

GP1A58HR

OPIC Photointerrupter

■ Features

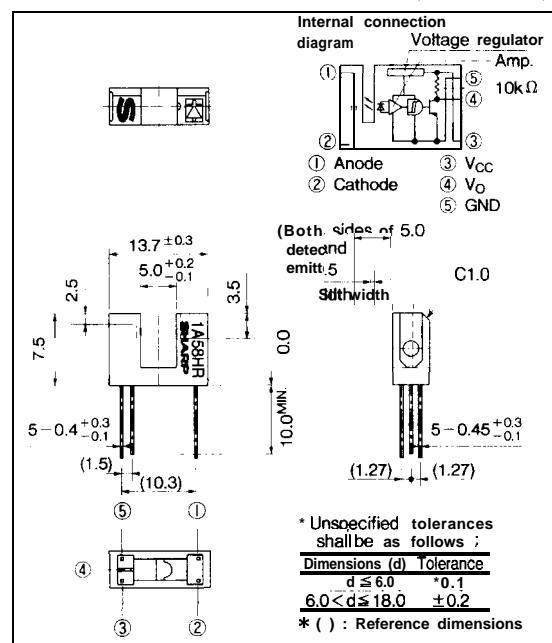
1. High sensing accuracy (Slit width : 0.5mm)
2. PWB mounting type

■ Applications

1. OA equipment such as printers, facsimiles, etc
2. VCRs

■ 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 currnt	I _F	50	mA
	* ¹ Peak 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	mA
	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 widths 100 μs, Duty ratio = 0.01

*2 For 5 seconds

■ Electro-optical Characteristics

(Ta = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V _F	I _F = 8mA	—	1.14	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 = 0mA, I _{OL} = 16mA	—	0.15	0.4	V
	High level output voltage	V _{OH}	V _{CC} = 5V, I _F = 8mA	4.9	—	—	V
	Low level supply current	I _{CCL}	V _{CC} = 5V, I _F = 0mA	—	1.7	3.8	mA
	High level supply current	I _{CH}	V _{CC} = 5V, I _F = 8mA	—	0.7	2.2	mA
	*1 "Low→High" threshold input current	I _{FLH}	V _{CC} = 5V	—	1.5	8.0	mA
Transfer characteristics	*2 Hysteresis	I _{FHL} /I _{FLH}	V _{CC} = 5V	0.55	0.75	0.95	—
	"Low→High" propagation delay time	t _{PLH}	V _{CE} = 5V, I _F = 8mA	—	3.0	9.0	μs
	"High→Low" propagation delay time	t _{PHL}		—	5.0	15.0	μs
	Rise time	t _r		—	0.1	0.5	μs
	Fall time	t _f		—	0.05	0.5	μs

*1 I_{FLH} represents forward current when output changes from low to high.*2 I_{FHL} represents forward current when output changes from high to low.

■ Recommended Operating Conditions

Parameter	Symbol	Operating temperature range	MIN.	MAX	Unit
Output current	I _O	T _a = 0 to +70°C	—	16.0	mA
Forward current	I _F		10.0	20.0	mA

Fig. 1 Forward Current vs. Ambient Temperature

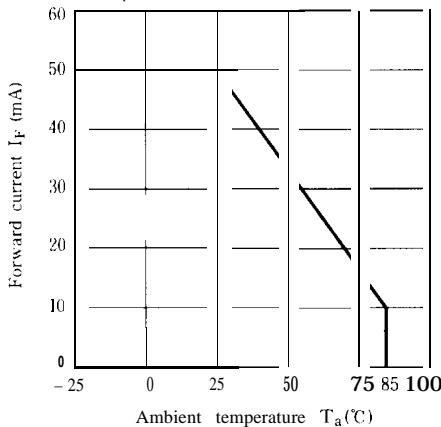


Fig. 2 Output Power Dissipation vs. Ambient Temperature

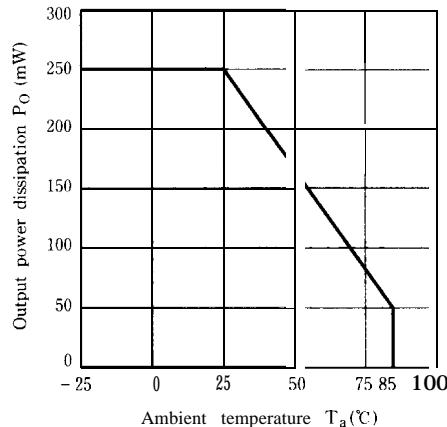


Fig. 3 Low Level output Current Ve. Ambient Temperature

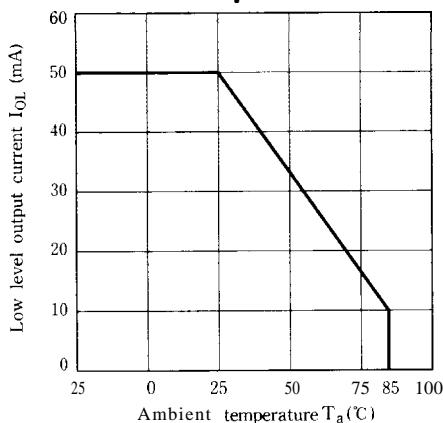


Fig. 4 Forward Current vs. Forward Voltage

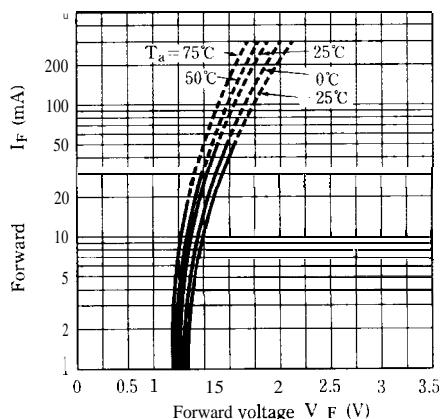


Fig. 5 Relative Threshold Input Current vs. Supply Voltage

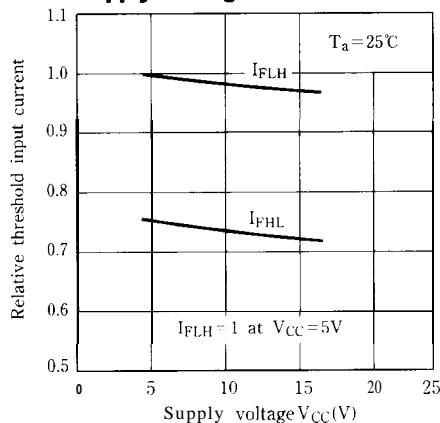


Fig. 6 Relative Threshold Input Current vs. Ambient Temperature

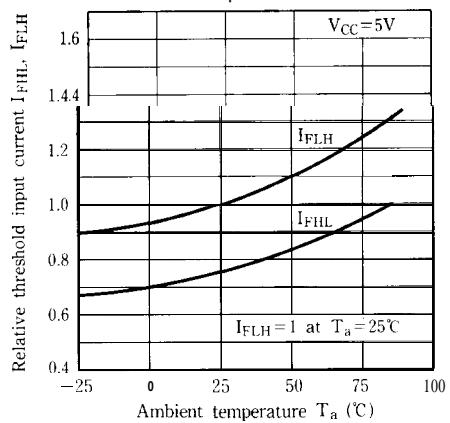


Fig. 7 Low Level Output Voltage vs. Low Level Output Current

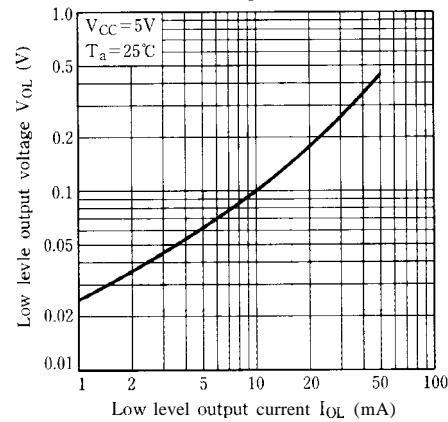


Fig. 8 Low Level Output Voltage vs. Ambient Temperature

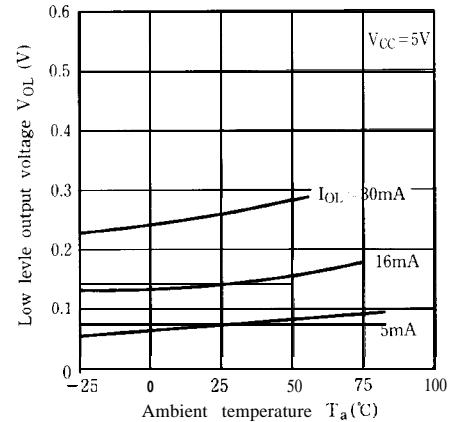
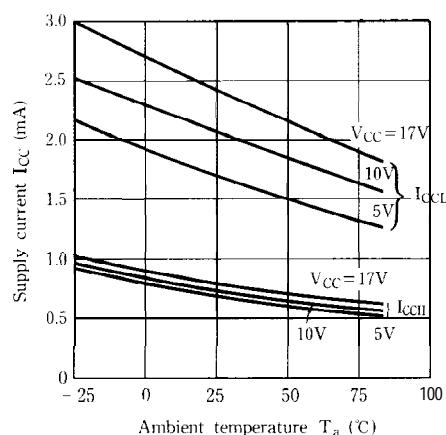
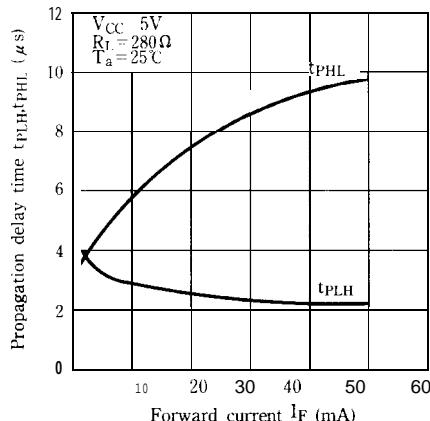
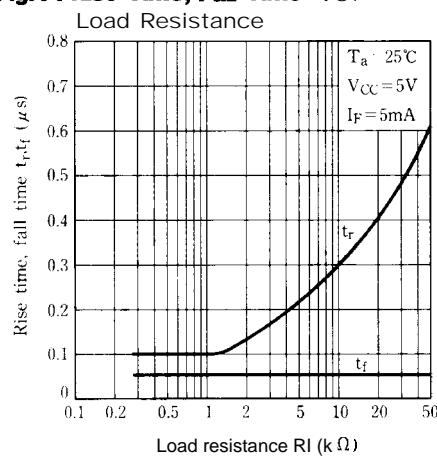
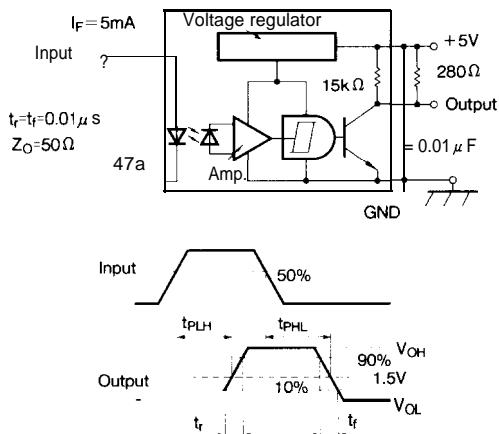


Fig. 9 Supply Current vs. Ambient Temperature**Fig. 10 Propagation Delay Time vs. Forward Current****Fig. 11 Rise Time, Fall Time vs. Load Resistance****Test Circuit for Response Time****■ Precautions for Use**

- (1) In order to stabilize power supply line, connect a by-pass capacitor of more than $0.01 \mu F$ between V_{CC} and GND near the device.
- (2) In case of cleaning, use only the following type of cleaning solvent.
Ethyl alcohol, Methyl alcohol, Isopropyl alcohol
- (3) As for other general cautions, refer to the chapter "Precautions for Use" (Page 78 to 93).