

Photointerrupter, Ultraminiature SMD 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

Applications

DSC(Digital steal camera)
DVC(Digital video camera)
Digital handy phone

Features

- 1) Ultra-small.
- 2) Gap 1.2mm.

Electrical and optical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V_F	-	1.3	1.6	V	$I_F=50mA$
Reverse current	I_R	-	10	-	μA	$V_R=5V$
Dark current	I_{CEO}	-	0.5	-	μA	$V_{CE}=10V$
Peak sensitivity wavelength	λ_P	-	800	-	nm	-
Collector current	I_C	0.45	-	4.95	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	
Collector rank	A	I_C	0.45	2.33	mA	$V_{CE}=5V, I_F=20mA$
	B	I_C	0.95	4.95	mA	
Cut-off frequency	f_c	-	1	-	MHz	$I_F=50mA$ * Non-coherent Infrared light emitting diode used.
Peak light emitting wavelength	λ_P	-	950	-	nm	-
Response time	$t_r \cdot t_f$	-	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

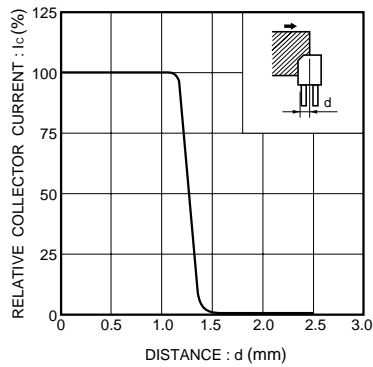


Fig.1 Relative output current vs. distance (I)

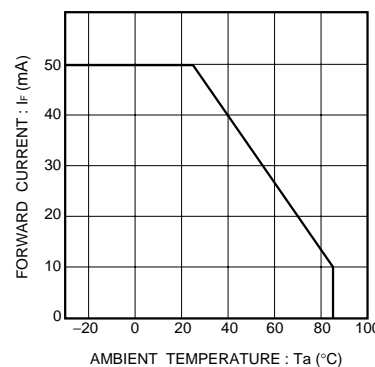


Fig.2 Forward current falloff

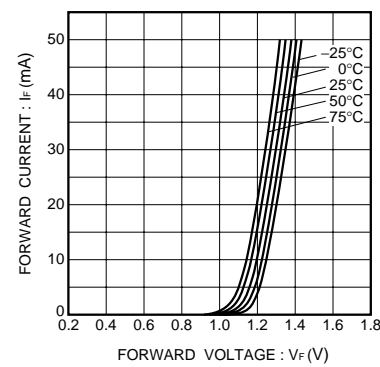


Fig.3 Forward current vs. forward voltage

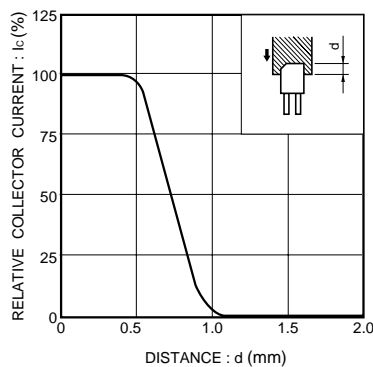


Fig.4 Relative output current vs. distance (II)

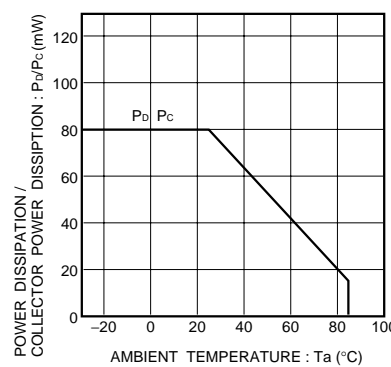


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

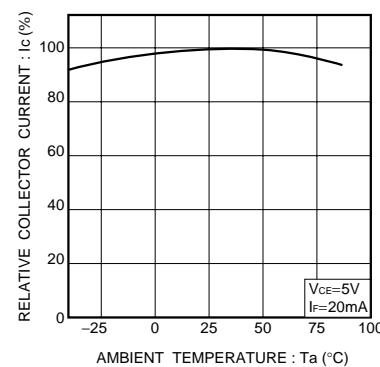


Fig.6 Relative output vs. ambient temperature

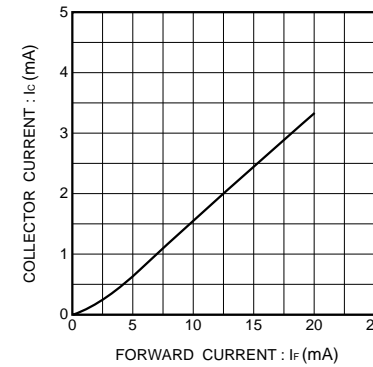


Fig.7 Collector current vs. forward current

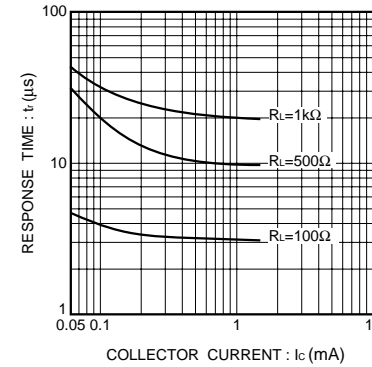


Fig.8 Response time vs. collector current

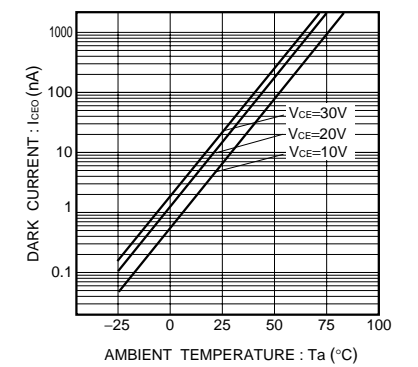


Fig.9 Dark current vs. ambient temperature

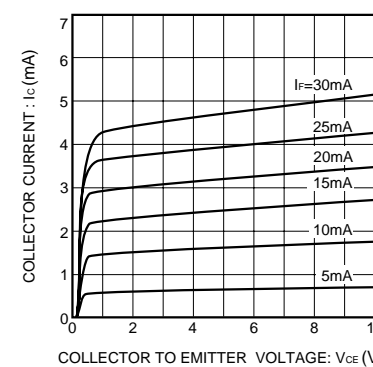
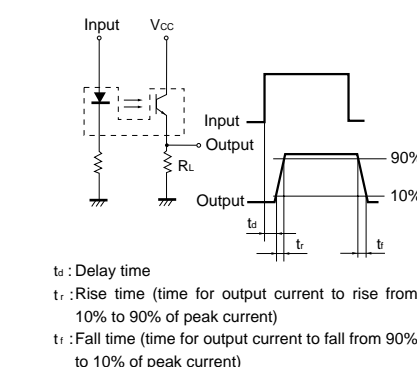


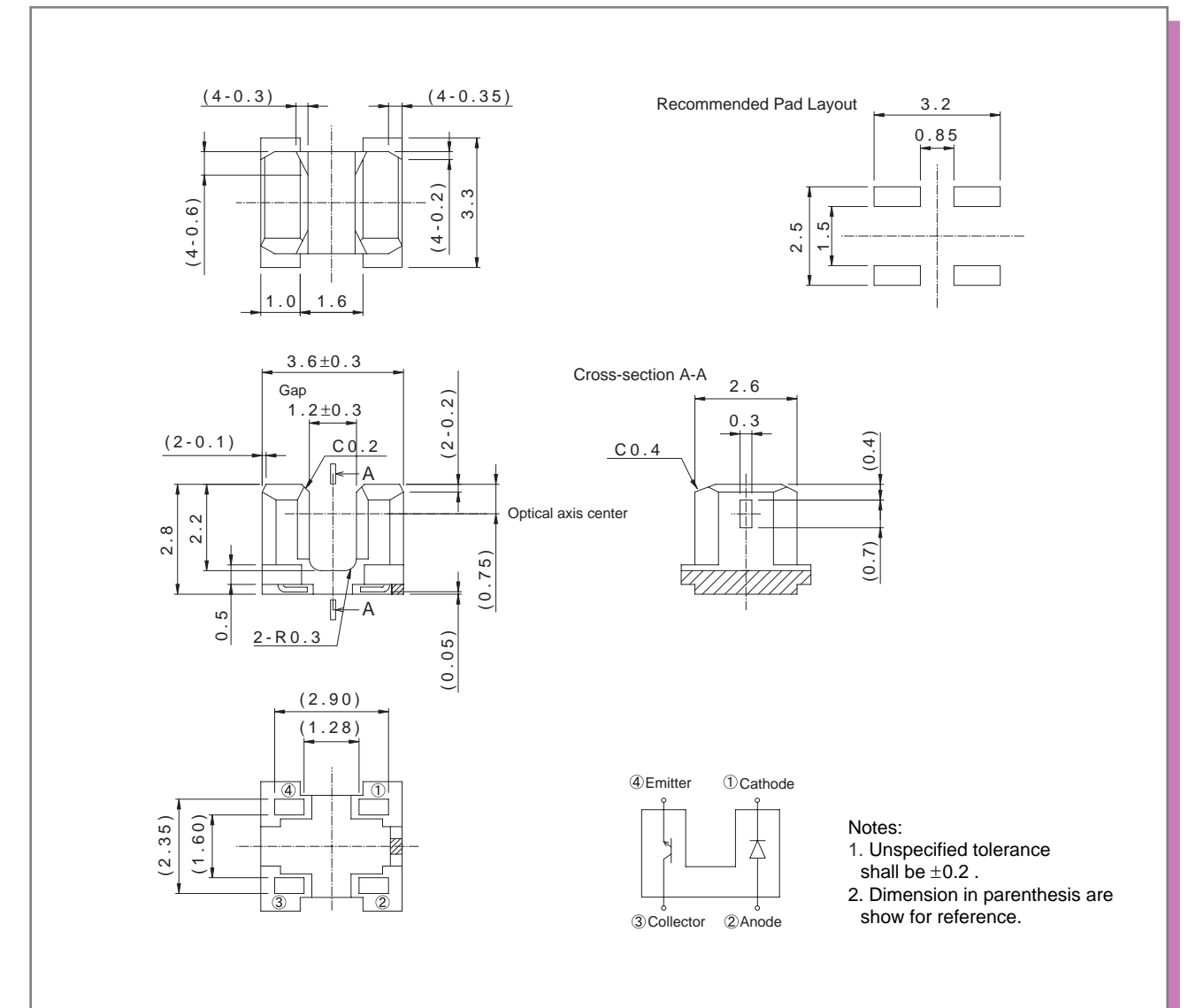
Fig.10 Output characteristics



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)



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