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NTE7453 Integrated Circuit TTL – Expandable 4–Wide AND/OR Invert Gate

Description:

The NTE7453 is an expandable 4–wide AND/OR invert gate in a 14–Lead plastic DIP type package that contains expandable 4–wide AND/OR Invert gates and performs the Boolean function $Y = \overline{AB + CD + EF + GH + X}$, with X = output of NTE7460.

Absolute Maximum Ratings: (Note 1)

Supply Voltage, V_{CC} 7V
 Input Voltage 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 are with respect to network ground terminal..

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}	–	–	–0.4	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}	$V_{CC} = \text{MIN}, I_I = -12\text{mA}$	–	–	–1.5	V
High–Level Output Voltage	V_{OH}	$V_{CC} = \text{MIN}, V_{IL} = 0.8\text{V}, I_{OH} = -0.4\text{mA}$	2.4	3.4	–	V
Low–Level Output Voltage	V_{OL}	$V_{CC} = \text{MIN}, V_{IH} = 2\text{V}, I_{OL} = 16\text{mA}$	–	0.2	0.4	V
Input Current	I_I	$V_{CC} = \text{MAX}, V_I = 5.5\text{V}$	–	–	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 $V_{CC} = 5\text{V}, T_A = +25^\circ\text{C}$.

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_{OL}	$V_{CC} = MAX, \text{Note 4}$	-18	-	-55	mA
Supply Current	I_{CCH}	$V_{CC} = MAX, V_I = 0V$	-	4	8	mA
	I_{CCL}	$V_{CC} = MAX, \text{Note 5}$	-	5.1	9.5	mA
Using Expander Inputs ($V_{CC} = MIN, T_A = MIN$)						
Expander-Node Input Current	$I_{\bar{X}}$	$V_{\bar{X}} = 0.4V, I_{OL} = 16mA$	-	-	-3.1	mA
Base-Emitter Voltage of Output Transistor Q	$V_{BE(Q)}$	$I_X + I_{\bar{X}} = 0.62mA, R_{XX} = 0, I_{OL} = 16mA$	-	-	1	V
High-Level Output Voltage	V_{OH}	$I_X = 0.27mA, I_{\bar{X}} = -0.27mA, I_{OH} = -0.4mA$	2.4	3.4	-	V
Low-Level Output Voltage	V_{OL}	$I_X + I_{\bar{X}} = 0.43mA, R_{XX} = 130\Omega, I_{OL} = 16mA$	-	0.2	0.4	V

Note 2. For conditions shown as MIN or MAX, use the appropriate value specified under "Recommended Operation Conditions".

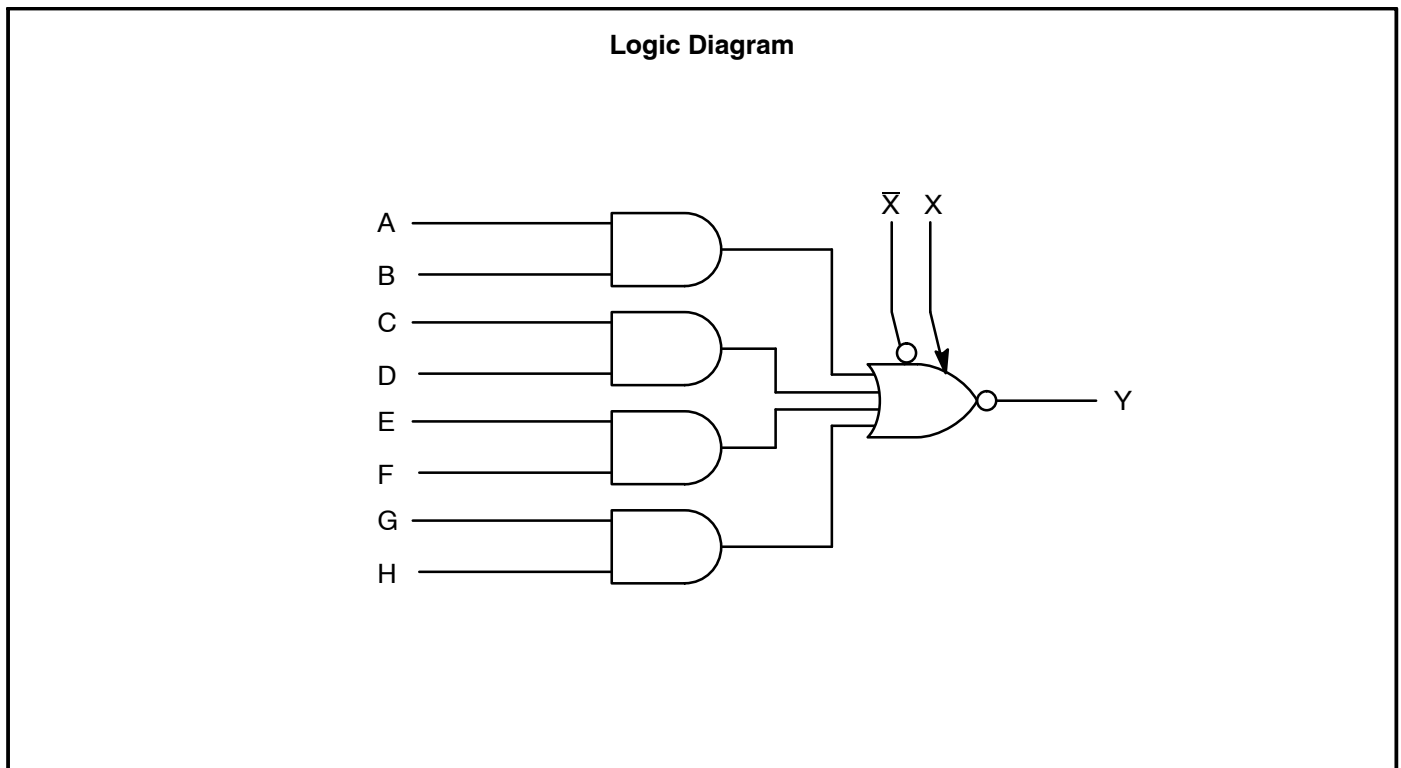
Note 3. All typical values are at $V_{CC} = 5V, T_A = +25^\circ C$.

Note 4. Not more than one output should be shorted at a time.

Note 5. All inputs of one AND gate at 4.5V, all others at GND

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Propagation Delay Time (From Any Input to Y Output)	t_{PLH}	$R_L = 400\Omega, C_L = 15pF,$ Expander pins open	-	13	22	ns
	t_{PHL}		-	8	15	ns



Pin Connection Diagram

