

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

Function Table

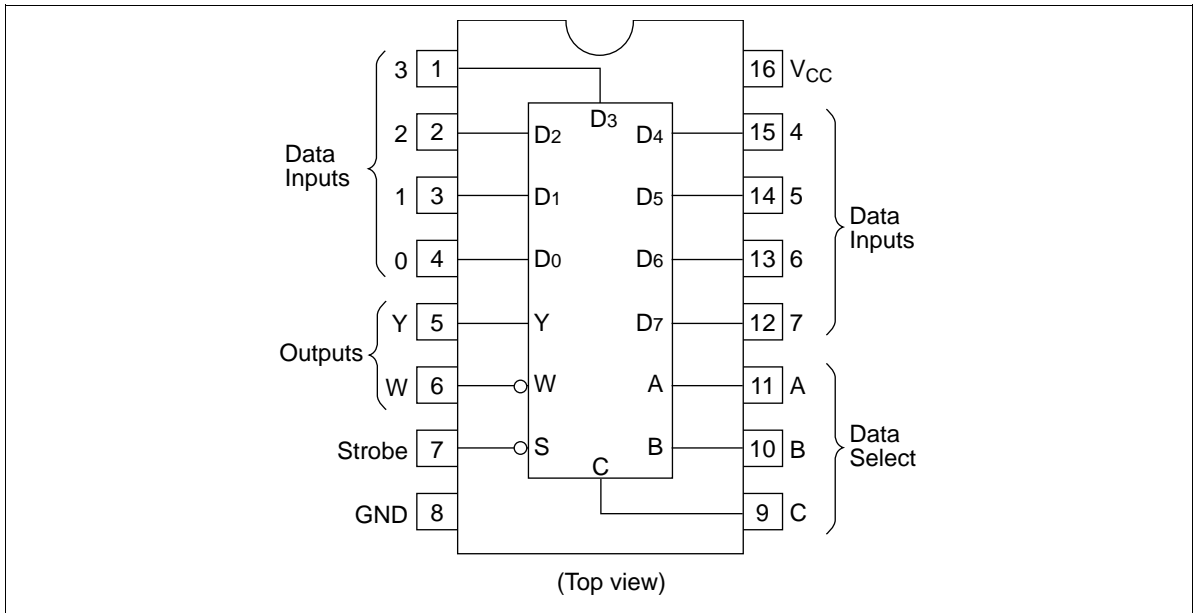
Inputs

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

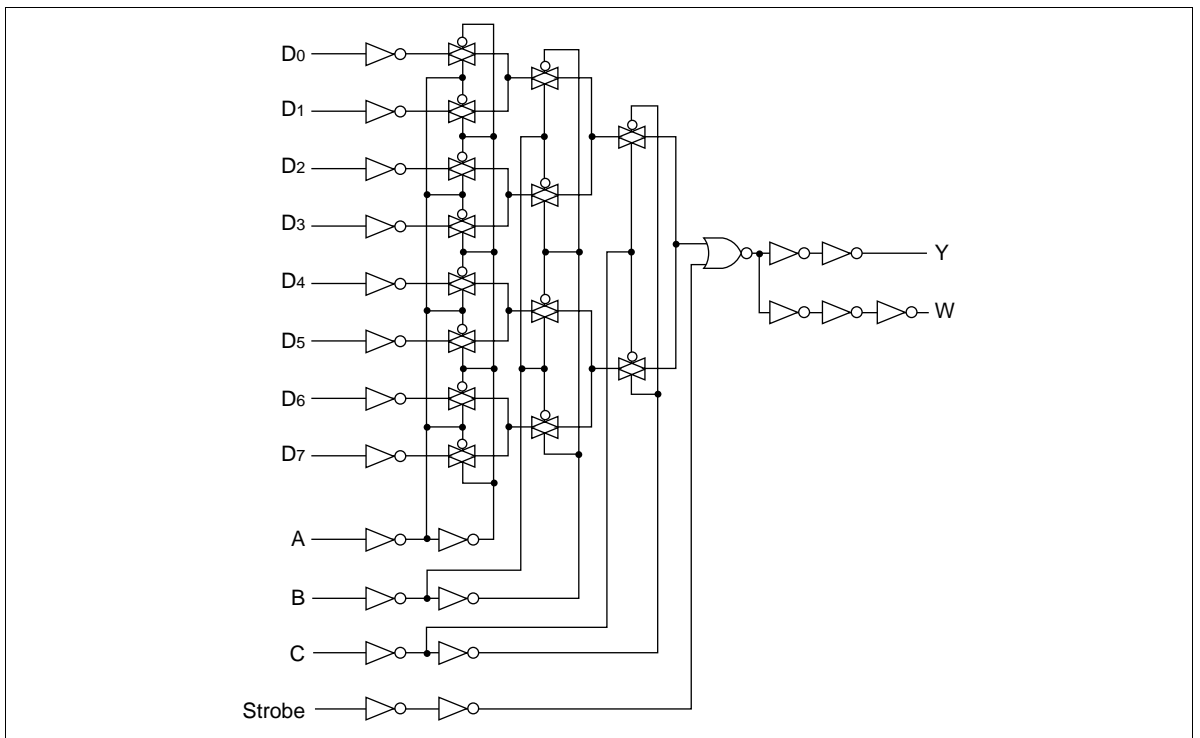
X : Irrelevant

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Pin Arrangement



Logic Diagram



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DC Characteristics

Item	Symbol	V _{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
		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 _{OL} = 4 mA			
	6.0	—	—	0.26	—	0.33	I _{OL} = 5.2 mA			
Input current	I _{in}	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, I _{out} = 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			
		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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Hitachi, Ltd.

Semiconductor & Integrated Circuits.
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL North America : <http://semiconductor.hitachi.com/>
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For further information write to:

Hitachi Semiconductor
(America) Inc.
179 East Tasman Drive,
San Jose, CA 95134
Tel: <1> (408) 433-1990
Fax: <1>(408) 433-0223

Hitachi Europe GmbH
Electronic components Group
Dornacher Straße 3
D-85622 Feldkirchen, Munich
Germany
Tel: <49> (89) 9 9180-0
Fax: <49> (89) 9 29 30 00

Hitachi Europe Ltd.
Electronic Components Group.
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA, United Kingdom
Tel: <44> (1628) 585000
Fax: <44> (1628) 778322

Hitachi Asia Pte. Ltd.
16 Collyer Quay #20-00
Hitachi Tower
Singapore 049318
Tel: 535-2100
Fax: 535-1533

Hitachi Asia Ltd.
Taipei Branch Office
3F, Hung Kuo Building, No.167,
Tun-Hwa North Road, Taipei (105)
Tel: <886> (2) 2718-3666
Fax: <886> (2) 2718-8180

Hitachi Asia (Hong Kong) Ltd.
Group III (Electronic Components)
7/F., North Tower, World Finance Centre,
Harbour City, Canton Road, Tsim Sha Tsui,
Kowloon, Hong Kong
Tel: <852> (2) 735 9218
Fax: <852> (2) 730 0281
Telex: 40815 HITEC HX

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