UNISONIC TECHNOLOGIES CO., LTD

U74AHC14

CMOS IC

HEX SCHMITT-TRIGGER INVERTERS

SOP-14

TSSOP-14

■ DESCRIPTION

The **U74AHC14** is hex Schmitt-trigger inverters and each inverter provides the function Y= $\overline{A}$.

■ FEATURES

* Operation Voltage Range: 2V~5.5V
* Max t_{pd} of 8.6ns at 5 V(CL=15pF)
* High Noise Immunity
* Low Power Dissipation
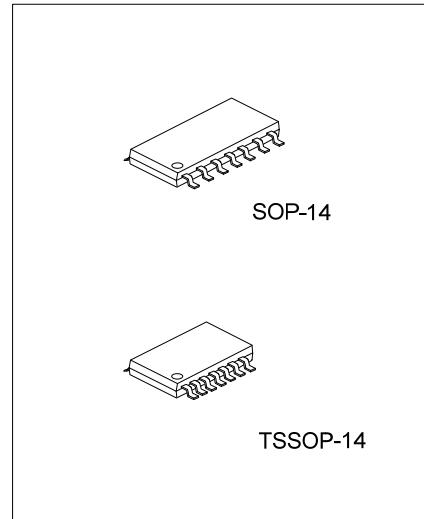
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AHC14L-S14-R	U74AHC14G-S14-R	SOP-14	Tape Reel
U74AHC14L-P14-R	U74AHC14G-P14-R	TSSOP-14	Tape Reel

U74AHC14G-S14-R

(1)Packing Type
(2)Package Type
(3)Green Package

(1) R: Tape Reel

(2) S14: SOP-14, P14: TSSOP-14

(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

UTC ☐☐☐☐
U74AHC14☐
☐☐

Date Code
L: Lead Free
G: Halogen Free
Lot Code

QW-R502-386.D

U74AHC14

■ **PIN CONFIGURATION**

```
          1A ┌1      ○    14┐ Vcc
          1Y ┌2            13┐ 6A
          2A ┌3            12┐ 6Y
          2Y ┌4            11┐ 5A
          3A ┌5            10┐ 5Y
          3Y ┌6             9┐ 4A
         GND ┌7             8┐ 4Y
```
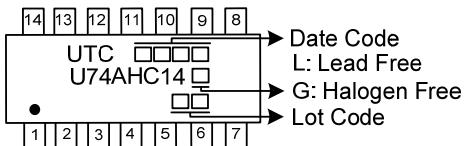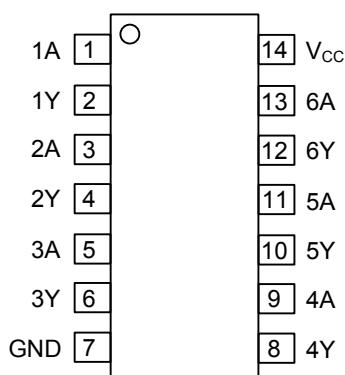
■ **FUNCTION TABLE** (each gate)

INPUT A	OUTPUT Y
L	H
H	L

Note: H: HIGH voltage level; L: LOW voltage level.

■ **LOGIC SYMBOL**

nA ─────▷o───── nY

U74AHC14
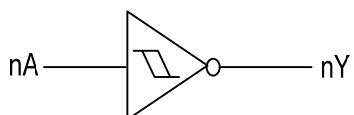
■ **ABSOLUTE MAXIMUM RATING** (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	-0.5 ~ +7	V
Input Voltage	V_{IN}	-0.5 ~ +7	V
Output Voltage	V_{OUT}	-0.5 ~ V_{CC} +0.5	V
Input Clamp Current	I_{IK}	-20	mA
Output Clamp Current	I_{OK}	±20	mA
Output Sink Current	I_{OUT}	±25	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** (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		2.0		5.5	V
Input Voltage	V_{IN}		0		5.5	V
Output Voltage	V_{OUT}		0		V_{CC}	V
High-Level Input Current	I_{OH}	V_{CC}=2V			-50	μA
		V_{CC}=3.3V±0.3V			-4	mA
		V_{CC}=5V±0.5V			-8	mA
Low-Level Input Current	I_{OL}	V_{CC}=2V			50	μA
		V_{CC}=3.3V±0.3V			4	mA
		V_{CC}=5V±0.5V			8	mA
Operating Temperature	T_A		-40		+125	°C

■ **THERMAL DATA**

PARAMETER		SYMBOL	RATINGS	UNIT
Thermal Resistance	SOP-14	θ_{JA}	86	°C/W
Junction-Ambient	TSSOP-14		113	°C/W

U74AHC14

CMOS IC

■ **STATIC CHARACTERISTICS** (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		T_A=25°C			T_A=--40~+125°C			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
Positive-going Input Threshold Voltage	V_{T+}	V_{CC} =3.0V		1.2		2.2	1.2		2.2	V
		V_{CC} =4.5V		1.75		3.15	1.75		3.15	V
		V_{CC} =5.5V		2.15		3.85	2.15		3.85	V
Negative-going Input Threshold Voltage	V_{T-}	V_{CC} =3.0V		0.9		1.9	0.9		1.9	V
		V_{CC} =4.5V		1.35		2.75	1.35		2.75	V
		V_{CC} =5.5V		1.65		3.35	1.65		3.35	V
Hysteresis(V_{T+}-V_{T-})	ΔV_T	V_{CC} =3.0V		0.3		1.2	0.25		1.2	V
		V_{CC} =4.5V		0.4		1.4	0.35		1.4	V
		V_{CC} =5.5V		0.5		1.6	0.45		1.6	V
High-Level Output Voltage	V_{OH}	I_{OH}=-50μA	V_{CC} =2.0V	1.9			1.9			V
			V_{CC} =3.0V	2.9			2.9			V
			V_{CC} =4.5V	4.4			4.4			V
		I_{OH} =-4 mA	V_{CC} =3.0V	2.58			2.40			V
		I_{OH} =-8mA	V_{CC} =4.5V	3.94			3.70			V
Low-Level Output Voltage	V_{OL}	I_{OL}=50μA	V_{CC} =2.0V			0.1			0.1	V
			V_{CC} =3.0V			0.1			0.1	V
			V_{CC} =4.5V			0.1			0.1	V
		I_{OL}=4 mA	V_{CC} =3.0V			0.36			0.55	V
		I_{OL}=8mA	V_{CC} =4.5V			0.36			0.55	V
Input Leakage Current	$I_{I(LEAK)}$	V_{CC} =0V to 5.5V,V_{IN}=5.5V or GND				±0.1			2	μA
Quiescent Supply Current	I_Q	V_{CC} =5.5V,V_{IN}=V_{CC} or GND,I_{OUT}=0				2			40	μA

■ **SWITCHING CHARACTERISTICS** (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		T_A=25°C			T_A=--40~+125°C			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
Propagation Delay, From Input(A) To Output(Y)	t_{PLH}/t_{PHL}	V_{CC} =3.3±0.3 V	C_L=15 pF		8.3	12.8			16	ns
			C_L=50 pF		10.8	16.3			20.5	ns
	t_{PLH}/t_{PHL}	V_{CC} =5.0±0.5 V	C_L=15 pF		5.5	8.6			11	ns
			C_L=50 pF		7	10.6			13.5	ns

■ **OPERATING CHARACTERISTICS** (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C_I	V_{IN}=V_{CC} or GND		2	10	pF
Power Dissipation Capacitance	C_{PD}	No Load, f=1MHz		9		pF

■ **TEST CIRCUIT AND WAVEFORMS**
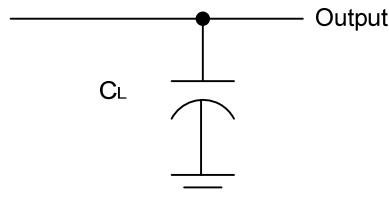
Test circuit for measuring propagation delay
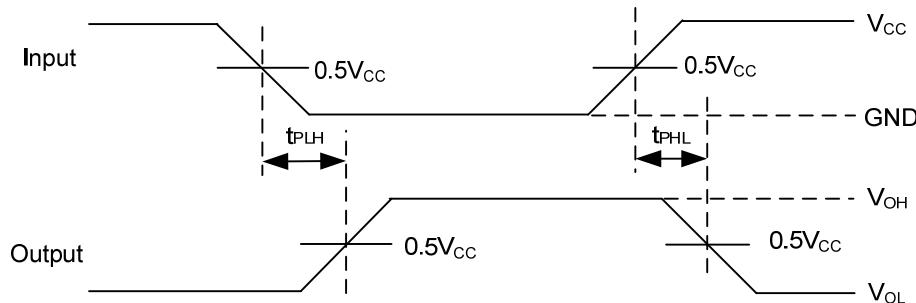
Waveforms showing the Input(A) to Output(Y) propagation delays

Note: C_L includes probe and jig capacitance.

All input pulses are supplied by generators having the following characteristics: PRR ≤1MHz, Zo = 50Ω, tr ≤3ns, tf ≤3ns.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Inverters *category:*

Click to view products by Unisonic *manufacturer:*

Other Similar products are found below :

E5-652Z NLX2G04BMX1TCG CD4009UBE TC4584BFN NL17SG14AMUTCG NLU2GU04BMX1TCG NLV17SZ14DFT2G
NLV74HC04ADTR2G NLU1G04AMUTCG NLX2G04CMUTCG NLX2G04AMUTCG NLV27WZ04DFT1G NLU1G04CMUTCG
NL17SZU04P5T5G 74LVC06ADTR2G 74LVC04ADR2G NLV37WZ04USG NLX3G14FMUTCG NL17SZ04P5T5G NL17SG14P5T5G
NLV27WZU04DFT2G NLV17SG14DFT2G NLVHC1G04DFT2G MC14069UBD NLU3G14CMX1TCG NLX2G14BMX1TCG
NLX2GU04AMX1TCG 74HCT04DT 74HCT14DT 74LCX14FT(AJ) EG8015 GN14D GN4069 74HC04DM/TR HG74HC04M/TR
CD40106DM/TR CD4007BE 74HC14DN 74HC14DM/TR CD4069UBE 74HC125M/TR CD4069UBMT/TR HG74HC04MT/TR
74HC14DMT/TR 74HC04DN HT74HC04ARZ HT40106ARZ 74HC14-HXY IW4069UBN RS1GT04XC5