



U74ACT14

CMOS IC

HEX SCHMITT-TRIGGER INVERTERS

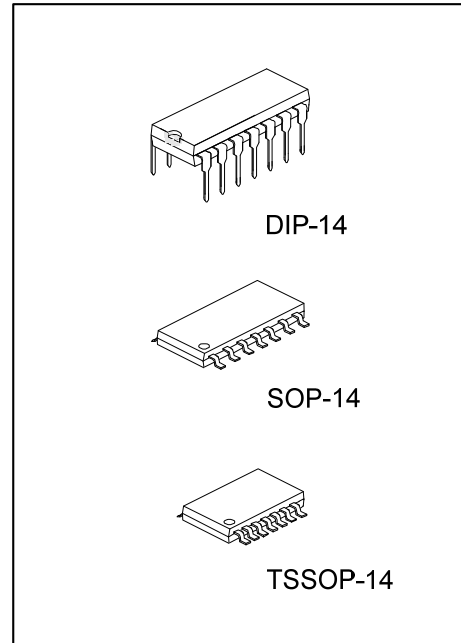
DESCRIPTION

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.

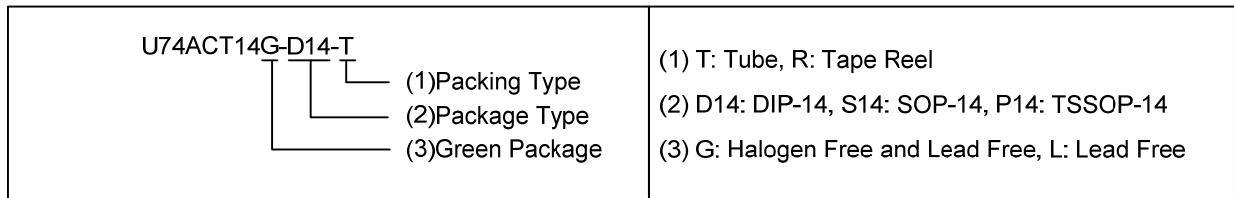
FEATURES

- * Inputs are TTL-Voltage Compatible
- * Outputs source/sink 24mA

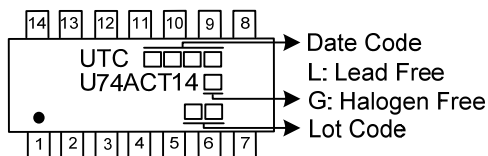


ORDERING INFORMATION

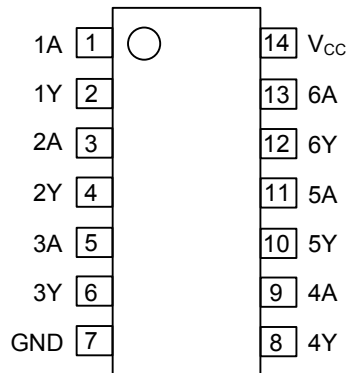
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74ACT14L-D14-T	U74ACT14G-D14-T	DIP-14	Tube
U74ACT14L-S14-R	U74ACT14G-S14-R	SOP-14	Tape Reel
U74ACT14L-P14-R	U74ACT14G-P14-R	TSSOP-14	Tape Reel



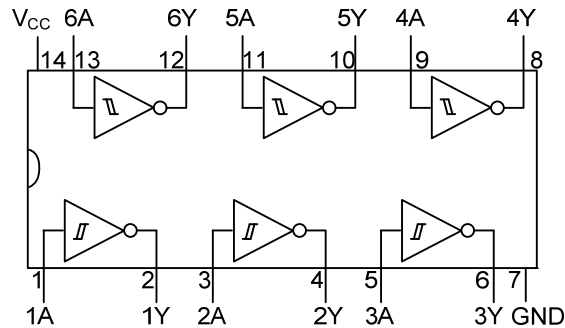
MARKING



■ PIN CONFIGURATION



■ FUNCTIONAL DIAGRAM



■ FUNCTION TABLE

INPUT	OUTPUT
A	Y
L	H
H	L

■ LOGIC DIAGRAM (positive logic)



IEC logic symbol

■ ABSOLUTE MAXIMUM RATINGS (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 ~ 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}	±200	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	RATINGS	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 ~ +125	°C

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT	
Junction to Ambient	DIP-14	θ _{JA}	81	°C/W
	SOP-14		112	°C/W
	TSSOP-14		141	°C/W

■ ELECTRICAL CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
High-Level Input Voltage	V _{IH}	V _{CC} =4.5V~5.5V	2.0			2.0			V
Low-Level Input Voltage	V _{IL}	V _{CC} =4.5V~5.5V			0.8			0.8	V
Hysteresis	V _{TH}	V _{CC} =4.5V	0.4		1.4	0.4		1.4	V
		V _{CC} =5.5V	0.5		1.6	0.5		1.6	V
High-Level Output Voltage	V _{OH}	V _{CC} =4.5V	I _{OH} =-24mA	3.86			3.76		V
			I _{OH} =-50µA	4.4	4.49		4.4		V
		V _{CC} =5.5V	I _{OH} =-24mA	4.86			4.76		V
			I _{OH} =-50µA	5.4	5.49		5.4		V
Low-Level Output Voltage	V _{OL}	V _{CC} =4.5V	I _{OL} =24mA			0.36		0.44	V
			I _{OL} =50µA		0.001	0.1		0.1	V
		V _{CC} =5.5V	I _{OL} =24mA			0.36		0.44	V
			I _{OL} =50µA		0.001	0.1		0.4	V
Input Leakage Current	I _{I(LEAK)}	V _{CC} =5.5V, V _{IN} =5.5V or GND			±0.1			±1.0	µA
Quiescent Supply Current	I _Q	V _{CC} =5.5V, V _{IN} =V _{CC} or GND, I _{OUT} =0			2.0			20	µA
Additional Quiescent Supply Current Per Input Pin	ΔI _Q	V _{CC} =5.5V, One input at 3.4V, Other inputs at GND or V _{CC}		0.6				1.5	mA

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

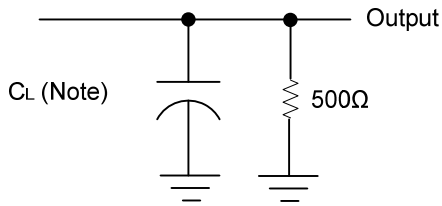
■ SWITCHING CHARACTERISTICS (Unless otherwise specified)

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} =5.0V±0.5V, C _L =50pF	1.0	8.0	11	1.0		13	ns

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C _{IN}			4.5		pF
Power Dissipation Capacitance	C _{PD}	V _{CC} =5.0V, f=1MHz		50		pF

■ TEST CIRCUIT AND WAVEFORMS



Note: C_L includes probe and jig capacitance.

Fig1. Load circuitry for switching times.

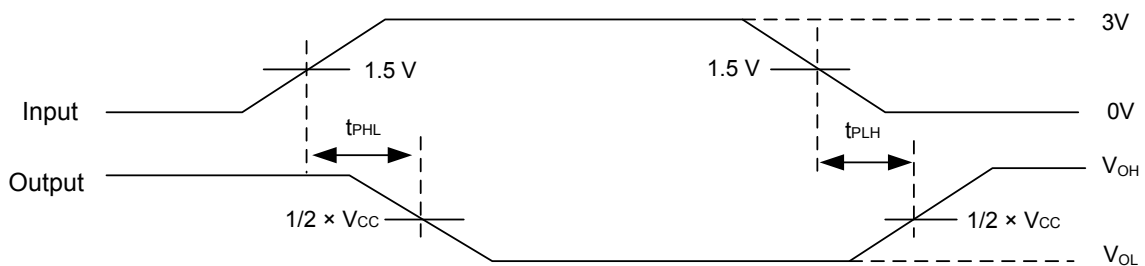


Fig 2. Propagation delay from input(A) to output(Y).

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