Photointerrupter double-layer mold type

RPI-1133

The RPI-1133 is a compact photointerrupter that uses a photo IC for the detector.

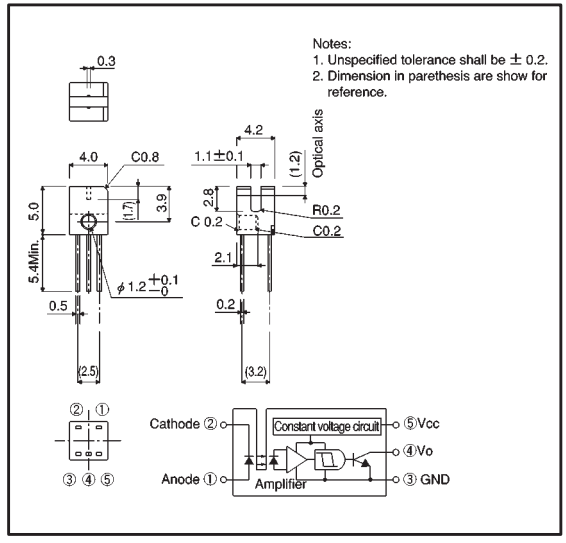
●Applications

Optical control equipment

●Features

1) Small slit width (0.3 mm) for high precision.
2) Fast response.
3) Built-in visible light filter.

●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 IC)	Power supply voltage	V_{CC}	7	V
	Output current	I_O	10	mA
	Power dissipation	P_D	80	mW
Operating temperature		Topr	−20～+60	℃
Storage temperature		Tstg	−40～+100	℃

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

	Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input characteristics	Forward voltage		V_F	—	1.1	1.3	V	I_F=10mA
	Reverse current		I_R	—	—	10	μA	V_R=5V
Output characteristics	Power supply voltage		V_{CC}	2.0	—	7.0	V	—
	Output low level voltage		V_{OL}	—	0.08	0.35	V	V_{CC}=3V, I_{OL}=2mA
	Output high level voltage		V_{OH}	2.8	—	3.0	V	V_{CC}=3V, I_F=0mA
	Low level power supply current		I_{CCL}	—	0.35	1.5	mA	V_{CC}=3V, I_F=5mA
	High level power supply current		I_{CCH}	—	0.35	1.5	mA	V_{CC}=3V, I_F=0mA
Transfer characteristics	High → Low Threshold input current		I_{FHL}	0.25	—	2.5	mA	V_{CC}=3V
	Hysteresis		I_{FLH} / I_{FHL}	0.4	0.7	0.9	—	V_{CC}=3V
	Response time	Low → High Propagation delay time	t_{PLH}	—	22	66	μs	V_{CC}=3V, I_F=5mA, R_L=100Ω
		High → Low Propagation delay time	t_{PHL}	—	5.5	16		
		Rise time	tr	—	5	15		
		Fall time	tf	—	0.05	0.15		

●Electrical and optical characteristic curves

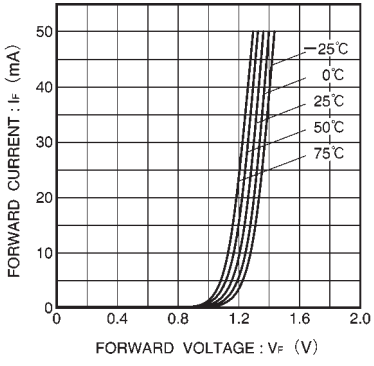


Fig.1 Forward current vs. forward voltage

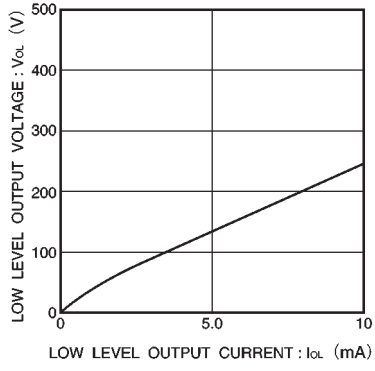


Fig.2 Low level output voltage vs. low level output current

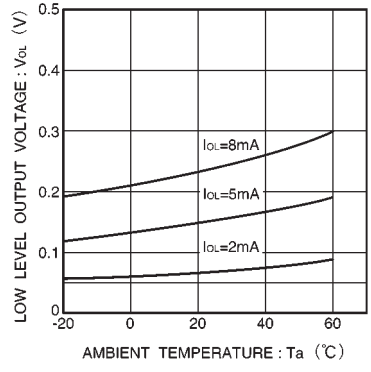


Fig.3 Low level output voltage vs. ambient temperature

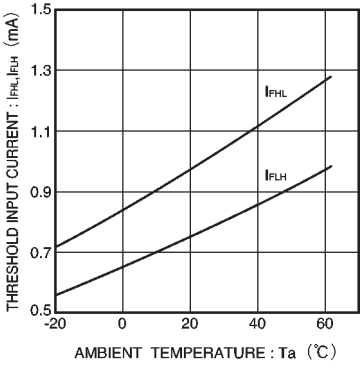


Fig.4 Threshold input current vs. ambient temperature

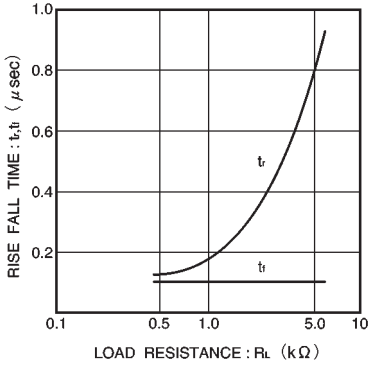


Fig.5 Response time vs. load resistance

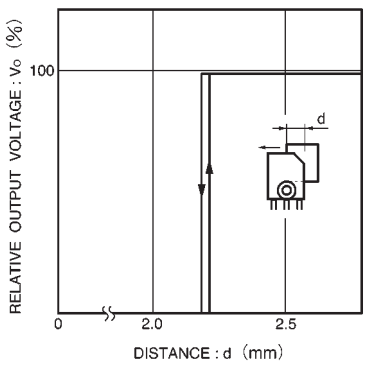


Fig.6 Relative output voltage vs. distance characteristics

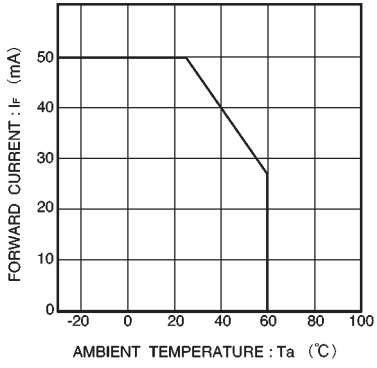


Fig.7 Forward current falloff

●Response time measurement circuit

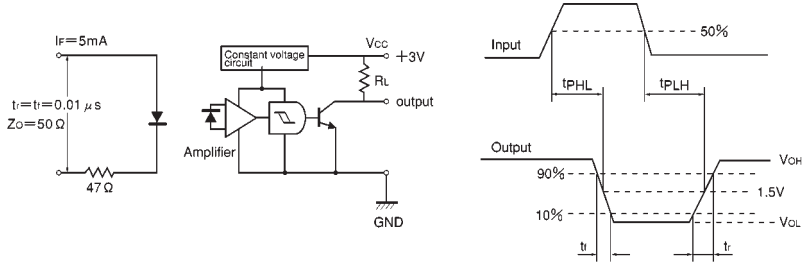


Fig.8

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