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## NTE74368 Integrated Circuit TTL – Hex Bus Driver with 3–State Outputs

**Description:**

The NTE74368 is a hex bus driver in a 16–Lead plastic DIP type package designed specifically to improve both the performance and density of three–state memory address drivers, clock drivers, and bus oriented receivers and transmitters. The designer has a choice of selected combinations of inverting and non–inverting outputs, symmetrical  $\overline{G}$  (active–low control) inputs.

This device features high fan–out, improved fan–in, and can be used to drive terminated lines down to 133 ohms.

**Features:**

- 3–State Outputs Drive Bus Lines or Buffer Memory Address Registers
- Inverting Outputs

**Absolute Maximum Ratings:** (Note 1)

Supply Voltage, $V_{CC}$ .....	7V
DC Input Voltage, $V_{IN}$ .....	5.5V
Voltage Applied to Disable 3–State Output .....	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	$I_{OL}$	–	–	32	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	$V_{IK}$	$V_{CC} = \text{MIN}, I_I = -12\text{mA}$	-	-	-1.5	V	
High Level Output Voltage	$V_{OH}$	$V_{CC} = \text{MIN}, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}, I_{OH} = \text{MAX}$	2.4	3.1	-	V	
Low Level Output Voltage	$V_{OL}$	$V_{CC} = \text{MIN}, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}, I_{OL} = 32\text{mA}$	-	-	0.4	V	
Off-State Output Current	$I_{OZ}$	$V_{CC} = \text{MAX}, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}$	$V_O = 2.4\text{V}$	-	-	40	$\mu\text{A}$
			$V_O = 0.4\text{V}$	-	-	-40	$\mu\text{A}$
Input Current	$I_I$	$V_{CC} = \text{MAX}, V_I = 5.5\text{V}$	-	-	1	mA	
High Level Input Current	$I_{IH}$	$V_{CC} = \text{MAX}, V_I = 2.4\text{V}$	-	-	40	$\mu\text{A}$	
Low Level Input Current A Inputs	$I_{IL}$	$V_{CC} = \text{MAX}, V_I = 0.5\text{V}, \text{Either } \bar{G} \text{ Input at } 2\text{V}$	-	-	-40	$\mu\text{A}$	
		$V_{CC} = \text{MAX}, V_I = 0.4\text{V}, \text{Both } \bar{G} \text{ Input at } 0.4\text{V}$	-	-	-1.6	mA	
		$V_{CC} = \text{MAX}, V_I = 0.4\text{V}$	-	-	-1.6	mA	
$\bar{G}$ Inputs							
Short-Circuit Output Current	$I_{OS}$	$V_{CC} = \text{MAX}, \text{Note 4}$	-40	-	-130	mA	
Supply Current	$I_{CC}$	$V_{CC} = \text{MAX}, \text{Data Outputs} = 0\text{V}, \text{Output Controls} = 4.5\text{V}$	-	59	77	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.

**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 Any Input to Y Output)	$t_{PLH}$	$R_L = 400\Omega, C_L = 50\text{pF}$	-	-	17	ns
	$t_{PHL}$		-	-	16	ns
Output Enable Time (From Any Input to Y Output)	$t_{PZH}$		-	-	35	ns
	$t_{PZL}$	-	-	37	ns	
Output Disable Time (From Any Input to Y Output)	$t_{PHZ}$	$R_L = 400\Omega, C_L = 5\text{pF}$	-	-	11	ns
	$t_{PLZ}$		-	-	27	ns

### Pin Connection Diagram

