

Features

- Operate from 2.0V to 5.5V
- $\pm 24\text{mA}$ Output Drive ($V_{CC}=3.0\text{V}$)
- High Noise Immunity
- Power Down Protection
- Compact package: SOT-353

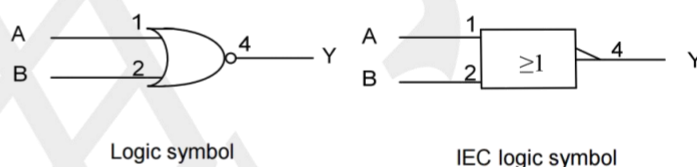
General Description

The SN74AHC1G02DCKR-TP is a 2-input NOR gate Device which provides the Function $Y=A+B$ in positive logic.

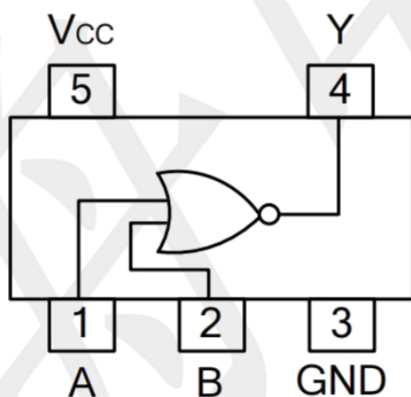
Applications

- 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

Logic Diagram



Pin Configuratio



Function Table

SOT-353

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
V _{CC} 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	°C
Junction to Ambient	θ _{JA}		280	°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

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	--	V _{CC}	V
Input Transition Rise or Fall rate	Δt/Δv	V _{CC} =3.3V±0.3V	--	--	100	ns/V
		V _{CC} =5V±0.5V	--	--	20	ns/V
Operating Temperature	T _A		-40	--	125	°C

SN74AHC1G02DCKR-TP

2-INPUT NOR GATE

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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}	$V_{CC}=2.0V, I_{OH}=-50\mu A$	1.9	2.0	--	V
		$V_{CC}=3.0V, I_{OH}=-50\mu A$	2.9	3.0	--	V
		$V_{CC}=4.5V, I_{OH}=-50\mu A$	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}	$V_{CC}=2.0V, I_{OH}=50\mu A$	--	--	0.1	V
		$V_{CC}=3.0V, I_{OH}=50\mu A$	--	--	0.1	V
		$V_{CC}=4.5V, I_{OH}=50\mu A$	--	--	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	$I_{I(LEAK)}$	$V_{CC}=0 \sim 5.5V, V_{IN}=V_{CC}$ or GND	--	--	± 0.1	μA
Quiescent Supply Current	I_Q	$V_{CC}=1.65 \sim 5.5V, V_{IN}=V_{CC}$ or GND, $I_{OUT}=0A$	--	--	1	μA
Input Capacitance	C_{IN}	$V_{CC}=5V, V_{IN}=V_{CC}$ or GND	--	4	10	pF

Electrical Characteristics (TA =25°C, unless otherwise specified)

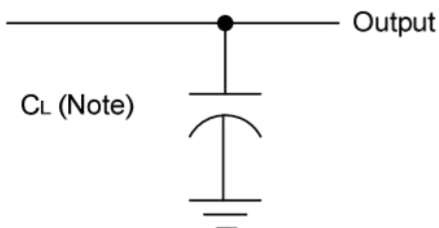
OPERATING CHARACTERISTICS (f=10MHz, TA =25°C , unless otherwise specified)

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}	V _{CC} =3.3±0.3V, L=15pF	--	5.6	7.9	nS
		V _{CC} =5±0.5V , L=15pF	--	3.6	5.5	nS
		V _{CC} =3.3±0.3V, L=50pF	--	8.1	11.4	nS
		V _{CC} =5±0.5V , L=50pF	--	5.1	7.5	nS
	t _{PHL}	V _{CC} =3.3±0.3V, L=15pF	--	5.6	7.9	nS
		V _{CC} =5±0.5V , L=15pF	--	3.6	5.5	nS
		V _{CC} =3.3±0.3V, L=50pF	--	8.1	11.4	nS
		V _{CC} =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.

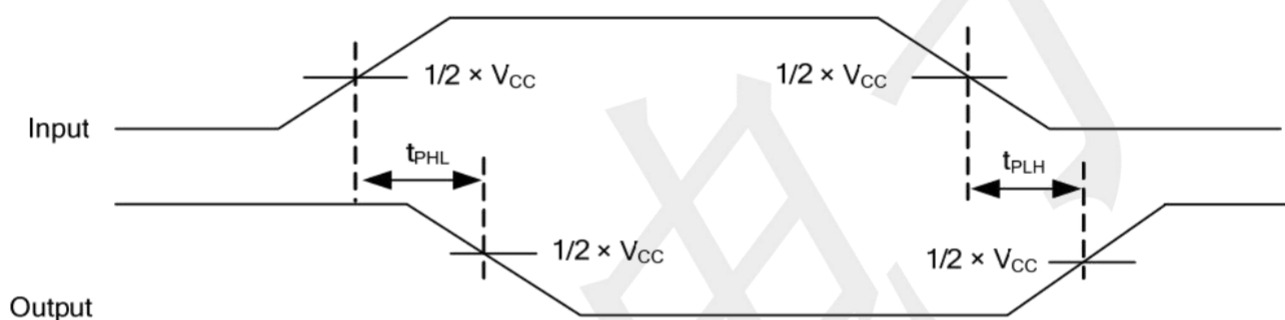
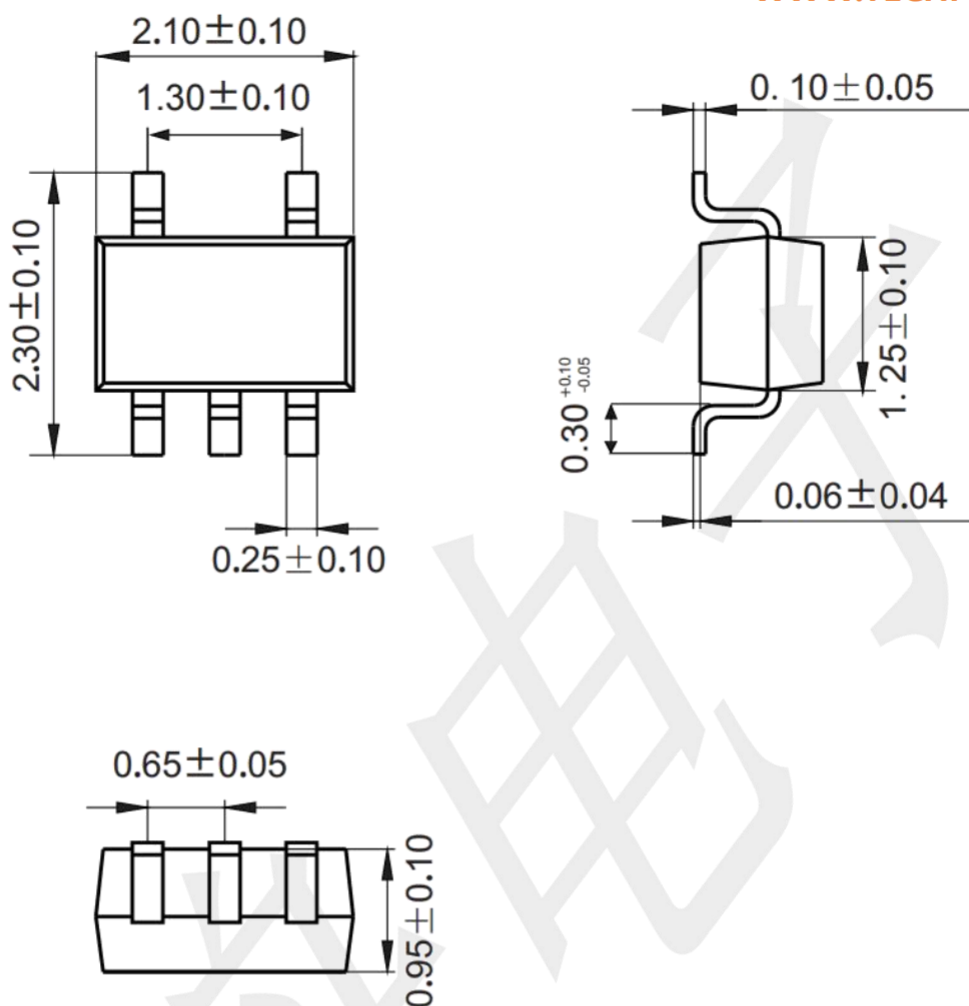


Fig.2 Propagation delay from input(A and B) to output(Y)

Package information

SOT-353 (Unit: mm)



Mounting Pad Layout (Unit: mm)

