RPI-0125

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_{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		Topr	−25 to +85	°C
Storage temperature		Tstg	−30 to +85	°C

Applications

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

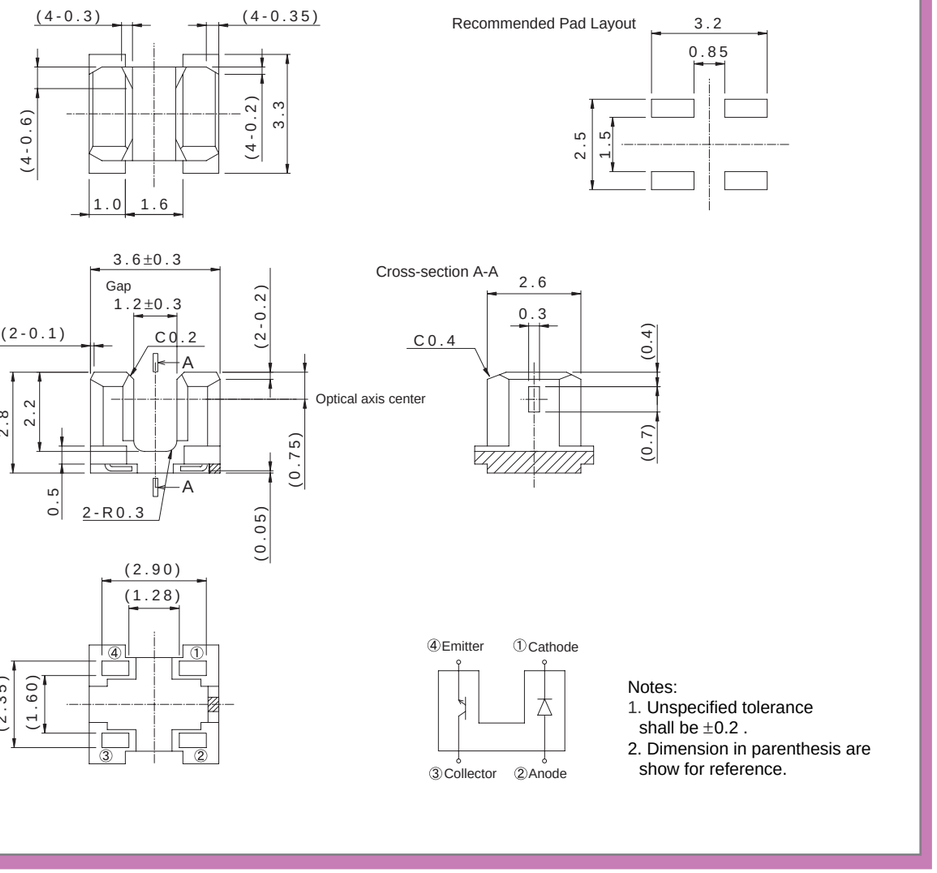
Features

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_{CEO}	–	–	0.5	μA	V_{CE}=10V
	Peak sensitivity wavelength		λ_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	tr	–	10	–	μs	V_{CC}=5V, I_F=20mA, R_L=100Ω
		Fall time	tf	–	10	–	μs	
Collector rank	A		I_C	0.45	–	2.33	mA	V_{CE}=5V, I_F=20mA
	B			0.95	–	4.95		
Infrared light emitter diode	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	
Photo transistor	Response time		tr・tf	–	10	–	μs	V_{CC}=5V, I_C=1mA, R_L=100Ω ∗ This product is not designed to be protected against electromagnetic wave.
	Maximum sensitivity wavelength		λ_P	–	800	–	nm	–

External dimensions (Unit : mm)



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

Electrical and optical characteristics curves

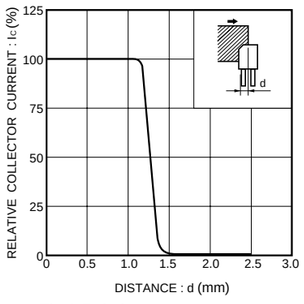


Fig.1 Relative output current vs. distance (I)

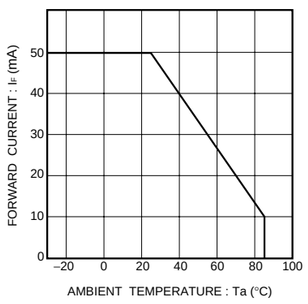


Fig.2 Forward current falloff

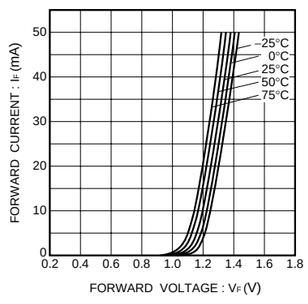


Fig.3 Forward current vs. forward voltage

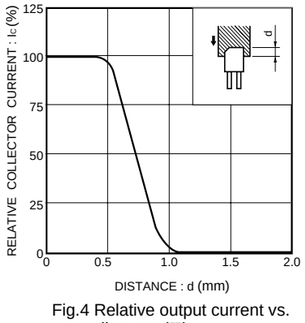


Fig.4 Relative output current vs. distance (II)

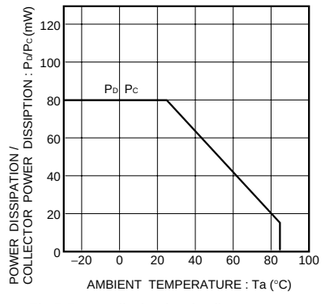


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

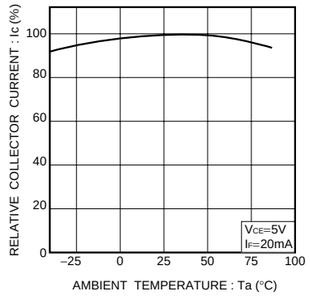


Fig.6 Relative output vs. ambient temperature

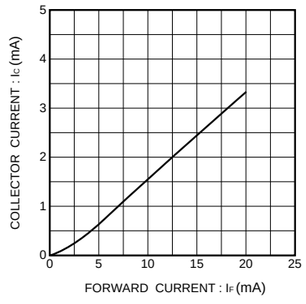


Fig.7 Collector current vs. forward current

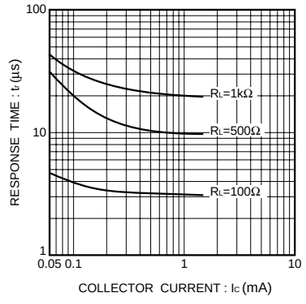


Fig.8 Response time vs. collector current

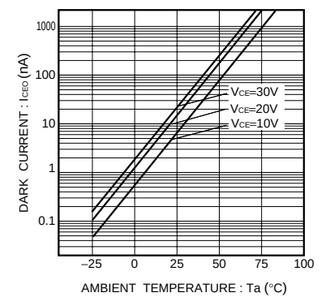


Fig.9 Dark current vs. ambient temperature

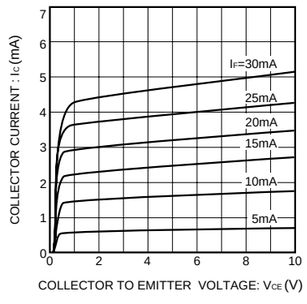
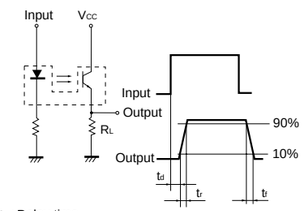


Fig.10 Output characteristics



td : Delay time
tr : Rise time (time for output current to rise from 10% to 90% of peak current)
tf : 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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