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NTE74LS125A Integrated Circuit TTL – Quad Bus Buffer with 3–State Outputs

Description:

The NTE74LS125A 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 \bar{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}	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	–	–	V
Low–Level Input Voltage	V_{IL}	–	–	0.8	V
High–Level Output Current	I_{OH}	–	–	–2.6	mA
Low–Level Output Current	I_{OL}	–	–	24	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}	$V_{CC} = \text{MIN}, I_I = -18\text{mA}$	-	-	-1.5	V	
High Level Output Voltage	V_{OH}	$V_{CC} = \text{MIN}, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}, I_{OH} = -2.6\text{mA}$	2.4	-	-	V	
Low Level Output Voltage	V_{OL}	$V_{CC} = \text{MIN}, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}$	$I_{OL} = 12\text{mA}$	-	0.25	0.4	V
			$I_{OL} = 24\text{mA}$	-	0.35	0.5	V
Output Off Current	I_{OZ}	$V_{CC} = \text{MAX}, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}$	$V_O = 2.4\text{V}$	-	-	20	μA
			$V_O = 0.4\text{V}$	-	-	-20	μA
Input Current	I_I	$V_{CC} = \text{MAX}, V_I = 7\text{V}$	-	-	0.1	mA	
High Level Input Current	I_{IH}	$V_{CC} = \text{MAX}, V_I = 2.7\text{V}$	-	-	20	μA	
Low Level Input Current	I_{IL}	$V_{CC} = \text{MAX}, V_I = 0.4\text{V}$	\bar{G} Inputs	-	-	-0.2	mA
			A Inputs	-	-	-0.4	mA
Short-Circuit Output Current	I_{OS}	$V_{CC} = \text{MAX}, \text{Note 4}$	-40	-	-225	mA	
Supply Current	I_{CC}	$V_{CC} = \text{MAX}, \text{Note 5}$	-	11	20	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}	$R_L = 667\Omega, C_L = 45\text{pF}$	-	9	15	ns
	t_{PHL}		-	7	18	ns
Output Enable Time	t_{PZH}		-	12	20	ns
	t_{PZL}		-	15	25	ns
Output Disable Time	t_{PHZ}	$R_L = 667\Omega, C_L = 5\text{pF}$	-	-	20	ns
	t_{PLZ}		-	-	20	ns

Pin Connection Diagram



