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NTE74LS158 Integrated Circuit TTL – Quad 2–Line–to–1–Line Data Selector/Demultiplexer

Description:

The NTE74LS158 is a quad 1–line–to–4–line data selector/multiplexer in a 16–Lead plastic DIP type package that contains inverters and drivers to supply full on–chip data selection to the four output gates. A separate strobe input is provided. A 4–bit word is selected from one of two sources and is routed to the four outputs. The NTE74LS158 presents inverted data outputs to minimize propagation delay time.

Features:

- Buffered Inputs and Outputs

Applications:

- Expand Any Data Input Point
- Multiplex Dual Data Buses
- Generate Four Functions of Two variables (One Variable is Common)
- Source Programmable Counters

Absolute Maximum Ratings: (Note 1)

Supply Voltage, V_{CC}	7V
DC Input Voltage, V_{IN}	7V
Power Dissipation, P_D	24mW
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 Output Current	I_{OH}	–	–	–400	μA
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	
High Level Input Voltage	V_{IH}		2	-	-	V	
Low Level Input Voltage	V_{IL}		-	-	0.8	V	
Input Clamp Voltage	V_{IK}	$V_{CC} = \text{MIN}, I_I = -18\text{mA}$	-	-	-1.5	V	
High Level Output Voltage	V_{OH}	$V_{CC} = \text{MIN}, V_{IH} = 2\text{V}, V_{IL} = \text{MAX}, I_{OH} = -400\mu\text{A}$	2.7	3.4	-	V	
Low Level Output Voltage	V_{OL}	$V_{CC} = \text{MIN}, V_{IH} = 2\text{V}, V_{IL} = \text{MAX}$	$I_{OL} = 4\text{mA}$	-	0.25	0.4	V
			$I_{OL} = 8\text{mA}$	-	0.35	0.5	V
Input Current	I_I	$V_{CC} = \text{MAX}, V_I = 7\text{V}$	\bar{A}/\bar{B} or \bar{G}	-	-	0.2	mA
			A or B	-	-	0.1	mA
High Level Input Current	I_{IH}	$V_{CC} = \text{MAX}, V_I = 2.7\text{V}$	\bar{A}/\bar{B} or \bar{G}	-	-	40	μA
			A or B	-	-	20	μA
Low Level Input Current	I_{IL}	$V_{CC} = \text{MAX}, V_I = 0.4\text{V}$	\bar{A}/\bar{B} or \bar{G}	-	-	-0.8	mA
			A or B	-	-	-0.4	mA
Short-Circuit Output Current	I_{OS}	$V_{CC} = \text{MAX}, \text{Note 4}$	-20	-	-100	mA	
Supply Current	I_{CC}	$V_{CC} = \text{MAX}, \text{Note 5}$	-	4.8	8	mA	
		$V_{CC} = \text{MAX}, \text{All A Inputs at } 4.5\text{V}, \text{All Others at } 0\text{V}$	-	6.5	11	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 and duration of short-circuit should not exceed one second.

Note 5. I_{CC} is measured with 4.5V applied to all inputs and all outputs open.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Propagation Delay Time (From Data Inputs to Y Output)	t_{PLH}	$R_L = 2\text{k}\Omega, C_L = 15\text{pF}$	-	7	12	ns
	t_{PHL}		-	10	15	ns
Propagation Delay Time (From Strobe \bar{G} Input to Y Output)	t_{PLH}		-	11	17	ns
	t_{PHL}		-	18	24	ns
Propagation Delay Time (From Select \bar{A}/\bar{B} Input to Y Output)	t_{PLH}		-	13	20	ns
	t_{PHL}		-	16	24	ns

Function Table:

Inputs				Output
Strobe \bar{G}	Select \bar{A}/\bar{B}	A	B	Y
H	X	X	X	H
L	L	L	X	H
L	L	H	X	L
L	H	X	L	H
L	H	X	H	L

H = HIGH Level

L = LOW Level

X = Don't Care

Pin Connection Diagram

