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NTE7450
Integrated Circuit
TTL – Dual 2–Wide 2–Input AND/OR Invert Gate
(One Gate Expandable)

Description:
The NTE7450 is a dual AND/OR invert gate in a 14–Lead plastic DIP type package that contains two independent 2–wide 2–input AND/OR Invert gates with one gate expandable. This device performs the Boolean function $Y = \overline{AB + CD + X}$, 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} = 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_{IL}	V_{CC} = MAX, Note 4	−18	−	−55	mA
Supply Current	I_{CCH}	V_{CC} = MAX, V_i = 0V	−	4	8	mA
	I_{CCL}	V_{CC} = MAX, Note 5	−	7.4	14	mA
Using Expander Inputs (V_{CC} = MIN, T_A = MIN)						
Expander−Node Input Current	$I_{\overline{X}}$	$V_{\overline{X}}$ = 0.4V, I_{OL} = 16mA	−	−	−3.1	mA
Base−Emitter Voltage of Output Transistor Q	$V_{BE(Q)}$	$I_X + I_{\overline{X}}$ = 0.62mA, $R_{\overline{X}X}$ = 0, I_{OL} = 16mA	−	−	1	V
High−Level Output Voltage	V_{OH}	I_X = 0.27mA, $I_{\overline{X}}$ = −0.27mA, I_{OH} = −0.4mA	2.4	3.4	−	V
Low−Level Output Voltage	V_{OL}	$I_X + I_{\overline{X}}$ = −0.43mA, $R_{\overline{X}X}$ = 130Ω, 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°C.

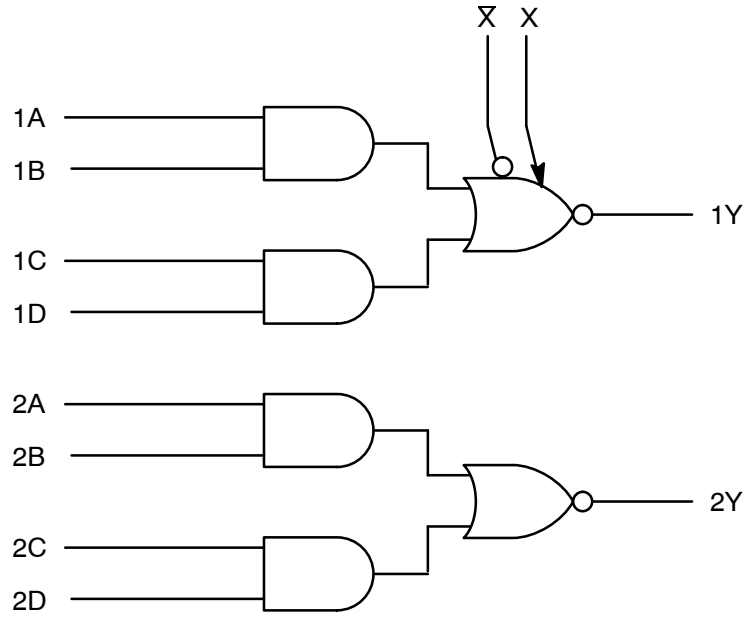
Note 4. Not more than one output should be shorted at a time.

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

Switching Characteristics: (V_{CC} = 5V, T_A = +25°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 = 400Ω, C_L = 15pF, Expander pins open	−	13	22	ns
	t_{PHL}		−	8	15	ns

Logic Diagram



Pin Connection Diagram