



## U74ACT14

CMOS IC

### HEX SCHMITT-TRIGGER INVERTERS

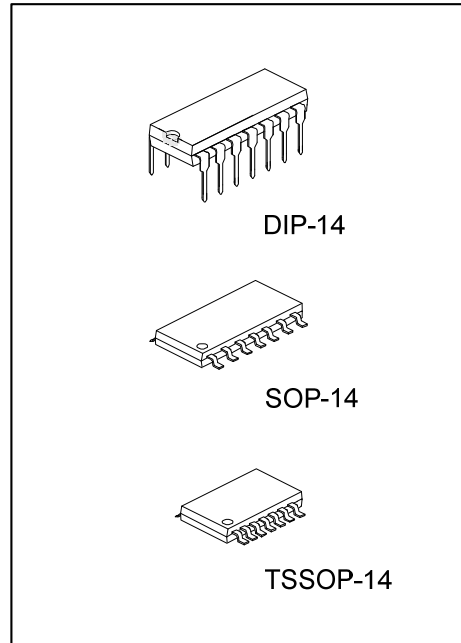
#### DESCRIPTION

The **U74ACT14** contains six inverters with Schmitt-trigger, provides the Function  $Y = \bar{A}$ .

The **U74ACT14** have hysteresis between the positive-going and negative-going and negative-going input thresholds.

#### FEATURES

- \* Inputs are TTL-Voltage Compatible
- \* Outputs source/sink 24mA
- \* Pb-Free Packages are available



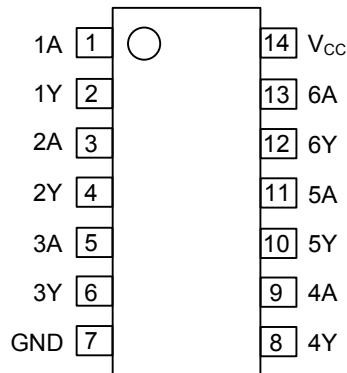
\*Pb-free plating product number:  
U74ACT14L

#### ORDERING INFORMATION

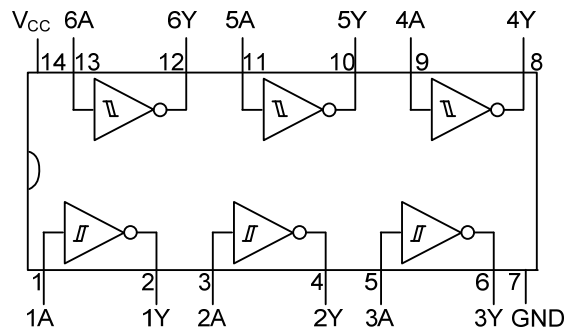
Ordering Number		Package	Packing
Normal	Lead Free Plating		
U74ACT14-D14-T	U74ACT14L-D14-T	DIP-14	Tube
U74ACT14-S14-T	U74ACT14L-S14-T	SOP-14	Tube
U74ACT14-S14-R	U74ACT14L-S14-R	SOP-14	Tape Reel
U74ACT14-P14-T	U74ACT14L-P14-T	TSSOP-14	Tube

<p>U74ACT14L-D14-T</p> <p>(1)Packing Type (2)Package Type (3)Lead Plating</p>	<p>(1) R: Tape Reel, T: Tube (2) D14: DIP-14, S14: SOP-14, P14: TSSOP-14 (3) L: Lead Free Plating, Blank: Pb/Sn</p>
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■ PIN CONFIGURATION



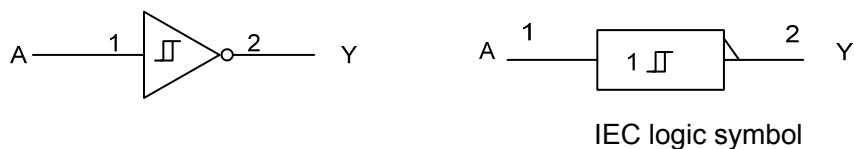
■ FUNCTIONAL DIAGRAM



■ FUNCTION TABLE

INPUT	OUTPUT
A	Y
L	H
H	L

■ LOGIC DIAGRAM (positive logic)



■ ABSOLUTE MAXIMUM RATINGS (unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_{CC}$	-0.5~7	V
Input Voltage	$V_{IN}$	-0.5~ $V_{CC}+0.5$	V
Output Voltage	$V_{OUT}$	-0.5~ $V_{CC}+0.5$	V
Input Clamp Current	$I_{IK}$	±20	mA
Output Clamp Current	$I_{OK}$	±20	mA
Output Current	$I_{OUT}$	±50	mA
$V_{CC}$ or GND Current	$I_{CC}$	±50	mA
Storage Temperature	$T_{STG}$	-65 ~ +150	°C

Note: 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.

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage	$V_{CC}$	4.5		5.5	V
Input Voltage	$V_{IN}$	0		$V_{CC}$	V
Output Voltage	$V_{OUT}$	0		$V_{CC}$	V
Operating Temperature	$T_A$	-40		+85	°C

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Input Voltage	$V_{IH}$	$V_{CC}=4.5\text{V}$	2.0			V
		$V_{CC}=5.5\text{V}$	2.0			V
Low-Level Input Voltage	$V_{IL}$	$V_{CC}=4.5\text{V}$			0.8	V
		$V_{CC}=5.5\text{V}$			0.8	V
Hysteresis	$V_{TH}$	$V_{CC}=4.5\text{V}$	0.4		1.4	V
		$V_{CC}=5.5\text{V}$	0.5		1.6	V
High-Level Output Voltage	$V_{OH}$	$V_{CC}=4.5\text{V}, I_{OH}=-50\mu\text{A}$	4.34	4.49		V
		$V_{CC}=5.5\text{V}, I_{OH}=-50\mu\text{A}$	5.4	5.49		V
		$V_{CC}=4.5\text{V}, I_{OH}=-24\text{mA}$	3.86			V
		$V_{CC}=5.5\text{V}, I_{OH}=-24\text{mA}$	4.86			V
Low-Level Output Voltage	$V_{OL}$	$V_{CC}=4.5\text{V}, I_{OL}=50\mu\text{A}$		0.001	0.1	V
		$V_{CC}=5.5\text{V}, I_{OL}=50\mu\text{A}$		0.001	0.1	V
		$V_{CC}=4.5\text{V}, I_{OL}=24\text{mA}$			0.36	V
		$V_{CC}=5.5\text{V}, I_{OL}=24\text{mA}$			0.36	V
Input Leakage Current	$I_{I(LEAK)}$	$V_{CC}=5.5\text{V}, V_{IN}=5.5\text{V}$ or GND			±0.1	μA
Maximum $I_{CC}$ /Input	$I_{CCT}$	$V_{CC}=5.5\text{V}, V_{IN}=V_{CC}-2.1\text{V}$		0.6		mA
Quiescent Supply Current	$I_Q$	$V_{CC}=5.5\text{V}, V_{IN}=V_{CC}$ or GND, $I_{OUT}=0$			2.0	μA
Input Capacitance	$C_{IN}$	$V_{CC}=\text{OPEN}$		4.5		pF

Note: Not more than one output should be tested at a time, and the duration of the test should not exceed 2 ms.

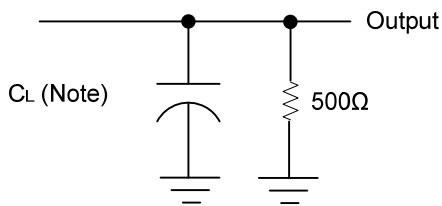
■ SWITCHING CHARACTERISTICS ( $T_a=25^\circ\text{C}$ )

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation delay from input (A) to output(Y)	$t_{PLH}$	$V_{CC}=5.0\text{V}\pm 0.5\text{V}, C_L=50\text{pF}$	3.0	8.0	10.0	ns
	$t_{PHL}$	$V_{CC}=5.0\text{V}\pm 0.5\text{V}, C_L=50\text{pF}$	3.0	8.0	10.0	ns

■ OPERATING CHARACTERISTIC

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	$C_{pd}$	$V_{CC}=5$		80		pF

■ TEST CIRCUIT AND WAVEFORMS



Note:  $C_L$  includes probe and jig capacitance.

Fig-1 Load circuitry for switching times.

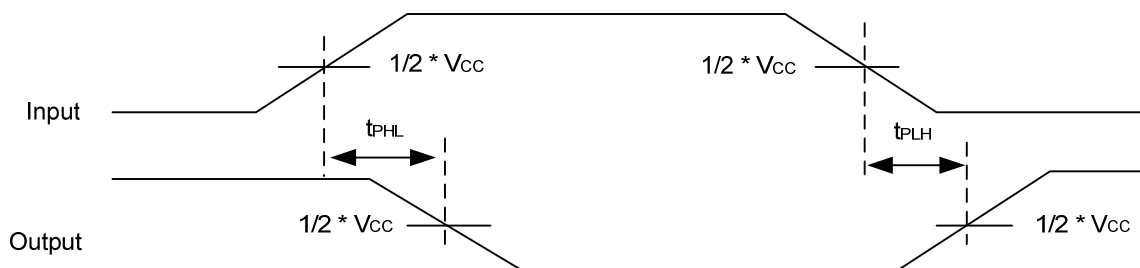


Fig-2 Propagation delay from input(A) to output(Y).

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