NTE74LS08
Integrated Circuit
TTL – Quad 2–Input Positive AND Gate

Description:
The NTE74LS08 contains four independent 2–Input AND gates in a 14–Lead plastic DIP type package.

Absolute Maximum Ratings: (Note 1)
Supply Voltage, V_{CC} 7V
DC Input Voltage, V_{IN} 7V
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}	–	–	8	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 = −18mA	–	–	−1.5	V
High Level Output Voltage	V_{OH}	V_{CC} = MIN, V_{IH} = 2V, I_{OH} = −0.4mA	2.7	3.4	–	V
Low Level Output Voltage	V_{OL}	V_{CC} = MIN, V_{IL} = MAX, I_{OL} = 4mA	–	0.25	0.4	V
		V_{CC} = MIN, V_{IL} = MAX, I_{OL} = 8mA	–	0.35	0.5	V
Input Current	I_I	V_{CC} = MAX, V_I = 7V	–	–	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	Typ	Max	Unit
High Level Input Current	I_{IH}	V_{CC} = MAX, V_I = 2.7V	–	–	20	µA
Low Level Input Current	I_{IL}	V_{CC} = MAX, V_I = 0.4V	–	–	–0.4	mA
Short–Circuit Output Current	I_{OS}	V_{CC} = MAX, Note 4	–20	–	–100	mA
High Level Supply Current	I_{CCH}	V_{CC} = MAX, V_I = 4.5V	–	2.4	4.8	mA
Low Level Supply Current	I_{CCL}	V_{CC} = MAX, V_I = 0V	–	4.4	8.8	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 or B Input to Y Output)	t_{PLH}	R_L = 2kΩ, C_L = 15pF	–	8	15	ns
	t_{PHL}		–	10	20	ns

Truth Table (Each Gate):
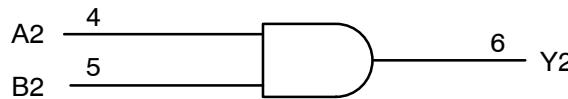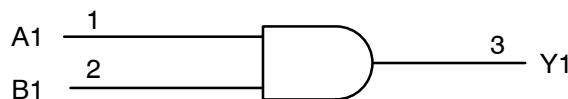
Inputs		Output
A	**B**	**Y**
H	H	H
L	X	L
X	L	L

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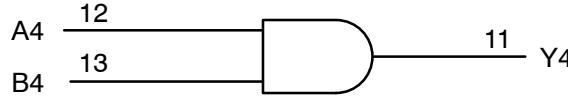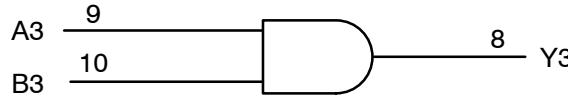
Logic Diagram

$Y = A \bullet B$ or $Y = \overline{\overline{A} + \overline{B}}$

Pin14 = V_{CC}
Pin7 = GND

Pin Connection Diagram

Left	Pin		Pin	Right
1A	1		14	V_CC
1B	2		13	4B
1Y	3		12	4A
2A	4		11	4Y
2B	5		10	3B
2Y	6		9	3A
GND	7		8	3Y

14   8

1   7

.785 (19.95) Max   .300 (7.62)

.200
(5.08)
Max

.100 (2.45)   .099 (2.5) Min

.600 (15.24)