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NTE74125

Integrated Circuit

TTL – Quad Bus Buffer with 3–State Outputs

Description:

The NTE74125 is a quad bus buffer in a 14–Lead plastic DIP type package that features three–state outputs that, when enabled, have the low impedance characteristics of a TTL output with additional drive capability at high logic levels to permit driving heavily loaded bus lines without external pull–up resistors, when disabled, both output transistors are turned off presenting a high–impedance state to the bus so the output will act neither as a significant load nor as a driver. The device outputs are disabled when $\overline{G}$ is high.

Features:

- Quad Bus Buffers
- 3–State Outputs
- Separate Controls for Each Channel

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 Input Voltage	V_{IH}	2	–	–	V
Low–Level Input Voltage	V_{IL}	–	–	0.8	V
High–Level Output Current	I_{OH}	–	–	–5.2	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 _{IH} = 2V, V _{IL} = 0.8V, I _{OH} = −5.2mA	2.4	3.1	−	V	
Low Level Output Voltage	V _{OL}	V _{CC} = MIN, V _{IH} = 2V, V _{IL} = 0.8V, I _{OL} = 16mA	−	−	0.4	V	
Output Off Current	I _{OZ}	V _{CC} = MAX, V _{IH} = 2V, V _{IL} = 0.8V	V _O = 2.4V	−	−	40	μA
		V _O = 0.4V	−	−	−40	μA	
Input Current	I _I	V _{CC} = MAX, V _I = 5.5V	−	−	1	mA	
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 _{OS}	V _{CC} = MAX, Note 4	−28	−	−70	mA	
Supply Current	I _{CC}	V _{CC} = MAX, Note 5	−	32	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.

Note 5. Data inputs = 0V, Output controls = 4.5V.

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 Data to Output	t_{PLH}	$R_L = 400\Omega, C_L = 50\text{pF}$	–	8	13	ns
	t_{PHL}		–	12	18	ns
Output Enable Time	t_{PZH}		–	11	17	ns
	t_{PZL}		–	16	25	ns
Output Disable Time	t_{PHZ}	$R_L = 400\Omega, C_L = 5\text{pF}$	–	5	8	ns
	t_{PLZ}		–	7	12	ns

Pin Connection Diagram

