

NTE2632 Integrated Circuit Quad Differential Line Receiver

Functional Description:

The NTE2632 is a quad line receiver constructed using Advanced Low-Power Schottky processing in a 16-Lead DIP type package designed to meet the requirements of RS-422 and RS-423, and federal standards 1020 and 1030 for balanced and unbalanced digital data transmission. This device features an input sensitivity of 200mV over the input voltage range of $\pm 7V$.

The NTE2632 provides an enable and disable function common to all four receivers and features 3-state outputs with 8mA sink capability. This device also incorporates a fail safe input-output relationship which keeps the outputs high when the inputs are open.

Features:

- Input Voltage Range of 7V (differential or common mode)
- $\pm 0.2V$ Sensitivity over the Input Voltage Range
- Meets all the Requirements of RS-422 and RS-423
- 6k Minimum Input Impedance
- 30mV Input Hysteresis
- Operation from Single +5V Supply
- Fail Safe Input-Output Relationship. Output Always High when Inputs are Open
- 3-State Drive, with Choice of Complementary Output Enables, for Receiving Directly onto a Data Bus
- Propagation Delay 17ns Typical
- Advanced Low-Power Schottky Processing
- 100% Reliability Assurance Screening Requirements

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

Supply Voltage	7.0V
Common Mode Range	$\pm 25V$
Differential Input Voltage	$\pm 25V$
Enable Voltage	7.0V
Output Sink Current	50mA
Storage Temperature Range	$-65^{\circ}C$ to $+165^{\circ}C$

Electrical Characteristics: ($V_{CC} = 5V \pm 5\%$, $T_A = 0^\circ$ to $+70^\circ C$, Note 1 unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Differential Input Voltage	V_{TH}	$V_{OUT} = V_{OL}$ or V_{OH} , $-7V \leq V_{CM} \leq +7V$	0.2	0.06	0.2	V
Input Resistance	R_{IN}	$-15V \leq V_{CM} \leq +15V$ (One input AC ground)	6.0	8.5	–	$k\Omega$
Input Current (Under Test)	I_{IN}	$V_{IN} = +15V$, Other input $-15V \leq V_{IN} \leq +15V$	–	–	2.3	mA
		$V_{IN} = -15V$, Other input $-15V \leq V_{IN} \leq +15V$	–	–	-2.8	mA
Output HIGH Voltage	V_{OH}	$V_{CC} = \text{Min}$, $\Delta V_{IN} = +1V$, $\overline{V_{ENABLE}} = 0.8V$, $I_{OH} = -440\mu A$	2.7	3.4	–	V
Output LOW Voltage	V_{OL}	$V_{CC} = \text{Min}$, $\Delta V_{IN} = -1V$, $\overline{V_{ENABLE}} = 0.8V$, $I_{OL} = 4mA$	–	–	0.4	V
		$V_{CC} = \text{Min}$, $\Delta V_{IN} = -1V$, $\overline{V_{ENABLE}} = 0.8V$, $I_{OL} = 8mA$	–	–	0.45	V
Enable LOW Voltage	V_{IL}		–	–	0.8	V
Enable HIGH Voltage	V_{IH}		2.0	–	–	V
Enable Clamp Voltage	V_I	$V_{CC} = \text{Min}$, $I_{IN} = -18mA$	–	–	-1.5	V
Off-State (High Impedance) Output Current	I_O	$V_{CC} = \text{Max}$, $V_O = 2.4V$	–	–	+20	μA
		$V_{CC} = \text{Max}$, $V_O = 0.4V$	–	–	-20	μA
Enable LOW Current	I_{IL}	$V_{IN} = 0.4V$	–	-0.2	-0.36	mA
Enable HIGH Current	I_{IH}	$V_{IN} = 2.7V$	–	0.5	20	μA
Enable Input High Current	I_I	$V_{IN} = 5.5V$	–	1	100	μA
Output Short Circuit Current	I_{SC}	$V_O = 0$, $V_{CC} = \text{Max}$, $\Delta V_{IN} = +1V$	-15	-50	-85	mA
Power Supply Current	I_{CC}	$V_{CC} = \text{Max}$, All $V_{IN} = \text{GND}$, Outputs Disabled	–	52	70	mA
Input Hysteresis	V_{HYST}	$T_A = +25^\circ C$, $V_{CC} = 5V$, $V_{CM} = 0$	–	30	–	mV
Input to Output	t_{PLH}	$T_A = +25^\circ C$, $V_{CC} = 5V$, $C_L = 15pF$	–	17	25	ns
	t_{PHL}		–	17	25	ns
Enable to Output	t_{LZ}	$T_A = +25^\circ C$, $V_{CC} = 5V$, $C_L = 5pF$	–	20	30	ns
	t_{HZ}		–	15	22	ns
	t_{LZ}	$T_A = +25^\circ C$, $V_{CC} = 5V$, $C_L = 15pF$	–	15	22	ns
	t_{HZ}		–	15	22	ns

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

Pin Connection Diagram

