

Features

- Operation Voltage Range: 4.5~5.5V
- Low Power Dissipation
- High noise immunity
- Input compatible with TTL voltage
- ESD Protection Exceeds JESD 22
 - 2000-V Human-Body Model (A114-A)
 - 200-V Machine Model (A115-A)
 - 1000-V Charged-Device Model (C101)

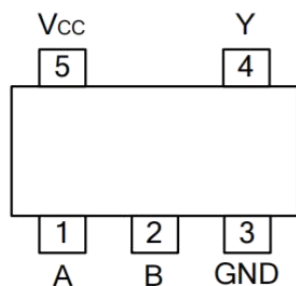
General Description

The NC7ST02 is a single 2-input NOR gate which provides the Function.

Ordering Information

ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION
NC7ST02M5X-TP	SOT23-5	Tape and Reel, 3000
NC7ST02P5X-TP	SOT353	Tape and Reel, 3000

Pin Configuratio

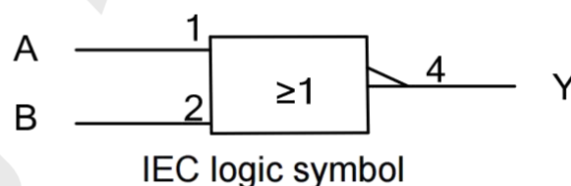
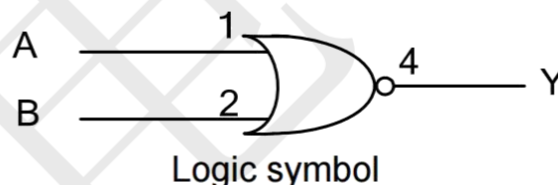


SOT23-5 / SOT353

Applications

- Motor control: Communication induction
- Graphics card
- Advanced Driver Assistance Systems (ADAS)
- Motor Drive&Control
- DLP positive projection system
- Server motherboard

Logic Diagram



Function Table

INPUT		OUTPUT
A	B	Y
L	L	H
L	H	L
H	L	L
H	H	L

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$, unless otherwise specified) (Note 2)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	VCC	-0.5 ~ 7	V
Input Voltage	VIN	-0.5 ~ 7	V
Output Voltage	VOUT	-0.5 ~ VCC+0.5	V
Input Clamp Current	I _{IK}	±20	mA
Output Clamp Current	I _{OK}	±20	mA
Output Current	I _{OUT}	±25	mA
VCC or GND Current	I _{CC}	±50	mA
Storage Temperature	T _{STG}	-65 ~ +150	°C

Notes: 1. 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.

2. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Input Voltage	V _{IH}	V _{CC} =4.5V~5.5V	2.0	--	--	V
Low-Level Input Voltage	V _{IL}	V _{CC} =4.5V~5.5V	--	--	0.8	V
High-Level Output Voltage	V _{OH}	V _{CC} =4.5V, I _{OH} =-50μA	4.4	4.5	--	V
		V _{CC} =4.5V, I _{OH} =-8mA	3.94	--	--	
Low-Level Output Voltage	V _{OL}	V _{CC} =4.5V, I _{OL} =50μA	--	--	0.1	V
		V _{CC} =4.5V, I _{OL} =8mA	--	--	0.36	
Input Leakage Current	I _{I(LEAK)}	V _{CC} =5.5V, V _{IN} =V _{CC} or GND	--	--	±0.1	μA
Quiescent Supply Current	I _Q	V _{CC} =5.5V, V _{IN} =V _{CC} or GND I _{OUT} =0	--	--	1	μA
Additional Quiescent Supply Current	Δ I _Q	V _{CC} =5.5V, V _{IN} =3.4V; I _{OUT} =0; other input at V _{CC} or GND	--	--	1.35	mA
Input Capacitance	C _{IN}	V _{IN} =V _{CC} or GND	--	2	10	pF

RECOMMENDED OPERATING COMDITIONS

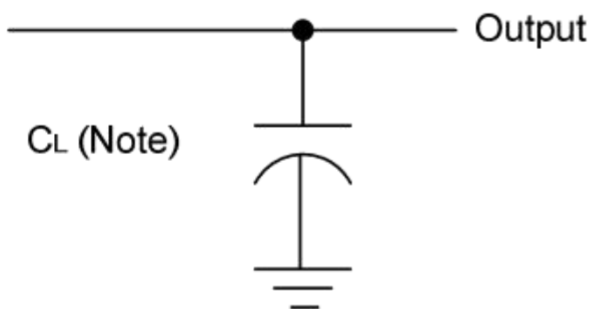
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		4.5	--	5.5	V
Input Voltage	V_{IN}		0	--	5.5	V
Output Voltage	V_{OUT}		0	--	V_{CC}	V
Operating Temperature	T_A		-40	--	+125	°C

SWITCHING CHARACTERISTICS

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay Times	t_{PLH}/t_{PHL}	$V_{CC}=4.5\text{V}\sim 5.5\text{V}$, $C_L=15\text{pF}$		3.5	5.5	ns
		$V_{CC}=4.5\text{V}\sim 5.5\text{V}$, $C_L=50\text{pF}$		4.9	7.5	ns

TEST CIRCUIT AND WAVEFORMS



Note: C_L includes probe and jig capacitance.

Fig.1 Load circuitry for switching times.

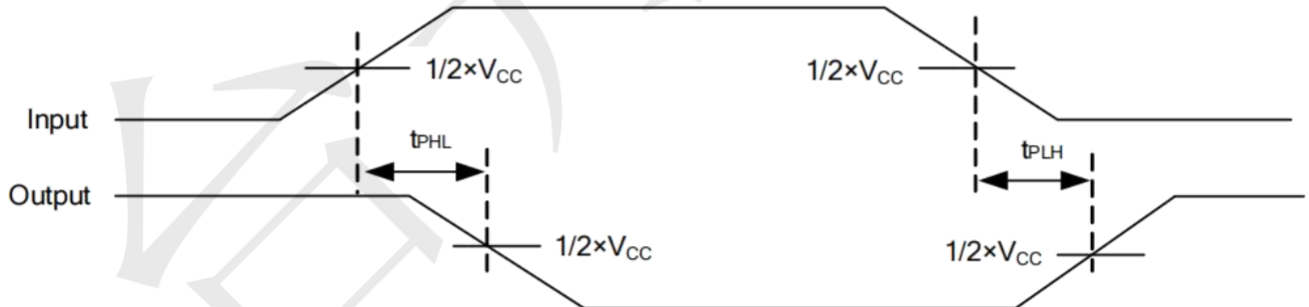
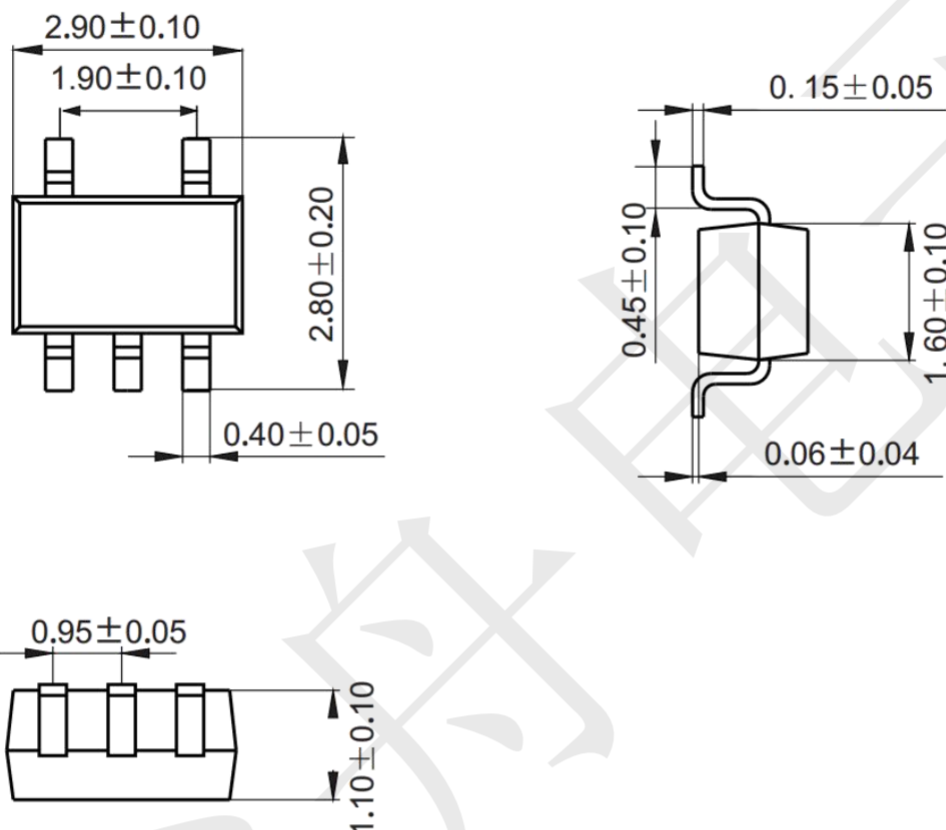


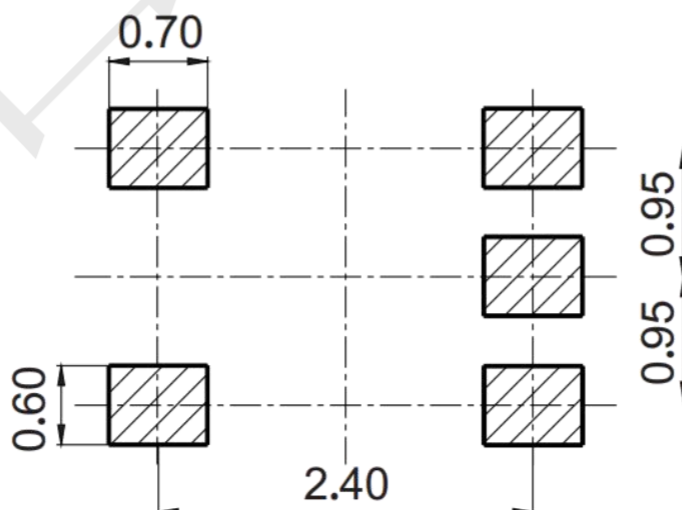
Fig. 2 Propagation delay from input(A and B) to output(Y)

Package information (Unit: mm)

SOT23-5

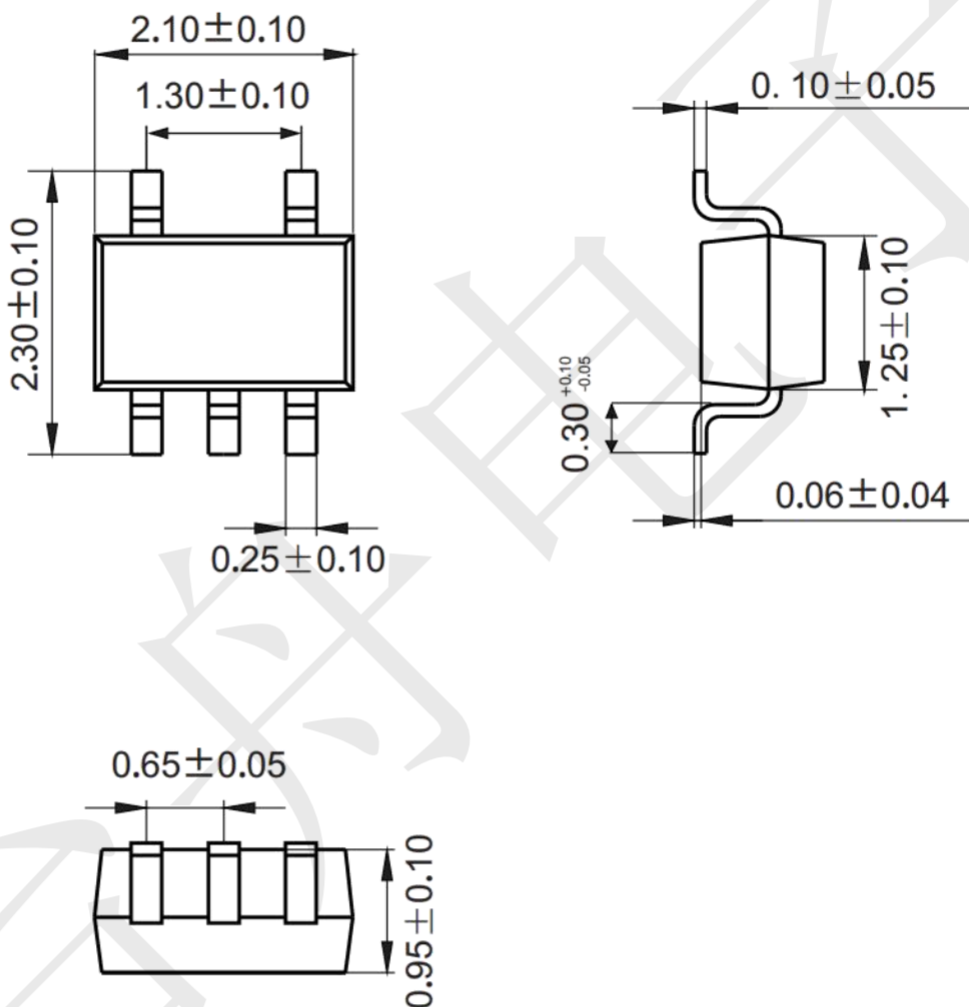


Mounting Pad Layout (Unit: mm)



Package information

SOT353 (Unit: mm)



Mounting Pad Layout (unit: mm)

