

# NTE74LS00 Integrated Circuit TTL – Quad 2–Input Positive NAND Gate

#### **Description:**

The NTE74LS00 contains four independent 2-Input NAND gates in a 14-Lead plastic DIP type package.

Absolute Maximum Ratings: (Note 1)

Supply Voltage, V <sub>CC</sub>	7V
DC Input Voltage, V <sub>IN</sub>	5.5V
Operating Temperature Range, T <sub>A</sub>	0°C to +70°C
Storage Temperature Range, T <sub>stg</sub>	-65°C to +150°C

Note 1. Unless otherwise specified, all voltages are referenced to GND.

#### **Recommended Operating Conditions:**

Parameter	Symbol	Min	Тур	Max	Unit
Supply Voltage	V <sub>CC</sub>	4.75	5.0	5.25	V
High-Level Input Voltage	V <sub>IH</sub>	2.0	_	-	V
Low-Level Input Voltage	V <sub>IL</sub>	_	_	0.8	V
High-Level Output Current	I <sub>OH</sub>	-	_	-0.4	mA
Low-Level Output Current	I <sub>OL</sub>	-	_	8	mA
Operating Temperature Range	T <sub>A</sub>	0	_	+70	°C

## **Electrical Characteristics**: (Note 2, Note 3)

Parameter	Symbol	Test Conditions	Min	Тур	Max	Unit
Input Clamp Voltage	$V_{IK}$	$V_{CC} = MIN, I_I = -18mA$	-	_	-1.5	V
High Level Output Voltage	V <sub>OH</sub>	$V_{CC} = MIN, V_{IL} = MAX, I_{OH} = -0.4mA$	2.7	3.4	-	V
Low Level Output Voltage	V <sub>OL</sub>	$V_{CC} = MIN, V_{IH} = 2V, I_{OL} = 4mA$	_	0.25	0.4	V
		$V_{CC} = MIN, V_{IH} = 2V, I_{OL} = 8mA$	_	0.35	0.5	V
Input Current	I <sub>I</sub>	$V_{CC} = MAX, V_I = 7V$	ı	_	0.1	mA

- Note 2. .For conditions shown as MIN or MAX, use the appropriate value specified under "Recommended Operation Conditions".
- Note 3. All typical values are at  $V_{CC}$  = 5V,  $T_A$  = +25°C.

#### Electrical Characteristics (Cont'd): (Note 2, Note 3)

Parameter	Symbol	Test Conditions	Min	Тур	Max	Unit
High Level Input Current	I <sub>IH</sub>	$V_{CC} = MAX, V_I = 2.7V$	-	-	20	μΑ
Low Level Input Current	I₁∟	$V_{CC} = MAX, V_I = 0.4V$	_	_	-0.4	mA
Short-Circuit Output Current	Ios	V <sub>CC</sub> = MAX, Note 4	-20	_	-100	mA
High Level Supply Current	I <sub>CCH</sub>	$V_{CC} = MAX, V_I = 0$	_	0.8	1.6	mA
Low Level Supply Current	I <sub>CCL</sub>	$V_{CC} = MAX, V_I = 4.5V$	ı	2.4	4.4	mA

- Note 2. .For conditions shown as MIN or MAX, use the appropriate value specified under "Recommended Operation Conditions".
- Note 3. All typical values are at  $V_{CC} = 5V$ ,  $T_A = +25^{\circ}C$ . Note 4. Not more than one output should be shorted at a time, and the duration of the short–circuit should not exceed one second.

### <u>Switching Characteristics</u>: $(V_{CC} = 5V, T_A = +25^{\circ}C)$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Тур	Max	Unit
Propagation Delay Time	t <sub>PLH</sub>	$R_L = 2k\Omega$ , $C_L = 15pF$	-	9	15	ns
From A or B Input to Y Output)	t <sub>PHL</sub>		ı	10	15	ns

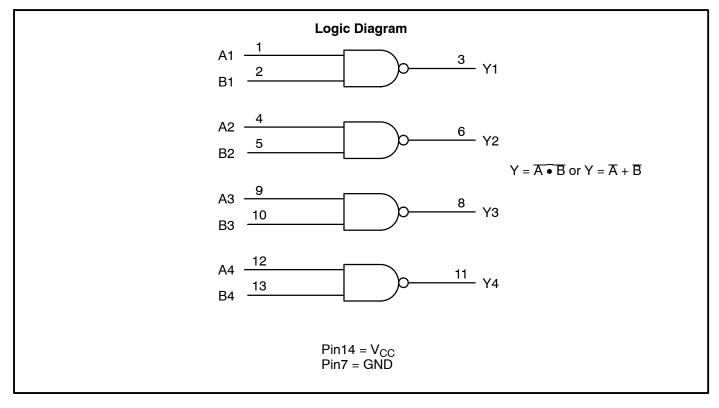
#### **Truth Table (Each Gate):**

Inp	Inputs		
Α	В	Υ	
Н	Н	L	
L	Х	Н	
X	L	Н	

H = HIGH Voltage Level

L = LOW Voltage Level

X = Don't Care



# **Pin Connection Diagram** 1A 1 14 V<sub>CC</sub> **13** 4B 1B **2** 1Y 3 **12** 4A 2A 4 **11** 4Y 2B **5 10** 3B 2Y 6 9 3A GND 7 8 3Y 8 14 7 .300 (7.62) .785 (19.95) Max .200 (5.08) `Max<sup>´</sup>

.100 (2.45)

.600 (15.24)

.099 (2.5) Min