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NTE74S04 Integrated Circuit TTL – Hex Inverter

Description:

The NTE74S04 contains six independent inverters 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}	–	–	–1	mA
Low-Level Output Current	I_{OL}	–	–	20	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}	$V_{CC} = \text{MIN}$, $I_I = -18\text{mA}$	–	–	–1.2	V
High Level Output Voltage	V_{OH}	$V_{CC} = \text{MIN}$, $V_{IL} = 0.8\text{V}$, $I_{OH} = -1\text{mA}$	2.7	3.4	–	V
Low Level Output Voltage	V_{OL}	$V_{CC} = \text{MIN}$, $V_{IH} = 2\text{V}$, $I_{OL} = 20\text{mA}$	–	–	0.5	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}	$V_{CC} = \text{MAX}, V_I = 2.7\text{V}$	–	–	50	μA
Low Level Input Current	I_{IL}	$V_{CC} = \text{MAX}, V_I = 0.5\text{V}$	–	–	–2	mA
Short-Circuit Output Current	I_{OS}	$V_{CC} = \text{MAX}$, Note 4	–40	–	–100	mA
High Level Supply Current	I_{CCH}	$V_{CC} = \text{MAX}, V_I = 0$	–	15	24	mA
Low Level Supply Current	I_{CCL}	$V_{CC} = \text{MAX}, V_I = 4.5\text{V}$	–	30	54	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 $V_{CC} = 5\text{V}$, $T_A = +25^\circ\text{C}$.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Propagation Delay Time From A Input to Y Output)	t_{PLH}	$R_L = 280\Omega, C_L = 15\text{pF}$	–	3.0	4.5	ns
	t_{PHL}		–	3.0	5.0	ns
	t_{PLH}	$R_L = 280\Omega, C_L = 50\text{pF}$	–	4.5	–	ns
	t_{PHL}		–	5.0	–	ns

Function Table (Each Inverter):

Input	Output
A	Y
H	L
L	H

H = HIGH Voltage Level

L = LOW Voltage Level

Pin Connection Diagram

