

Features

- Operate from 1.65V to 5.5V
- Inputs accept voltages up to 5.5V
- Low Power Consumption, ICC = 10 μ A (Max.)
- Ioff supports partial-power-down mode
- 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

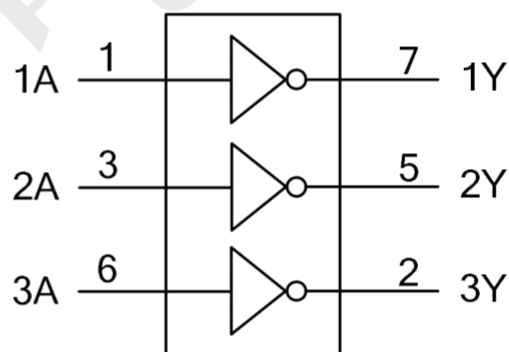
General Description

The SN74LVC3G04 is a triple inverter gate which provides the Boolean function $Y = \bar{A}$. This device is fully specified for partial-power-down applications using Ioff. The Ioff circuitry disables the outputs, preventing damaging current backflow through the device when it is powered down.

Applications

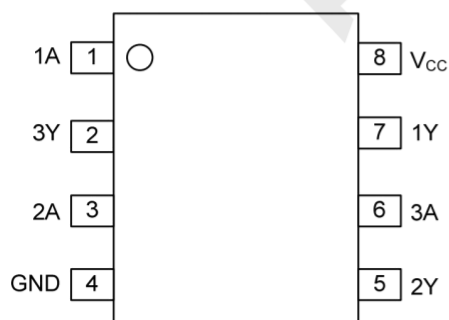
- AV Receiver
- Audio Dock:Portable
- Blu-ray Player and Home Theater
- Embedded PC
- Personal Digital Assistant(PDA)
- Power:Telecom/Server AC/DC Supply:Single Controller:Analog and Digital

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 ~ +6.5	V
Input Voltage	V _{IN}		-0.5 ~ +6.5	V
Output Voltage	V _{OUT}	Output in the high or low state	-0.5 ~ +6.5	V
		Output in the power-off state	-0.5 ~ V _{CC} +0.5	V
V _{CC} or GND Current	I _{CC}		±100	mA
Continuous Output Current	I _{OUT}		±50	mA
Input Clamp Current	I _{IK}	V _{IN} < 0	-50	mA
Output Clamp Current	I _{OK}	V _{OUT} < 0	-50	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}		1.65	--	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

SN74LVC3G04DCTR-TP

TRIPLE INVERTER GATE

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Electrical Characteristics (unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
High-level Input Voltage	V _{IH}	V _{CC} =1.8±0.15V	0.65×V _{CC}	--	--	V	
		V _{CC} =2.5±0.2V	1.7	--	--	V	
		V _{CC} =3.3±0.3V	2	--	--	V	
		V _{CC} =5±0.5V	0.7×V _{CC}	--	--	V	
Low-level Input Voltage	V _{IL}	V _{CC} =1.8±0.15V	--	--	0.35×V _{CC}	V	
		V _{CC} =2.5±0.2V	--	--	0.7	V	
		V _{CC} =3.3±0.3V	--	--	0.8	V	
		V _{CC} =5±0.5V	--	--	0.3×V _{CC}	V	
High-Level Output Voltage	V _{OH}	V _{CC} =1.65 ~ 5.5V, I _{OH} =-100μA		V _{CC} -0.1	--	--	V
		V _{CC} =1.65V, I _{OH} =-4mA		1.2	--	--	V
		V _{CC} =2.3V, I _{OH} =-8mA		1.9	--	--	V
		V _{CC} =3.0V	I _{OH} =-16mA	2.4	--	--	V
			I _{OH} =-24mA	2.3	--	--	V
		V _{CC} =4.5V, I _{OH} =-32mA		3.8	--	--	V
Low-Level Output Voltage	V _{OL}	V _{CC} =1.65 ~ 5.5V, I _{OL} =100μA		--	--	0.1	V
		V _{CC} =1.65V, I _{OL} =4mA		--	--	0.45	V
		V _{CC} =2.3V, I _{OL} =8mA		--	--	0.3	V
		V _{CC} =3.0V	I _{OL} =16mA	--	--	0.4	V
			I _{OL} =24mA	--	--	0.55	V
		V _{CC} =4.5V, I _{OL} =32mA		--	--	0.55	V
Input Leakage Current	I _{I(LEAK)}	V _{CC} =0 ~ 5.5V, V _{IN} =5.5V or GND	--	--	±5	μA	
Power OFF Leakage Current	I _{off}	V _{CC} =0V, V _{IN} or V _{OUT} =5.5V	--	--	±10	μA	
Quiescent Supply Current	I _{CC}	V _{CC} =1.65 ~ 5.5V, V _{IN} =V _{CC} or GND, I _{OUT} =0A	--	--	10	μA	
Additional Quiescent Supply Current Per Input Pin	ΔI _{CC}	V _{CC} =3 ~ 5.5V, One input at V _{CC} -0.6V, Other inputs at V _{CC} or GND	--	--	500	μA	
Input Capacitance	C _I	V _{CC} =3.3V, V _{IN} =V _{CC} or GND	--	3.5	--	pF	

OPERATING CHARACTERISTICS

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

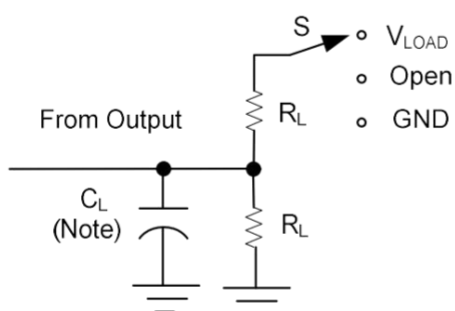
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	CPD	VCC=1.8V	--	16	--	pF
		VCC=2.5V	--	16	--	pF
		VCC=3.3V	--	16	--	pF
		VCC=5V	--	16	--	pF

DYNAMIC CHARACTERISTICS

(TA=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay From input (A) to output(Y)	tPD	VCC=1.8±0.15V, CL=30pF, RL=1kΩ	3.2	--	7.9	ns
		VCC=2.5±0.2V, CL=30pF, RL=500Ω	1.5	--	4.4	ns
		VCC=3.3±0.3V, CL=50pF, RL=500Ω	1.4	--	4.1	ns
		VCC=5±0.5V, CL=50pF, RL=500Ω	1.1	--	3.2	ns

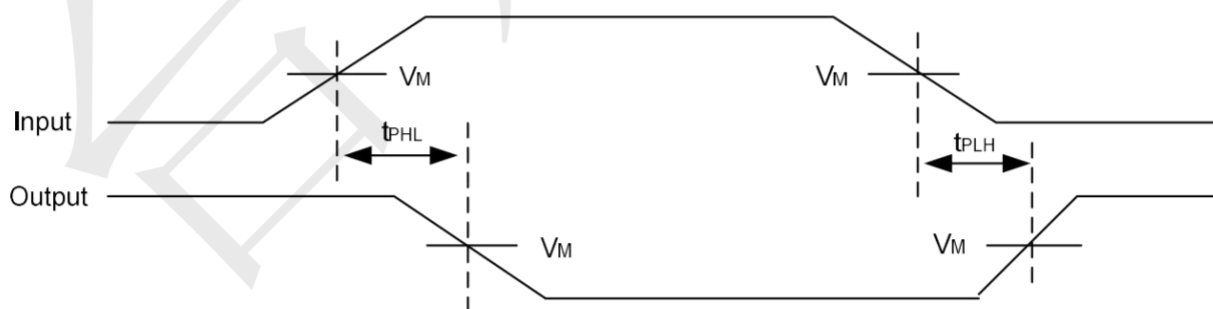
TEST CIRCUIT AND WAVEFORMS



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

Note: C_L includes probe and jig capacitance.

V_{CC}	V_{IN}	t_R / t_F	V_M	C_L	R_L	V_{Δ}
$1.8V \pm 0.15V$	V_{CC}	$\leq 2ns$	$V_{CC}/2$	30pF	1K Ω	0.15V
$2.5V \pm 0.2V$	V_{CC}	$\leq 2ns$	$V_{CC}/2$	30pF	500 Ω	0.15V
$3.3V \pm 0.3V$	3V	$\leq 2.5ns$	1.5V	50pF	500 Ω	0.3V
$5V \pm 0.5V$	V_{CC}	$\leq 2.5ns$	$V_{CC}/2$	50pF	500 Ω	0.3V

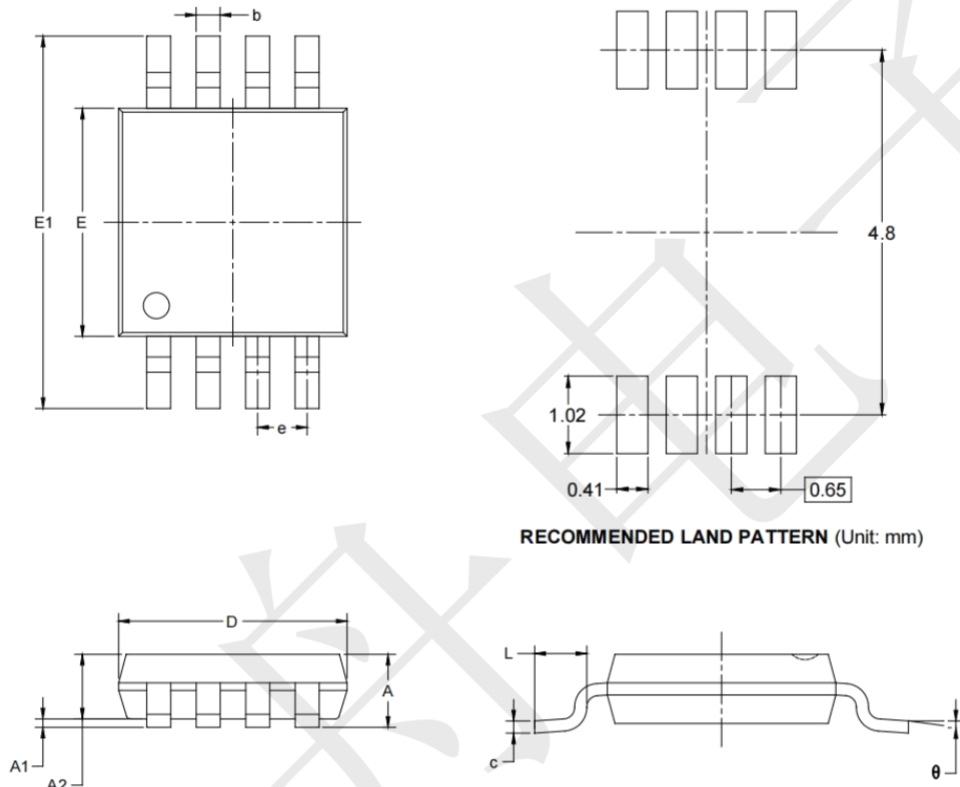


Notes: 1. C_L includes probe and jig capacitance.

2. All input pulses are supplied by generators having the following characteristics: PRR $\leq 10MHz$, $Z_O = 50\Omega$.

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°