NTE7425
Integrated Circuit
TTL – Dual 4–Input Positive NOR Gate with Strobe

Description:

The NTE7425 contains dual 4–Input positive NOR gates with strobe in a 14–Lead plastic DIP type package and performs the Boolean function:

$$Y = \overline{G(A + B + C + D)}$$

Absolute Maximum Ratings: (Note 1)

Supply Voltage, V_{CC} 7V

Input Voltage, V_{IN} 5.5V

Interemitter Voltage (Note 2) 5.5V

Operating Temperature Range, T_A .... 0°C to +70°C

Storage Temperature Range, T_{stg} .... −65°C to +150°C

Note 1. Voltage values, except interemitter voltage, are with respect to network ground terminal.
Note 2. This is the voltage between two emitters of a multiple–emitter transistor.

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	–	–	V
Low–Level Input Voltage	V_{IL}	–	–	0.8	V
High–Level Output Current	I_{OH}	–	–	−0.8	mA
Low–Level Output Current	I_{OL}	–	–	16	mA
Operating Temperature Range	T_A	0	–	+70	°C

Electrical Characteristics: (Note 3, Note 4)

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} = −0.8mA	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
High Level Input Current Data Inputs	I_{IH}	V_{CC} = MAX, V_I = 2.4V	–	–	40	µA
Strobe Inputs			–	–	160	µA
Low Level Input Current Data Inputs	I_{IL}	V_{CC} = MAX, V_I = 0.4V	–	–	−1.6	mA
Strobe Inputs			–	–	−6.4	mA
Short−Circuit Output Current	I_{OS}	V_{CC} = MAX, Note 5	−18	–	−55	mA
High Level Supply Current	I_{CCH}	V_{CC} = MAX, All Inputs at 0V	–	8	16	mA
Low Level Supply Current	I_{CCL}	V_{CC} = MAX, All Inputs at 4.5V	–	10	19	mA

Note 3. .For conditions shown as MIN or MAX, use the appropriate value specified under "Recommended Operation Conditions".

Note 4. All typical values are at V_{CC} = 5V, T_A = +25°C.

Note 5. Not more than one output should be shorted at a time.

Switching Characteristics: (V_{CC} = 5V, T_A = +25°C, N = 10 unless otherwise specified)

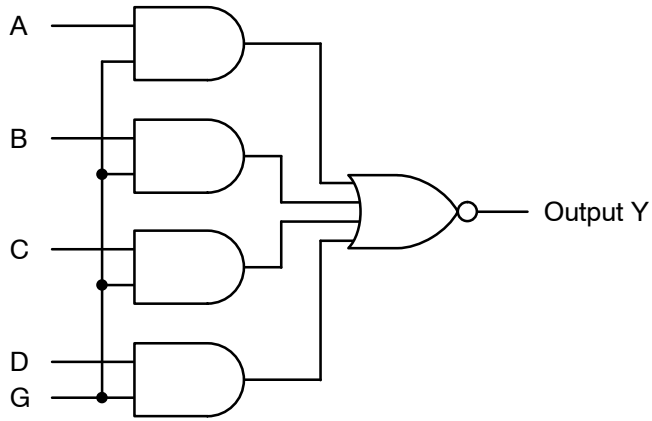| Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Propagation Delay Time	t_{PLH}	R_L = 400Ω, C_L = 15pF	–	13	22	ns
	t_{PHL}		–	8	15	ns

Truth Table:

Inputs					Output
A	B	C	D	G	Y
H	X	X	X	H	L
X	H	X	X	H	L
X	X	H	X	H	L
X	X	X	H	H	L
L	L	L	L	X	H
X	X	X	X	L	H

H = HIGH Level, L = LOW Level, X = Irrelevant

Logic Diagram

A ──┐
    ├─[AND]──┐
    │   │
B ──┤   │
    ├─[AND]──┤
    │   ├─[NOR]○── Output Y
C ──┤   │
    ├─[AND]──┤
    │   │
D ──┤   │
    ├─[AND]──┘
G ──┘

Pin Connection Diagram

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

14   8

1   7

.785 (19.95) Max

.200 (5.08) Max

.300 (7.62)

.100 (2.45)

.099 (2.5) Min

.600 (15.24)