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# NTE2631
# Integrated Circuit
# Quad Differential Line Driver

**Functional Description:**

The NTE2631 is a quad differential line driver constructed using Advanced Low−Power Schottky processing in a 16−Lead DIP type package designed for digital data transmission over balanced lines. This device meets all the requirements of EIA standard RS−422 and federal standard 1020 and is designed to provide unipolar differential drive to twisted−pair or parallel−wire transmission lines.

The NTE2631 provides an enable and disable function common to all four drivers and features 3−state outputs and logical OR−ed complemtary enable inputs. The inputs are all LS cxompatible and are all one unit load.

**Features:**

- 2.0ns Output Skew Typical
- Operation from Single +5V Supply
- Output won't Load Line when $V_{CC}$ = 0
- Four Line Drivers in One Package for Maximum Package Density
- Output Short−Circuit Protection
- Complementary Outputs
- Meets the Requirements of EIA Standard RS−422
- High Output Drive Capability for 100Ω Terminated Transmission Lines
- Advanced Low−Power Schottky Processing

**Absolute Maximum Ratings**: (above which the useful life may be impaired)

Supply Voltage . . . . . 7.0V
Input Voltage . . . . . 7.0V
Output Voltage . . . . . 5.5V
Storage Temperature Range . . . . . −65°C to +165°C

**Electrical Characteristics**: ($V_{CC}$ = 5V ±5%, $T_A$ = 0° to +70°C, Note 1 unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Output HIGH Voltage | $V_{OH}$ | $V_{CC}$ = Min, $I_{OH}$ = −20mA | 2.5 | 3.2 | – | V |
| Output LOW Voltage | $V_{OL}$ | $V_{CC}$ = Min, $I_{OL}$ = 20mA | – | 0.32 | 0.5 | V |
| Input HIGH Voltage | $V_{IH}$ | $V_{CC}$ = Min | 2.0 | – | – | V |
| Input LOW Voltage | $V_{IL}$ | $V_{CC}$ = Max | – | – | 0.8 | V |
| Input LOW Current | $I_{IL}$ | $V_{CC}$ = Max, $V_{IN}$ = 0.4V | – | −0.20 | −0.36 | mA |
| Input HIGH Current | $I_{IH}$ | $V_{CC}$ = Max, $V_{IN}$ = 2.7V | – | 0.5 | 20 | μA |
| Input Reverse Current | $I_I$ | $V_{CC}$ = Max, $V_{IN}$ = 7.0V | – | 0.001 | 0.1 | mA |
| Off−State (High Impedance) Output Current | $I_O$ | $V_{CC}$ = Max, $V_O$ = 5.5V | – | 0.5 | 20 | μA |
| | | $V_{CC}$ = Max, $V_O$ = 0.5V | – | 0.5 | −20 | μA |
| Input Clamp Voltage | $V_I$ | $V_{CC}$ = Min, $I_{IN}$ = 18mA | – | −0.8 | −1.5 | V |
| Output Short Circuit Current | $I_{SC}$ | $V_{CC}$ = Max | −30 | −60 | −150 | mA |
| Power Supply Current | $I_{CC}$ | $V_{CC}$ = Max, all outputs disabled | – | 60 | 80 | mA |
| Input to Output | $t_{PLH}$ | $V_{CC}$ = 5V, $T_A$ = +25°C, Load = Note 2 | – | 12 | 20 | ns |
| | $t_{PHL}$ | | – | 12 | 20 | ns |
| Output to Output | SKEW | | – | 2.0 | 6.0 | ns |
| Enable to Output | $t_{LZ}$ | $V_{CC}$ = 5V, $T_A$ = +25°C, $C_L$ = 10pF | – | 23 | 35 | ns |
| | $t_{HZ}$ | | – | 17 | 30 | ns |
| | $t_{ZL}$ | $V_{CC}$ = 5V, $T_A$ = +25°C, Load = Note 2 | – | 35 | 45 | ns |
| | $t_{ZH}$ | | – | 30 | 40 | ns |

Note 1. All typical values are $V_{CC}$ = 5V, $T_A$ = +25°C.

Note 2. $C_L$ = 30pF, $V_{IN}$ = 1.3V to $V_{OUT}$ = 1.3V, $V_{PULSE}$ = 0V to +3.0V.

**Pin Connection Diagram**