# Photointerrupter, encased type RPI-1391

The RPI-1391 is a transmissive-type photointerrupter that uses a photo IC. A positioning pin is provided on the external case to allow precise snap-in mounting on the PC board.

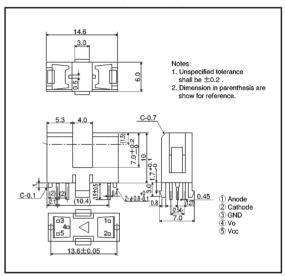
# Applications

Optical control equipment

### Features

- 1) Small slit width (0.5 mm) for high precision.
- 2) Fast response.

### External dimensions (Units: mm)



# ●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Input(LED)	Forward current	lF	50	mA
	Reverse voltage	VR	5	V
	Power dissipation	P□	80	mW
Output (photo- (transistor)	Power supply voltage	Vcc	17	V
	Output voltage	lo	20	mA
	Power dissipation	P□	80	mW
Operating temperature		Topr	-20~ <del>+</del> 85	°C
Storage temperature		Tstg	-40~ <del>+</del> 100	°C

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# ●Electrical and optical characteristics (Ta = 25°C)

Parameter		Symbol	Min.	Тур.	Max.	Unit	Conditions		
Input charac- teristics	Fo	rward voltage	VF	_	1.3	1.6	٧	I==50mA	
	Reverse current		lR	_	_	10	μΑ	V <sub>R</sub> =5V	
Output characteristics	Power supply voltage		Vcc	4.5	5	17	٧	_	
	Output low level voltage		Vol	_	0.14	0.4	٧	Vcc=5V, IoL=16mA	
	Output high level voltage		Vон	3.5	_	_	٧	Vcc=5V, RL=1kΩ	
	Low level power supply current		Iccl	_	1.8	5.0	mA	Vcc=5V	
	High level power supply current		Іссн	_	1.7	3.0	mA	Vcc=5V	
TL		w → High reshold input current	lflh	_	1.3	5.0	mA	Vcc=5V	
haracter	Hysteresis		IFLH / IFHL	_	0.7	_	_	Vcc=5V	
	Response time	Low → High Propagation delay time	tрш	_	1.6	_			
		High → Low Propagation delay time	tphL	_	2.2	_	μS	Vcc=5V, I <sub>F</sub> =10mA, R <sub>L</sub> =680 Ω	
	esp	Rise time	tr	_	0.28	_			
	ш.	Fall time	tf	_	0.12	_			

## Electrical and optical characteristic curves

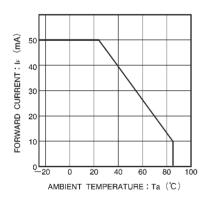


Fig.1 Forward current falloff

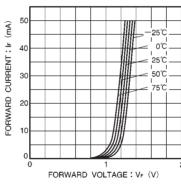


Fig.2 Forward current vs. forward voltage

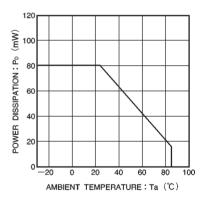


Fig.3 Power dissipation vs. ambient temperature

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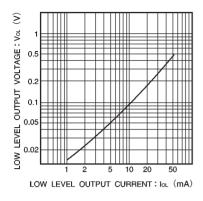


Fig.4 Low level output voltage vs. low level output current

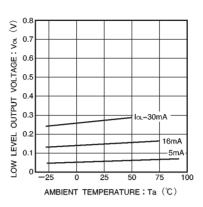


Fig.5 Low level output voltage vs. ambient temperature

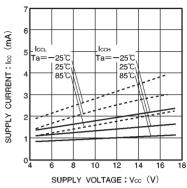


Fig.6 Supply current vs. supply voltage

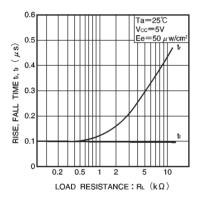


Fig.7 Rise and fall time vs. load resistance

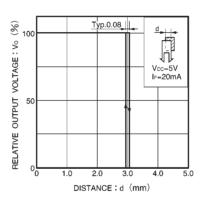
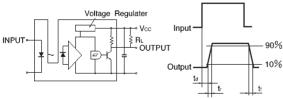


Fig.8 Relative output voltage vs. distance



td: Delay time

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

t<sub>f</sub>: Fall time (time for output current to fall from 90% to 10% of peak current)

Fig.9 Response time measurement circuit