

# HD74HC151

## 1 of-8-line Data Selector/Multiplexer

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### 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 strobe 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  $\mu$ A max
- Low Quiescent Supply Current:  $I_{CC}$  (static) = 4  $\mu$ A max ( $T_a = 25^\circ\text{C}$ )

### Function Table

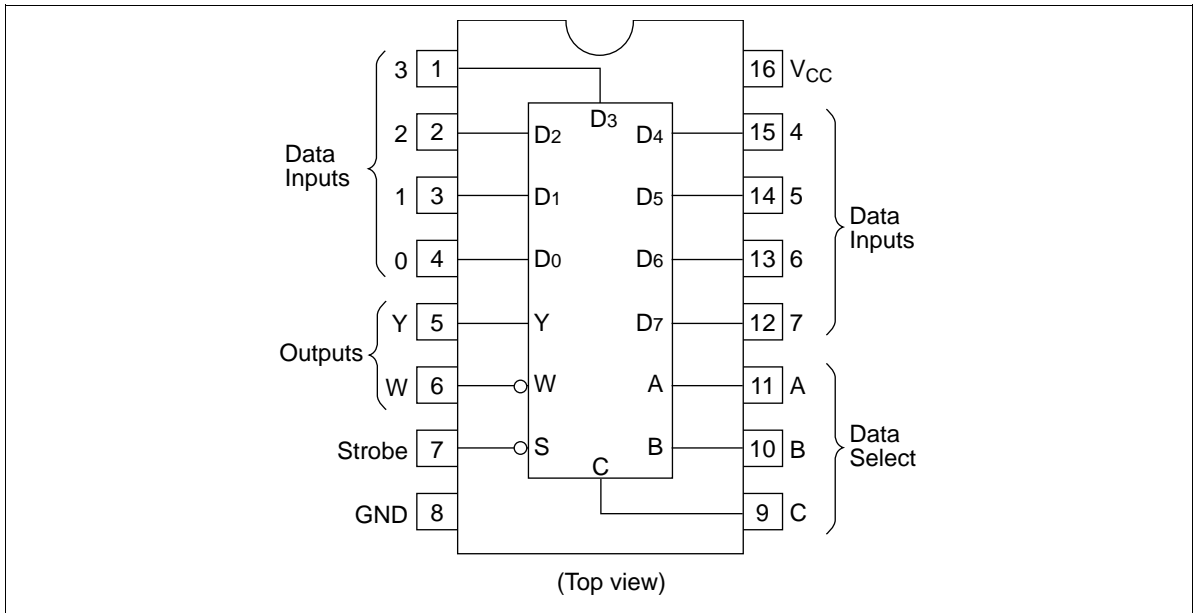
#### Inputs

Select				Outputs	
C	B	A	Strobe S	Y	W
X	X	X	H	L	H
L	L	L	L	$D_0$	$\bar{D}_0$
L	L	H	L	$D_1$	$\bar{D}_1$
L	H	L	L	$D_2$	$\bar{D}_2$
L	H	H	L	$D_3$	$\bar{D}_3$
H	L	L	L	$D_4$	$\bar{D}_4$
H	L	H	L	$D_5$	$\bar{D}_5$
H	H	L	L	$D_6$	$\bar{D}_6$
H	H	H	L	$D_7$	$\bar{D}_7$

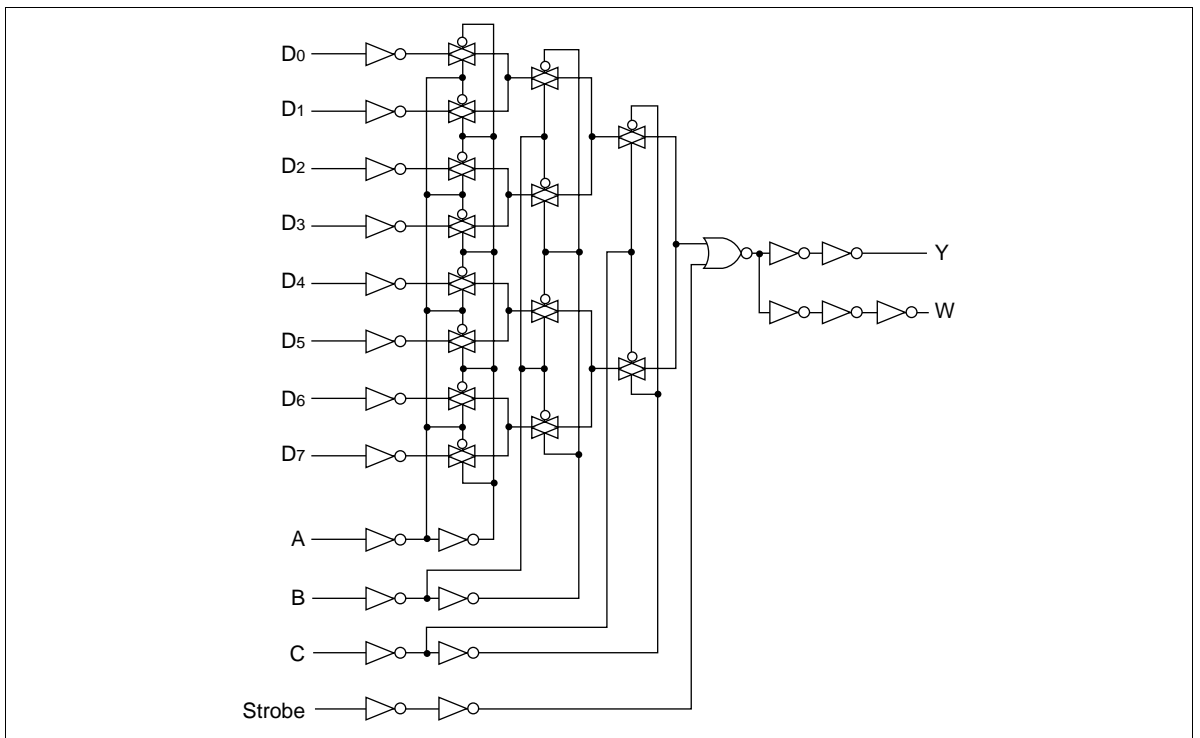
X : Irrelevant

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## Pin Arrangement



## Logic Diagram



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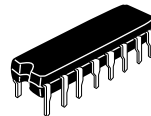
DC Characteristics

Item	Symbol	V <sub>CC</sub> (V)	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions	
			Min	Typ	Max	Min	Max			
Input voltage	V <sub>IH</sub>	2.0	1.5	—	—	1.5	—	V		
		4.5	3.15	—	—	3.15	—			
		6.0	4.2	—	—	4.2	—			
	V <sub>IL</sub>	2.0	—	—	0.5	—	0.5	V		
		4.5	—	—	1.35	—	1.35			
		6.0	—	—	1.8	—	1.8			
Output voltage	V <sub>OH</sub>	2.0	1.9	2.0	—	1.9	—	V	Vin = V <sub>IH</sub> or V <sub>IL</sub> I <sub>OH</sub> = -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 <sub>OH</sub> = -4 mA
		6.0	5.68	—	—	5.63	—			I <sub>OH</sub> = -5.2 mA
		6.0	—	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	—	—	0.26	—	0.33	I <sub>OL</sub> = 4 mA			
	6.0	—	—	0.26	—	0.33	I <sub>OL</sub> = 5.2 mA			
Input current	I <sub>in</sub>	6.0	—	—	±0.1	—	±1.0	μA	Vin = V <sub>CC</sub> or GND	
Quiescent supply current	I <sub>CC</sub>	6.0	—	—	4.0	—	40	μA	Vin = V <sub>CC</sub> or GND, I <sub>out</sub> = 0 μA	

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

Item	Symbol	$V_{CC}$ (V)	$T_a = 25^\circ\text{C}$			$T_a = -40$ to $+85^\circ\text{C}$		Unit	Test Conditions
			Min	Typ	Max	Min	Max		
Propagation delay time	$t_{PLH}$	2.0	—	—	205	—	255	ns	A, B or C to Y
		4.5	—	18	41	—	51		
		6.0	—	—	35	—	43		
	$t_{PHL}$	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 time	$t_{TLH}$	2.0	—	—	75	—	95	ns	
	$t_{THL}$	4.5	—	5	15	—	19		
		6.0	—	—	13	—	16		
Input capacitance	$C_{in}$	—	—	5	10	—	10	pF	

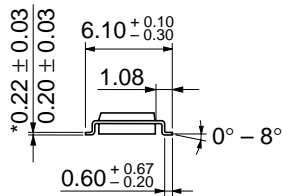
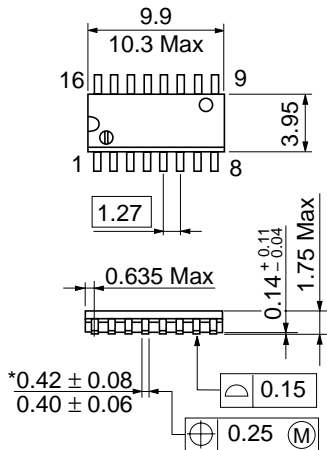


Hitachi Code	DP-16
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.07 g



\*Dimension including the plating thickness  
Base material dimension

Hitachi Code	FP-16DA
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.24 g



\*Dimension including the plating thickness  
Base material dimension

Hitachi Code	FP-16DN
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.15 g

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