



U74AHC06

CMOS IC

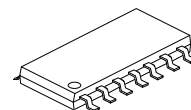
INVERTER WITH OPEN-DRAIN OUTPUT

■ DESCRIPTION

The **U74AHC06** is six independent inverters, and the output of the inverter is an open drain. Each inverter provides the Function $Y = \overline{A}$.

■ FEATURES

- * Operate from 2V to 5.5V
- * High noise immunity
- * Low power dissipation
- * Balanced propagation delays
- * Output capability standard (open drain)

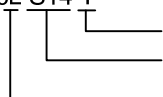


SOP-14

■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AHC06L-S14-R	U74AHC06G-S14-R	SOP-14	Tape Reel
U74AHC06L-S14-T	U74AHC06G-S14-T	SOP-14	Tube

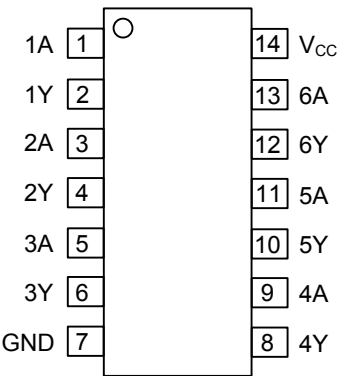
U74AHC06L-S14-T



- (1) Packing Type
- (2) Package Type
- (3) Lead Free

- (1) R: Tape Reel, T: Tube
- (2) S14: SOP-14
- (3) G: Halogen Free, L: Lead Free

PIN CONFIGURATION

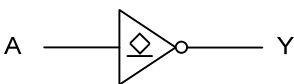


FUNCTION TABLE

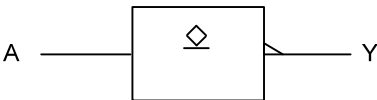
INPUT A	OUTPUT Y
H	L
L	Z

Note: H: HIGH voltage level; L: LOW voltage level, Z: HIGH impedance OFF-state.

LOGIC SYMBOL



Logic symbol



IEC logic symbol

■ ABSOLUTE MAXIMUM RATING (unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	-0.5 ~ +7	V
Input Voltage	V_{IN}	-0.5 ~ +7	V
Output Voltage (Active Mode)	V_{OUT}	$V_{CC} + 0.5$	V
V_{CC} or GND Current	I_{CC}	±75	mA
Output Sink Current ($V_{OUT} > -0.5V$)	I_{OUT}	±25	mA
Input Clamp Current ($V_{IN} < -0.5V$)	I_{IK}	-20	mA
Output Clamp Current ($V_{OUT} < -0.5V$)	I_{OK}	±20	mA
Storage Temperature	T_{STG}	-65 ~ + 150	°C

Note 1. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

2. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	76	°C /W

■ RECOMMENDED OPERATING COMDITIONS

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		2.0	5.0	5.5	V
Input Voltage	V_{IN}		0		5.5	V
Output Voltage	V_{OUT}	Active Mode	0		V_{CC}	V
		High-impedance Mode	0		6.0	
High-Level Input Voltage	V_{IH}	$V_{CC} = 2.0V$	1.5			V
		$V_{CC} = 3.0V$	2.1			
		$V_{CC} = 5.5V$	3.85			
Low-Level Input Voltage	V_{IL}	$V_{CC} = 2.0V$			0.5	V
		$V_{CC} = 3.0V$			0.9	
		$V_{CC} = 5.5V$			1.65	
Input Transition Rise or Fall Rate	$\Delta t/\Delta v$	$V_{CC} = 3.3 \pm 0.3V$			100	ns/V
		$V_{CC} = 5.0 \pm 0.5V$			20	
Operating Temperature	T_A		-40	+25	+85	°C

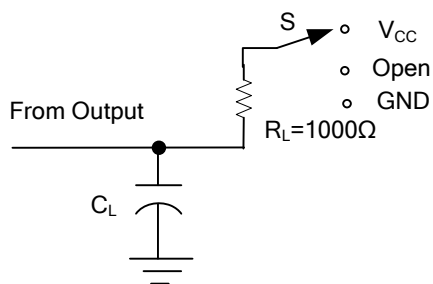
■ STATIC CHARACTERISTICS ($T_A=25^\circ\text{C}$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Low-Level Output Voltage	V_{OL}	$I_{OL}=50\mu\text{A}$	$V_{CC}=2.0\text{V}$		0.1	V
			$V_{CC}=3.0\text{V}$		0.1	
			$V_{CC}=4.5\text{V}$		0.1	
		$I_{OL}=4\text{ mA}$	$V_{CC}=3.0\text{V}$		0.36	
		$I_{OL}=8\text{mA}$	$V_{CC}=4.5\text{V}$		0.36	
Input Leakage Current	$I_{I(LEAK)}$	$V_{IN}=5.5\text{V}$ or GND, $V_{CC}=0\text{V}$ to 5.5V			0.1	μA
3-state Output OFF-state Current	I_{OZ}	$V_{IN}=V_{IH}$ or V_{IL} , $V_{OUT}=V_{CC}$ or GND, $V_{CC}=5.5\text{V}$			± 0.25	μA
Quiescent Supply Current	I_{CC}	$V_{IN}=V_{CC}$ or GND, $I_{OUT}=0$, $V_{CC}=5.5\text{V}$			2	μA
Input Capacitance	C_{IN}			1.5	10	pF

■ SWITCHING CHARACTERISTICS ($T_A=25^\circ\text{C}$)

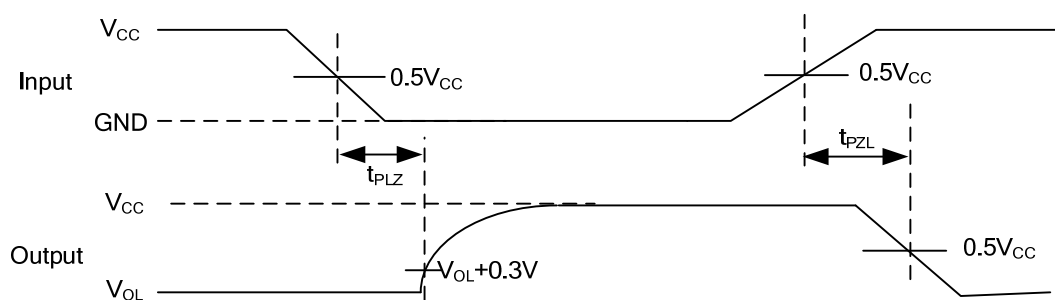
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay, From Input(A) To Output(Y)	t_{PZL}	$V_{CC}=3.3\pm 0.3\text{ V}$	$C_L=15\text{ pF}$	3.7	7.0	ns
			$C_L=50\text{ pF}$	5.2	10.0	
	t_{PLZ}	$V_{CC}=3.3\pm 0.3\text{ V}$	$C_L=15\text{ pF}$	4.8	6.4	
			$C_L=50\text{ pF}$	6.9	10.0	
Propagation Delay, From Input(A) To Output(Y)	t_{PZL}	$V_{CC}=5\pm 0.5\text{ V}$	$C_L=15\text{ pF}$	2.7	4.9	ns
			$C_L=50\text{ pF}$	3.8	7.0	
	t_{PLZ}	$V_{CC}=5\pm 0.5\text{ V}$	$C_L=15\text{ pF}$	3.0	4.1	
			$C_L=50\text{ pF}$	4.3	6.5	

■ TEST CIRCUIT AND WAVEFORMS



TEST	S
t_{PLH}/t_{PHL}	Open
t_{PHZ}/t_{PZH}	GND
t_{PLZ}/t_{PZL}	V_{CC}

Test circuit for measuring propagation delay



Waveforms showing the Input(A) to Output(Y) propagation delays.

Note: C_L includes probe and jig capacitance.

All input pulses are supplied by generators having the following characteristics: $P_{RR} \leq 1\text{MHz}$, $Z_o = 50\Omega$, $t_R \leq 3\text{ns}$, $t_F \leq 3\text{ns}$.

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.