HD74HC151

1 of-8-line Data Selector/Multiplexer

HITACHI

Description

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 storobe forces the W output high and the Y output low.

Features

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

Function Table

Inputs				Outputs	
Select					
C	B	A	Strobe S	Y	W
X	X	X	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	$\overline{D_7}$

X : Irrelevant

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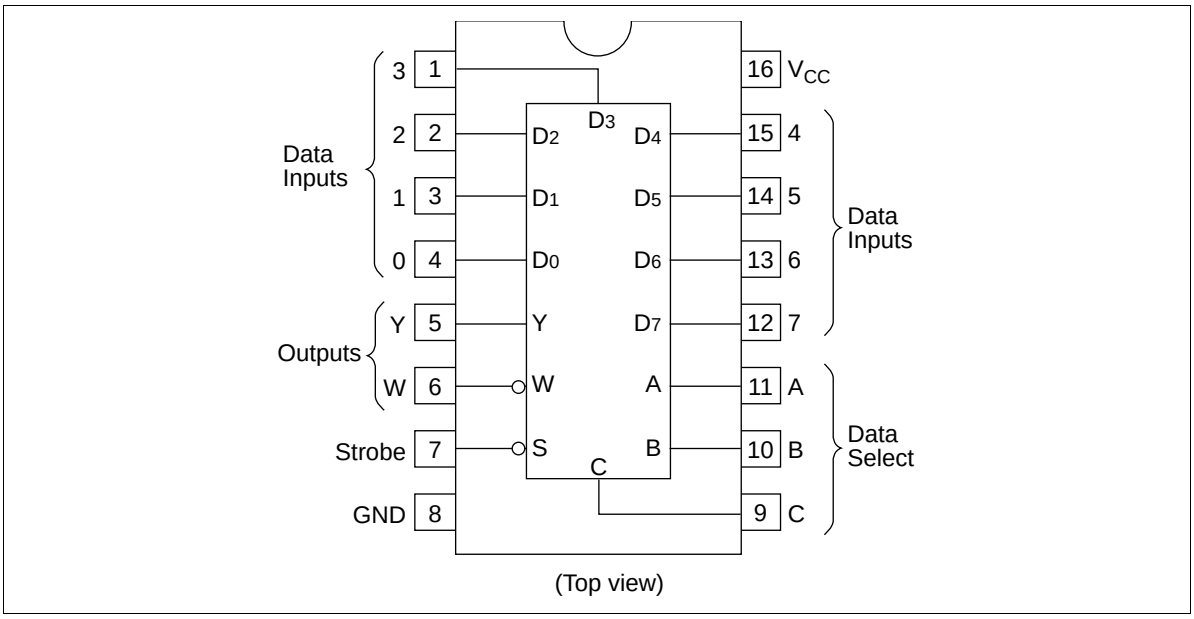
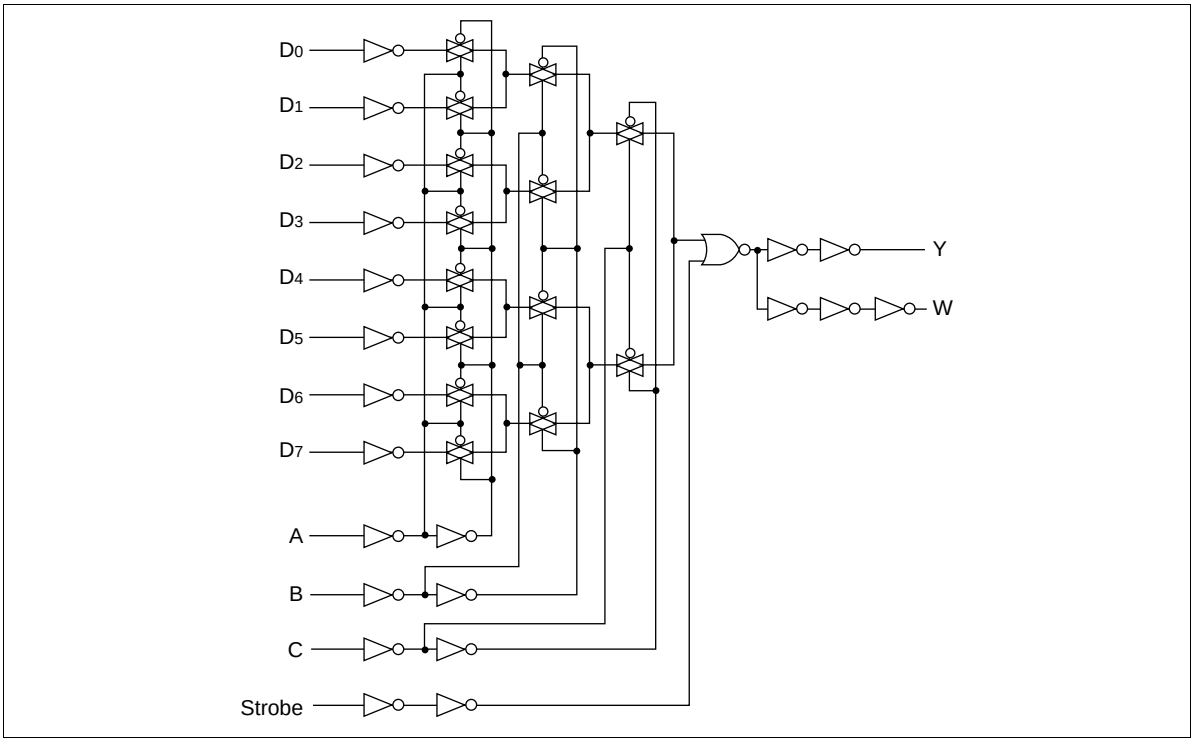
Pin Arrangement



Logic Diagram



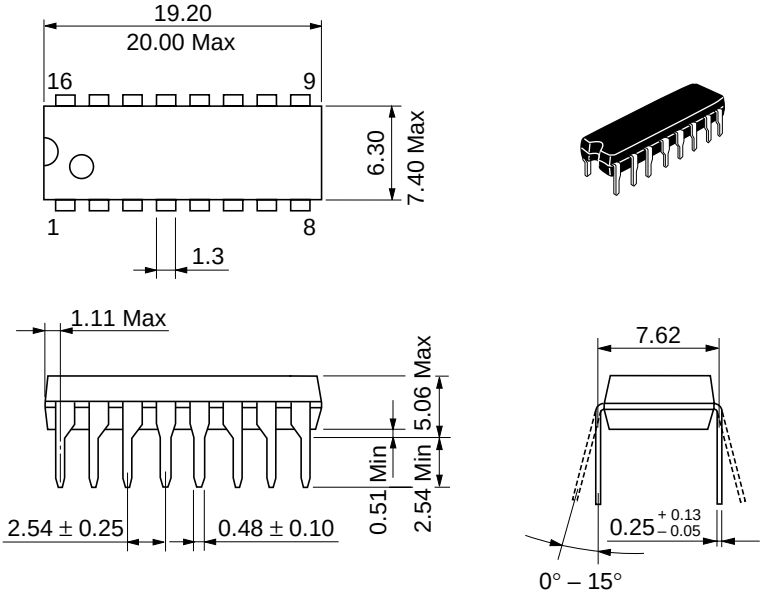
DC Characteristics

Item	Symbol	V_{CC} (V)	Ta = 25°C			Ta = –40 to +85°C		Unit	Test Conditions	
			Min	Typ	Max	Min	Max			
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	1.9	2.0	—	1.9	—	V	Vin = V_{IH} or V_{IL}	I_{OH} = –20 µA
		4.5	4.4	4.5	—	4.4	—			
		6.0	5.9	6.0	—	5.9	—			
		4.5	4.18	—	—	4.13	—			I_{OH} = –4 mA
		6.0	5.68	—	—	5.63	—			I_{OH} = –5.2 mA
	V_{OL}	2.0	—	0.0	0.1	—	0.1	V	Vin = V_{IH} or V_{IL}	I_{OL} = 20 µA
		4.5	—	0.0	0.1	—	0.1			
		6.0	—	0.0	0.1	—	0.1			
		4.5	—	—	0.26	—	0.33			I_{OL} = 4 mA
		6.0	—	—	0.26	—	0.33			I_{OL} = 5.2 mA
Input current	Iin	6.0	—	—	±0.1	—	±1.0	µA	Vin = V_{CC} or GND	
Quiescent supply current	I_{CC}	6.0	—	—	4.0	—	40	µA	Vin = V_{CC} or GND, Iout = 0 µA	

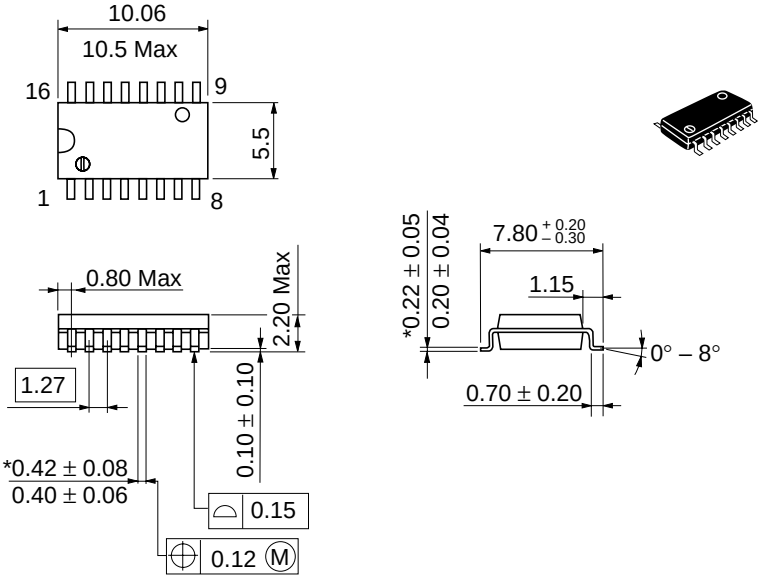
AC Characteristics (C_L = 50 pF, Input $t_r = t_f$ = 6 ns)

			Ta = 25°C			Ta = –40 to +85°C			
Item	**Symbol**	**V_{cc} (V)**	**Min**	**Typ**	**Max**	**Min**	**Max**	**Unit**	**Test Conditions**
Propagation delay	t_{PLH}	2.0	—	—	205	—	255	ns	A, B or C to Y
time	t_{PHL}	4.5	—	18	41	—	51		
		6.0	—	—	35	—	43		
		2.0	—	—	185	—	230		A, B or C to W
		4.5	—	18	37	—	46		
		6.0	—	—	31	—	39		
		2.0	—	—	175	—	220		Any D to Y
		4.5	—	16	35	—	44		
		6.0	—	—	30	—	37		
		2.0	—	—	170	—	215		Any D to W
		4.5	—	16	34	—	43		
		6.0	—	—	29	—	37		
		2.0	—	—	125	—	155		Strobe to Y
		4.5	—	10	25	—	31		
		6.0	—	—	21	—	26		
		2.0	—	—	115	—	145		Strobe to W
		4.5	—	10	23	—	29		
		6.0	—	—	20	—	25		
Output rise/fall	t_{TLH}	2.0	—	—	75	—	95	ns	
time	t_{THL}	4.5	—	5	15	—	19		
		6.0	—	—	13	—	16		
Input capacitance	Cin	—	—	5	10	—	10	pF	

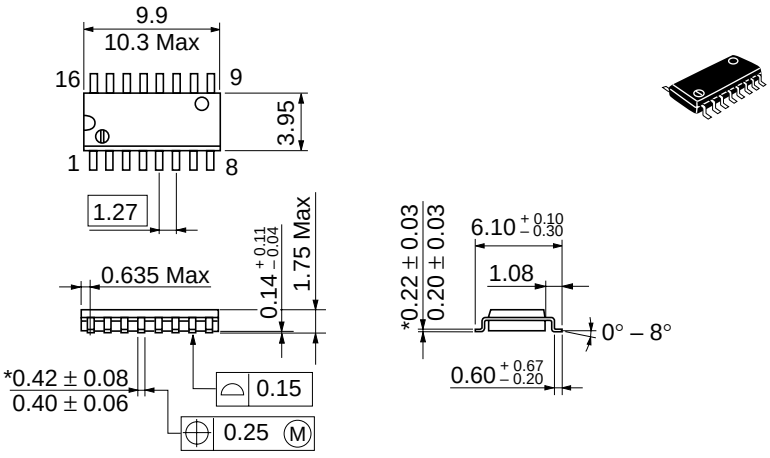
Unit: mm


19.20
20.00 Max
16
9
6.30
7.40 Max
1
8
1.3
1.11 Max
5.06 Max
2.54 Min
0.51 Min
2.54 ± 0.25
0.48 ± 0.10
7.62
0.25 + 0.13 − 0.05
0° – 15°

Unit: mm


10.06
10.5 Max
16
9
1
8
5.5
0.80 Max
2.20 Max
1.27
*0.42 ± 0.08
0.40 ± 0.06
0.10 ± 0.10
0.15
0.12 M
*0.22 ± 0.05
0.20 ± 0.04
7.80 +0.20 −0.30
1.15
0° – 8°
0.70 ± 0.20

Unit: mm


9.9
10.3 Max
16
9
1
8
3.95
1.27
0.635 Max
0.14 +0.11 −0.04
1.75 Max
*0.42 ± 0.08
0.40 ± 0.06
0.15
0.25 M
*0.22 ± 0.03
0.20 ± 0.03
6.10 +0.10 −0.30
1.08
0° – 8°
0.60 +0.67 −0.20

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