GP1A58HR

OPIC Photointerrupter

■ Features

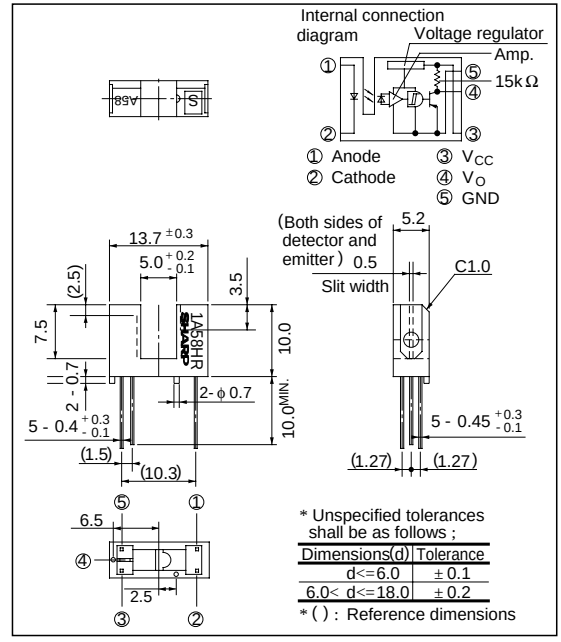
1. High sensing accuracy（Slit width: 0.5mm）
2. PWB mounting type

■ 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）

Paramerter		Symbol	Rating	Unit
Input	Forward currnt	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	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
*2Soldering temperature		T_{sol}	260	˚C

*1 Pulse width<= 100μs, 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_{CCH}	V_{CC} = 5V, I_F = 8mA	-	0.7	2.2	mA
Transfer characterisitics	*1"Low→High" threshold input current		I_{FLH}	V_{CC} = 5V	-	1.5	8.0	mA
	*2 Hysteresis		I_{FHL} /I_{FLH}	V_{CC} = 5V	0.55	0.75	0.95	-
	Response time	"Low→High"propagation delay time	t_{PLH}	V_{CE} = 5V, I_F = 8mA R_L = 280Ω	-	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	Ta = 0 to + 70˚C	-	16.0	mA
Forward current	I_F		10.0	20.0	mA

Fig. 1 Forward Current vs. Ambient Temperature

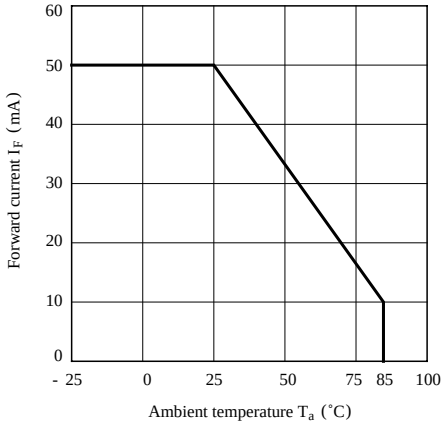


Fig. 2 Output Power Dissipation vs. Ambient Temperature

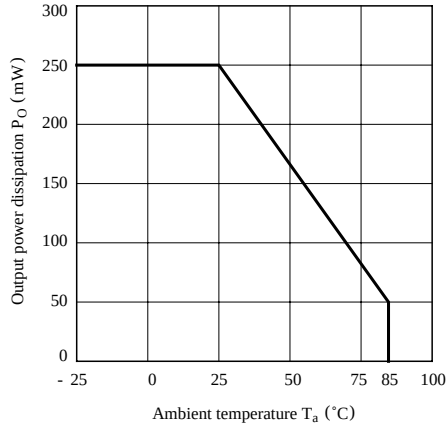


Fig. 3 Low Level Output Current vs. Ambient Temperature

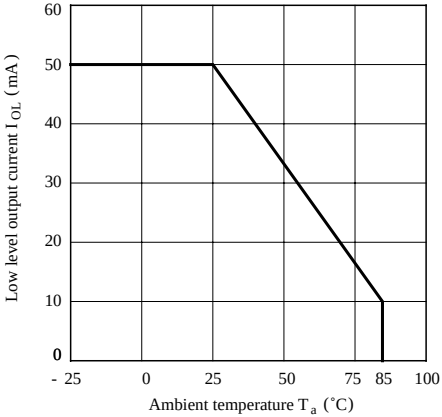


Fig. 4 Forward Current vs. Forward Voltage

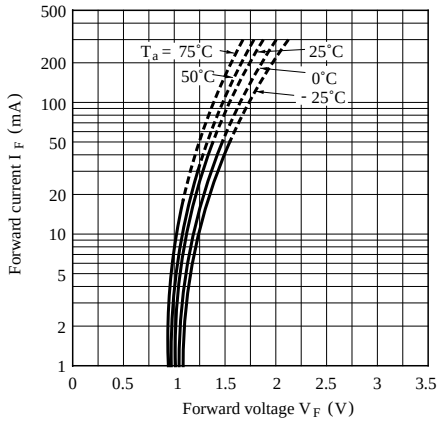


Fig. 5 Relative Threshold Input Current vs. Supply Voltage

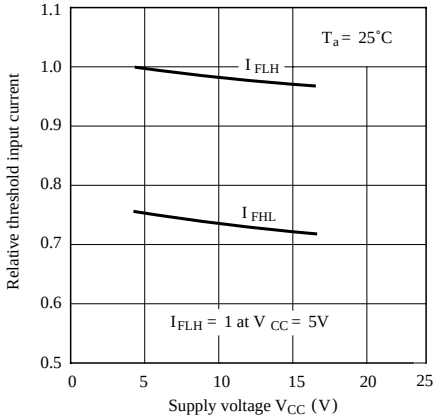


Fig. 6 Relative Threshold Input Current vs. Ambient Temperature

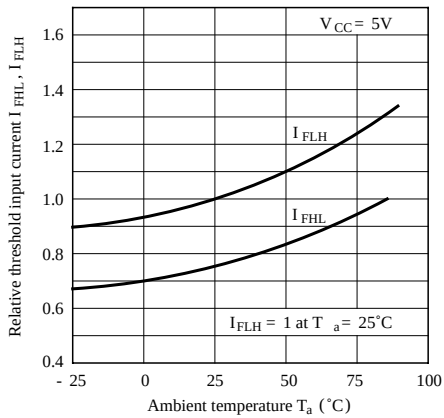


Fig. 7 Low Level Output Voltage vs. Low Level Output Current

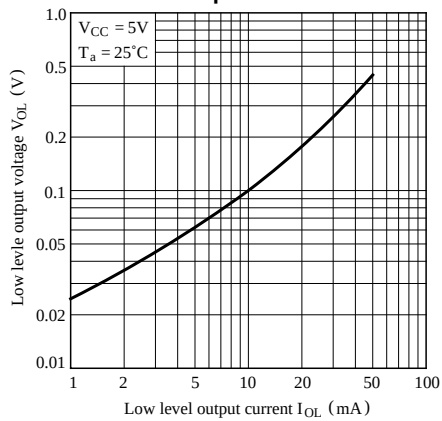


Fig. 8 Low Level Output Voltage vs. Ambient Temperature

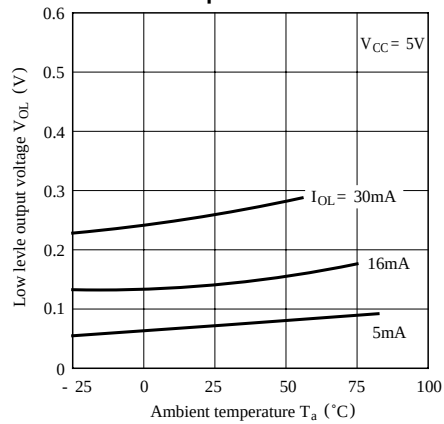


Fig. 9 Supply Current vs. Ambient Temperature

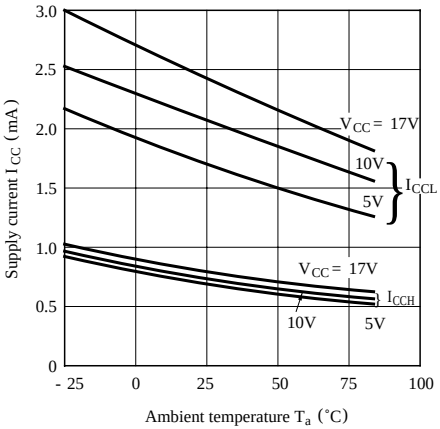


Fig.10 Propagation Delay Time vs. Forward Current

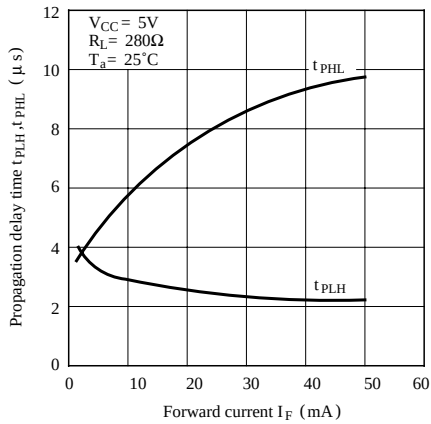
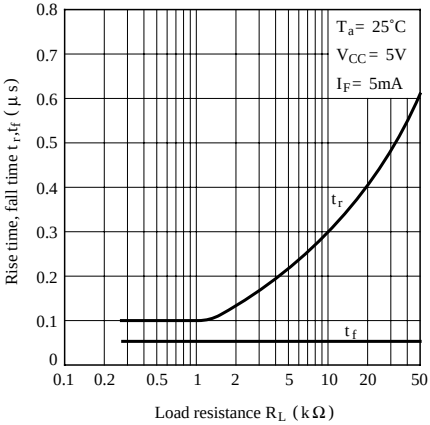
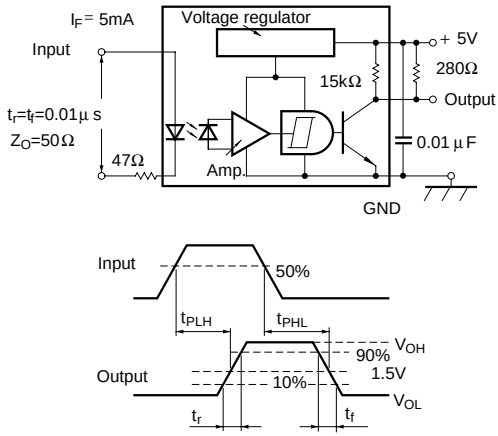


Fig.11 Rise Time, Fall Time vs. Load Resistance



Test Circuit for Response Time



■ Precautions for Use

(1) In order to stabilize power supply line, connect a by-pass capacitor of more than 0.01μF between Vcc 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".

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— Telecommunication equipment [terminal]
— Test and measurement equipment
— Industrial control
— Audio visual equipment
— Consumer electronics

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— Traffic signals
— Gas leakage sensor breakers
— Alarm equipment
— Various safety devices, etc.

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