TECH PUBLIC
台舟电子

74AHC1G02GW

2-INPUT NOR GATE

WWW.TECHPUBLIC.COM

Features

- Operate from 2.0V to 5.5V
- ±24mA Output Drive (VCC=3.0V)
- High Noise Immunity
- Power Down Protection
- Compact package: SOT-353

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
- Solid State Drive(SSD):Client and Enterprise
- Wireless Headset,Keyboard,and Mouse

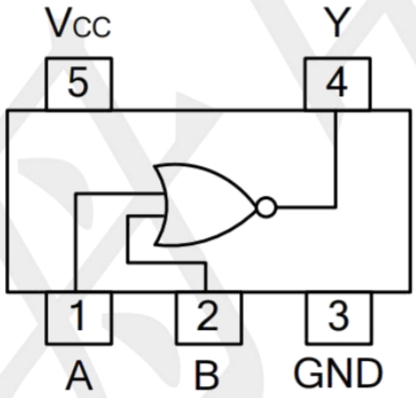
General Description

The 74AHC1G02GW is a 2-input NOR gate Device which provides the Function $Y=\overline{A+B}$ in positive logic.

Logic Diagram

Logic symbol　　IEC logic symbol

Pin Configuratio



SOT-353

Function Table

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

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

Absolute Maximum Ratings

PARAMETER	SYMBOL	CONDITIONS	RATINGS	UNIT
Supply Voltage	V_{CC}		-0.5 ~ +7	V
Input Voltage	V_{IN}		-0.5 ~ +7	V
Output Voltage	V_{OUT}	Output in the Power-off state	-0.5 ~ +7	V
		Output in the High or Low state	-0.5 ~ $V_{CC+0.5}$	V
VCC or GND Current	I_{CC}	Output in the Power-off state	±50	mA
Continuous Output Current	I_{OUT}	V_{OUT}=0~V_{CC}	±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	℃
Junction to Ambient	θ_{JA}		280	℃/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

PARAMETER	SYMBOL	TEST 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}	High or low state	0	--	VCC	V
Input Transition Rise or Fall ate	$\Delta t/\Delta v$	VCC=3.3V±0.3V	--	--	100	ns/V
		VCC=5V±0.5V	--	--	20	ns/V
Operating Temperature	T_A		-40	--	125	℃

Electrical Characteristics (TA =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
		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, I_{OH}=-50μA	1.9	2.0	--	V
		V_{CC}=3.0V, I_{OH}=-50μA	2.9	3.0	--	V
		V_{CC}=4.5V, I_{OH}=-50μA	4.4	4.5	--	V
		V_{CC}=3.0V,I_{OH}=-4mA	2.58	--	--	V
		V_{CC}=4.5V,I_{OH}=-8mA	3.94	--	--	V
Low-Level Output Voltage	V_{OL}	V_{CC}=2.0V, I_{OH}=50μA	--	--	0.1	V
		V_{CC}=3.0V, I_{OH}=50μA	--	--	0.1	V
		V_{CC}=4.5V, I_{OH}=50μA	--	--	0.1	V
		V_{CC}=3.0V,I_{OH}=4mA	--	--	0.36	V
		V_{CC}=4.5V,I_{OH}=8mA	--	--	0.36	V
Input Leakage Current	$I_{I(LEAK)}$	V_{CC}=0 ~ 5.5V, V_{IN}=VCC or GND	--	--	±0.1	uA
Quiescent Supply Current	I_Q	V_{CC}=1.65 ~ 5.5V, V_{IN}=V_{CC} or GND, I_{OUT}=0A	--	--	1	uA
Input Capacitance	C_{IN}	V_{CC}=5V, V_{IN}=V_{CC} or GND	--	4	10	pF

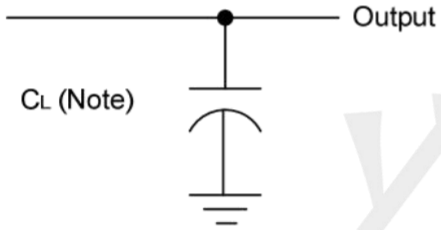
OPERATING CHARACTERISTICS (f=10MHz, TA =25°C , unless otherwise specified)

PARAMETER	SYMBOL	TEST Conditions	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C_{PD}	V_{CC}=2.0V	--	15	--	pF
		V_{CC}=2.5V	--	15	--	pF
		V_{CC}=3.3V	--	15	--	pF
		V_{CC}=5.0V	--	15	--	pF

SWITCHING CHARACTERISTICS (TA =25°C , unless otherwise specified)

PARAMETER	SYMBOL	TEST Conditions	MIN	TYP	MAX	UNIT
Propagation delay from input (A or B) to output(Y)	t_{PLH}	Vcc=3.3±0.3V, L=15pF	--	5.6	7.9	nS
		Vcc=5±0.5V , L=15pF	--	3.6	5.5	nS
		Vcc=3.3±0.3V, L=50pF	--	8.1	11.4	nS
		Vcc=5±0.5V , L=50pF	--	5.1	7.5	nS
	t_{PHL}	Vcc=3.3±0.3V, L=15pF	--	5.6	7.9	nS
		Vcc=5±0.5V , L=15pF	--	3.6	5.5	nS
		Vcc=3.3±0.3V, L=50pF	--	8.1	11.4	nS
		Vcc=5±0.5V , L=50pF	--	5.1	7.5	nS

TEST CIRCUIT AND WAVEFORMS



Note: CL includes probe and jig capacitance.

Fig.1 Load circuitry for switching times.

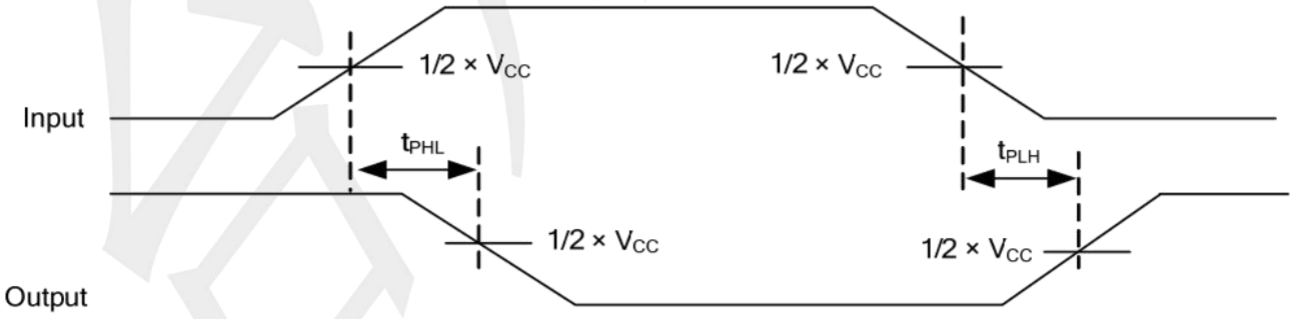
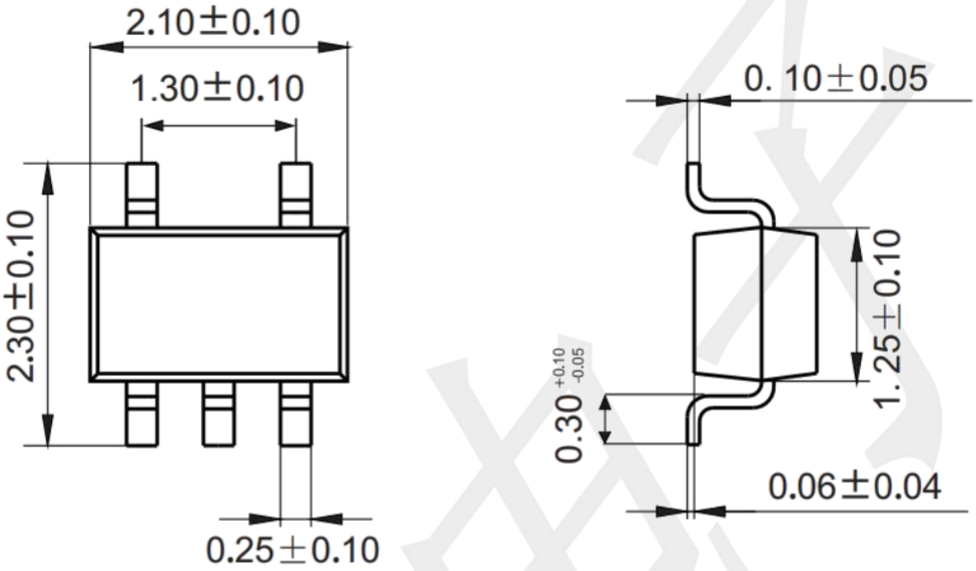
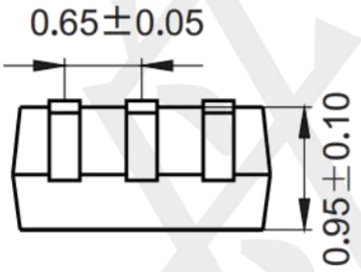


Fig.2 Propagation delay from input(A and B) to output(Y)

Package informantion

SOT-353 (Unit: mm)





Mounting Pad Layout (Unit: mm)