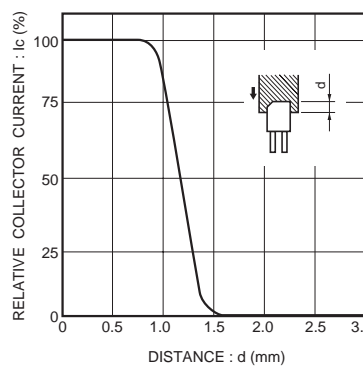


Fig.4 Relative output vs. distance ( II )

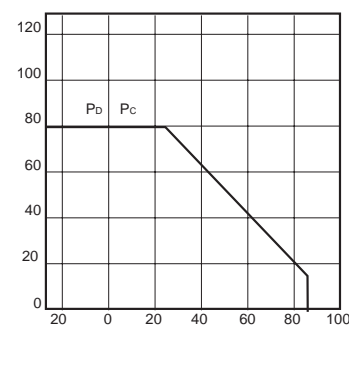


Fig.4 Power dissipation / collector power dissipation vs. ambient temperature

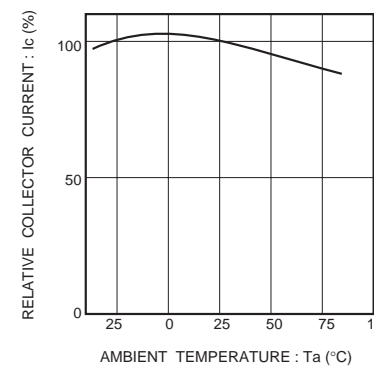


Fig.5 Relative output vs. ambient temperature

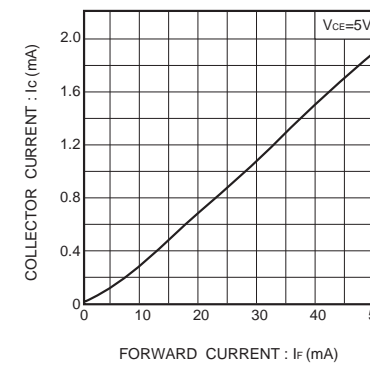


Fig.7 Collector current vs. forward current

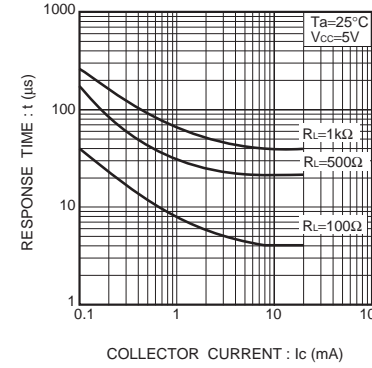


Fig.8 Response time vs. collector current

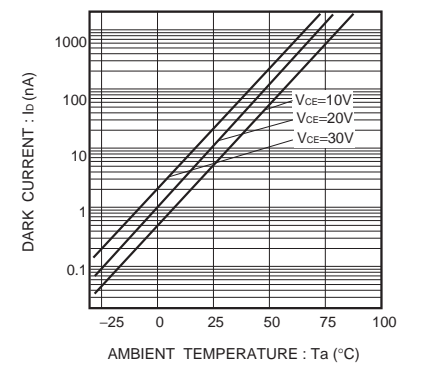


Fig.9 Dark current vs. ambient temperature

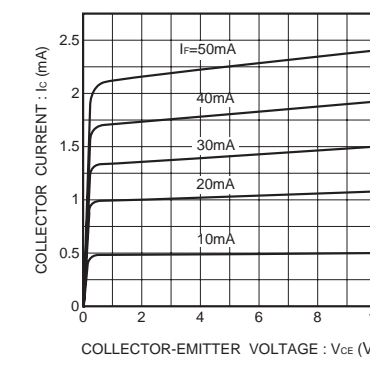
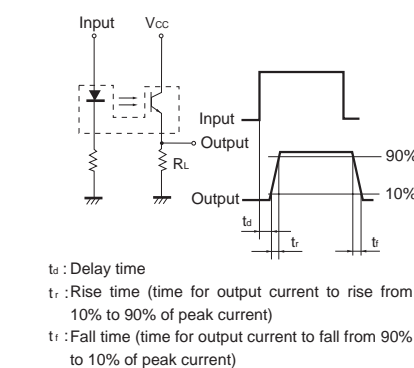


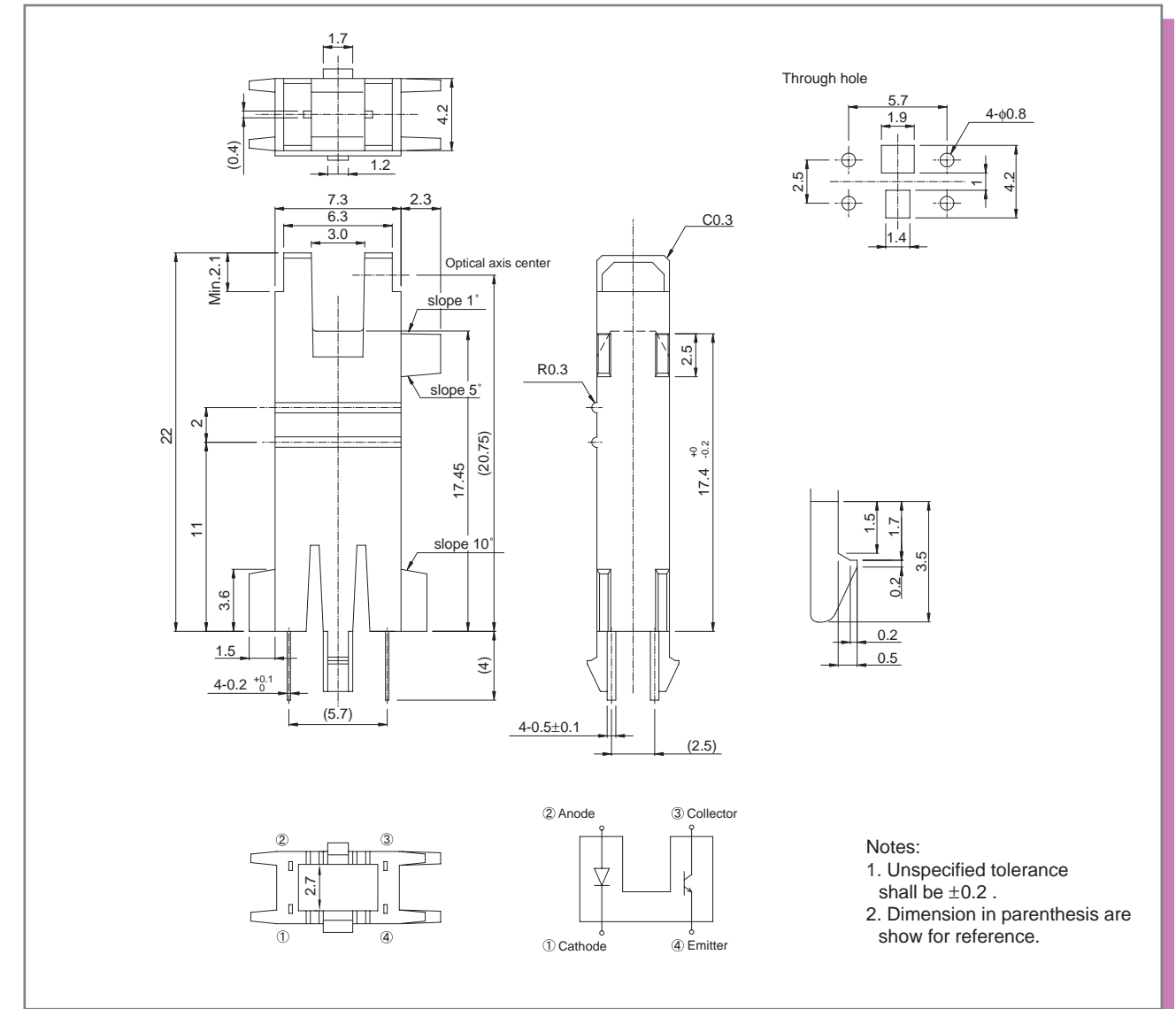
Fig.10 Output characteristics



$t_d$ : 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

External dimensions (Unit : mm)



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

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