

PC91 OX

Ultra-high Speed Response OPIC Photocoupler

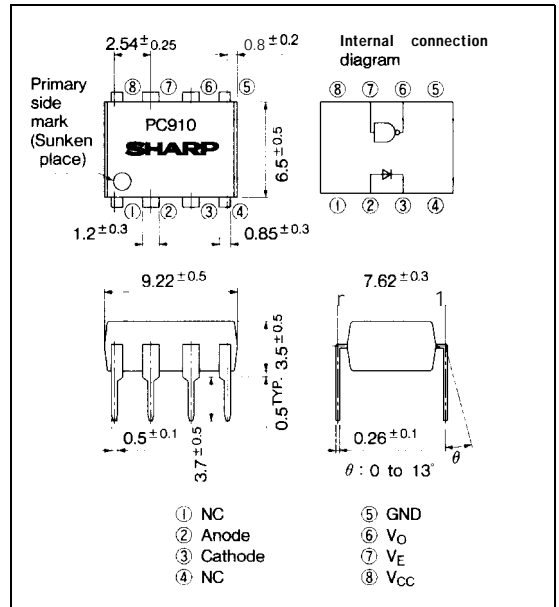
■ Features

1. Ultra-high speed response
(t_{PHL}, t_{PLH} : TYP. 50ns at $R_L = 350\Omega$)
2. Isolation voltage between input and output
(V_{iso} : 2500V_{rms})
3. Low input current drive (I_{FHL} : MAX. 5mA)
4. Instantaneous common mode rejection voltage (C_{MH} : TYP. 500V/ μ s)
5. TTL and LSTTL compatible output
6. Recognized by UL, file No. E64380

■ Applications

1. High speed interfaces for computer peripherals and microcomputer systems
2. High speed line receivers
3. Noise-cut
4. Interfaces with various data transmission equipment

■ 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

($T_a = 25^\circ\text{C}$)

Parameter		Symbol	Rating	Unit
Input	*1 Forward current	I_F	20	mA
	Reverse voltage	V_R	5	v
	Power dissipation	P	40	mW
output	*2 Supply voltage	V_{CC}	7	v
	*3 Enable voltage	V_E	5.5	v
	High level output voltage	V_{OH}	7	v
	Low level output current	I_{OL}	50	mA
	Collector power dissipation	P_C	85	mW
	Isolation voltage	V_{iso}	2 500	V _{rms}
Operating temperature		T_{opr}	0 to +70	°C
Storage temperature		T_{stg}	-55 to +125	°C
*4 Soldering temperature		$t_{r,l}$	260	°C

*1 $T_a = 0$ to 70°C

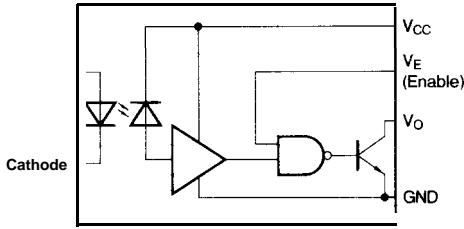
*2 For 1 minute max.

*3 Shall not exceed 500mV from SUPPLY voltage (V_{cc}).

*4 AC for 1 minute, 40 to 60% RH. Apply the specified voltage between the whole of the electrode pins on the input side and the whole of the electrode pins on the output side.

*5 For 10 seconds at the position of 2mm from lead base

Circuit Block Diagram

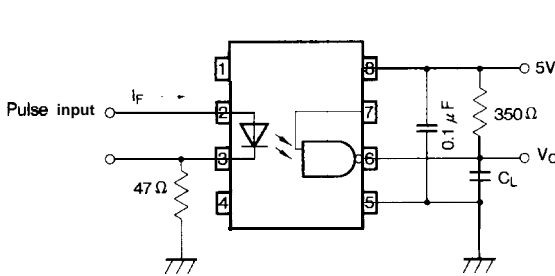


Truth Table

Input	Enable	output
H	H	L
L	H	H
H	L	H
L	L	H

L : Logic (0)
H : Logic (1)

Fig. 1 Test Circuit for t_{PHL} , t_{PLH} , t_r and t_f



* C_L includes the probe and wiring capacitance.

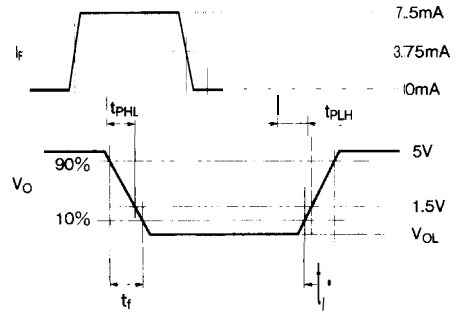


Fig. 2 Test Circuit for t_{EHL} and t_{ELH}

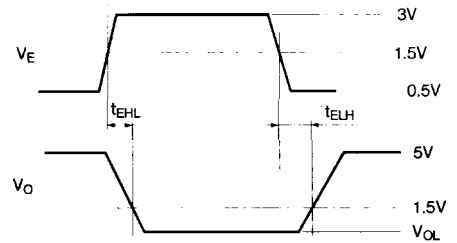
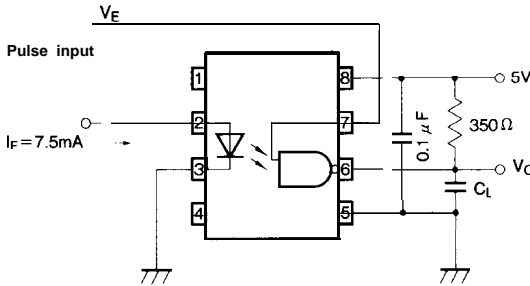


Fig. 3 Taat Circuit for CM_H and CM_L

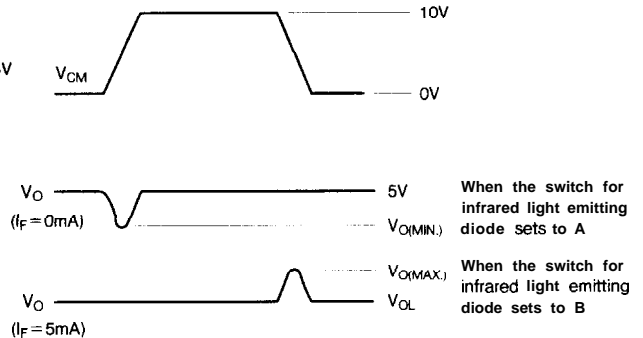
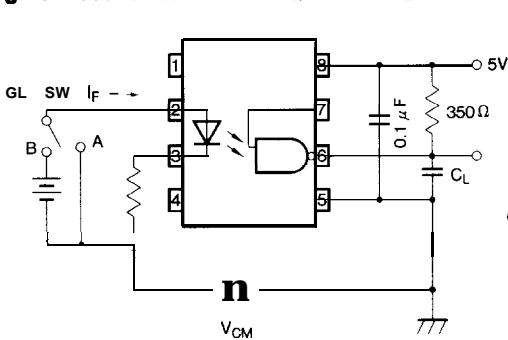


Fig. 4 Collector Power Dissipation vs. Ambient Temperature

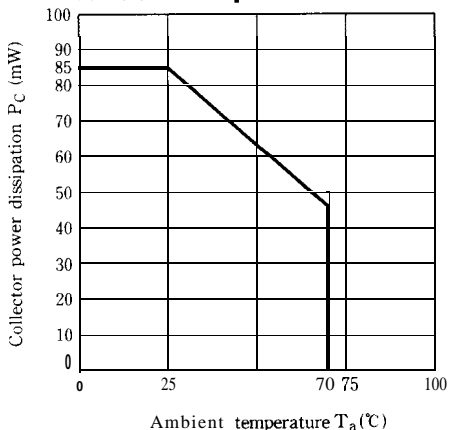


Fig. 5 Forward Current vs. Forward Voltage

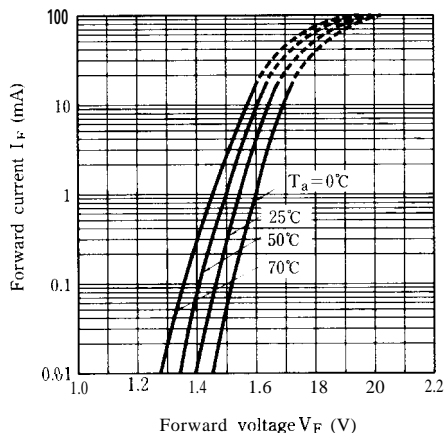


Fig. 6 High Level Output Current vs. Ambient Temperature

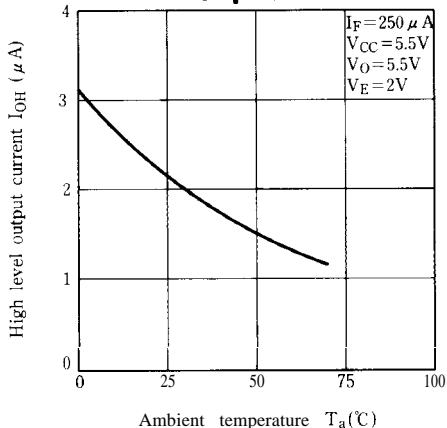


Fig. 7 Low Level Output Voltage vs. Ambient Temperature

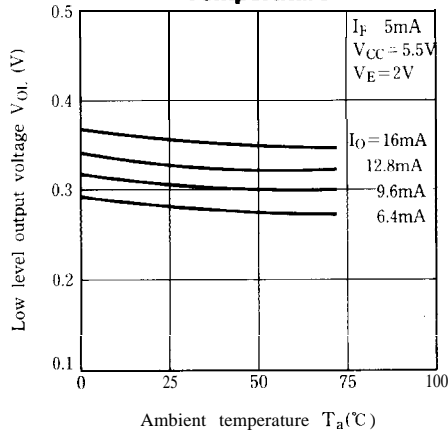


Fig. 8-a Output Voltage vs. Forward Current

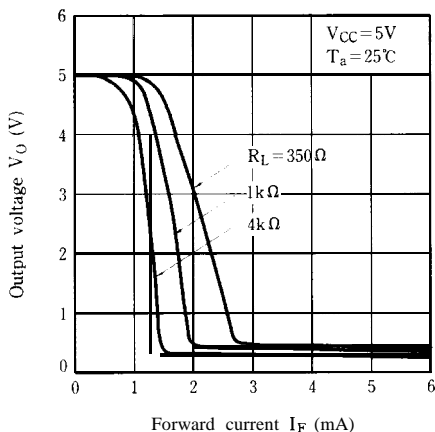


Fig. 8-b Output Voltage vs. Forward Current (Ambient Temp. Characteristics)

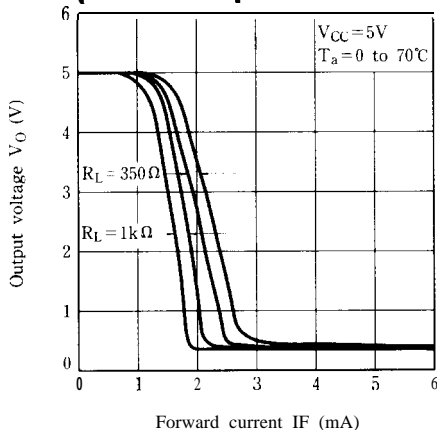


Fig. 9 Propagation Delay Time vs. Forward Current

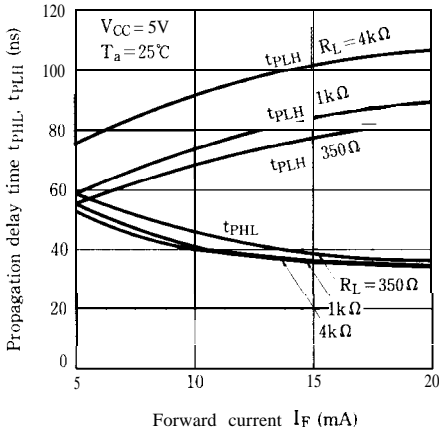


Fig.10 Propagation Delay Time vs. Ambient Temperature

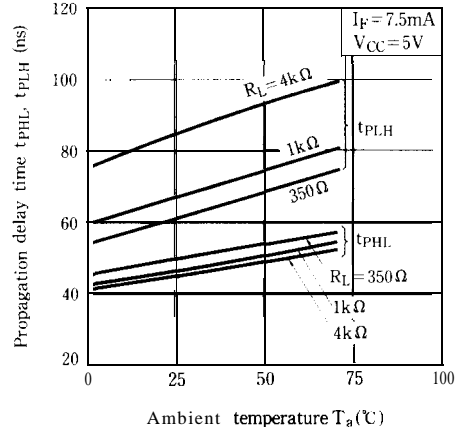


Fig.11 Rise Time, Fall Time vs. Ambient Temperature

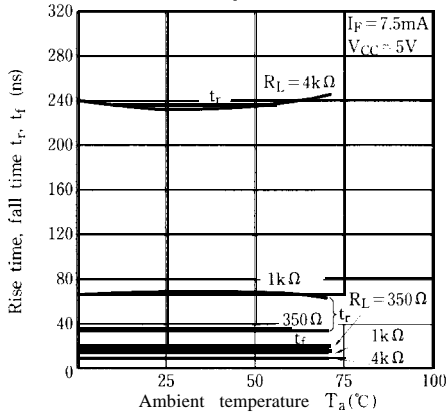
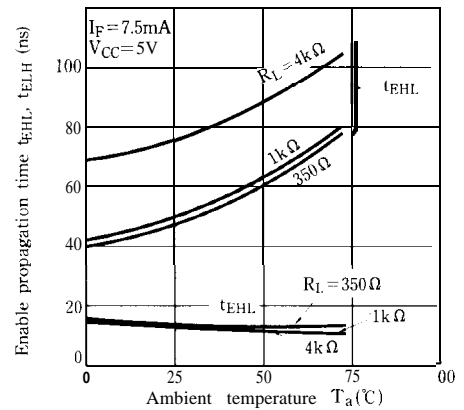


Fig.12 Enable Propagation Time vs. Ambient Temperature



■ Precautions for use

- (1) Handle this product the same as with other integrated circuits against static electricity y.
- (2) As for other general cautions, refer to the chapter "Precautions for Use" (Page 78 to 93).