GP1A57HR

Wide Gap Type OPIC Photointerrupter

■ Features

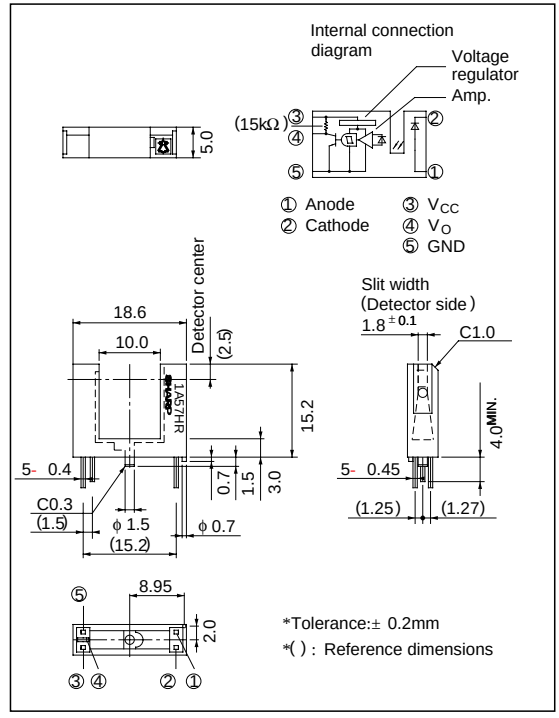
1. Wide gap between LED and detector（10mm ）
2. High accuracy mounting type with positioning pin
3. Built-in schmidt-trigger circuit
4. PWB mounting type package

■ Applications

1. Cameras, video cameras
2. OA equipmet, such as copiers etc.
3. Facsimiles

■ Outline Dimensions

（Unit : mm）



*"OPIC"（Optical IC ）is a trademark of the SHARP Corporation. An OPIC consists of a light-detecting element and signal-processing circuit integrated onto a single chip.

■ Absolute Maximum Ratings

（Ta = 25˚C）

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	*1Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P	75	mW
Output	Supply voltage	V_{CC}	- 0.5 to + 17	V
	Output current	I_O	50	mA
	Power dissipation	P_O	250	mW
Operating temperature		T_{opr}	- 25 to + 85	˚C
Storage temperature		T_{stg}	- 40 to + 100	˚C
*2 Soldering temperature		T_{sol}	260	˚C

*1 Pulse width<=100μs, Duty ratio = 0.01
*2 For 5 seconds

■ Electro-optical Characteristics

(Ta = 25˚C)

Paramerter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	I_F = 7mA	-	1.1	1.4	V
	Reverse current		I_R	V_R = 3V	-	-	10.0	μA
Output	Operating supply voltage		V_{CC}		4.5	-	17.0	V
	Low level output voltage		V_{OL}	V_{CC} = 5V, I_F = 0, I_{OL} = 16mA	-	0.15	0.4	V
	High level output voltage		V_{OH}	V_{CC} = 5V, I_F = 7mA	4.9	-	-	V
	Low level supply current		I_{CCL}	V_{CC} = 5V, I_F = 0	-	1.7	3.8	mA
	High level supply current		I_{CCH}	V_{CC} = 5V, I_F = 7mA	-	0.7	2.2	mA
Transfer characteristics	*3 "Low→High" threshold input current		I_{FLH}	V_{CC} = 5V	-	1.0	7.0	mA
	*4 Hysteresis		I_{FHL}/I_{FLH}	V_{CC} = 5V	0.55	0.75	0.95	-
	Response time	"Low→High" propagation delay time	t_{PLH}	V_{CC} = 5V, I_F = 7mA, R_L = 280Ω	-	3.0	9.0	μs
		"High→Low" propagation delay time	t_{PHL}		-	5.0	15.0	
		Rise time	t_r		-	0.1	0.5	
		Fall time	t_f		-	0.05	0.5	

*3 I_{FLH} represents forward current when output changes from low to high.
*4 I_{FHL} represents forward current when output changes from high to low.
Hysteresis stands for I_{FHL}/I_{FLH}.

Fig. 1 Forward Current vs. Ambient Temperature

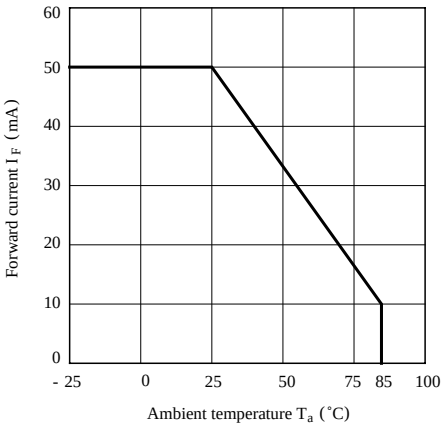


Fig. 2 Output Power Dissipation vs. Ambient Temperature

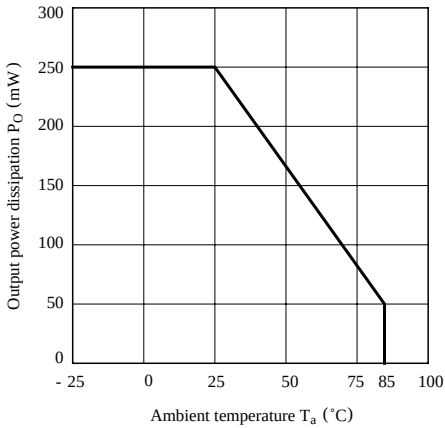


Fig. 3 Low Level Output Current vs. Ambient Temperature

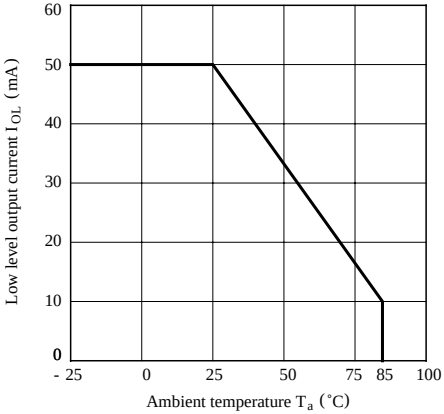


Fig. 4 Forward Current vs. Forward Voltage

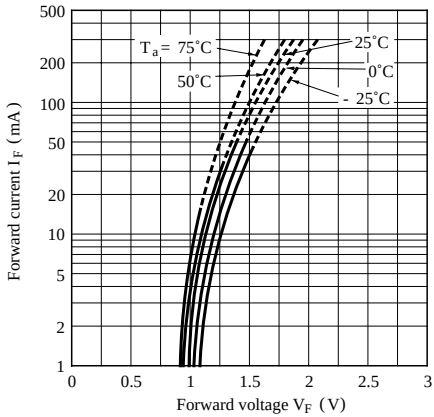


Fig. 5 Relative Threshold Input Current vs. Supply Voltage

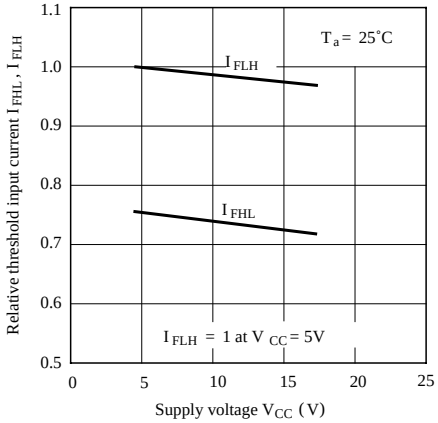


Fig. 6 Relative Threshold Input Current vs. Ambient Temperature

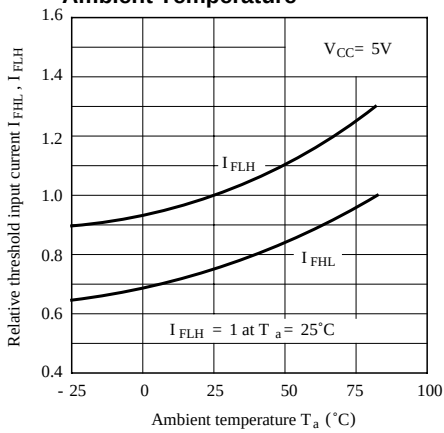


Fig. 7 Low Level Output Voltage vs. Low Level Output Current

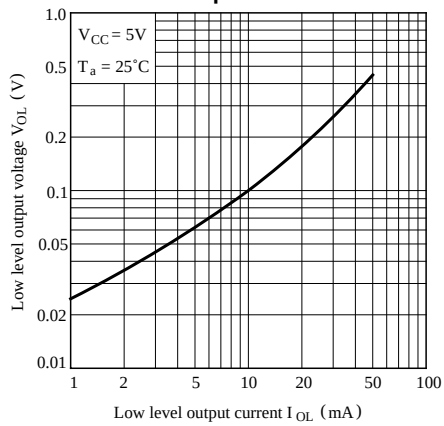


Fig. 8 Low Level Output Voltage vs. Ambient Temperature

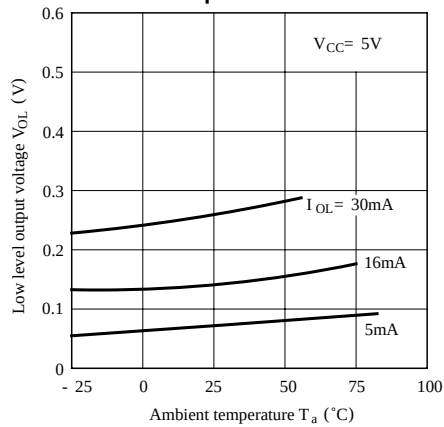


Fig. 9 Supply Current vs. Ambient Temperature

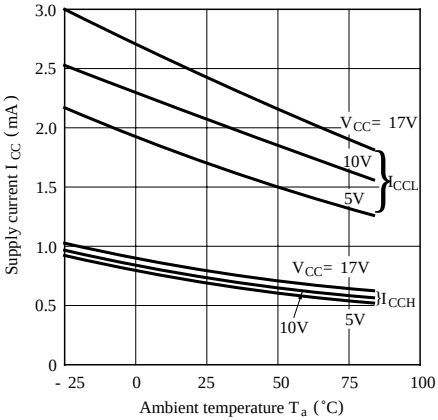


Fig.10 Propagation Delay Time vs. Forward Current

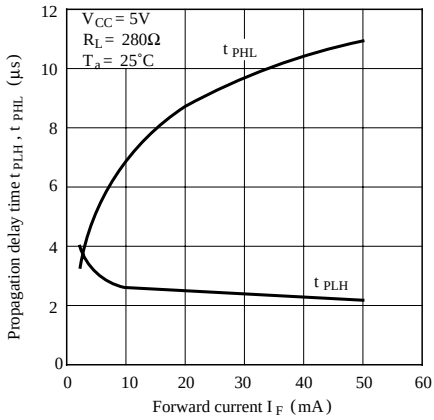
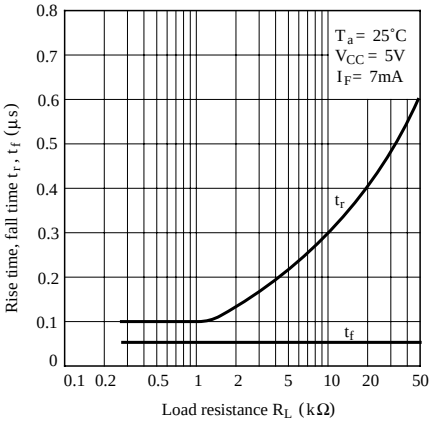
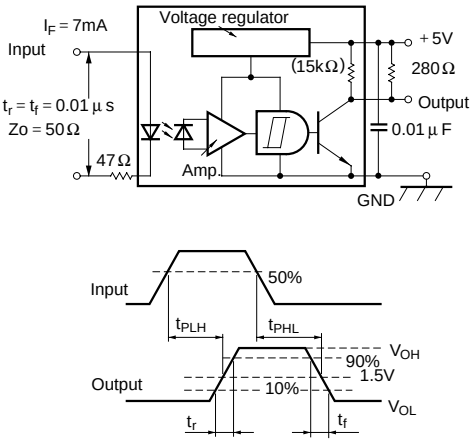


Fig.11 Rise Time, Fall Time vs. Load Resistance



Test Circuit for Response Time



■ Precautions for Use

(1) In case of cleaning, use only the following type of cleaning solvent.
Ethyl alcohol, Methyl alcohol, Isopropyl alcohol

(2) In order to stabilize power supply line, connect a by-pass capacitor of more than 0.01µF between Vcc and GND near the device.

(3) As for other general cautions, refer to the chapter "Precautions for Use".

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— Telecommunication equipment [terminal]
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— Gas leakage sensor breakers
— Alarm equipment
— Various safety devices, etc.

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