



U74AHCT3G04

CMOS IC

INVERTER

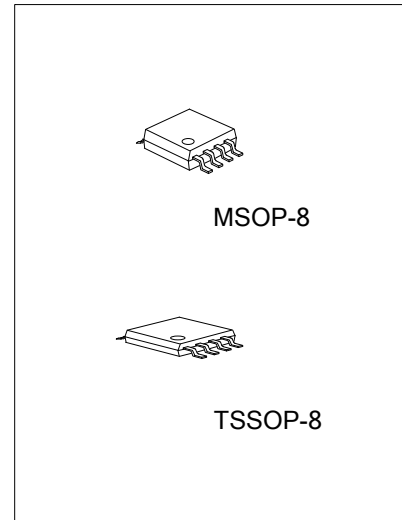
DESCRIPTION

The **U74AHCT3G04** are high-speed Si-gate CMOS devices providing three inverting buffers with the function $Y = \bar{A}$.

The **U74AHCT3G04** is TTL voltage compatible.

FEATURES

- * Low power dissipation
- * Symmetrical output impedance
- * Balanced propagation delays
- * High noise immunity



ORDERING INFORMATION

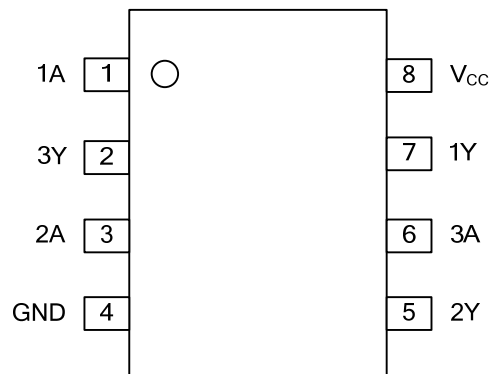
Ordering Number	Package	Packing
U74AHCT3G04G-SM1-R	MSOP-8	Tape Reel
U74AHCT3G04G-P08-R	TSSOP-8	Tape Reel

<p>U74AHCT3G04G-SM1-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) SM1: MSOP-8, P08: TSSOP-8 (3) G: Halogen Free and Lead Free</p>
--	---

MARKING

MSOP-8	TSSOP-8
<p>8 7 6 5 → Date Code UTC □□□□ AHCT3G04G □□ → Lot Code 1 2 3 4</p>	<p>8 → Date Code 1 UTC □□□□ 2 AHCT3G04G 3 □□ 4 → Lot Code 5</p>

■ PIN CONFIGURATION



■ FUNCTION TABLE (each gate)

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

■ LOGIC DIAGRAM (each gate)



■ 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	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}		0		V_{CC}	V
Input Rise or Fall Times	t_r, t_f	$V_{CC} = 3.3 \pm 0.3V$				ns/V
		$V_{CC} = 5.0 \pm 0.5V$			20	ns/V

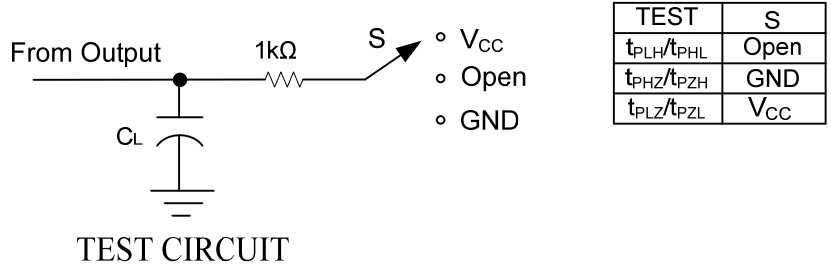
■ ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ C$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	$V_{CC}(V)$	MIN	TYP	MAX	UNIT
High-level input voltage	V_{IH}		4.5 to 5.5	2.0			V
Low-level input voltage	V_{IL}		4.5 to 5.5			0.8	V
High-Level Output Voltage	V_{OH}	$V_I = V_{IH}$ or V_{IL} , $I_{OH} = -50\mu A$	4.5	4.4	4.5		V
		$V_I = V_{IH}$ or V_{IL} , $I_{OH} = -8.0mA$	4.5	3.94	-		V
Low-Level Output Voltage	V_{OL}	$V_I = V_{IH}$ or V_{IL} , $I_{OH} = -50\mu A$	4.5		0	0.1	V
		$V_I = V_{IH}$ or V_{IL} , $I_{OH} = -8.0mA$	4.5			0.36	V
Input Leakage Current	$I_{I(LEAK)}$	$V_{IN} = V_{IH}$ or V_{IL}	5.5			0.1	μA
Quiescent Supply Current	I_{CC}	$V_{IN} = V_{CC}$ or GND, $I_{OUT} = 0$	5.5			1.0	μA
Additional Quiescent Supply Current	ΔI_{CC}	One input at 3.4V, Other inputs at V_{CC} or GND, $I_{OUT} = 0$	5.5			1.35	mA
Input Capacitance	C_{IN}	$V_{IN} = V_{CC}$ or GND			1.5	10	pF

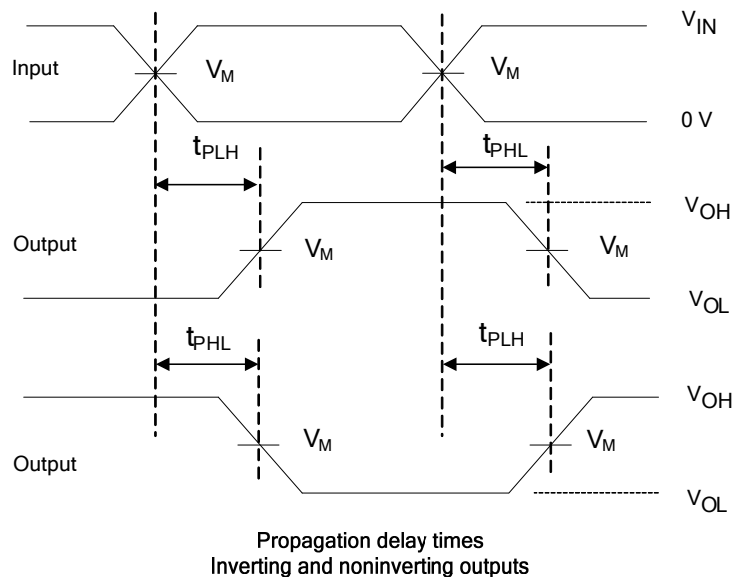
■ SWITCHING CHARACTERISTICS ($t_r = t_f \leq 3.0$ ns, $T_A = 25^\circ C$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation delay from input (A) to output(Y)	t_{PLH}	$V_{CC} = 4.5 \sim 5.5V, C_L = 15pF$			6.7	ns
				3.4		ns
	t_{PHL}	$V_{CC} = 4.5 \sim 5.5V, C_L = 50pF$		-	7.7	ns
				4.9		ns

TEST CIRCUIT AND WAVEFORMS



V_I INPUT REQUIREMENTS	V_M INPUT	V_M OUTPUT
GND to 3.0V	1.5V	50% V_{CC}



Note: CL includes probe and jig capacitance.
 PRR \leq 1MHz, $Z_O = 50\Omega$, $t_r \leq 3ns$, $t_f \leq 3ns$.

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. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.