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# NTE74LS32
# Integrated Circuit
# TTL – Quad 2–Input Positive OR Gate

**Description:**
The NTE74LS32 contains four independent 2–Input OR gates 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 | $I_{OH}$ | – | – | –0.4 | mA |
| Low–Level Output Current | $I_{OL}$ | – | – | 8 | 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, $I_I$ = –18mA | – | – | –1.5 | V |
| High Level Output Voltage | $V_{OH}$ | $V_{CC}$ = MIN, $V_{IH}$ = 2V, $I_{OH}$ = –0.4mA | 2.7 | 3.4 | – | V |
| Low Level Output Voltage | $V_{OL}$ | $V_{CC}$ = MIN, $V_{IL}$ = MAX, $I_{OL}$ = 4mA | – | 0.25 | 0.4 | V |
| | | $V_{CC}$ = MIN, $V_{IL}$ = MAX, $I_{OL}$ = 8mA | – | 0.35 | 0.5 | V |
| Input Current | $I_I$ | $V_{CC}$ = MAX, $V_I$ = 7V | – | – | 0.1 | 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 $V_{CC}$ = 5V, $T_A$ = +25°C.

**Electrical Characteristics (Cont'd):** (Note 2, Note 3)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| High Level Input Current | $I_{IH}$ | $V_{CC}$ = MAX, $V_I$ = 2.7V | – | – | 20 | μA |
| Low Level Input Current | $I_{IL}$ | $V_{CC}$ = MAX, $V_I$ = 0.4V | – | – | −0.4 | mA |
| Short−Circuit Output Current | $I_{OS}$ | $V_{CC}$ = MAX, Note 4 | −20 | – | −100 | mA |
| High Level Supply Current | $I_{CCH}$ | $V_{CC}$ = MAX, Note 5 | – | 3.1 | 6.2 | mA |
| Low Level Supply Current | $I_{CCL}$ | $V_{CC}$ = MAX, $V_I$ = 0V | – | 4.9 | 9.8 | 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 $V_{CC}$ = 5V, $T_A$ = +25°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. One input at 4.5V, all others at GND.

**Switching Characteristics:** ($V_{CC}$ = 5V, $T_A$ = +25°C unless otherwise specified)

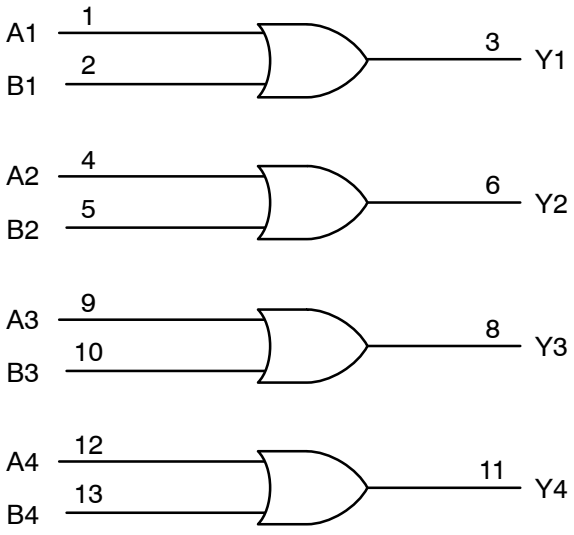
| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Propagation Delay Time From A or B Input to Y Output) | $t_{PLH}$, $t_{PHL}$ | $R_L$ = 2kΩ, $C_L$ = 15pF | – | 14 | 22 | ns |

**Truth Table (Each Gate):**

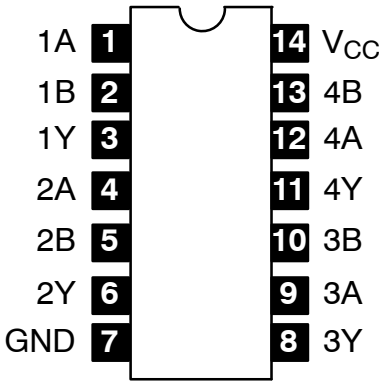
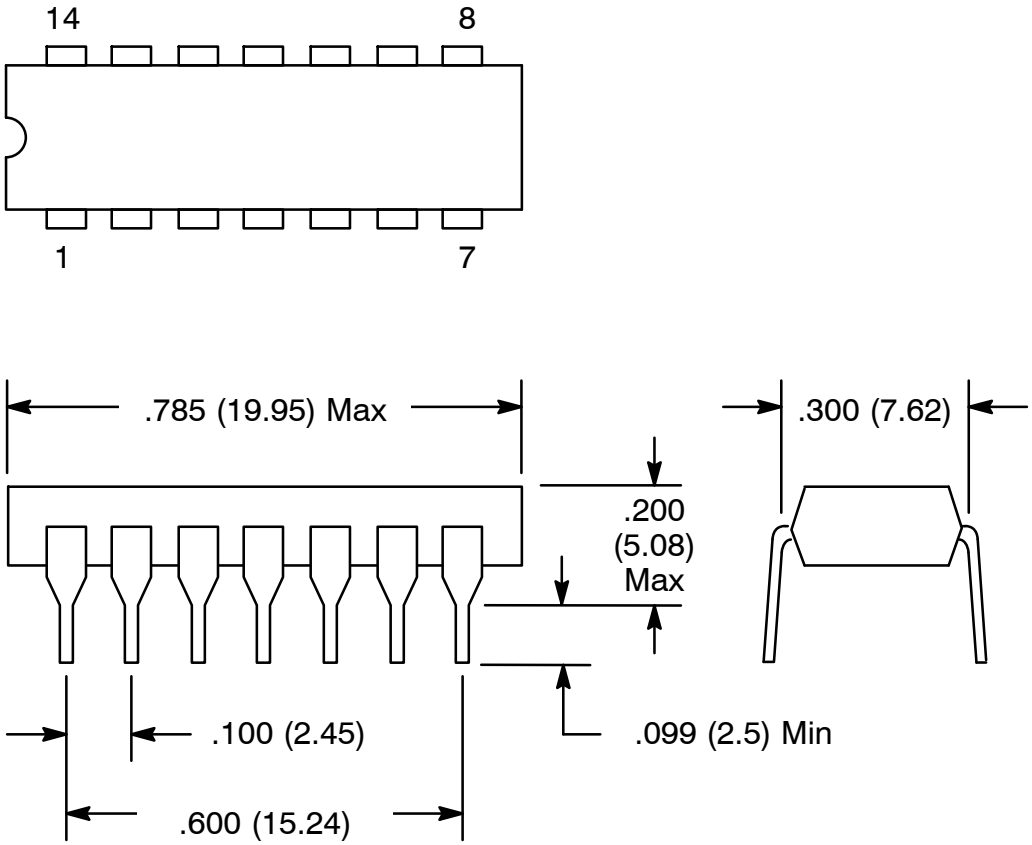
| Inputs | | Output |
|---|---|---|
| **A** | **B** | **Y** |
| H | X | H |
| X | H | H |
| L | L | L |

H = HIGH Voltage Level
L = LOW Voltage Level
X = Don't Care

**Logic Diagram**




$Y = \overline{\overline{A} \bullet \overline{B}}$ or Y = A + B

Pin14 = $V_{CC}$
Pin7 = GND

**Pin Connection Diagram**