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

Cautions

Keep safety first in your circuit designs!

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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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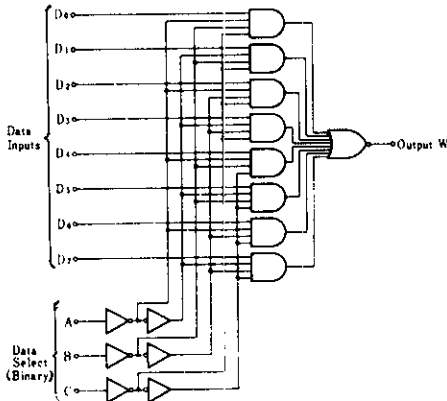
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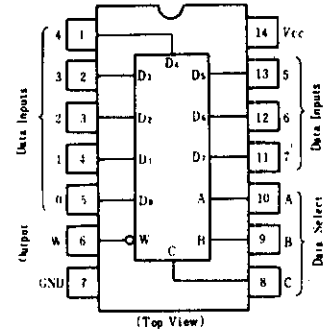
HD74LS152 • 1-of-8 Data Selectors/Multiplexers

This data selector/multiplexer contains full-on-chip binary decoding to select the desired data source. The HD74LS152 selects one-of-eight data sources.

■ BLOCK DIAGRAM



■ PIN ARRANGEMENT



■ FUNCTION TABLE

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

Notes) $\bar{D}_0 \sim \bar{D}_7$; the level of the D respective input
H; high level
L; low level

■ ELECTRICAL CHARACTERISTICS ($T_a = -20 \sim +75^\circ\text{C}$)

Item	Symbol	Test Conditions	min	typ*	max	Unit
Input voltage	V_{IH}		2.0	—	—	V
	V_{IL}		—	—	0.8	V
Output voltage	V_{OH}	$V_{CC} = 4.75\text{V}$, $I_{OH} = -400\mu\text{A}$, $V_{IH} = 2\text{V}$, $V_{IL} = 0.8\text{V}$	2.7	—	—	V
	V_{OL}	$V_{CC} = 4.75\text{V}$, $V_{IH} = 2\text{V}$, $V_{IL} = 0.8\text{V}$	$I_{OL} = 4\text{mA}$	—	0.4	V
			$I_{OL} = 8\text{mA}$	—	0.5	
	I_{IH}	$V_{CC} = 5.25\text{V}$, $V_I = 2.7\text{V}$	—	—	20	μA
Input current	I_{IL}	$V_{CC} = 5.25\text{V}$, $V_I = 0.4\text{V}$	—	—	-0.4	mA
	I_I	$V_{CC} = 5.25\text{V}$, $V_I = 7\text{V}$	—	—	0.1	mA
			—	—	—	
Short-circuit output current	I_{OS}	$V_{CC} = 5.25\text{V}$	-20	—	-100	mA
Supply current **	I_{CC}	$V_{CC} = 5.25\text{V}$	—	6.0	10	mA
Input clamp voltage	V_{IK}	$V_{CC} = 4.75\text{V}$, $I_{IN} = -18\text{mA}$	—	—	-1.5	V

* $V_{CC} = 5\text{V}$, $T_a = 25^\circ\text{C}$

** I_{CC} is measured with all outputs open and all inputs at 4.5V.

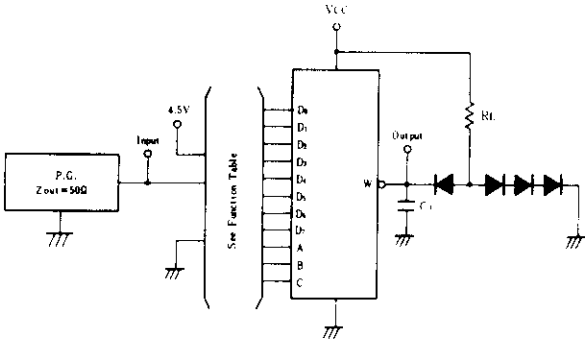
HD74LS152

SWITCHING CHARACTERISTICS ($V_{CC}=5V$, $T_a=25^{\circ}C$)

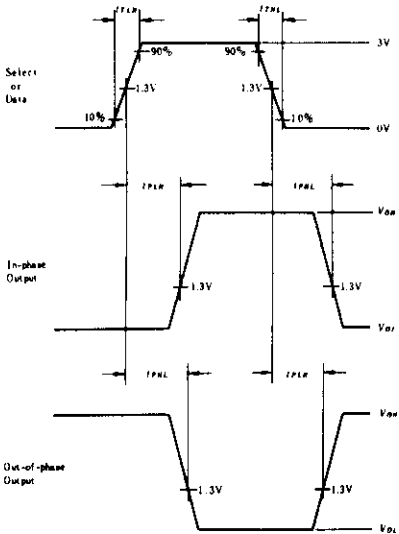
Item	Symbol	Inputs	Outputs	Test Conditions	min	typ	max	Unit
Propagation delay time	t_{PLH}	A, B, C	W	$C_L=15pF, R_L=2k\Omega$	—	14	23	ns
	t_{PHL}				—	20	32	
	t_{PLH}	Data	W		—	13	21	
	t_{PHL}				—	12	20	

TESTING METHOD

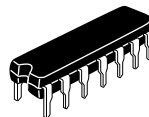
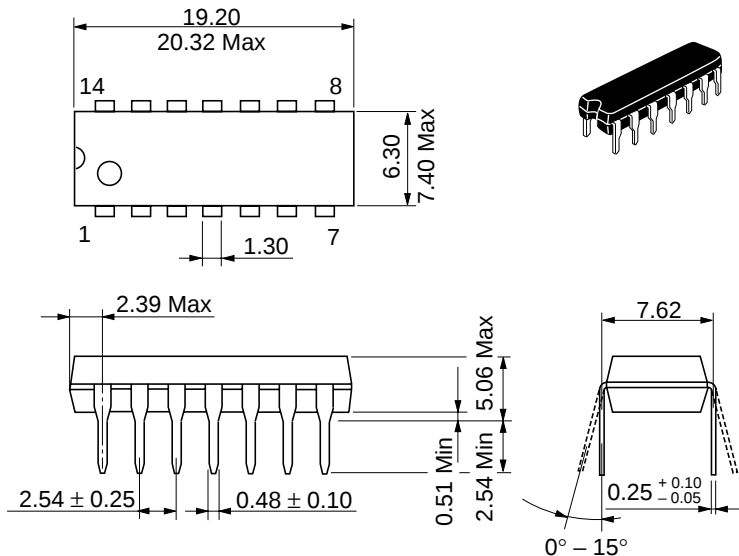
1) Test Circuit



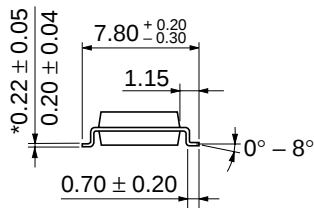
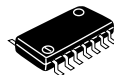
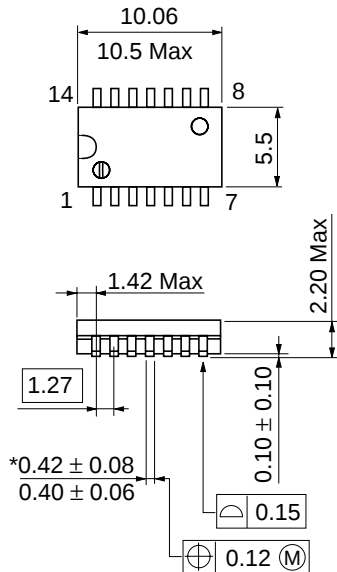
Waveform



- Notes) 1. Input pulse; $t_{TLH} \leq 15ns$, $t_{THL} \leq 6ns$, $PRR=1MHz$, duty cycle=50%
2. C_L includes probe and jig capacitance.
3. All diodes are 1S2074 (H).

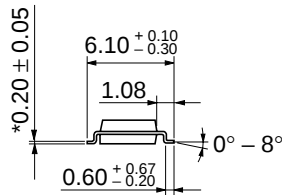
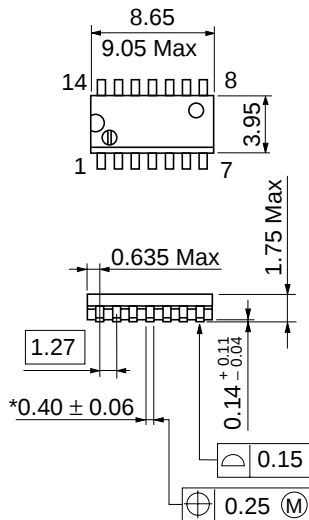


Hitachi Code	DP-14
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.97 g



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

*Dimension including the plating thickness
Base material dimension



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

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