



ELECTRONICS, INC.
 44 FARRAND STREET
 BLOOMFIELD, NJ 07003
 (973) 748-5089
<http://www.nteinc.com>

NTE7413 Integrated Circuit TTL – Dual 4–Input Positive NAND Schmitt Trigger

Description:

The NTE7413 is a dual 4–Input NAND Schmitt trigger in a 14–Lead plastic DIP type package. The device is temperature–compensated and can be triggered from the slowest of input ramps and still give clean, jitter–free output signals.

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 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 2, Note 3)

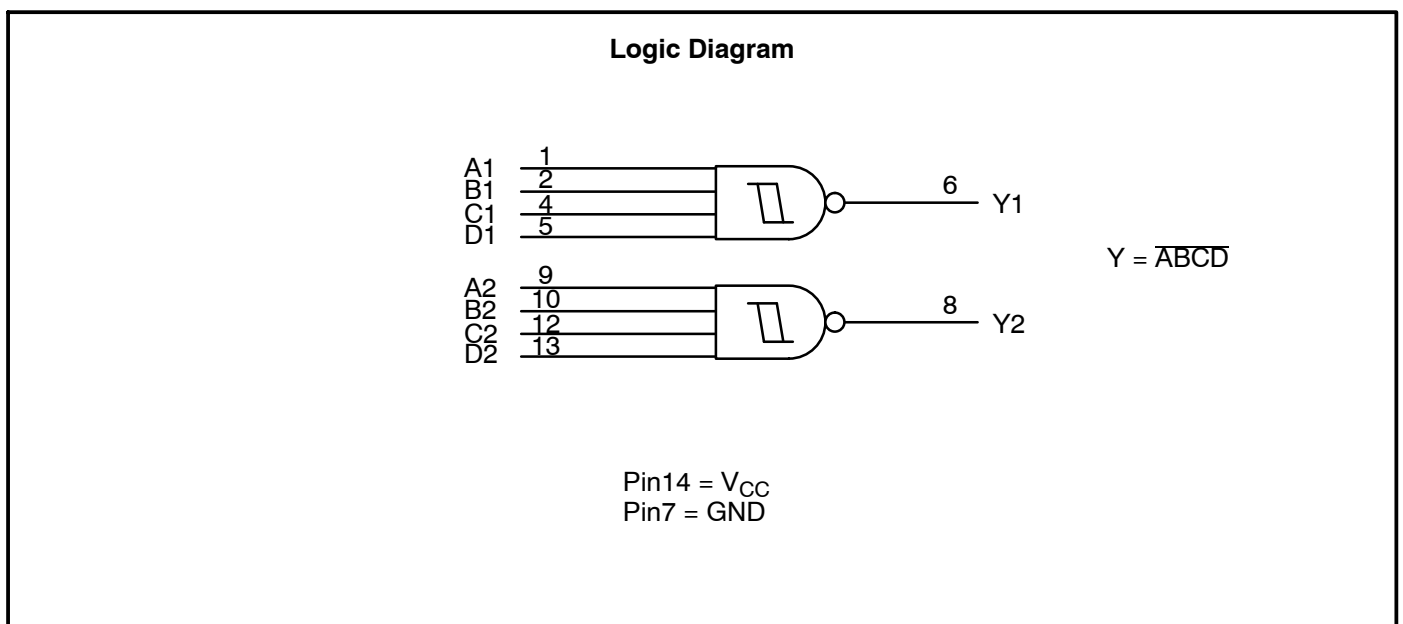
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Positive-Going Threshold Voltage	V_{T+}	$V_{CC} = 5V$	1.5	1.7	2.0	V
Negative-Going Threshold Voltage	V_{T-}	$V_{CC} = 5V$	0.6	0.9	1.1	V
Hysteresis Voltage	V_H	$V_{CC} = 5V$	0.4	0.8	-	V
Input Clamp Voltage	V_{IK}	$V_{CC} = \text{MIN}, I_I = -12\text{mA}$	-	-	-1.5	V
High Level Output Voltage	V_{OH}	$V_{CC} = \text{MIN}, V_I = 0.6V, I_{OH} = -0.8\text{mA}$	2.4	3.4	-	V
Low Level Output Voltage	V_{OL}	$V_{CC} = \text{MIN}, V_I = 12V, I_{OL} = 16\text{mA}$	-	0.2	0.4	V
Positive-Going Threshold Current	I_{T+}	$V_{CC} = 5V, V_I = V_{T+}$	-	-0.65	-	mA
Negative-Going Threshold Current	I_{T-}	$V_{CC} = 5V, V_I = V_{T-}$	-	-0.85	-	mA
Input Current	I_I	$V_{CC} = \text{MAX}, V_I = 5.5V$	-	-	1	mA
High Level Input Current	I_{IH}	$V_{CC} = \text{MAX}, V_I = 2.4V$	-	-	40	μA
Low Level Input Current	I_{IL}	$V_{CC} = \text{MAX}, V_I = 0.4V$	-	-1.0	-1.6	mA
Short-Circuit Output Current	I_{OS}	$V_{CC} = \text{MAX}, \text{Note 4}$	-18	-	-55	mA
High Level Supply Current	I_{CCH}	$V_{CC} = \text{MAX}$	-	14	23	mA
Low Level Supply Current	I_{CCL}	$V_{CC} = \text{MAX}$	-	20	32	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 $V_{CC} = 5V, T_A = +25^\circ\text{C}$.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Propagation Delay Time From Any Input to Y Output)	t_{PLH}	$R_L = 400\Omega, C_L = 15\text{pF}$	-	18	27	ns
	t_{PHL}		-	15	22	ns



Pin Connection Diagram

