NC7S04P5X-TP

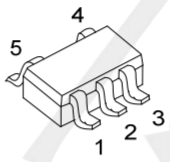
SINGLE INVERTER GATE

DESCRIPTION

The NC7S04P5X-TP is a inverter gate, it provides the Function $Y = \overline{A}$.

FEATURES

* Operation Voltage Range: 2V ~ 5.5V
* Low power consumption, I_{CC} = 1μA (Max) at 5.5V
* ±8mA output driver at 5V

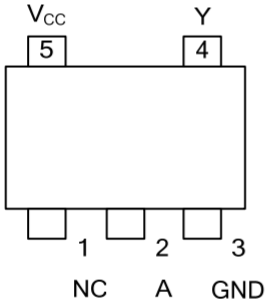


SOT-353

ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
NC7S04P5X-TP	NC7S04P5X-TP	SOT-353	Tape Reel

PIN CONFIGURATION

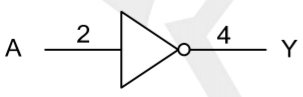


FUNCTION TABLE

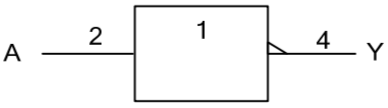
INPUT(A)	OUTPUT(Y)
H	L
L	H

Note: H: high voltage level; L: low voltage level.

LOGIC DIAGRAM



Logic symbol



IEC logic symbol

ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	-0.5 ~ 7	V
Input Voltage	V_{IN}	-0.5 ~ 7	V
Output Voltage	V_{OUT}	-0.5 ~ V_{CC} +0.5	V
V_{CC} or GND Current	I_{CC}	±50	mA
Output Current	I_{OUT}	±25	mA
Input Clamp Current	I_{IK}	-20	mA
Output Clamp Current	I_{OK}	±20	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.

THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-353	θ_{JA}	350	°C/W

RECOMMENDED OPERATING COMDITIONS

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		2		5.5	V
Input Voltage	V_{IN}		0		5.5	V
Output Voltage	V_{OUT}		0		V_{CC}	V
Input Transition Rise or Fall Rate	$\Delta t/\Delta v$	V_{CC}=5.0+0.5V			20	ns/V
Operating Temperature	T_A		-40		125	°C

ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}			2		5.5	V
Input Voltage	V_{IN}			0		5.5	V
Output Voltage	V_{OUT}			0		V_{CC}	V
High-Level Input Voltage	V_{IH}	V_{CC}=2.0V		1.5			V
		V_{CC}=3.0V		2.1			
		V_{CC}=5.5V		3.85			
Low-Level Input Voltage	V_{IL}	V_{CC}=2.0V				0.5	V
		V_{CC}=3.0V				0.9	
		V_{CC}=5.5V				1.65	
High-Level Output Voltage	V_{OH}	V_{CC}=2.0V	I_{OH}=-50μA	1.9	2.0		V
		V_{CC}=3.0V		2.9	3.0		
		V_{CC}=4.5V		4.4	4.5		
		V_{CC}=3.0V, I_{OH}=-4mA		2.58			
		V_{CC}=4.5V, I_{OH}=-8mA		3.94			
Low-Level Output Voltage	V_{OL}	V_{CC}=2.0V	I_{OL}=-50μA			0.1	V
		V_{CC}=3.0V				0.1	
		V_{CC}=4.5V				0.1	
		V_{CC}=3.0V, I_{OL}=4mA				0.36	
		V_{CC}=4.5V, I_{OL}=8mA				0.36	
Input Leakage Current	$I_{I(LEAK)}$	V_{CC}=0V~5.5V, V_{IN}=5.5V or GND				±0.1	μA
Quiescent Supply Current	I_Q	V_{CC}=5.5V, V_{IN}=V_{CC} or GND, I_{OUT}=0A				1	μA
Input Capacitance	C_I	V_{CC}=5.0V, V_{IN}=V_{CC} or GND			2	10	pF

DYNAMIC CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Propagation Delay Time Input(A) to Output(Y)	t_{PLH}	V_{CC}=3.3V±0.3V	C_L=15pF		5	7.1	ns
		V_{CC}=5V±0.5V			3.8	5.5	ns
	t_{PHL}	V_{CC}=3.3V±0.3V			5	7.1	ns
		V_{CC}=5V±0.5V			3.8	5.5	ns
	t_{PLH}	V_{CC}=3.3V±0.3V	C_L=50pF		7.5	10.6	ns
		V_{CC}=5V±0.5V			5.3	7.5	ns
	t_{PHL}	V_{CC}=3.3V±0.3V			7.5	10.6	ns
		V_{CC}=5V±0.5V			5.3	7.5	ns

OPERATING CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C_{PD}	V_{CC}=5V, f=1MHz, No load		12		pF

Package informantion (Unit: mm)

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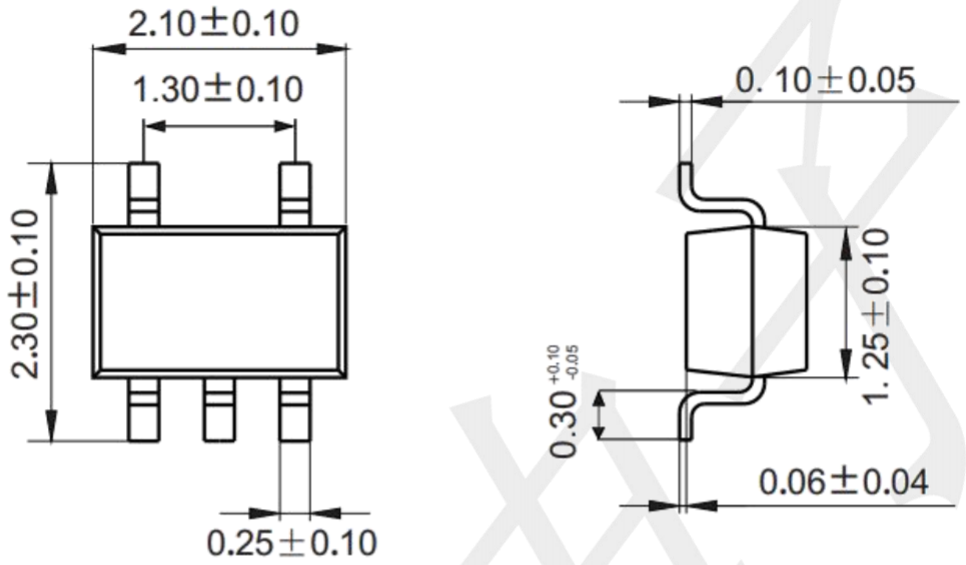

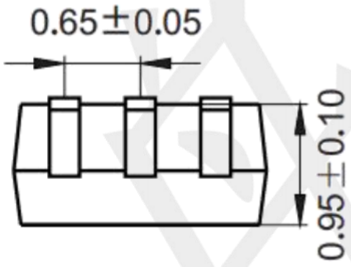

Mounting Pad Layout (Unit: mm)