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## NTE74LS151 Integrated Circuit TTL – 8–Channel Data Selector/Multiplexer

**Description:**

The NTE74LS151 is an 8–channel data selector/multiplexer in a 16–Lead plastic DIP type package that contains full on–chip binary decoding to select the desired data source as well as complementary W and Y outputs. This device has a strobe input which must be at a low logic level to be enabled. A high level at the strobe forces the W output high, and the Y output (as applicable) low.

**Features:**

- 1–of–8 Data Source Selection
- Performs Parallel–to–Serial Conversion
- Permits Multiplexing from N Lines to One Line
- Also For Use as Boolean Function Generator
- Input Clamping Diodes Simplify System Design

**Absolute Maximum Ratings:** (Note 1)

Supply Voltage,  $V_{CC}$  ..... 7V  
 DC Input Voltage,  $V_{IN}$  ..... 7V  
 Power Dissipation,  $P_D$  ..... 30mW  
 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	$\mu A$
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	$I_I$	$V_{CC} = \text{MAX}, V_I = 7\text{V}$	-	-	0.1	mA	
High Level Input Current	$I_{IH}$	$V_{CC} = \text{MAX}, V_I = 2.7\text{V}$	-	-	20	$\mu\text{A}$	
Low Level Input Current	$I_{IL}$	$V_{CC} = \text{MAX}, V_I = 0.4\text{V}$	-	-	-0.4	mA	
Short-Circuit Output Current	$I_{OS}$	$V_{CC} = \text{MAX}, \text{Note 4}$	-20	-	-100	mA	
Supply Current	$I_{CC}$	$V_{CC} = \text{MAX}, \text{Outputs Open}, \text{Note 4}$	-	6	10	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.

**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 A, B, or C Input (4 Levels) to Y Output)	$t_{PLH}$	$R_L = 2\text{k}\Omega, C_L = 15\text{pF}$	-	27	43	ns
	$t_{PHL}$		-	18	30	ns
Propagation Delay Time (From A, B, or C Input (3 Levels) to W Output)	$t_{PLH}$		-	14	23	ns
	$t_{PHL}$		-	20	32	ns
Propagation Delay Time (From Strobe $\bar{G}$ Input to Y Output)	$t_{PLH}$		-	26	42	ns
	$t_{PHL}$		-	20	32	ns
Propagation Delay Time (From Strobe $\bar{G}$ Input to W Output)	$t_{PLH}$		-	15	24	ns
	$t_{PHL}$		-	18	30	ns
Propagation Delay Time (From Any D Input to Y Output)	$t_{PLH}$		-	20	32	ns
	$t_{PHL}$		-	16	26	ns
Propagation Delay Time (From Any D Input to W Output)	$t_{PLH}$		-	13	21	ns
	$t_{PHL}$		-	12	20	ns

**Function Table:**

Inputs			Outputs		
Select			Strobe $\bar{G}$	Y	W
C	B	A			
X	X	X	H	L	H
L	L	L	L	D0	D0
L	L	H	L	D1	D1
L	H	L	L	D2	D2
L	H	H	L	D3	D3
H	L	L	L	D4	D4
H	L	H	L	D5	D5
H	H	L	L	D6	D6
H	H	H	L	D7	D7

H = HIGH Level, L = LOW Level, X = Don't Care  
D0, D1, . . . D7 = The level of the D respective input

### Pin Connection Diagram

