GP1A18LC High Sensitivity OPIC Photointerrupter

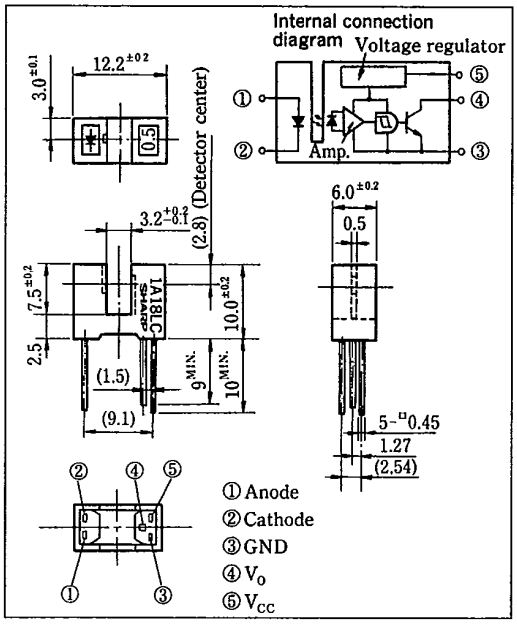
■ Features

1. Built-in Schmidt trigger circuit
2. Open collector output
3. Low threshold input current (I_{FHL} : MAX. 5mA)
4. Operating supply voltage V_{CC} : 4.5~17V
5. High sensing accuracy (Slit width : 0.5mm)

■ Applications

1. Copiers, printers, facsimiles
2. Optoelectronic switches

■ Outline Dimensions (Unit : mm)



※OPIC is a registered trademark of Sharp and stands for Optical IC. It has a light detecting element and signal processing circuitry integrated onto single chip.

7

■ Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	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}	35	V
	Output voltage	V_O	35	V
	Low level output current	I_{OL}	50	mA
	Power dissipation	P_O	250	mW
Operating temperature		T_{opr}	−25~+85	°C
Storage temperature		T_{stg}	−40~+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)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	I_F=10mA	—	1.2	1.4	V
	Reverse current		I_R	V_R=3V	—	—	10.0	μA
Output	Operating supply voltage		V_{CC}		4.5	—	17.0	V
	Operating output voltage		V_O		0	—	30.0	V
	Low level output voltage		V_{OL}	I_{OL}=16mA, V_{CC}=5V, I_F=5mA	—	0.15	0.4	V
	High level output current		I_{OH}	V_{CC}=5V, V_O=5V	—	—	100	μA
	Low level supply current		I_{CCL}	V_{CC}= 5 V, I_F=5mA	—	2.0	4.5	mA
	High level suppy current		I_{CCH}	V_{CC}=5V, I_F=0	—	1.0	3.0	mA
Transfer characteristics	*3 "High→Low" threshold input current		I_{FHL}	V_{CC}=5V, R_L=280Ω	—	1.5	5.0	mA
	*4 Hysteresis		I_{FLH}/I_{FHL}	V_{CC}=5V	0.55	0.75	0.95	
	Response time	"High→Low" propagation time	t_{PHL}	V_{CC}=5V, I_F=5mA, R_L=280Ω	—	3.0	9.0	μs
		"Low→High" propagation time	t_{PLH}		—	5.0	15.0	
		Rise time	t_r		—	0.1	0.5	
		Fall time	t_f		—	0.05	0.5	

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

(Precautions for Use)

In order to stabilize power supply line, we recommend to connect a by-pass capacitor of more than 0.01μF between V_{CC} and GND near the device.

Fig. 1 Forward Current vs. Ambient Temperature

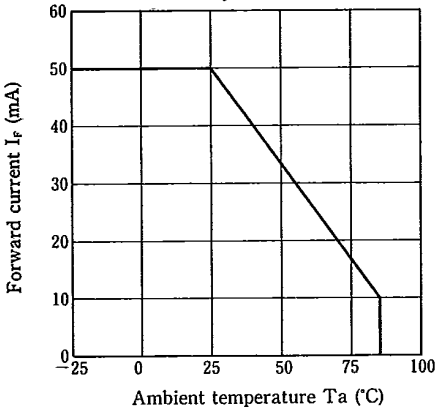


Fig. 2 Output power Dissipation vs. Ambient Temperature

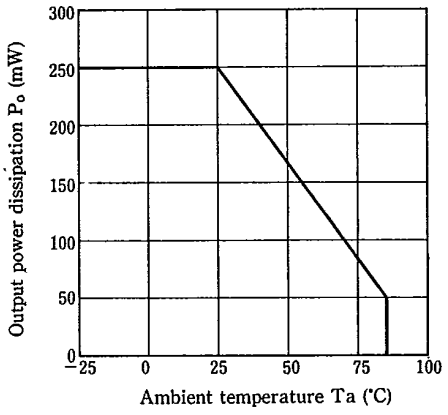


Fig. 3 Low Level Output Current vs. Ambient Temperature

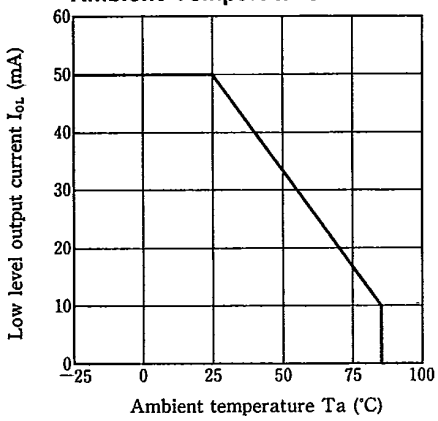


Fig. 4 Forward Current vs. Forward Voltage

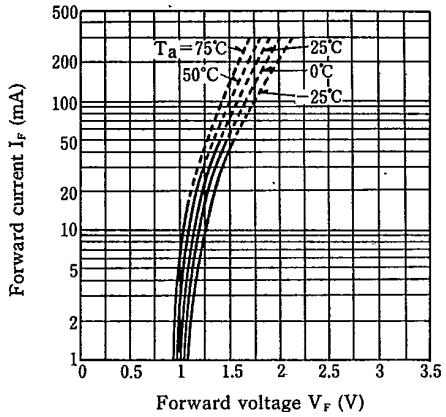


fig. 5 Relative Threshold Input Current vs. Supply Voltage

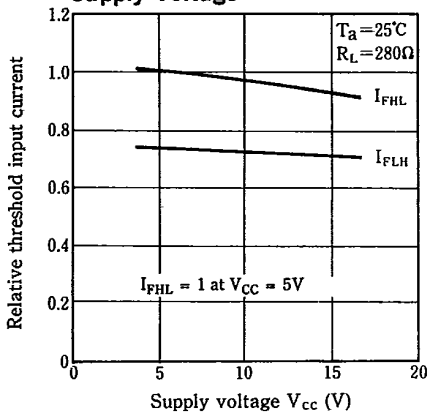


Fig. 6 Relative Threshold Input Current vs. Ambient Temperature

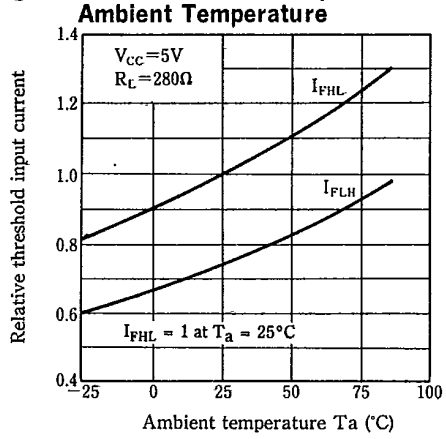


Fig. 7 Low Level Output Voltage vs. Low Level Output current

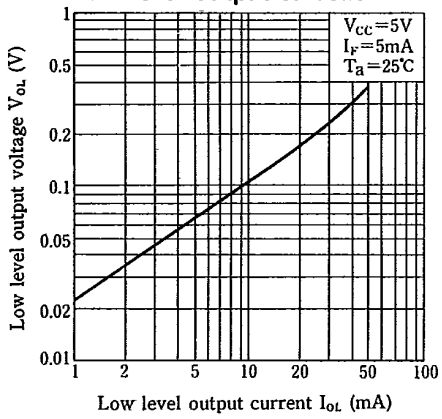
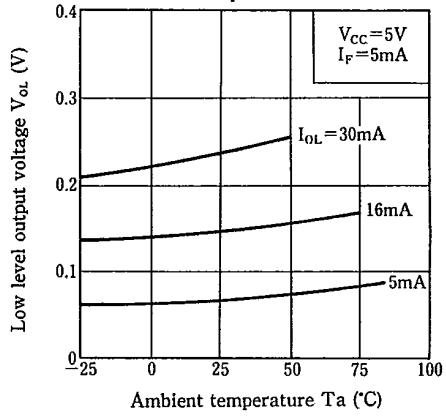


Fig. 8 Low Level Output Voltage vs. Ambient Temperature



7

Fig. 9 Supply Current vs. Supply Voltage

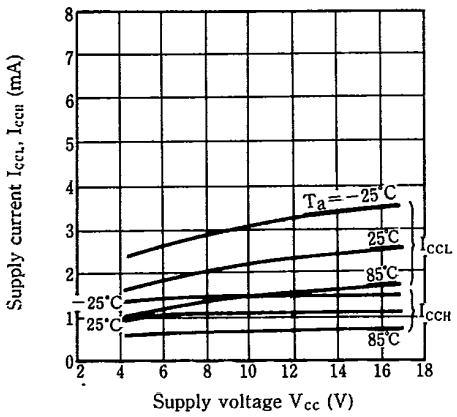


Fig. 10 Propagation Time vs. Forward Current

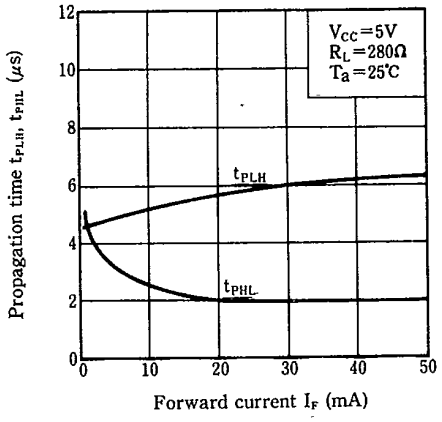
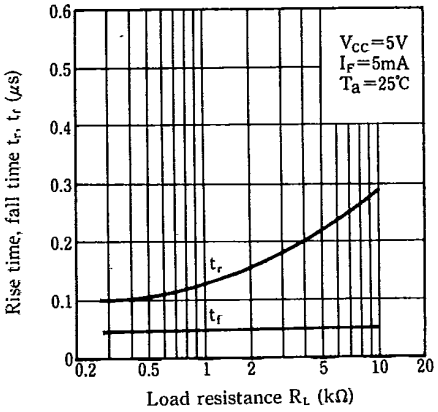


Fig. 11 Rise Time, Fall Time vs. Load Resistance



Test Circuit for Response Time