

# Photointerrupter, encased type

## RPI-576

This product is heat-resist type due to PBT adoption for package material.

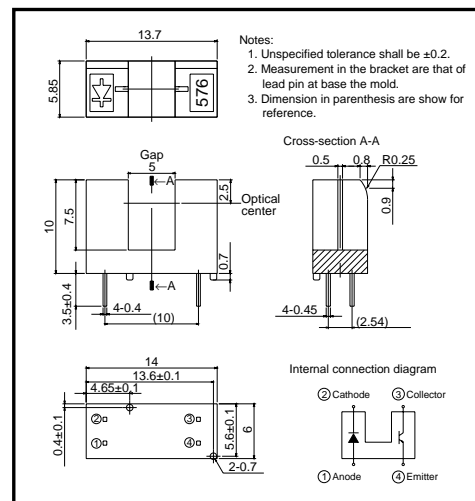
### ●Application

Optical control

### ●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

### ●External dimensions (Units : mm)



### ●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		$T_{opr}$	-25~+85	°C
Storage temperature		$T_{stg}$	-40~+85	°C

Sensors

●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	$I_F=50\text{mA}$
	Reverse current	$I_R$	-	-	10	$\mu\text{A}$	$V_R=5\text{V}$
Output characteristics	Dark current	$I_{CEO}$	-	-	0.5	$\mu\text{A}$	$V_{CE}=10\text{V}$
	Peak sensitivity wavelength	$\lambda_P$	-	800	-	nm	-
Transfer characteristics	Collector current	$I_C$	0.5	-	-	mA	$V_{CE}=5\text{V}, I_F=20\text{mA}$
	Collector-emitter saturation voltage	$V_{CE(sat)}$	-	0.1	0.5	V	$I_F=20\text{mA}, I_C=0.5\text{mA}$
	Response time	$t_r \cdot t_f$	-	10	-	$\mu\text{s}$	$V_{CC}=5\text{V}, I_F=20\text{mA}, R_L=100\Omega$

●Electrical and optical characteristic curves

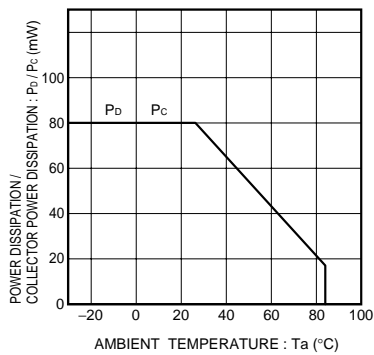


Fig.1 Power dissipation collector vs. ambient temperature

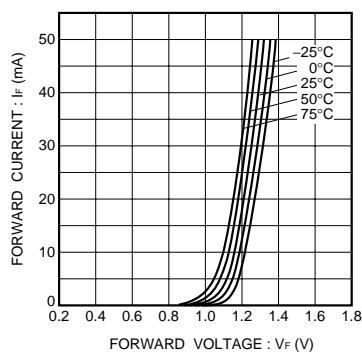


Fig.2 Forward current vs. forward voltage

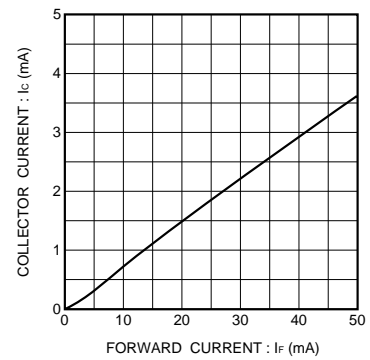


Fig.3 Collector current vs. forward current

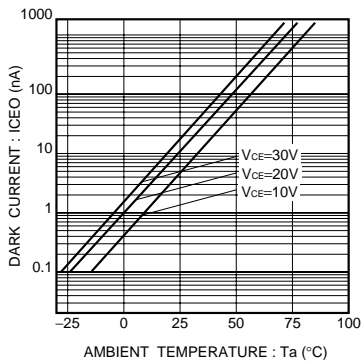


Fig.4 Dark current vs. ambient temperature

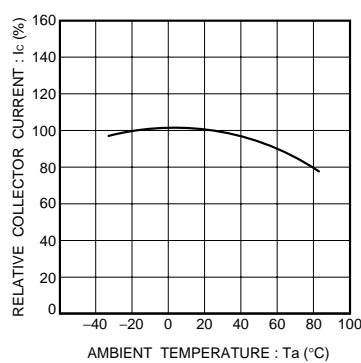


Fig.5 Relative output vs. ambient temperature

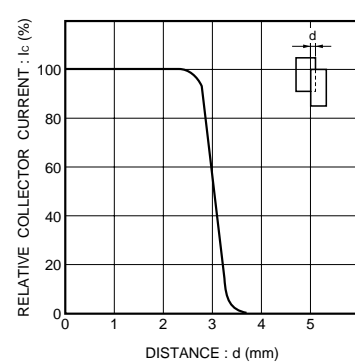


Fig.6 Relative output vs. distance characteristics

Sensors

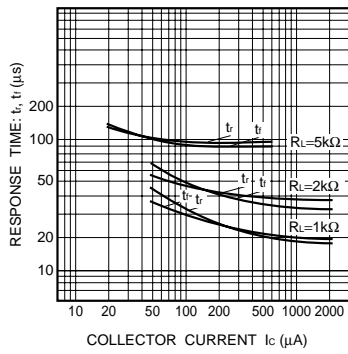


Fig.7 Response time vs. output current

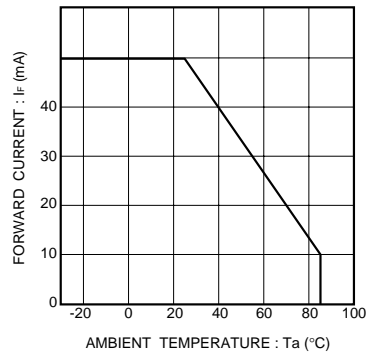


Fig.8 Forward current falloff

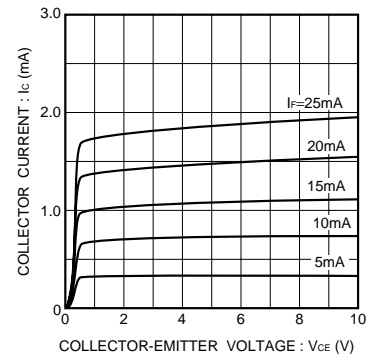
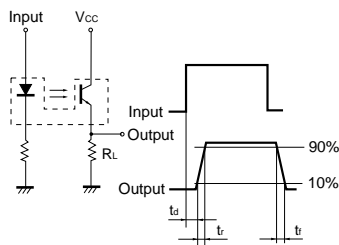


Fig.9 Collector current vs. collector-emitter voltage



- $t_d$  : 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.10 Response time measurement circuit

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