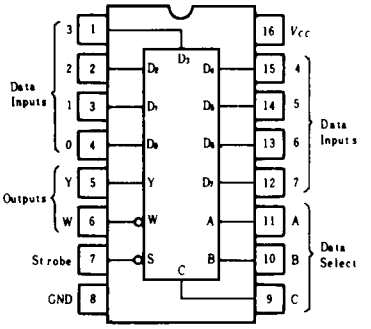
HD74HC151 ● 1of-8-line Data Selector/Multiplexer

The HD74HC151 selects one of the 8 data sources, depending on the address presented on the A, B, and C inputs. It features both true (Y) and complement (W) outputs. The strobe input must be at a low logic level to enable this multiplexer. A high logic level at the strobe forces the W output high and the Y output low.

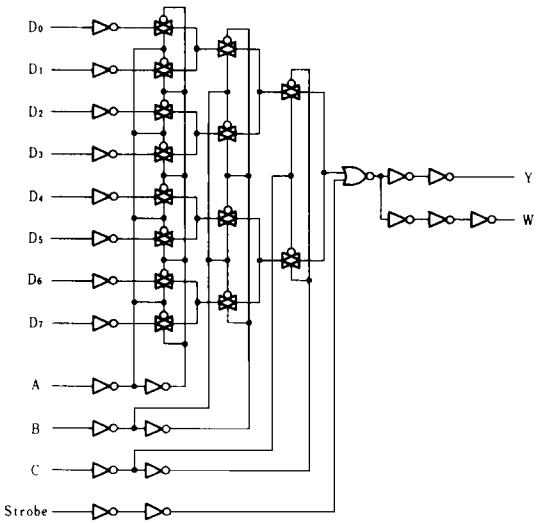
■ PIN ARRANGEMENT



■ FEATURES

- High Speed Operation: t_{pd} (Any D to Y or W)=18ns typ. (C_L=50pF)
- High Output Current: Fanout of 10 LSTTL Loads
- Wide Operating Voltage: Vcc=2~6V
- Low Input Current: 1μA max.
- Low Quiescent Supply Current: Icc (static)=4μA max. (Ta=25°C)

■ LOGIC DIAGRAM



■ FUNCTION TABLE

Inputs				Outputs	
Select			Strobe		
C	B	A	S	Y	W
×	×	×	H	L	H
L	L	L	L	D_0	$\overline{D_0}$
L	L	H	L	D_1	$\overline{D_1}$
L	H	L	L	D_2	$\overline{D_2}$
L	H	H	L	D_3	$\overline{D_3}$
H	L	L	L	D_4	$\overline{D_4}$
H	L	H	L	D_5	$\overline{D_5}$
H	H	L	L	D_6	$\overline{D_6}$
H	H	H	L	D_7	$\overline{D_7}$

Note) X: irrelevant

■ DC CHARACTERISTICS

Item	Symbol	V_{CC}(V)	Test Conditions		Ta=25°C min	Ta=25°C typ	Ta=25°C max	Ta=−40~+85°C min	Ta=−40~+85°C max	Unit
Input Voltage	V_{IH}	2.0			1.5	—	—	1.5	—	V
		4.5			3.15	—	—	3.15	—	
		6.0			4.2	—	—	4.2	—	
	V_{IL}	2.0			—	—	0.5	—	0.5	V
		4.5			—	—	1.35	—	1.35	
		6.0			—	—	1.8	—	1.8	
Output Voltage	V_{OH}	2.0	V_{in}=V_{IH} or V_{IL}	I_{OH}=−20μA	1.9	2.0	—	1.9	—	V
		4.5			4.4	4.5	—	4.4	—	
		6.0			5.9	6.0	—	5.9	—	
		4.5		I_{OH}=−4mA	4.18	—	—	4.13	—	
		6.0		I_{OH}=−5.2mA	5.68	—	—	5.63	—	
	V_{OL}	2.0	V_{in}=V_{IH} or V_{IL}	I_{OL}=20μA	—	0.0	0.1	—	0.1	V
		4.5			—	0.0	0.1	—	0.1	
		6.0			—	0.0	0.1	—	0.1	
		4.5		I_{OL}=4mA	—	—	0.26	—	0.33	
		6.0		I_{OL}=5.2mA	—	—	0.26	—	0.33	
Input Current	I_{in}	6.0	V_{in}=V_{CC} or GND		—	—	±0.1	—	±1.0	μA
Quiescent Supply Current	I_{CC}	6.0	V_{in}=V_{CC} or GND, I_{out}=0μA		—	—	4.0	—	40	μA

■ AC CHARACTERISTICS (C_L=50pF, Input t_r=t_f=6ns)

Item	Symbol	V_{CC}(V)	Test Conditions	Ta=25°C min	Ta=25°C typ	Ta=25°C max	Ta=−40~+85°C min	Ta=−40~+85°C max	Unit
Propagation Delay Time	t_{PLH} t_{PHL}	2.0	A, B or C to Y	—	—	205	—	255	ns
		4.5		—	18	41	—	51	
		6.0		—	—	35	—	43	
		2.0	A, B or C to W	—	—	185	—	230	
		4.5		—	18	37	—	46	
		6.0		—	—	31	—	39	
		2.0	Any Dto Y	—	—	175	—	220	
		4.5		—	16	35	—	44	
		6.0		—	—	30	—	37	
		2.0	Any D to W	—	—	170	—	215	
		4.5		—	16	34	—	43	
		6.0		—	—	29	—	37	
		2.0	Strobe to Y	—	—	125	—	155	
		4.5		—	10	25	—	31	
		6.0		—	—	21	—	26	
		2.0	Strobe to W	—	—	115	—	145	
		4.5		—	10	23	—	29	
		6.0		—	—	20	—	25	
Output Rise/Fall Time	t_{TLH} t_{THL}	2.0		—	—	75	—	95	ns
		4.5		—	5	15	—	19	
		6.0		—	—	13	—	16	
Input Capacitance	C_{in}	—		—	5	10	—	10	pF