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## NTE7417 Integrated Circuit TTL – Hex Buffer/Driver with Open Collector High Voltage Outputs

**Description:**

The NTE7417 is a hex buffer/driver in a 14-Lead plastic DIP type package that features high voltage open collector outputs to interface with high level circuits (such as MOS), or for driving high current loads, and also is characterized for use as a buffer for driving TTL inputs.

This device is compatible with most TTL families. Inputs are diode-clamped to minimize transmission effects, which simplifies design. Typical power dissipation is 145mW, and average propagation delay time is 14ns.

**Features:**

- Converts TTL Voltage Levels to MOS Levels
- High Sink-Current Capability
- Input Clamping Diodes Simplify System Design
- Open-Collector Driver for Indicator Lamps and Relays
- Inputs Fully Compatible with Most TTL Circuits

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

Supply Voltage, $V_{CC}$ .....	7V
DC Input Voltage, $V_{IN}$ .....	5.5V
Output Voltage (Note 2), $V_O$ .....	15V
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.

Note 2. This is the maximum voltage that should be applied to any output when it is in the off state.

**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 Voltage	$V_{OH}$	-	-	15	V
Low-Level Output Current	$I_{OL}$	-	-	40	mA
Operating Temperature Range	$T_A$	0	-	+70	°C

**Electrical Characteristics:** (Note 3, Note 4)

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 Current	$I_{OH}$	$V_{CC} = \text{MIN}, V_{IL} = 0.8\text{V}, V_{OH} = 30\text{V}$	-	-	0.25	mA
Low Level Output Voltage	$V_{OL}$	$V_{CC} = \text{MIN}, V_{IH} = 2\text{V}, I_{OL} = 16\text{mA}$	-	-	0.4	V
		$V_{CC} = \text{MIN}, V_{IH} = 2\text{V}, I_{OL} = 40\text{mA}$	-	-	0.7	V
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	$I_{IL}$	$V_{CC} = \text{MAX}, V_I = 0.4\text{V}$	-	-	-1.6	mA
High Level Supply Current	$I_{CCH}$	$V_{CC} = \text{MAX}$	-	29	41	mA
Low Level Supply Current	$I_{CCL}$	$V_{CC} = \text{MAX}$	-	21	30	mA

Note 3. For conditions shown as MIN or MAX, use the appropriate value specified under "Recommended Operation Conditions".

Note 4. All typical values are at  $V_{CC} = 5\text{V}, T_A = +25^\circ\text{C}$ .

**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)	$t_{PLH}$	$R_L = 110\Omega, C_L = 15\text{pF}$	-	6	10	ns
	$t_{PHL}$		-	20	30	ns

**Pin Connection Diagram**



