RPI-579

Photointerrupter, General type

Applications

Printers
Facsimiles
AV equipment

Features

1) Heat resistance (170°C).
2) Small gap (0.5mm) and good accuracy.
3) Quick response time.
4) Filter against visible ray is built-in.

Absolute maximum ratings (Ta=25°C)

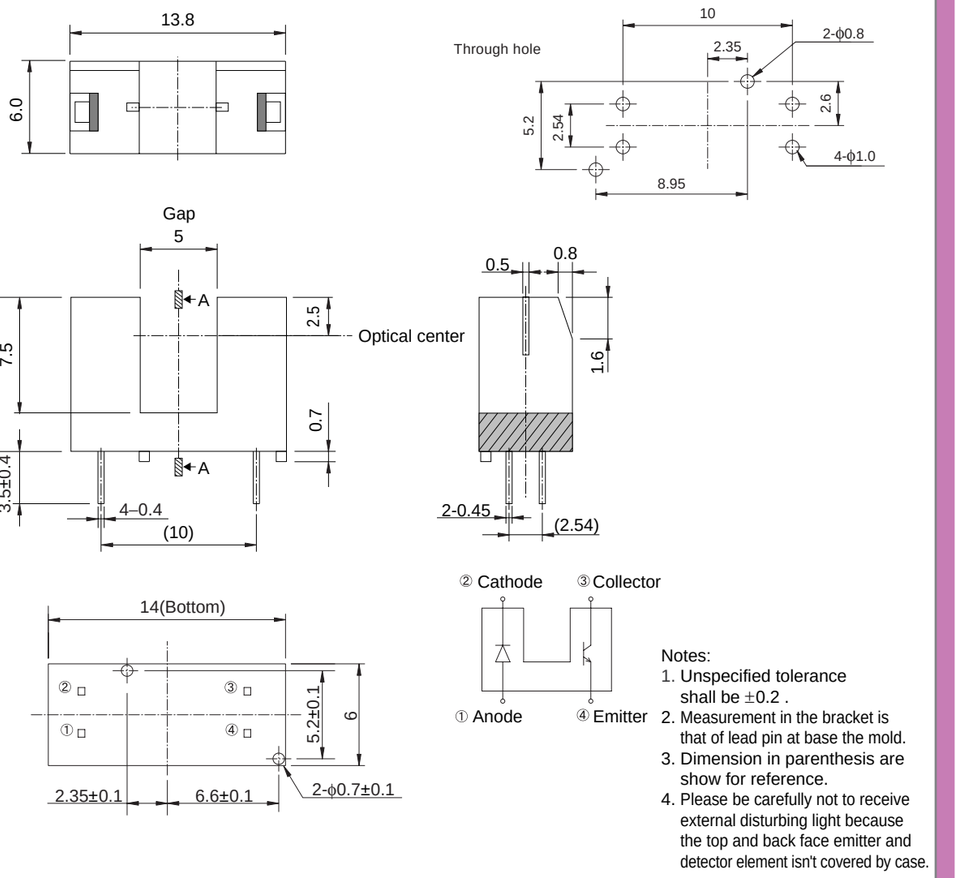
	Parameter	Symbol	Limits	Unit
Input (LED)	Forward current	I_F	50	mA
	Reverse voltage	V_R	5	V
	Power dissipation	P_D	80	mW
Output (photo-transistor)	Collector-emitter voltage	V_{CEO}	30	V
	Emitter-collector voltage	V_{ECO}	4.5	V
	Collector current	I_C	30	mA
	Collector power dissipation	P_C	80	mW
	Operating temperature	Topr	−25 to +85	°C
	Storage temperature	Tstg	−40 to +85	°C
	Soldering temperture	Tsol	260 / 3 ＊	°C / s

＊ 1mm from the body bottom.

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=10V
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	0.5	–	–	mA	V_{CE}=5V, I_F=20mA
	Collector-emitter saturation voltage		$V_{CE(sat)}$	–	0.1	0.5	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	
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. Measurement in the bracket is that of lead pin at base the mold.
3. Dimension in parenthesis are show for reference.
4. Please be carefully not to receive external disturbing light because the top and back face emitter and detector element isn't covered by case.

Electrical and optical characteristics curves

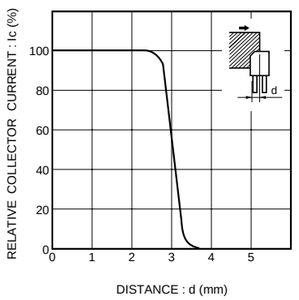


Fig.1 Relative output vs. distance (I)

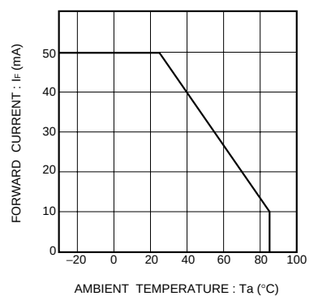


Fig.2 Forward current falloff

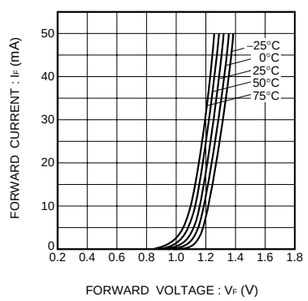


Fig.3 Forward current vs. forward voltage

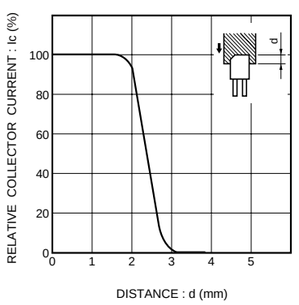


Fig.4 Relative output vs. distance (II)

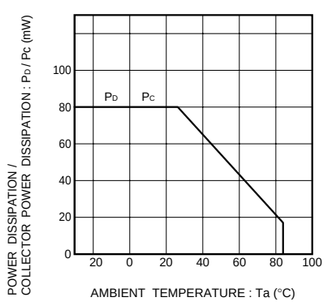


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

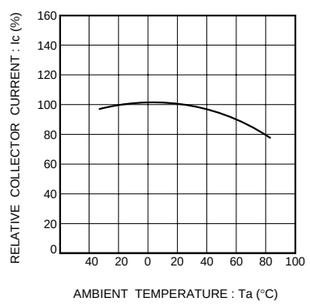


Fig.6 Relative output vs. ambient temperature

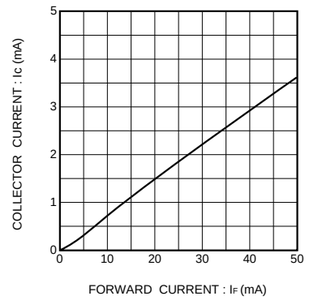


Fig.7 Collector current vs. forward current

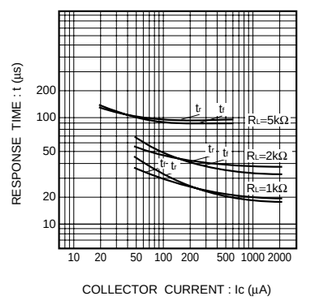


Fig.8 Response time vs. collector current

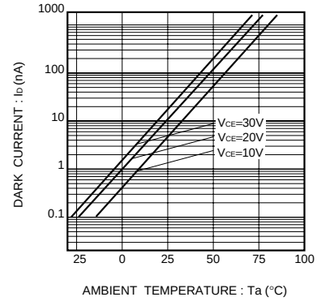


Fig.9 Dark current vs. ambient temperature

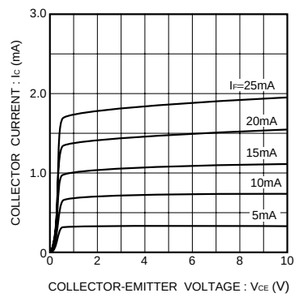
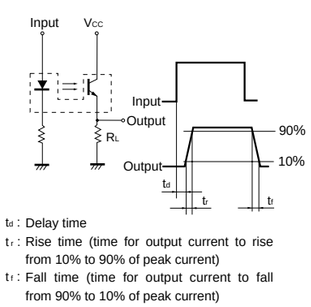


Fig.10 Output characteristics



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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