

Features

- Operate from 1.65V 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

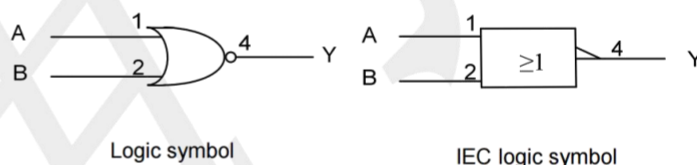
General Description

The NC7SZ02P5X is a 2-input NOR gate Device which provides the Function $Y = \overline{A+B}$ in positive logic.

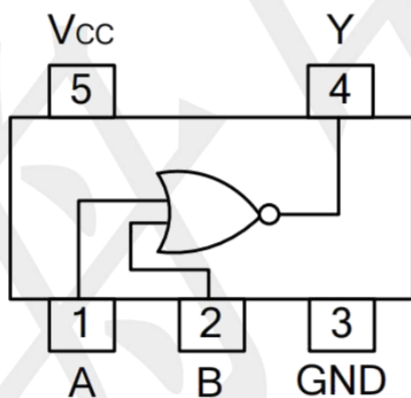
Applications

- 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



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	VCC		-0.5 ~ +6	V
Input Voltage	VIN		-0.5 ~ +6	V
Output Voltage	VOUT	Output in the Power-off state	-0.5 ~ +6	V
		Output in the High or Low state	-0.5 ~ VCC+0.5	V
VCC or GND Current	ICC	Output in the Power-off state	±50	mA
Continuous Output Current	IOUT	VOUT=0~VCC	±25	mA
Input Clamp Current	IIK	VIN<0	-20	mA
Output Clamp Current	IOK	VOUT<0	±20	mA
Storage Temperature Range	TSTG		-65 ~ +150	°C
Junction to Ambient	θJA		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	VCC		1.65	--	5.5	V
Input Voltage	VIN		0	--	5.5	V
Output Voltage	VOUT	High or low state	0	--	VCC	V
Input Transition Rise or Fall rate	Δt/Δv	VCC=3.3V±0.3V	--	--	100	ns/V
		VCC=5V±0.5V	--	--	20	ns/V
Operating Temperature	TA		-40	--	125	°C

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

PARAMETER	SYMBOL	TEST Conditions	MIN	TYP	MAX	UNIT
High-Level Input Voltage	V _{IH}	V _{CC} =1.65V~1.95V	0.75V _{CC}	--	--	V
		V _{CC} =2.3V~5.5V	0.70V _{CC}	--	--	V
Low-Level Input Voltage	V _{IL}	V _{CC} =1.65V~1.95V	--	--	0.25V _{CC}	V
		V _{CC} =2.3V~5.5V	--	--	0.30V _{CC}	V
High-Level Output Voltage	V _{OH}	V _{CC} =1.65V, I _{OH} =-100μA V _{IN} =V _{IL}	1.55	1.65	--	V
		V _{CC} =1.80V, I _{OH} =-100μA V _{IN} =V _{IL}	1.70	1.80	--	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} =1.65V, I _{OH} =-4mA	1.29	1.52	--	V
		V _{CC} =3.0V, I _{OH} =-24mA	2.30	2.68	--	V
		V _{CC} =4.5V, I _{OH} =-32mA	3.80	4.20	--	V
Low-Level Output Voltage	V _{OL}	V _{CC} =1.65V, I _{OH} =100μA V _{IN} =V _{IL}	--	0.00	0.10	V
		V _{CC} =1.80V, I _{OH} =100μA V _{IN} =V _{IL}	--	0.00	0.10	V
		V _{CC} =3.0V, I _{OH} =50μA	--	0.00	0.10	V
		V _{CC} =4.5V, I _{OH} =50μA	--	0.00	0.10	V
		V _{CC} =1.65V, I _{OH} =4mA	--	0.08	0.24	V
		V _{CC} =3.0V, I _{OH} =24mA	--	0.22	0.55	V
		V _{CC} =4.5V, I _{OH} =32mA	--	0.22	0.55	V
Input Leakage Current	I _I (LEAK)	V _{CC} =0 ~ 5.5V, V _{IN} =V _{CC} or GND	--	--	±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

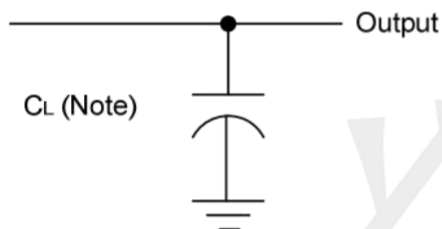
OPERATING CHARACTERISTICS (f=10MHz, TA =25°C , unless otherwise specified)

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}	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.

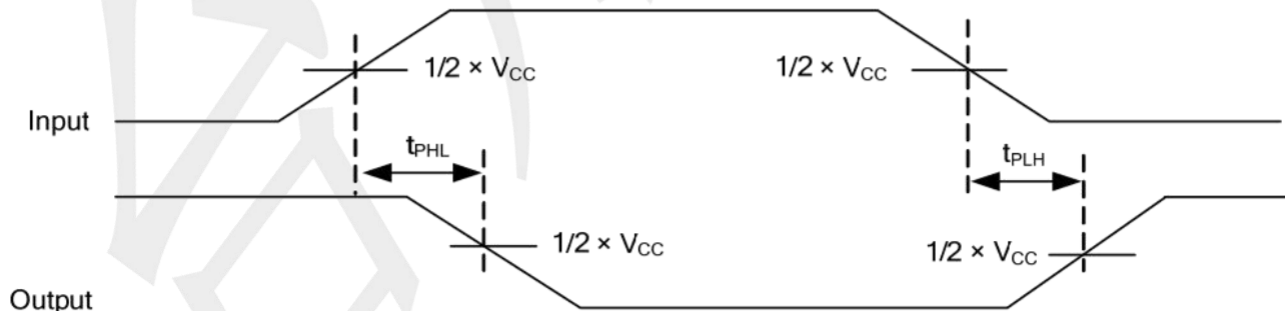
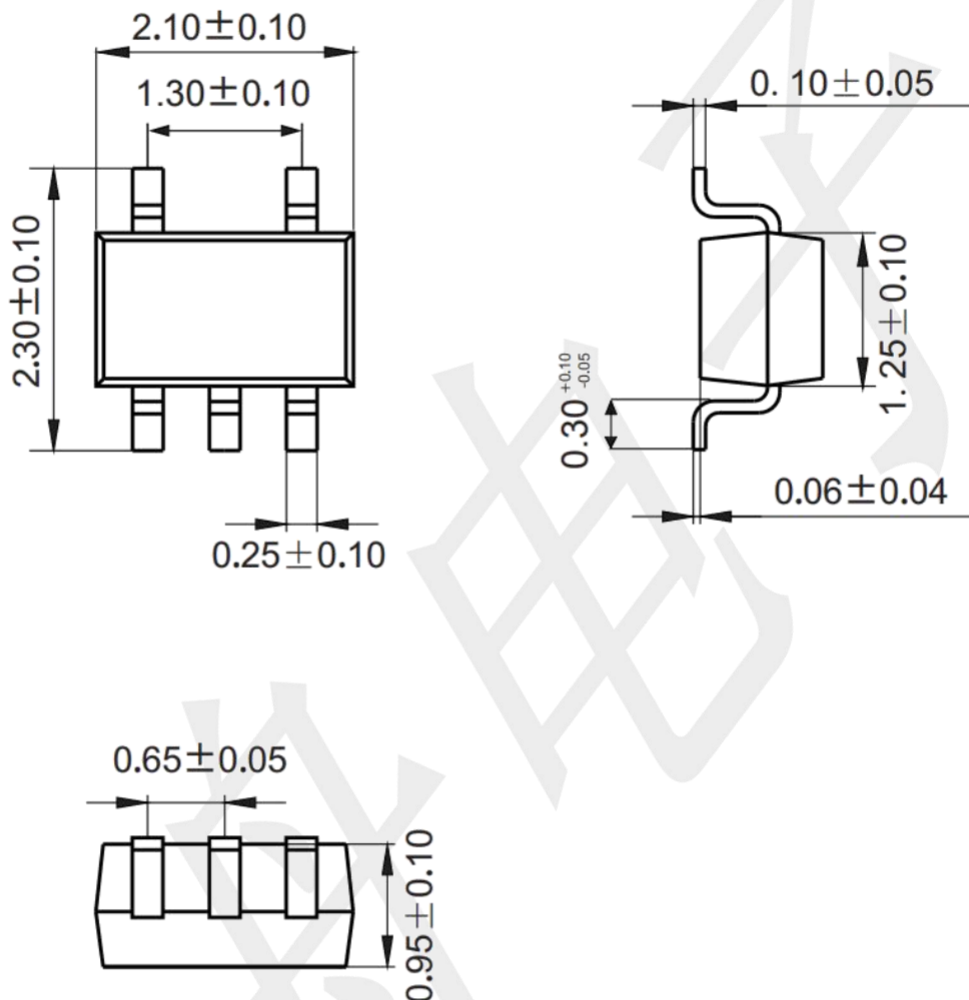


Fig.2 Propagation delay from input(A and B) to output(Y)

Package information

SOT-353 (Unit: mm)



Mounting Pad Layout (Unit: mm)

