

HD74HC151

1-of-8-line Data Selector/Multiplexer

HITACHI

ADE-205-449 (Z)
1st. Edition
Sep. 2000

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

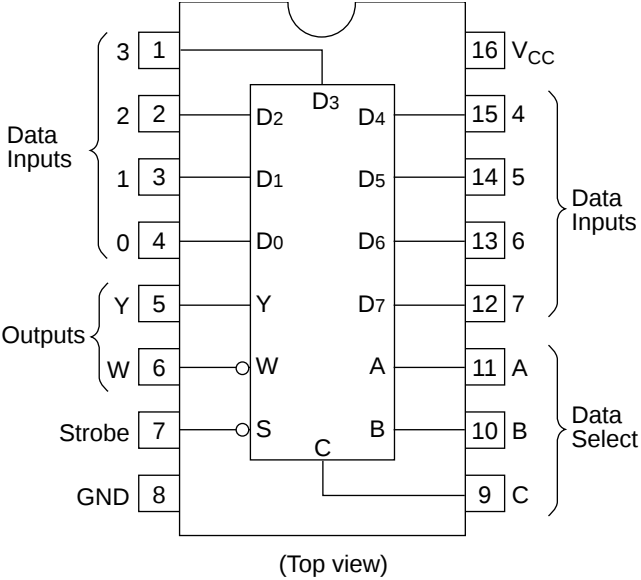
- High Speed Operation: t_{pd} (Any D to Y or W) = 18 ns typ ($C_L = 50$ pF)
- High Output Current: Fanout of 10 LSTTL Loads
- Wide Operating Voltage: $V_{CC} = 2$ to 6 V
- Low Input Current: 1 μ A max
- Low Quiescent Supply Current: I_{CC} (static) = 4 μ A max ($T_a = 25^\circ\text{C}$)

Function Table

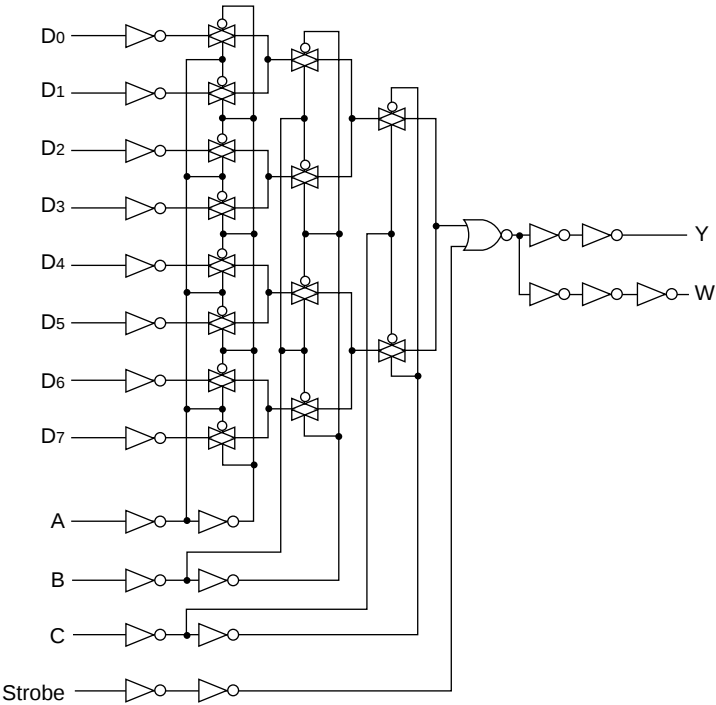
Inputs				Outputs	
Select				Y	W
C	B	A	Strobe S		
X	X	X	H	L	H
L	L	L	L	D_0	$\overline{D}_0$
L	L	H	L	D_1	$\overline{D}_1$
L	H	L	L	D_2	$\overline{D}_2$
L	H	H	L	D_3	$\overline{D}_3$
H	L	L	L	D_4	$\overline{D}_4$
H	L	H	L	D_5	$\overline{D}_5$
H	H	L	L	D_6	$\overline{D}_6$
H	H	H	L	D_7	$\overline{D}_7$

X : Irrelevant

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	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	

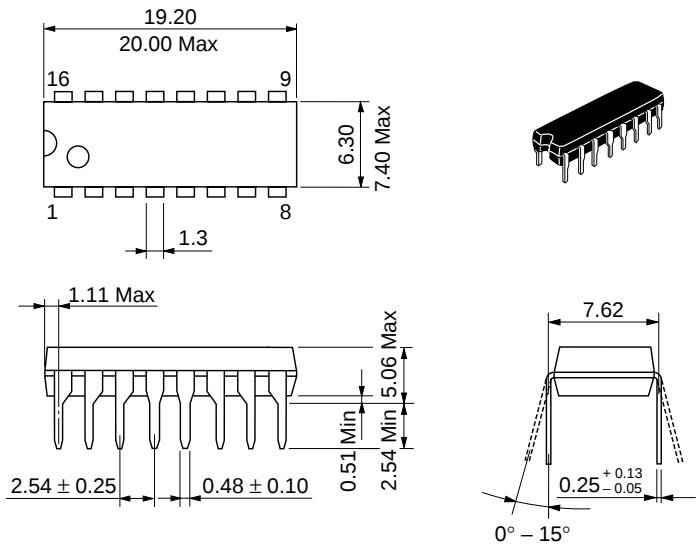
HD74HC151

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

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

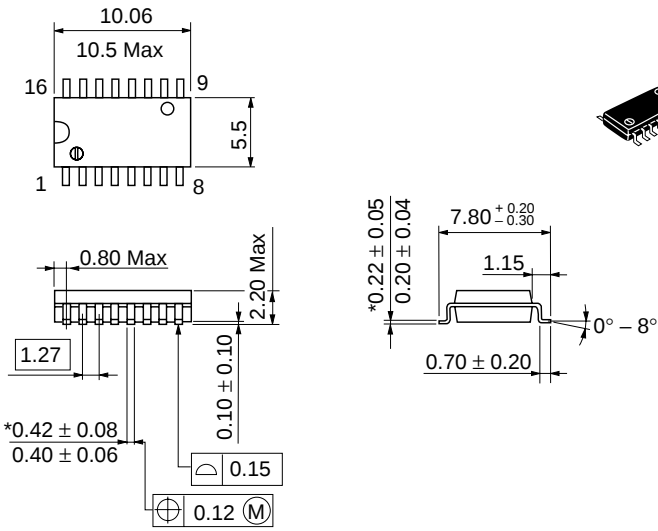
Package Dimensions

Unit: mm



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

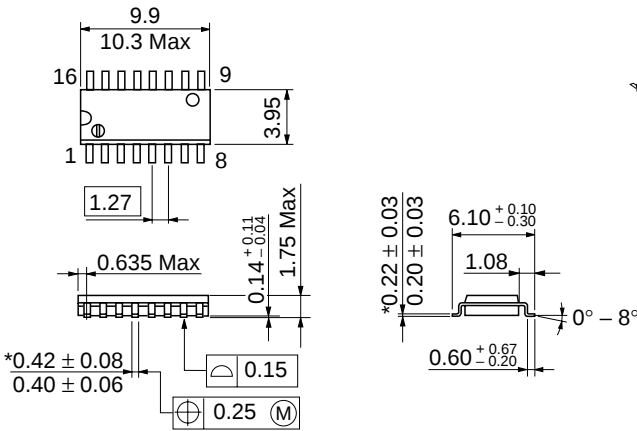
Unit: mm



*Dimension including the plating thickness
Base material dimension

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

Unit: mm



*Dimension including the plating thickness
Base material dimension

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

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