NTE7410
Integrated Circuit
TTL – Triple 3–Input Positive NAND Gate

Description:
The NTE7410 contains three independent 3–Input NAND gates in a 14–Lead plastic DIP type package.

Absolute Maximum Ratings: (Note 1)
Supply Voltage, V_{CC} 7V
DC Input Voltage, V_{IN} 5.5V
Operating Temperature Range, T_A .... 0°C to +70°C
Storage Temperature Range, T_{stg} .... −65°C to +150°C

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

Recommended Operating Conditions:

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	V_{CC}	4.75	5.0	5.25	V
High−Level Input Voltage	V_{IH}	2.0	–	–	V
Low−Level Input Voltage	V_{IL}	–	–	0.8	V
High−Level Output Current	I_{OH}	–	–	−0.4	mA
Low−Level Output Current	I_{OL}	–	–	16	mA
Operating Temperature Range	T_A	0	–	+70	°C

Electrical Characteristics: (Note 2, Note 3)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Clamp Voltage	V_{IK}	V_{CC} = MIN, I_I = −12mA	–	–	−1.5	V
High Level Output Voltage	V_{OH}	V_{CC} = MIN, V_{IL} = 0.8V, I_{OH} = −0.4mA	2.4	3.4	–	V
Low Level Output Voltage	V_{OL}	V_{CC} = MIN, V_{IH} = 2V, I_{OL} = 16mA	–	0.2	0.4	V
Input Current	I_I	V_{CC} = MAX, V_I = 5.5V	–	–	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	Typ	Max	Unit
High Level Input Current	I_{IH}	V_{CC} = MAX, V_I = 2.4V	–	–	40	µA
Low Level Input Current	I_{IL}	V_{CC} = MAX, V_I = 0.4V	–	–	−1.6	mA
Short−Circuit Output Current	I_{OS}	V_{CC} = MAX, Note 4	−18	–	−55	mA
High Level Supply Current	I_{CCH}	V_{CC} = MAX, V_I = 0	–	3	6	mA
Low Level Supply Current	I_{CCL}	V_{CC} = MAX, V_I = 4.5V	–	9.0	16.5	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.

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.

Switching Characteristics: (V_{CC} = 5V, T_A = +25°C unless otherwise specified)

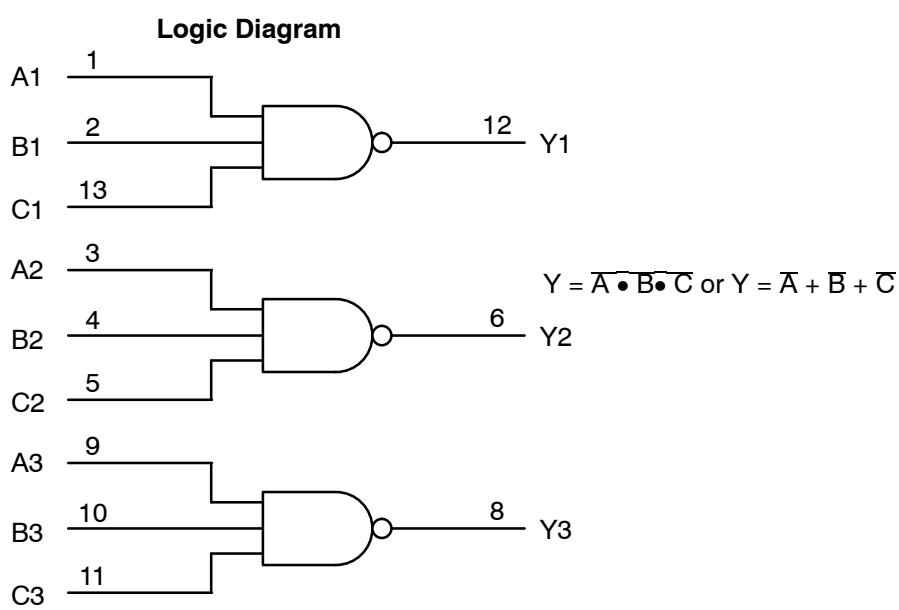| Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Propagation Delay Time From A, B or C Input to Y Output)	t_{PLH}	R_L = 400Ω, C_L = 15pF	–	11	22	ns
	t_{PHL}		–	7	15	ns

Function Table (Each Gate):

Inputs			Output
A	**B**	**C**	**Y**
H	H	H	L
L	X	X	H
X	L	X	H
X	X	L	H

H = HIGH Voltage Level
L = LOW Voltage Level
X = Don't Care

Logic Diagram

A1 — 1
B1 — 2
C1 — 13
Y1 — 12

A2 — 3
B2 — 4
C2 — 5
Y2 — 6

A3 — 9
B3 — 10
C3 — 11
Y3 — 8

$Y = \overline{A \cdot B \cdot C}$ or $Y = \overline{A} + \overline{B} + \overline{C}$

Pin14 = V_{CC}
Pin7 = GND

Pin Connection Diagram

Pin	Name	Pin	Name
1	1A	14	V_{CC}
2	1B	13	1C
3	2A	12	1Y
4	2B	11	3C
5	2C	10	3B
6	2Y	9	3A
7	GND	8	3Y

.785 (19.95) Max

.300 (7.62)

.200 (5.08) Max

.100 (2.45)

.099 (2.5) Min

.600 (15.24)