

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 complementary enable inputs. The inputs are all LS compatible 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 100 Ω 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: ($V_{CC} = 5V \pm 5\%$, $T_A = 0^\circ$ to $+70^\circ\text{C}$, Note 1 unless otherwise specified)

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

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

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

Pin Connection Diagram

