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NTE74150 Integrated Circuit Transistor Logic (TTL) 1-Line-to-16-Line Data Selectors/Multiplexers 24-Lead DIP Type Package

Description:

The NTE74150 is a data selectors/multiplexer in a 24-Lead DIP type package that contain full on-chip decoding to select the desired data source. This device selects one-of-sixteen data sources and has a strobe input which must be at a LOW logic level to enable these devices. A HIGH level at the strobe forces the W output HIGH and the Y output (as applicable) LOW. The NTE74150 features an inverted (W) output only.

Features:

- 150 Selects One-of-Sixteen Data Lines
- Performs Parallel-to-Serial Conversion
- Permits Multiplexing from N Lines to One Line
- Typical Average Propagation Delay Time, Data Input to W Output: 11 ns
- Typical Power Dissipation: 200 mW

Absolute Maximum Ratings: (Note 1)

Supply Voltage, V_{CC} 7V
DC Input Voltage, V_{IN} 5.5V
Operating Temperature Range, T_A 0° to +70°C
Storage Temperature Range, T_{stg} -65° to +150°C

Note 1. Values beyond which the safety of the device cannot be guaranteed. The device should not be operated at these limits. The parametric values defined in the Electrical Characteristics tables are not guaranteed at the absolute maximum ratings. The "Recommended Operating Conditions" table will define the conditions for actual device operation.

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	–	–	V
Low-Level Input Voltage	V_{IL}	–	–	0.8	V
High-Level Output Current	I_{OH}	–	–	–0.8	mA
Low-Level Output Current	I_{OL}	–	–	16	mA
Free Air Operating Temperature	T_A	0	–	+70	°C

Electrical Characteristics: (Note 2, Note 3)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Clamp Voltage	V_{IK}	$V_{CC} = \text{MIN}, I_I = -12\text{mA}$	–	–	–1.5	V
High Level Output Voltage	V_{OH}	$V_{CC} = \text{MIN}, V_{IH} = \text{MIN}, V_{IL} = \text{MAX}, I_{OH} = \text{MAX}$	2.4	–		V
Low Level Output Voltage	V_{OL}	$V_{CC} = \text{MIN}, V_{IH} = \text{MIN}, V_{IL} = \text{MAX}, I_{OL} = \text{MAX}$	–	0.2	0.4	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	μA
Low Level Input Current	I_{IL}	$V_{CC} = \text{MAX}, V_I = 0.4\text{V}$	–	–	–1.6	mA
Short-Circuit Output Current	I_{OS}	$V_{CC} = \text{MAX}, \text{Note 4}$	–18	–	–55	mA
Supply Current	I_{CC}	$V_{CC} = \text{MAX}, \text{Note 5}$	–	40	68	mA

Note 2. For conditions shown as MIN or MAX, use the appropriate value specified under “Recommended Operation Conditions”.

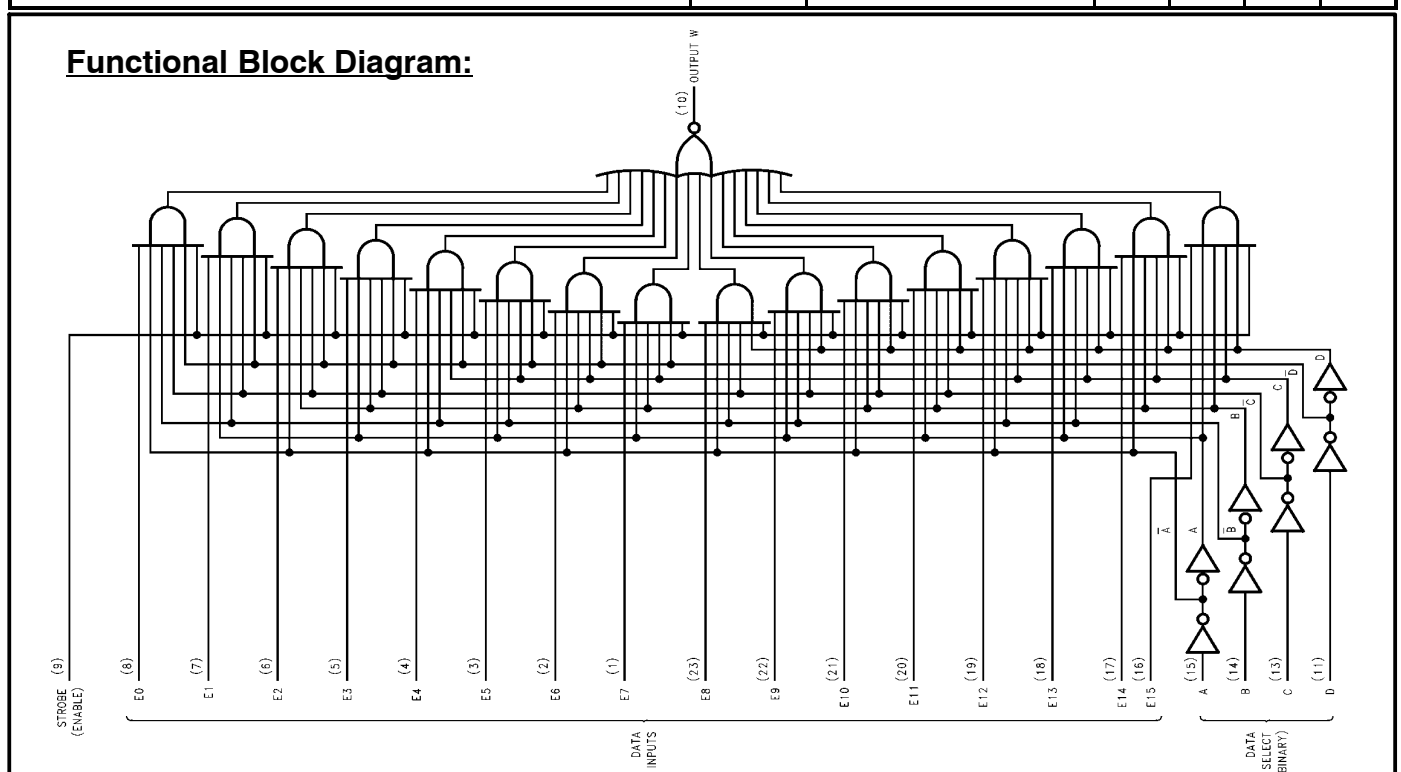
Note 3. All typical values are at $V_{CC} = 5\text{V}$, $T_A = +25^\circ\text{C}$.

Note 4. Not more than one output should be shorted at a time

Note 5. I_{CC} is measured with the strobe and data select inputs at 4.5V, all other inputs and outputs open.

Switching Characteristics: ($T_A = +25^\circ\text{C}$, $V_{CC} = 5\text{V}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Propagation Delay Time, Low-to-High-Level Output, Select to W	t_{PLH}	$C_L = 15\text{pF}, R_L = 400\Omega$	–	–	35	ns
Propagation Delay Time, High-to-Low-Level Output, Select to W	t_{PHL}		–	–	33	ns
Propagation Delay Time, Low-to-High-Level Output, Strobe to W	t_{PLH}		–	–	24	ns
Propagation Delay Time, High-to-Low-Level Output, Strobe to W	t_{PHL}		–	–	30	ns
Propagation Delay Time, Low-to-High-Level Output, E0-E15 to W	t_{PLH}		–	–	20	ns
Propagation Delay Time, High-to-Low-Level Output, E0-E15 to W	t_{PHL}		–	–	14	ns

Functional Block Diagram:

Function Table:

Inputs					Outputs
Select				Strobe	
D	C	B	A		
X	X	X	X	H	H
L	L	L	L	L	$\overline{E0}$
L	L	L	H	L	$\overline{E1}$
L	L	H	L	L	$\overline{E2}$
L	L	H	H	L	$\overline{E3}$
L	H	L	L	L	$\overline{E4}$
L	H	L	H	L	$\overline{E5}$
L	H	H	L	L	$\overline{E6}$
L	H	H	H	L	$\overline{E7}$
H	L	L	L	L	$\overline{E8}$
H	L	L	H	L	$\overline{E9}$
H	L	H	L	L	$\overline{E10}$
H	L	H	H	L	$\overline{E11}$
H	H	L	L	L	$\overline{E12}$
H	H	L	H	L	$\overline{E13}$
H	H	H	L	L	$\overline{E14}$
H	H	H	H	L	$\overline{E15}$

H = High level, L = Low level, X = Don't Care,

$\overline{E0}$, $\overline{E1}$... $\overline{E15}$ = the complement of the level of the respective E input

Pin Connection Diagram:

Output 0	1	24	V _{CC}
Output 1	2	23	Input A
Output 2	3	22	Input B
Output 3	4	21	Input C
Output 4	5	20	Input D
Output 5	6	19	Strobe G2
Output 6	7	18	Strobe G1
Output 7	8	17	Output 15
Output 8	9	16	Output 14
Output 9	10	15	Output 13
Output 10	11	14	Output 12
GND	12	13	Output 11

