



U74AHC3G04

CMOS IC

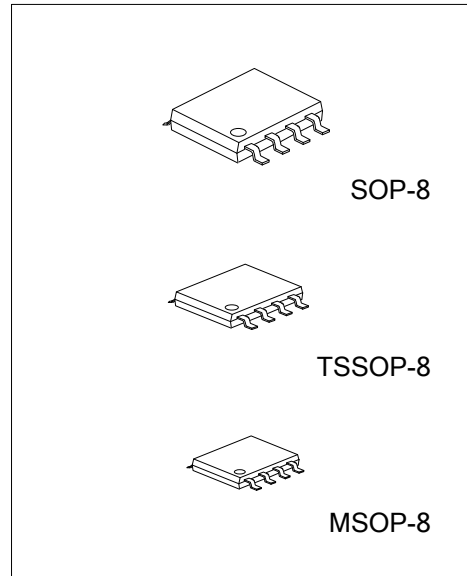
INVERTER

DESCRIPTION

The **U74AHC3G04** are high-speed Si-gate CMOS devices providing three inverting buffers with the function $Y = \bar{A}$.

FEATURES

- * Low Power Dissipation
- * Symmetrical Output Impedance
- * Balanced Propagation Delays
- * High Noise Immunity



ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AHC3G04L-P08-R	U74AHC3G04G-P08-R	TSSOP-8	Tape Reel
U74AHC3G04L-S08-R	U74AHC3G04G-S08-R	SOP-8	Tape Reel
U74AHC3G04L-SM1-R	U74AHC3G04G-SM1-R	MSOP-8	Tape Reel

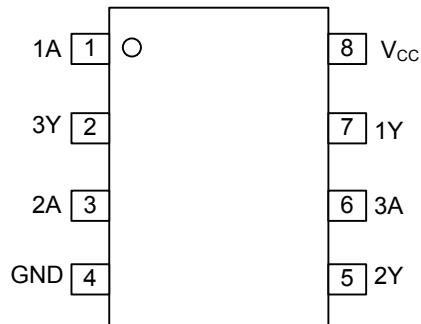
<p>U74AHC3G04G-P08-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) P08: TSSOP-8, S08: SOP-8, SM1:MSOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
---	--

MARKING

SOP-8 / MSOP-8	TSSOP-8
<p>UTC □□□□ → Date Code AHC3G04 □ → L: Lead Free □ → G: Halogen Free □□ → Lot Code</p>	<p>UTC □□□□ → Date Code AHC3G04 □ → L: Lead Free □ → G: Halogen Free □□ → Lot Code</p>



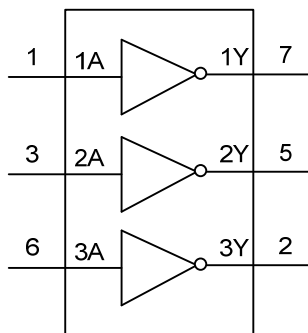
■ PIN CONFIGURATION



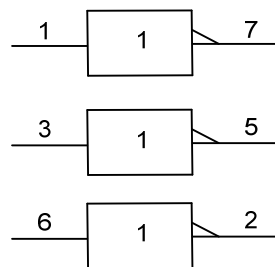
■ FUNCTION TABLE (each gate)

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

■ LOGIC DIAGRAM (each gate)



Logic symbol



IEC logic symbol

FLYING 汎翔國際有限公司
www.flying1688.com

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

PARAMETER	SYMBOL	CONDITIONS	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}	-0.5V < V _{OUT} < V _{CC} + 0.5V	±25	mA
Input Clamp Current	I _{IK}	V _{IN} < -0.5V	-20	mA
Output Clamp Current	I _{OK}	V _{OUT} < -0.5V or V _{OUT} > + 0.5V	±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}		2.0	5.0	5.5	V
Input Voltage	V _{IN}		0		5.5	V
Output Voltage	V _{OUT}		0		V _{CC}	V
Operating Temperature	T _A		-40		85	°C
Input Rise or Fall Times	t _R , t _F	V _{CC} = 3.3 ± 0.3V			100	ns/V
		V _{CC} = 5.0 ± 0.5V			20	

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level input voltage	V _{IH}	V _{CC} =2.0V	1.5			V
		V _{CC} =3.0V	2.1			
		V _{CC} =5.5V	3.85			
Low-Level input voltage	V _{IL}	V _{CC} =2.0V			0.5	V
		V _{CC} =3.0V			0.9	
		V _{CC} =5.5V			1.65	
High-Level Output Voltage	V _{OH}	V _{CC} =2.0V, V _{IN} =V _{IH} or V _{IL} , I _{OH} =-50μA	1.9	2.0		V
		V _{CC} =3.0V, V _{IN} =V _{IH} or V _{IL} , I _{OH} =-50μA	2.9	3.0		
		V _{CC} =4.5V, V _{IN} =V _{IH} or V _{IL} , I _{OH} =-50μA	4.4	4.5		
		V _{CC} =3.0V, V _{IN} =V _{IH} or V _{IL} , I _{OH} =-4.0mA	2.58			
		V _{CC} =4.5V, V _{IN} =V _{IH} or V _{IL} , I _{OH} =-8.0mA	3.94			
Low-Level Output Voltage	V _{OL}	V _{CC} =2.0V, V _{IN} =V _{IH} or V _{IL} , I _{OL} =50μA			0.1	V
		V _{CC} =3.0V, V _{IN} =V _{IH} or V _{IL} , I _{OL} =50μA			0.1	
		V _{CC} =4.5V, V _{IN} =V _{IH} or V _{IL} , I _{OL} =50μA			0.1	
		V _{CC} =3.0V, V _{IN} =V _{IH} or V _{IL} , I _{OL} =4.0mA			0.36	
		V _{CC} =4.5V, V _{IN} =V _{IH} or V _{IL} , I _{OL} =8.0mA			0.36	
Input Leakage Current	I _{I(LEAK)}	V _{CC} =5.5V, V _{IN} =V _{CC} or GND			0.1	μA
Quiescent Supply Current	I _{CC}	V _{CC} =5.5V, V _{IN} =V _{CC} or GND, I _{OUT} =0			10	μA
Input Capacitance	C _{IN}	V _{IN} =V _{CC} or GND		1.5	10	pF

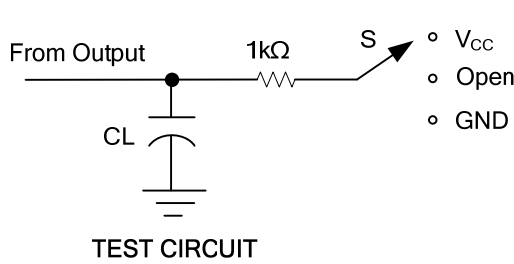
■ SWITCHING CHARACTERISTICS ($t_R = t_F \leq 3.0 \text{ ns}$, $T_A = 25^\circ\text{C}$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT		
Propagation delay from input (A) to output(Y)	t_{PLH} / t_{PHL}	$C_L = 15\text{pF}$	$V_{CC} = 3.0 \sim 3.6\text{V}$			7.1	ns	
			$V_{CC} = 3.3\text{V}$		4.3		ns	
			$V_{CC} = 4.5 \sim 5.5\text{V}$			5.5	ns	
			$V_{CC} = 5\text{V}$		3.1		ns	
		$C_L = 50\text{pF}$	$V_{CC} = 3.0 \sim 3.6\text{V}$				10.6	ns
			$V_{CC} = 3.3\text{V}$			6.1		ns
			$V_{CC} = 4.5 \sim 5.5\text{V}$				7.5	ns
			$V_{CC} = 5\text{V}$			4.5	-	ns

■ OPERATING CHARACTERISTICS ($T_A = 25^\circ\text{C}$, unless otherwise specified)

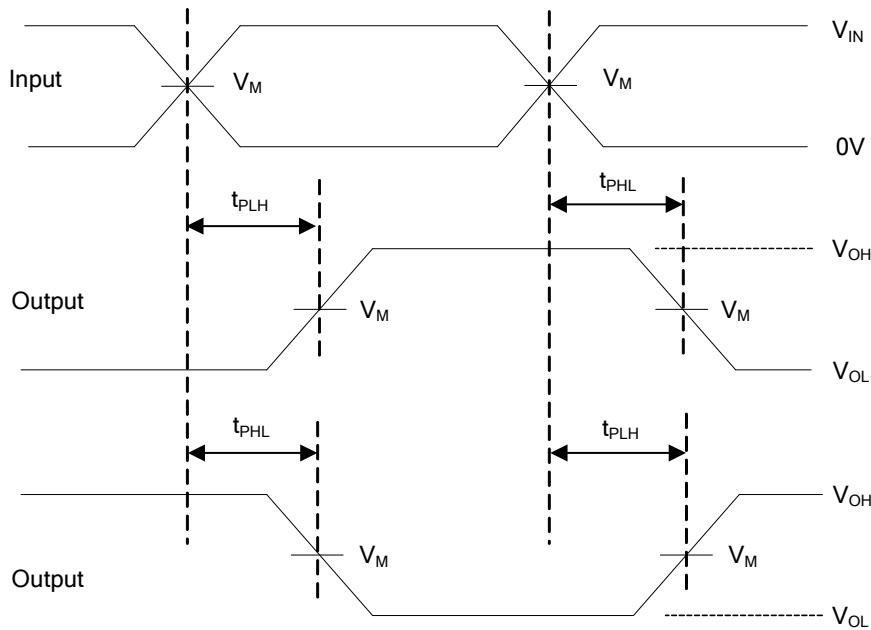
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C_{PD}	$C_L = 50\text{pF}$, $f = 1\text{MHz}$, $V_{IN} = \text{GND or } V_{CC}$		9		pF

■ TEST CIRCUIT AND WAVEFORMS



TEST	S
t_{PLH}/t_{PHL}	Open
t_{PHZ}/t_{PZH}	GND
t_{PLZ}/t_{PZL}	V_{CC}

V_I INPUT REQUIREMENTS	V_M INPUT	V_M OUTPUT
GND to V_{CC}	$50\%V_{CC}$	$50\%V_{CC}$



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.