

Photointerrupter, Ultraminiature SMD 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	

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	
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	$I_{CE0}$	-	-	0.5	μA	$V_{CE}=10V$
	Peak sensitivity wavelength	$\lambda_P$	-	800	-	nm	-
Transfer characteristics	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	ns	$V_{CC}=5V, I_F=20mA, R_L=100\Omega$
Fall time		$t_f$	-	10	ns		
Rank	A	$I_C$	0.45	-	2.33	mA	$V_{CE}=5V, I_F=20mA$
	B	$I_C$	0.95	-	4.95	mA	
High speed emitter diode collector	Cut-off frequency	$f_c$	-	1	-	MHz	$I_F=50mA$ * Non-coherent Infrared light emitting diode used.
	Peak light emitting wavelength	$\lambda_P$	-	950	-	nm	
Photo transistor	Response time	$t_r, t_f$	-	10	-	ns	$V_{CE}=5V, I_C=1mA, R_L=100\Omega$ * This product is not designed to be protected against electromagnetic wave.
	Maximum sensitivity wavelength	$\lambda_P$	-	800	-	nm	

Electrical and optical characteristics curves

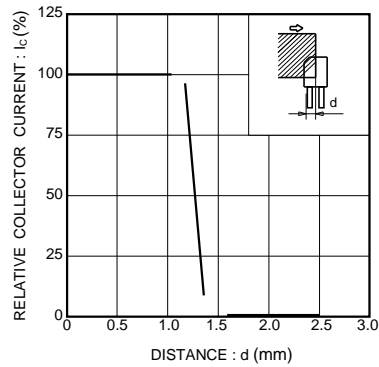


Fig.1 Relative output current vs. distance (II)

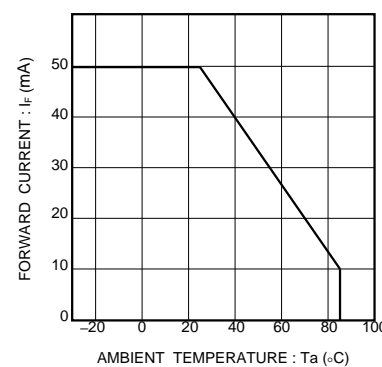


Fig.2 Forward current falloff

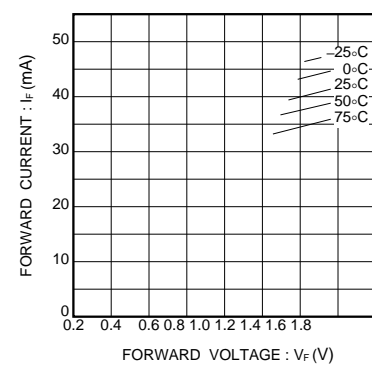


Fig.3 Forward current vs. forward voltage

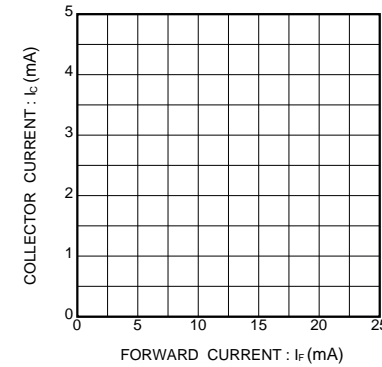


Fig.7 Collector current vs. forward current

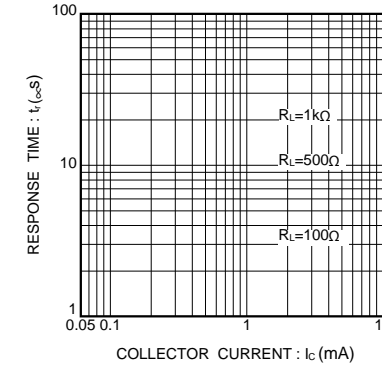


Fig.8 Response time vs. collector current

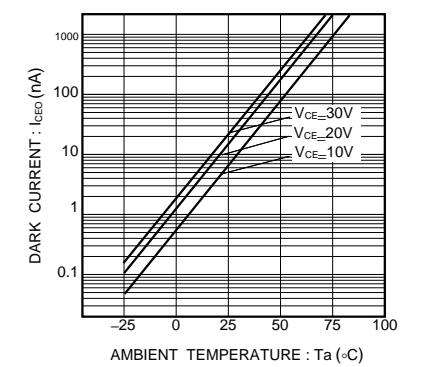


Fig.9 Dark current vs. ambient temperature

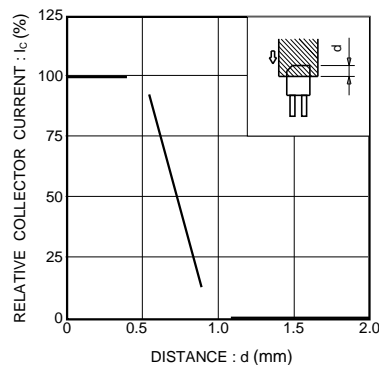


Fig.4 Relative output current vs. distance (III)

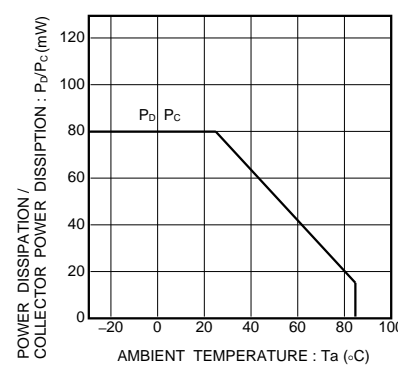


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

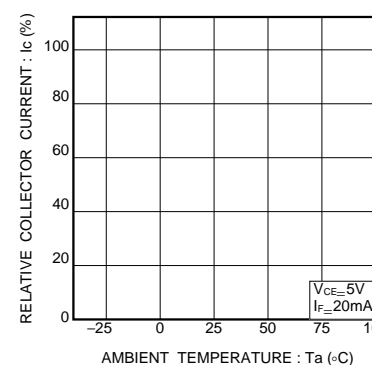


Fig.6 Relative output vs. ambient temperature

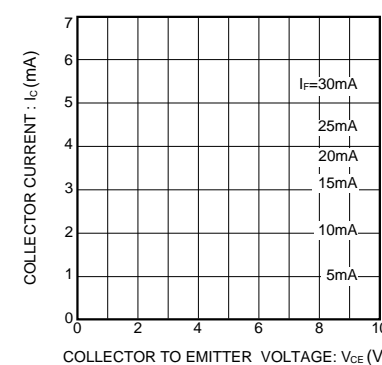


Fig.10 Output characteristics

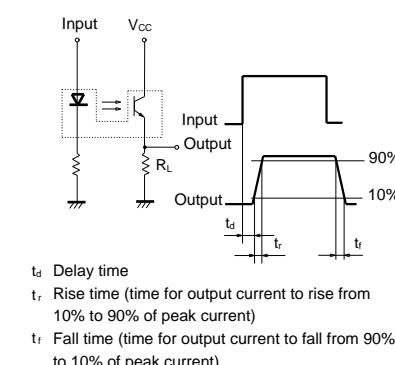
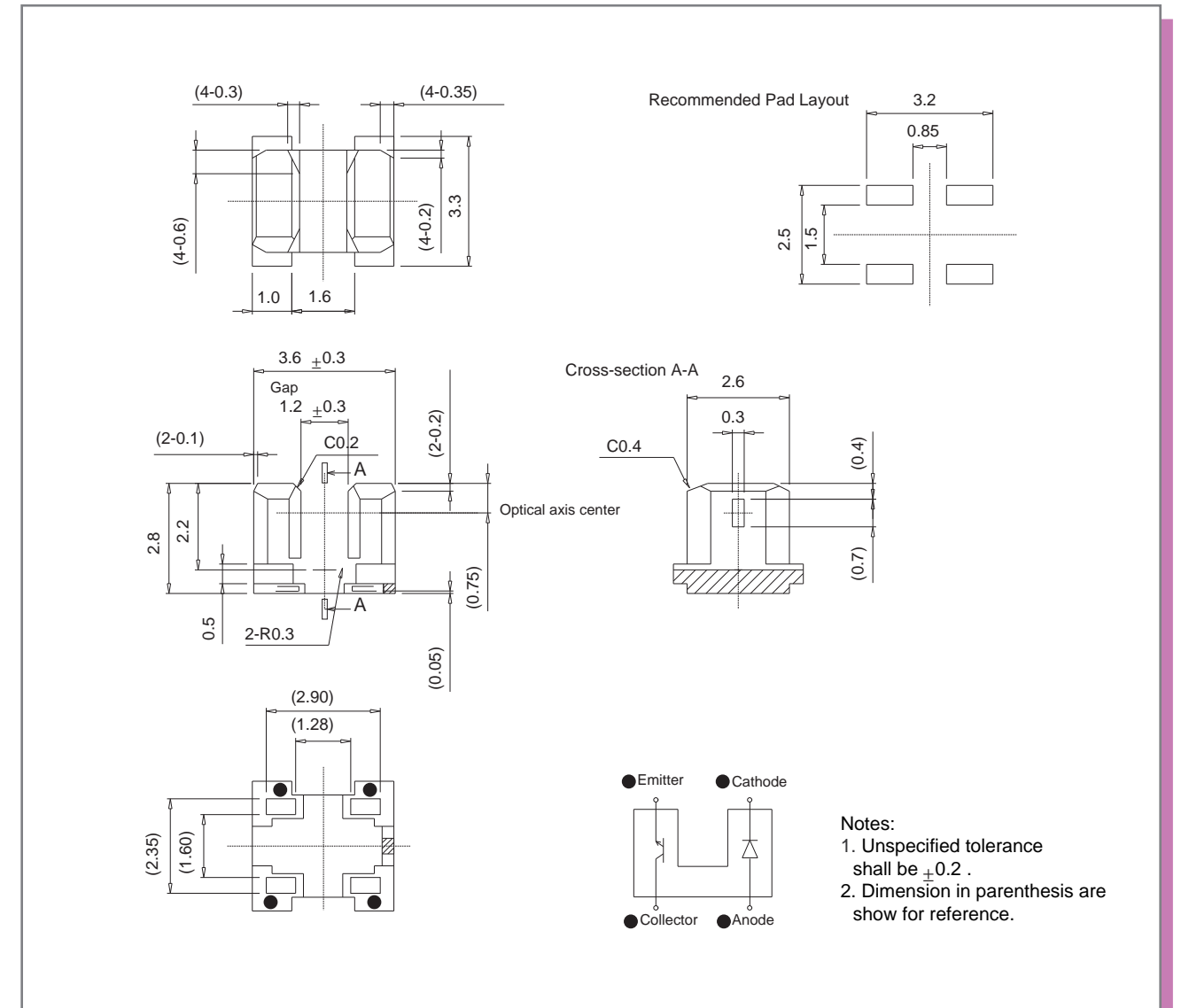


Fig.11 Response time measurement circuit

External dimensions (Unit : mm)



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