

Features

- Operate from 1.65V to 5.5V
- Low Power Dissipation
- Symmetrical Output Impedance
- Balanced Propagation Delays
- ESD Protection Exceeds JESD 22
 - 2000-V Human-Body Model (A114-A)
 - 200-V Machine Model (A115-A)
 - 1000-V Charged-Device Model (C101)
- MSOP-8 Package Available

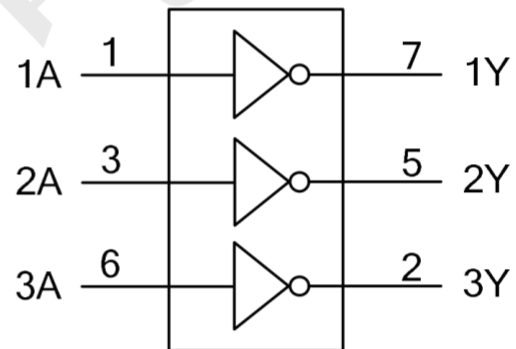
General Description

The 74AHC3G04 is a triple inverter gate which provides the Boolean function $Y = \overline{A}$.

Applications

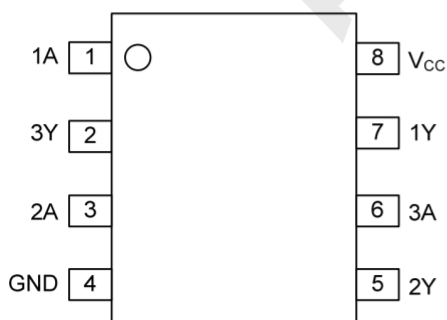
- AV Receiver
- Audio Dock:Portable
- Blu-ray Player and Home Theater
- Embedded PC
- Personal Digital Assistant(PDA)
- Power:Telecom/Server AC/DC Supply:Single Controller:Analog and Digital

Logic Diagram



Logic symbol

Pin Configuratio



MSOP-8

Function Table

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

Note:H: HIGH voltage level;L: LOW voltage level.

Absolute Maximum Ratings

(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}	Output in the high or low state	-0.5 ~ +7.0	V
		Output in the power-off state	-0.5 ~ V _{CC} +0.5	V
V _{CC} or GND Current	I _{CC}		75	mA
Continuous Output Current	I _{OUT}		25	mA
Input Clamp Current	I _{IK}	V _{IN} <0	20	mA
Output Clamp Current	I _{OK}	V _{OUT} <0	20	mA
Storage Temperature Range	T _{STG}		-65 ~ +150	°C
Junction to Ambient	θ _{JA}		220	°C/W

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

(Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V _{CC}		2.0	--	5.5	V
Input Voltage	V _{IN}		0	--	5.5	V
Output Voltage	V _{OUT}	High or low state	0	--	V _{CC}	V
Operating Temperature (Note)	T _A		-40	--	+125	°C

Electrical Characteristics (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
		$V_{CC}=5.5V$	3.85	--	--	V
Low-Level input voltage	V_{IL}	$V_{CC}=2.0V$	--	--	0.5	V
		$V_{CC}=3.0V$	--	--	0.9	V
		$V_{CC}=5.5V$	--	--	1.65	V
High-Level Output Voltage	V_{OH}	$V_{CC}=2.0V, V_{IN}=V_{IH} \text{ or } V_{IL}, I_{OH}=-50\mu A$	1.9	2.0	--	V
		$V_{CC}=3.0V, V_{IN}=V_{IH} \text{ or } V_{IL}, I_{OH}=-50\mu A$	2.9	3.0	--	V
		$V_{CC}=4.5V, V_{IN}=V_{IH} \text{ or } V_{IL}, I_{OH}=-50\mu A$	4.4	4.5	--	V
		$V_{CC}=3.0V, V_{IN}=V_{IH} \text{ or } V_{IL}, I_{OH}=-4.0mA$	2.58	--	--	V
		$V_{CC}=4.5V, V_{IN}=V_{IH} \text{ or } V_{IL}, I_{OH}=-8.0mA$	3.94	--	--	V
Low-Level Output Voltage	V_{OL}	$V_{CC}=2.0V, V_{IN}=V_{IH} \text{ or } V_{IL}, I_{OL}=50\mu A$	--	--	0.1	V
		$V_{CC}=3.0V, V_{IN}=V_{IH} \text{ or } V_{IL}, I_{OL}=50\mu A$	--	--	0.1	V
		$V_{CC}=4.5V, V_{IN}=V_{IH} \text{ or } V_{IL}, I_{OL}=50\mu A$	--	--	0.1	V
		$V_{CC}=3.0V, V_{IN}=V_{IH} \text{ or } V_{IL}, I_{OL}=4.0mA$	--	--	0.36	V
		$V_{CC}=4.5V, V_{IN}=V_{IH} \text{ or } V_{IL}, I_{OL}=8.0mA$	--	--	0.36	V
Input Leakage Current	$I_{I(LEAK)}$	$V_{CC}=5.5V, V_{IN}=V_{CC} \text{ or } GND$	--	--	0.1	μA
Quiescent Supply Current	I_{CC}	$V_{CC}=5.5V, V_{IN}=V_{CC} \text{ or } GND, I_{OUT}=0$	--	--	10	μA
Input Capacitance	C_{IN}	$V_{IN}=V_{CC} \text{ or } GND$	--	--	10	pF

OPERATING CHARACTERISTICS

(f=10MHz, TA =25°C , unless otherwise specified)

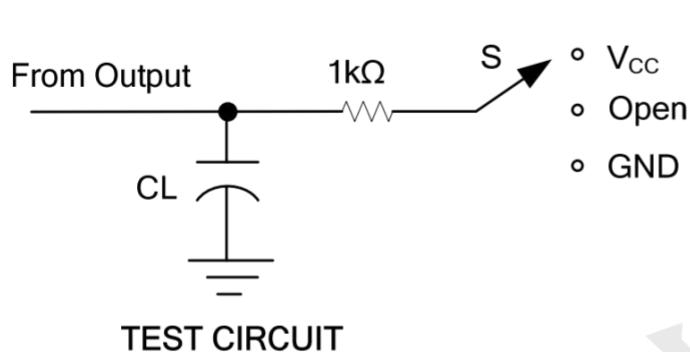
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C _{PD}	V _{CC} =2.0V	--	9	--	pF
		V _{CC} =3.3V	--	9	--	pF
		V _{CC} =4.5V	--	9	--	pF
		V _{CC} =6.0V	--	9	--	pF

DYNAMIC CHARACTERISTICS

(TA=25°C, unless otherwise specified)

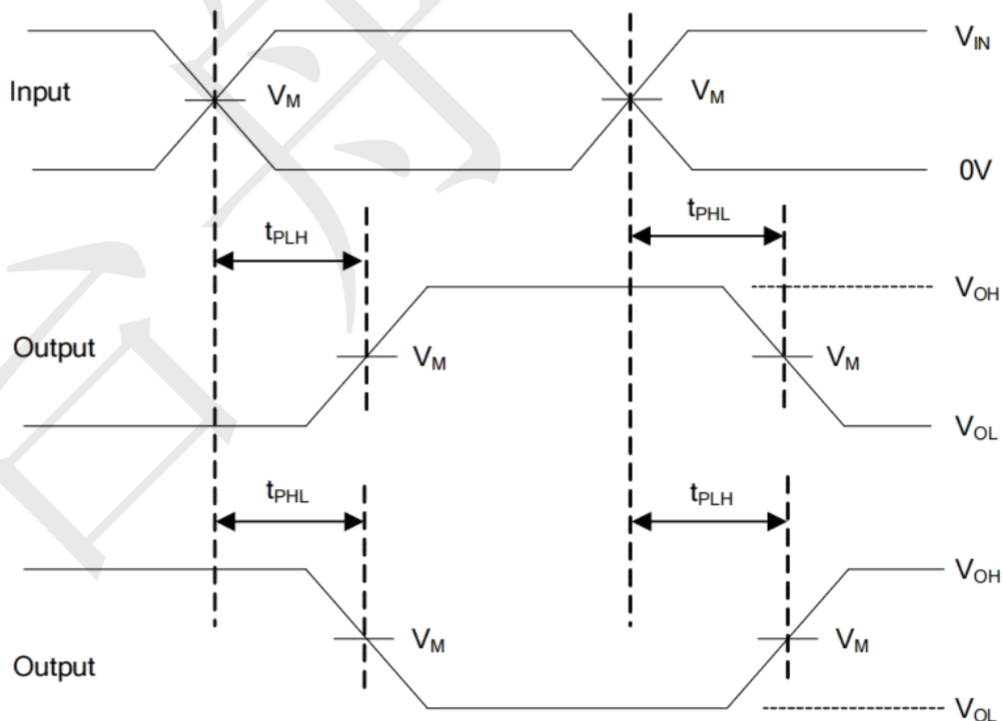
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay From input (A) to output(Y)	t _{PD}	V _{CC} =3.3±0.15V, C _L =30pF, R _L =1kΩ	--	--	9.5	ns
		V _{CC} =5.5±0.2V, C _L =30pF, R _L =500Ω	--	--	7.5	ns
		V _{CC} =3.3±0.3V, C _L =50pF, R _L =500Ω	--	--	13.5	ns
		V _{CC} =5.5±0.5V, C _L =50pF, R _L =500Ω	--	--	11.5	ns

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}	$50\%V_{CC}$	$50\%V_{CC}$



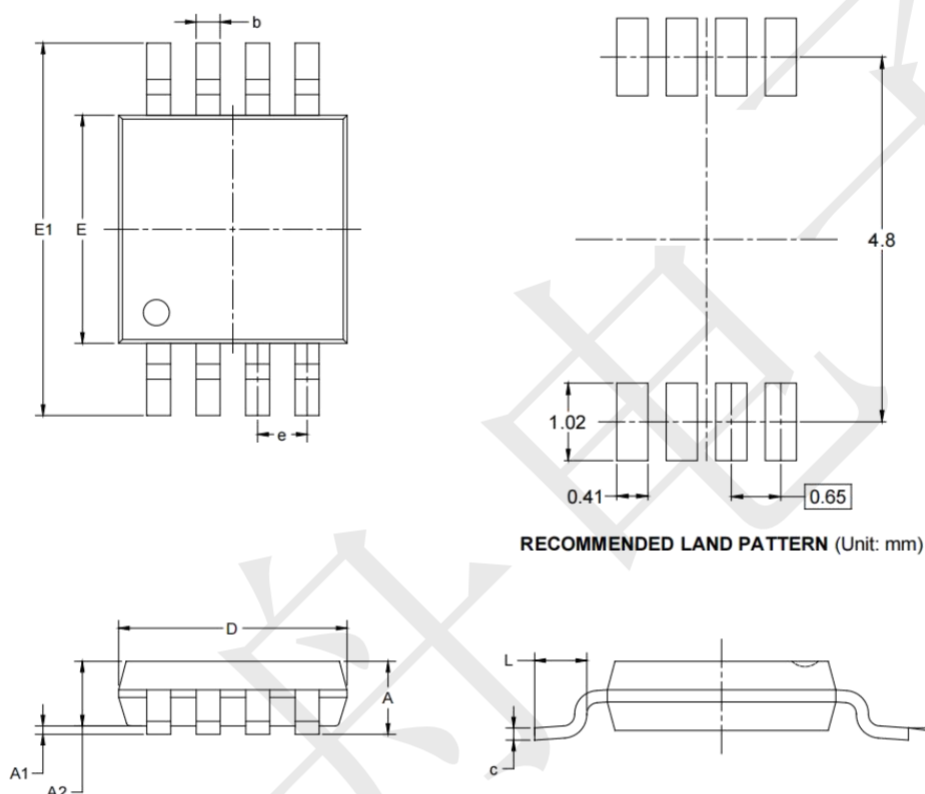
Propagation delay times
Inverting and noninverting outputs

Note: C_L includes probe and jig capacitance.

$P_{RR} \leq 1\text{MHz}$, $Z_O = 50\Omega$, $t_R \leq 3\text{ns}$, $t_F \leq 3\text{ns}$.

Package informantion

MSOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.820	1.100	0.032	0.043
A1	0.020	0.150	0.001	0.006
A2	0.750	0.950	0.030	0.037
b	0.250	0.380	0.010	0.015
c	0.090	0.230	0.004	0.009
D	2.900	3.100	0.114	0.122
E	2.900	3.100	0.114	0.122
E1	4.750	5.050	0.187	0.199
e	0.650 BSC		0.026 BSC	
L	0.400	0.800	0.016	0.031
θ	0°	6°	0°	6°