



U74AHCT3G14

CMOS IC

SCHMITT-TRIGGER INVERTER

DESCRIPTION

The **U74AHCT3G14G** is a triple Schmitt-trigger inverter providing the function $Y = \overline{A}$.

The gates of this device have different input threshold levels for positive-going (V_{T+}) and negative-going (V_{T-}) signals because of the Schmitt-trigger action. The device is capable of transforming slowly changing input signals into sharply defined, jitter-free output signals.

FEATURES

- * Low Power Dissipation
- * TTL voltage compatible
- * Symmetrical output impedance
- * Balanced propagation delays
- * High noise immunity

APPLICATIONS

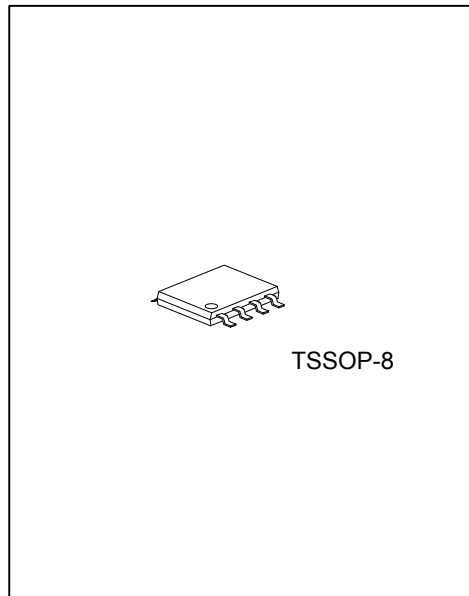
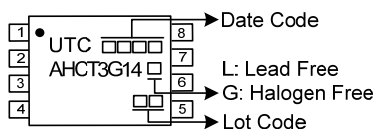
- * Wave and pulse shapers
- * Astable multivibrators
- * Monostable multivibrators

ORDERING INFORMATION

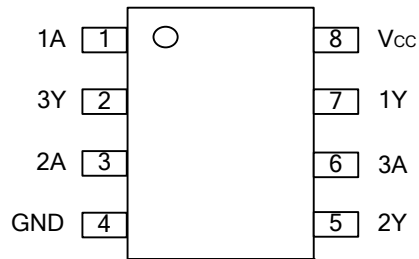
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AHCT3G14L-P08-R	U74AHCT3G14G-P08-R	TSSOP-8	Tape Reel

<p>U74AHCT3G14G-P08-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) P08: TSSOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
--	--

MARKING



■ PIN CONFIGURATION



■ FUNCTION TABLE (each gate)

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

■ LOGIC DIAGRAM (each gate)



FLYING 汎翔國際有限公司
www.flying1688.com

■ ABSOLUTE MAXIMUM RATING (unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	-0.5 ~ 7.0	V
Input Voltage	V_{IN}	-0.5 ~ 7.0	V
Output Voltage	V_{OUT}	-0.5 ~ $V_{CC} + 0.5$	V
V_{CC} or GND Current	I_{CC}	±75	mA
Output Current	I_{OUT}	±25	mA
Input Clamp Current	I_{IK}	-20	mA
Output Clamp Current	I_{OK}	±20	mA
Operating Temperature	T_{OPR}	-40 ~ + 85	°C
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	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		4.5	5.0	5.5	V
Input Voltage	V_{IN}		0		5.5	V
Output Voltage	V_{OUT}	High or low state	0		V_{CC}	V

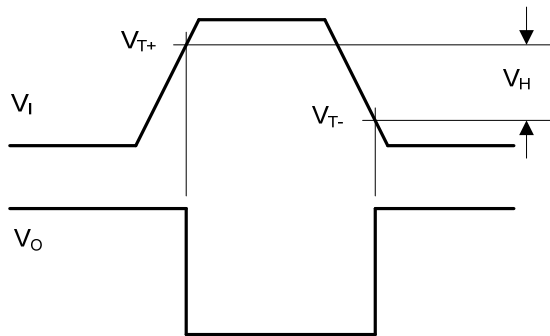
■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Positive-going threshold	V_{T+}	$V_{CC}=4.5\text{ V}$			2.0	V
		$V_{CC}=5.5\text{ V}$			2.0	
Negative-going threshold	V_{T-}	$V_{CC}=4.5\text{ V}$	0.5			V
		$V_{CC}=5.5\text{ V}$	0.6			
Hysteresis ($V_{T+} - V_{T-}$)	ΔV_T	$V_{CC}=4.5\text{ V}$	0.4		1.4	V
		$V_{CC}=5.5\text{ V}$	0.4		1.6	
High-Level Output Voltage	V_{OH}	$I_{OH}=-50\mu\text{A}, V_{CC}=4.5\text{ V}$	4.4	4.5		V
		$I_{OH}=-8\text{mA}, V_{CC}=4.5\text{ V}$	3.94			
Low-Level Output Voltage	V_{OL}	$I_{OL}=50\mu\text{A}, V_{CC}=4.5\text{ V}$		0	0.1	V
		$I_{OL}=8\text{mA}, V_{CC}=4.5\text{ V}$			0.36	
Input Leakage Current	$I_{I(LEAK)}$	$V_{IN}=V_{IH}$ or V_{IL}			0.1	μA
Quiescent Supply Current	I_{CC}	$V_{IN}=V_{CC}$ or GND, $I_{OUT}=0, V_{CC}=5.5\text{ V}$			1.0	μA
Additional quiescent supply current per input pin	ΔI_{CC}	$V_{IN}=3.4\text{ V}, V_{CC}=5.5\text{ V}, I_{OUT}=0$, other inputs at V_{CC} or GND			1.35	mA
Input Capacitance	C_{IN}	$V_{IN}=V_{CC}$ or GND, $V_{CC}=5\text{ V}$		1.5	10	pF

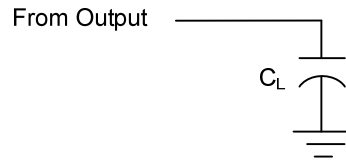
■ SWITCHING CHARACTERISTICS ($T_A=25^\circ\text{C}$, $t_R = t_F \leq 3.0\text{ ns}$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation delay from input (nA) to output(nY)	t_{PHL} / t_{PLH}	$V_{CC}=5.0\text{V}, C_L = 15\text{pF}$		4.1		ns
		$V_{CC}=5.0\text{V}, C_L = 50\text{pF}$		5.9		
		$V_{CC}=4.5$ to $5.5\text{V}, C_L = 15\text{pF}$			7.0	
		$V_{CC}=4.5$ to $5.5\text{V}, C_L = 50\text{pF}$			8.5	

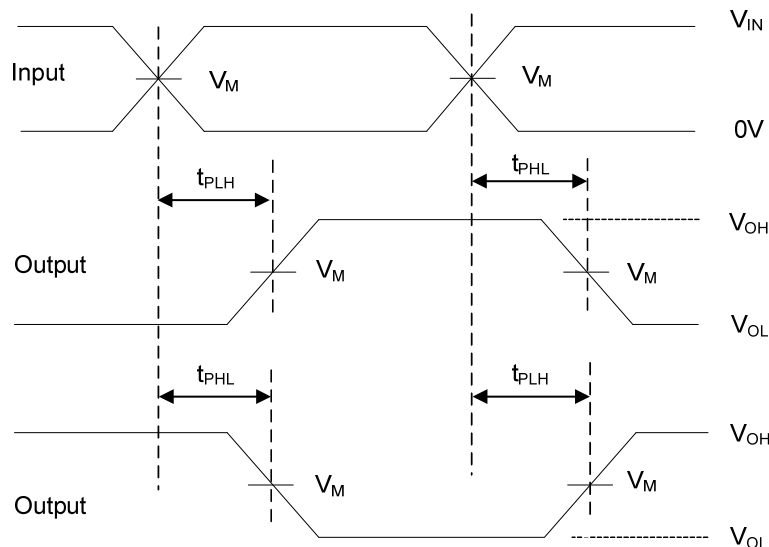
■ TEST CIRCUIT AND WAVEFORMS



Definitions of V_{T+} , V_{T-} and V_H



Propagation delay times test circuit



Propagation delay times Inverting and noninverting outputs

Note: C_L includes probe and jig capacitance.
 $P_{RR} \leq 1\text{MHz}$, $Z_O = 50\Omega$, $t_R \leq 3\text{ns}$, $t_F \leq 3\text{ns}$.

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. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.