



U74HCT14B

CMOS IC

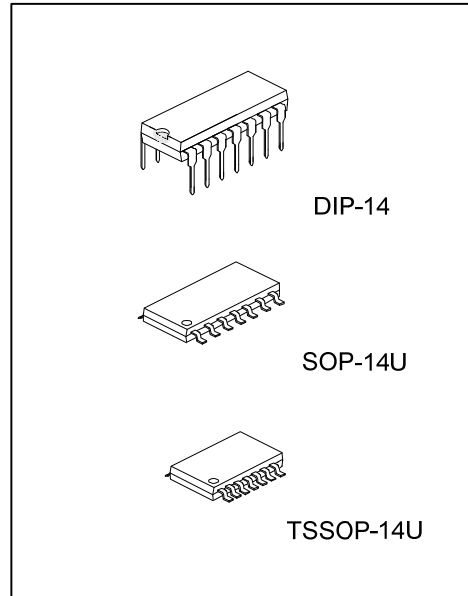
HIGH-SPEED CMOS LOGIC HEX INVERTING SCHMITT TRIGGER

DESCRIPTION

The UTC **U74HCT14B** each contain six inverting schmitt triggers in one package. Each of them perform the Boolean function $\bar{Y} = A$

FEATURES

- * Operation Voltage Range: 4.5~5.5V
- * Low power consumption
- * Input are TTL-Voltage Compatible



ORDERING INFORMATION

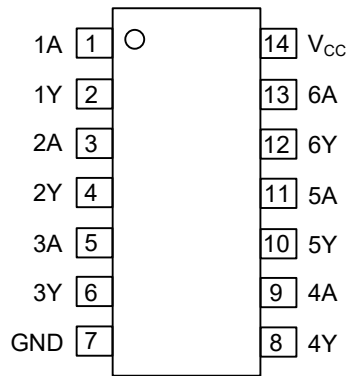
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74HCT14BL-D14-T	U74HCT14BG-D14-T	DIP-14	Tube
U74HCT14BL-UEA-R	U74HCT14BG-UEA-R	SOP-14U	Tape Reel
U74HCT14BL-UEB-R	U74HCT14BG-UEB-R	TSSOP-14U	Tape Reel

<p>U74HCT14BG-D14-T</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) T: Tube, R: Tape Reel (2) D14: DIP-14, UEA: SOP-14U, UEB: TSSOP-14U (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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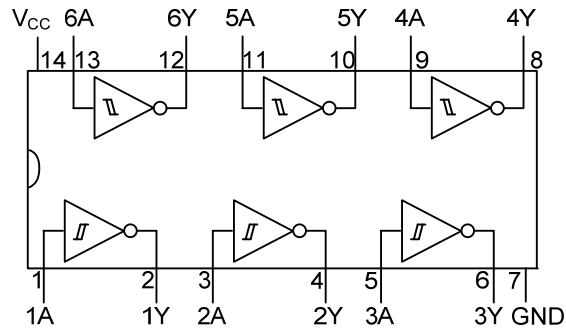
MARKING

DIP-14	SOP-14U / TSSOP-14U
<p>14 13 12 11 10 9 8 UTC □□□□ → Date Code L: Lead Free U74HCT14B □ → L: Lead Free G: Halogen Free □□ → Lot Code 1 2 3 4 5 6 7</p>	<p>14 13 12 11 10 9 8 UTC □□□□ → Date Code L: Lead Free U74HCT14B □ → L: Lead Free G: Halogen Free □□ → Lot Code 1 2 3 4 5 6 7</p>

■ PIN CONFIGURATION



■ FUNCTIONAL DIAGRAM

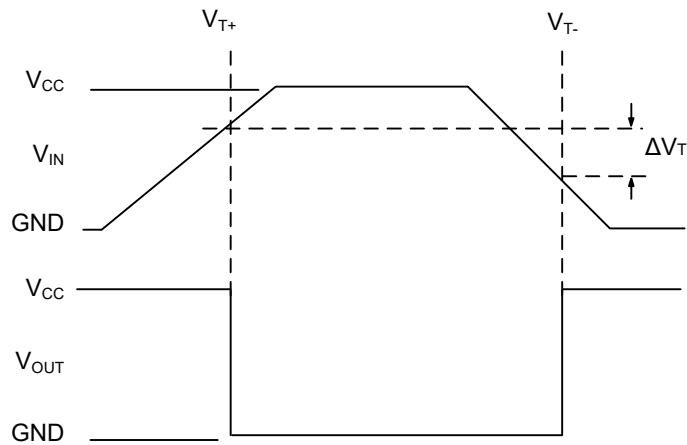


■ TRUTH TABLE

INPUT(A)	OUTPUT(Y)
L	H
H	L

Note: H=High level, L=Low Level

■ BLOGIC DIAGRAM



Hysteresis Definition, Characteristic, And Test Setup

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
DC Supply Voltage		V_{CC}	-0.5 ~ 7	V
Input Clamp Current	$V_{IN} < 0$ or $V_{IN} > V_{CC}$	I_{IK}	± 20	mA
Output Clamp Current	$V_{OUT} < 0$ or $V_{OUT} > V_{CC}$	I_{OK}	± 20	mA
Continuous Output Current	$V_{OUT} = 0$ to V_{CC}	I_{OUT}	± 25	mA
V_{CC} or Ground 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.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Thermal Resistance Junction Ambient	DIP-14	θ_{JA}	100	°C/W
	SOP-14U		125	°C/W
	TSSOP-14U		150	°C/W

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage Range	V_{CC}		4.5		5.5	V
Input or Output Voltage	V_{IN}, V_{OUT}		0		V_{CC}	V
Operating Temperature	T_A		-40		+125	°C

■ ELECTRICAL CHARACTERISTICS

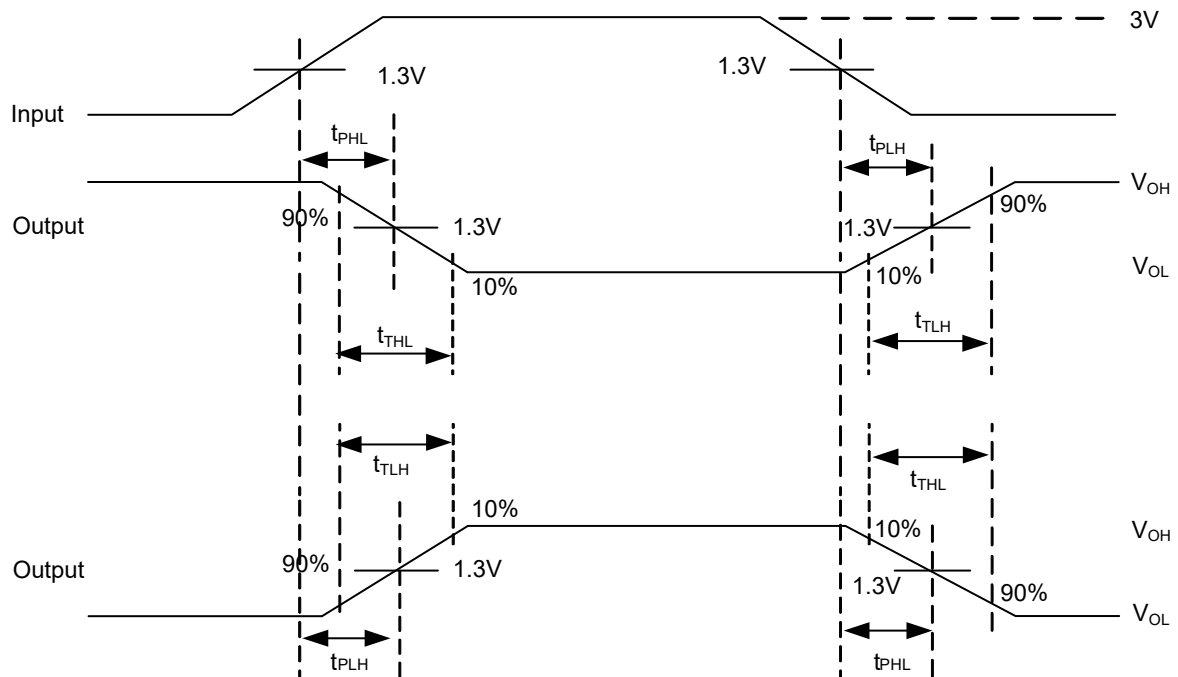
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Positive-Going Threshold Input Voltage	V_{T+}	$V_{CC}=4.5V$	1.2	1.5	1.9	V
		$V_{CC}=5.5V$	1.4	1.7	2.1	V
Negative-Going Threshold Input Voltage	V_{T-}	$V_{CC}=4.5V$	0.5	0.9	1.2	V
		$V_{CC}=5.5V$	0.6	1	1.4	V
Hysteresis Voltage	ΔV_T	$V_{CC}=4.5V$	0.4	0.6	1.4	V
		$V_{CC}=5.5V$	0.4	0.65	1.5	V
High Level Output Voltage	V_{OH}	$V_{CC}=4.5V, V_{IN}=V_{IH}$ or $V_{IL}, I_{OH}=-20\mu A$	4.4	4.49		V
		$V_{CC}=4.5V, V_{IN}=V_{IH}$ or $V_{IL}, I_{OH}=-4mA$	3.98			V
Low Level Output Voltage	V_{OL}	$V_{CC}=4.5V, V_{IN}=V_{IH}$ or $V_{IL}, I_{OL}=20\mu A$			0.1	V
		$V_{CC}=4.5V, V_{IN}=V_{IH}$ or $V_{IL}, I_{OL}=4mA$			0.26	V
Input Leakage Current	I_{IN}	$V_{CC}=5.5V, V_{IN}=V_{CC}$ and GND			± 0.1	μA
Quiescent Supply Current	I_Q	$V_{IN}=V_{CC}$ or GND, $I_{OUT}=0mA$			2	μA
Additional Quiescent Supply Current	ΔI_Q (Note)	One input at 0.5V or 2.4V, Other inputs at GND or V_{CC}			2.4	mA

SWITCHING SPECIFICATIONS (Input $t_R, t_F = 6ns$)

Propagation Delay, A to Y	t_{PLH}, t_{PHL}	$V_{CC}=4.5V, C_L=50pF$			37	ns
		$V_{CC}=5.5V, C_L=50pF$			35	ns
Output Transition Times	t_{TLH}, t_{THL}	$V_{CC}=4.5V, C_L=50pF$			17	ns
		$V_{CC}=5.5V, C_L=50pF$			16	ns
Input Capacitance	C_{IN}			3	10	pF
Power Dissipation Capacitance	C_{PD}	No Load		10		pF

Note: This is the increase in supply current for each input that is at one of the specified TTL voltage levels, rather than 0 V or V_{CC} .

■ TEST WAVEFORM



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