

To all our customers

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

Cautions

Keep safety first in your circuit designs!

1. Renesas Technology Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage.

Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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HD74HC152

1-of-8-line Data Selector/Multiplexer



ADE-205-450 (Z)
1st. Edition
Sep. 2000

Description

This data selector/multiplexer contains full-on-chip binary decoding to select the desired data source. The HD74HC152 selects one-of-eight data sources.

Features

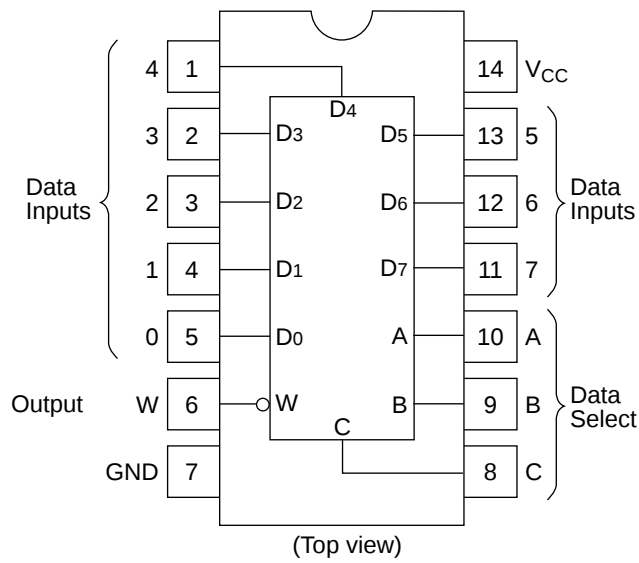
- High Speed Operation: t_{pd} (Any D to W) = 17 ns typ ($C_L = 50$ pF)
- High Output Current: Fanout of 10 LSTTL Loads
- Wide Operating Voltage: $V_{CC} = 2$ to 6 V
- Low Input Current: 1 μ A max
- Low Quiescent Supply Current: I_{CC} (static) = 4 μ A max ($T_a = 25^\circ\text{C}$)

Function Table

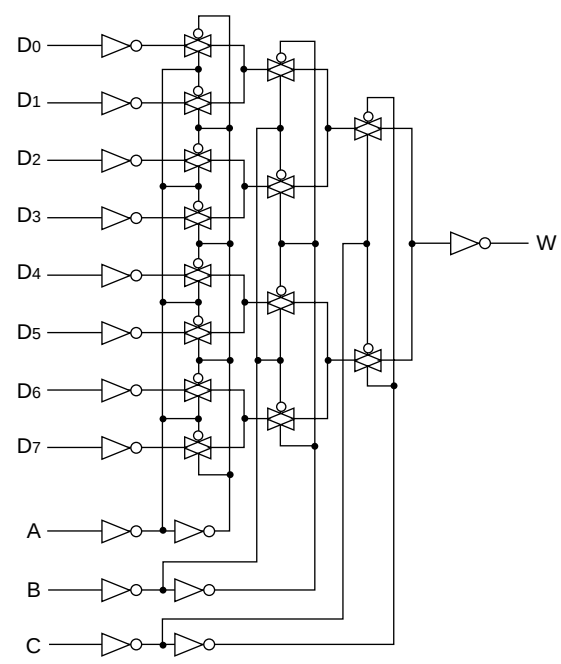
Select inputs			Output	Select inputs			Output
C	B	A	W	C	B	A	W
L	L	L	$\overline{D}_0$	H	L	L	$\overline{D}_4$
L	L	H	$\overline{D}_1$	H	L	H	$\overline{D}_5$
L	H	L	$\overline{D}_2$	H	H	L	$\overline{D}_6$
L	H	H	$\overline{D}_3$	H	H	H	$\overline{D}_7$

Note: $\overline{D}_0$ to $\overline{D}_7$: the level of the D respective input

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	—		
		6.0	5.68	—	—	5.63	—		
	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		
		6.0	—	—	0.26	—	0.33		
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

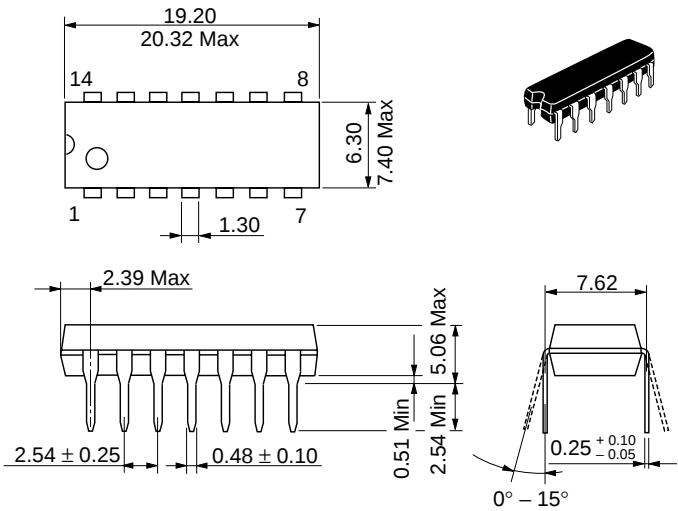
HD74HC152

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

Item	Symbol	V _{CC} (V)	Ta = −40 to +85°C						Unit	Test Conditions
			Ta = 25°C							
			Min	Typ	Max	Min	Max			
Propagation delay time	t _{PLH}	2.0	—	—	160	—	200	ns	A, B or C to W	
	t _{PHL}	4.5	—	17	32	—	40			
		6.0	—	—	27	—	34			
		2.0	—	—	150	—	190		Any D to W	
		4.5	—	15	30	—	38			
		6.0	—	—	26	—	33			
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		

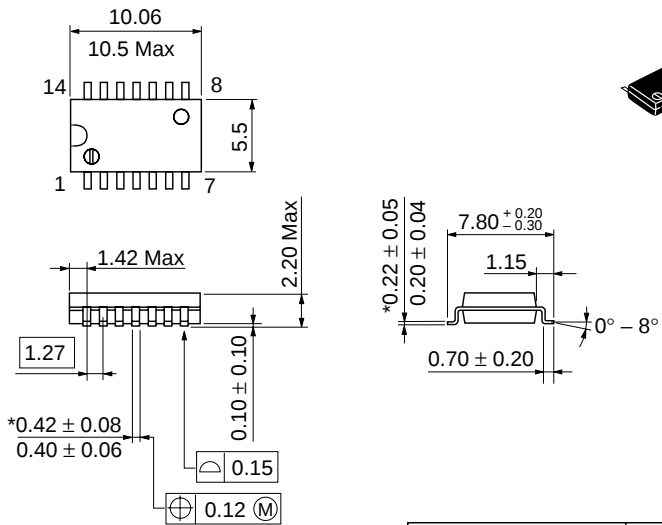
Package Dimensions

Unit: mm



Hitachi Code	DP-14
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	0.97 g

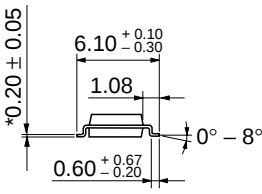
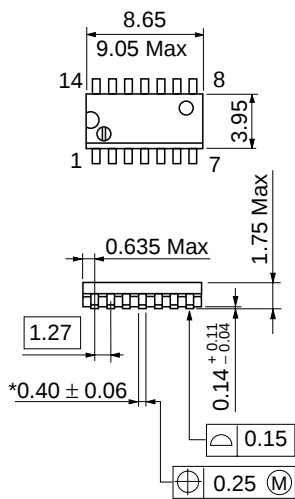
Unit: mm



*Dimension including the plating thickness
Base material dimension

Hitachi Code	FP-14DA
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.23 g

Unit: mm



*Pd plating

Hitachi Code	FP-14DN
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	0.13 g

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