

HD74LS151

1-of-8 Data Selector / Multiplexer (with strobe)

REJ03D0497-0300

Rev.3.00

May 10, 2006

This data selector / multiplexer contains full-on chip binary decoding to select the desired data source. The HD74LS151 selects one-of-eight data sources and has a strobe input, which must be at a low logic level to enable this device. A high level at the strobe forces the W output high, and the Y output low.

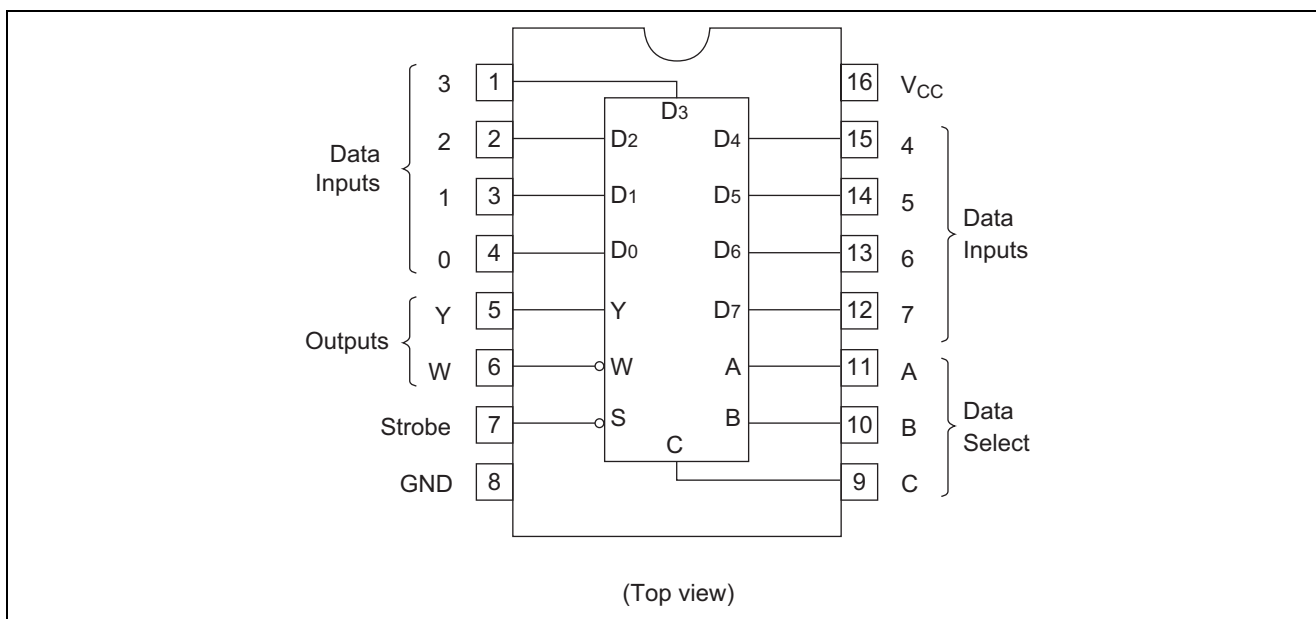
Features

- Ordering Information

Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74LS151P	DILP-16 pin	PRDP0016AE-B (DP-16FV)	P	—
HD74LS151RPEL	SOP-16 pin (JEDEC)	PRSP0016DG-A (FP-16DNV)	RP	EL (2,500 pcs/reel)

Note: Please consult the sales office for the above package availability.

Pin Arrangement

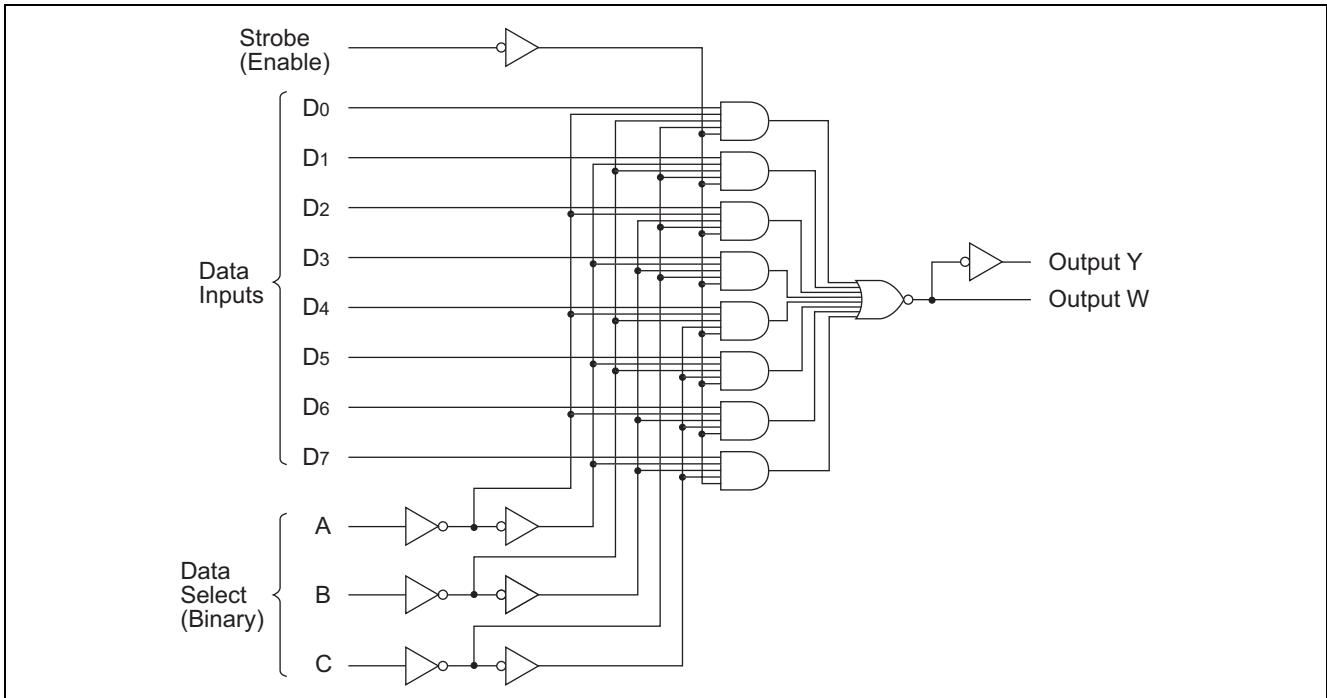


Function Table

Inputs				Outputs	
Select			Strobe S	Y	W
C	B	A			
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

H; high level, L; low level, X; irrelevant

Block Diagram



Absolute Maximum Ratings

Item	Symbol	Ratings	Unit
Supply voltage	V _{CC}	7	V
Input voltage	V _{IN}	7	V
Power dissipation	P _T	400	mW
Storage temperature	T _{stg}	-65 to +150	°C

Note: Voltage value, unless otherwise noted, are with respect to network ground terminal.

Recommended Operating Conditions

Item	Symbol	Min	Typ	Max	Unit
Supply voltage	V_{CC}	4.75	5.00	5.25	V
Output current	I_{OH}	—	—	-400	μA
	I_{OL}	—	—	8	mA
Operating temperature	T_{opr}	-20	25	75	$^{\circ}C$

Electrical Characteristics

($T_a = -20$ to $+75$ $^{\circ}C$)

Item	Symbol	min.	typ.*	max.	Unit	Condition
Input voltage	V_{IH}	2.0	—	—	V	
	V_{IL}	—	—	0.8	V	
Output voltage	V_{OH}	2.7	—	—	V	$V_{CC} = 4.75$ V, $V_{IH} = 2$ V, $V_{IL} = 0.8$ V, $I_{OH} = -400$ μA
	V_{OL}	—	—	0.4	V	$I_{OL} = 4$ mA
		—	—	0.5		$V_{CC} = 4.75$ V, $V_{IH} = 2$ V, $V_{IL} = 0.8$ V, $I_{OL} = 8$ mA
Input current	I_{IH}	—	—	20	μA	$V_{CC} = 5.25$ V, $V_I = 2.7$ V
	I_{IL}	—	—	-0.4	mA	$V_{CC} = 5.25$ V, $V_I = 0.4$ V
	I_I	—	—	0.1	mA	$V_{CC} = 5.25$ V, $V_I = 7$ V
Short-circuit output current	I_{OS}	-20	—	-100	mA	$V_{CC} = 5.25$ V
Supply current**	I_{CC}	—	6.0	10.0	mA	$V_{CC} = 5.25$ V
Input clamp voltage	V_{IK}	—	—	-1.5	V	$V_{CC} = 4.75$ V, $I_{IN} = -18$ mA

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

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

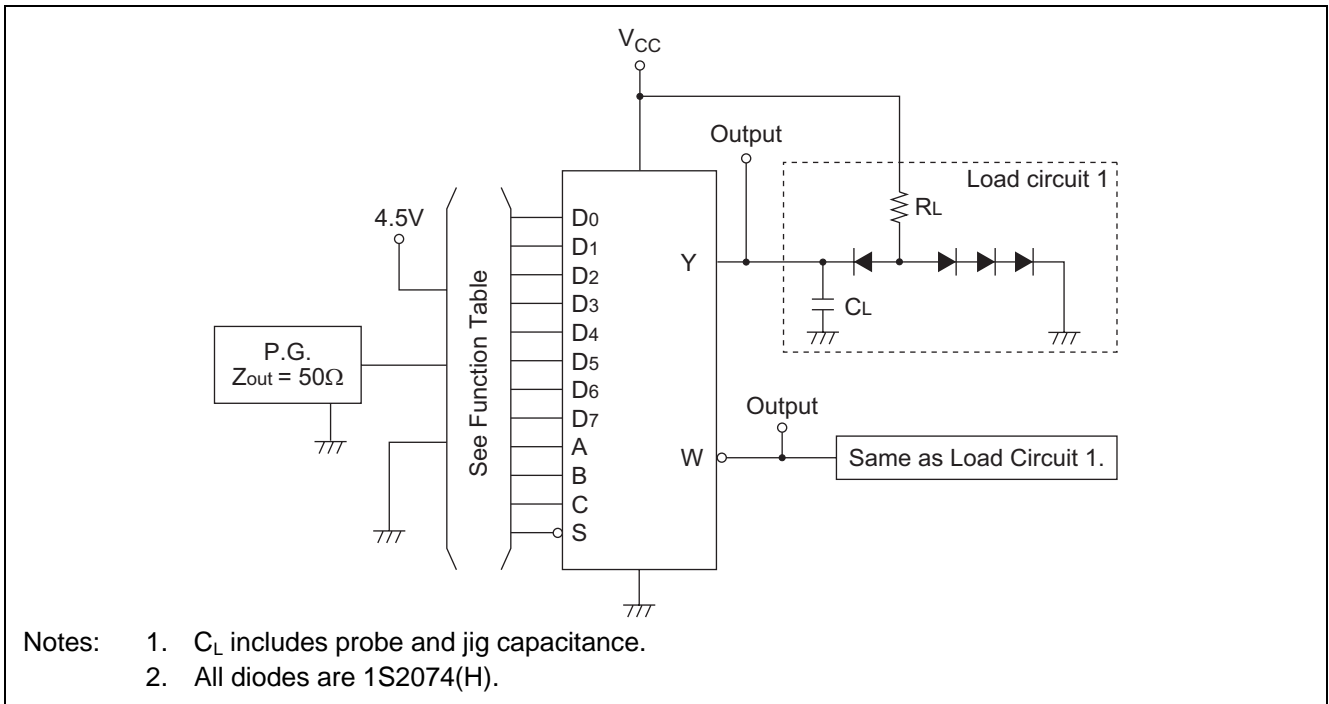
Switching Characteristics

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

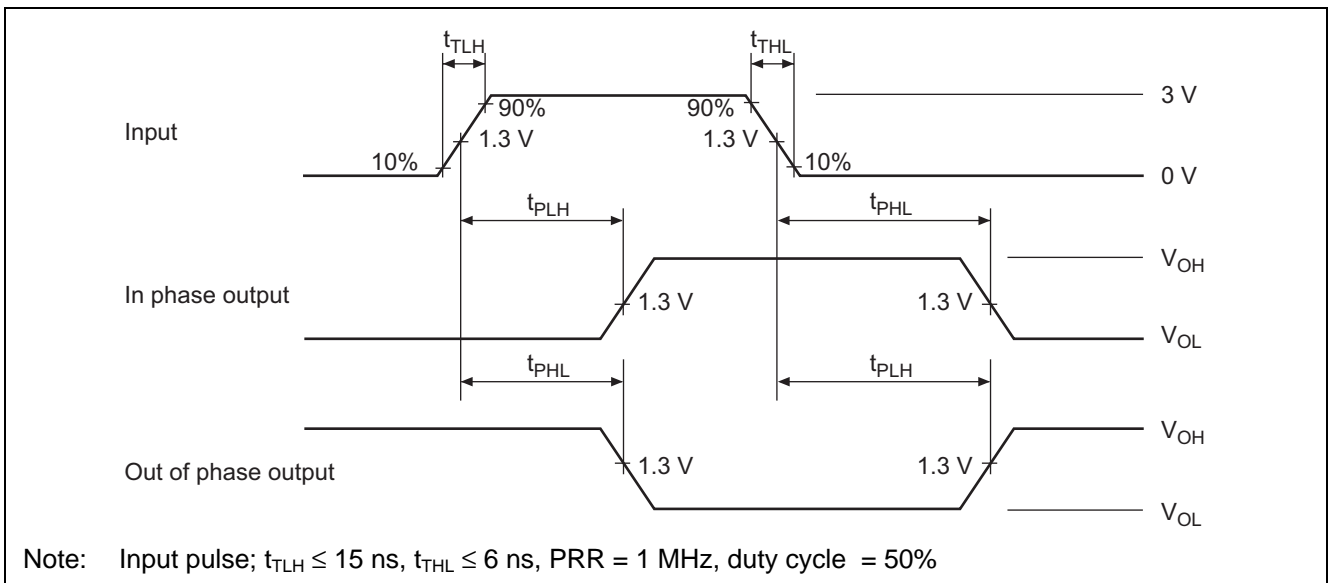
Item	Symbol	Inputs	Outputs	min.	typ.	max.	Unit	Condition
Propagation delay time	t_{PLH}	A, B, C (4 Level)	Y	—	27	43	ns	$C_L = 15$ pF, $R_L = 2$ k Ω
	t_{PHL}			—	18	30		
	t_{PLH}	A, B, C (3 Level)	W	—	14	23		
	t_{PHL}			—	20	32		
	t_{PLH}	Strobe	Y	—	26	42		
	t_{PHL}			—	20	32		
	t_{PLH}	Strobe	W	—	15	24		
	t_{PHL}			—	18	30		
	t_{PLH}	D	Y	—	20	32		
	t_{PHL}			—	16	26		
	t_{PLH}	D	W	—	13	21		
	t_{PHL}			—	12	20		

Testing Method

Test Circuit

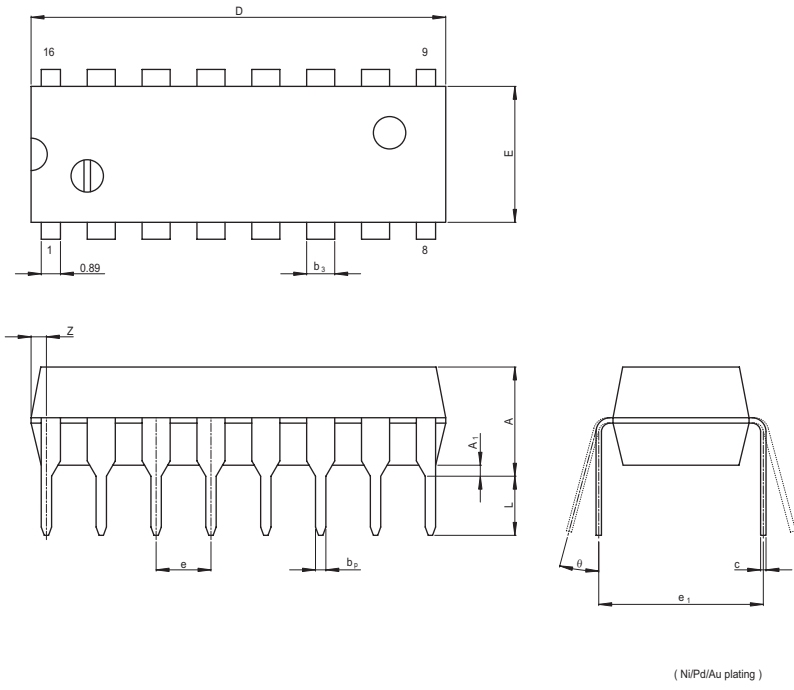


Waveform



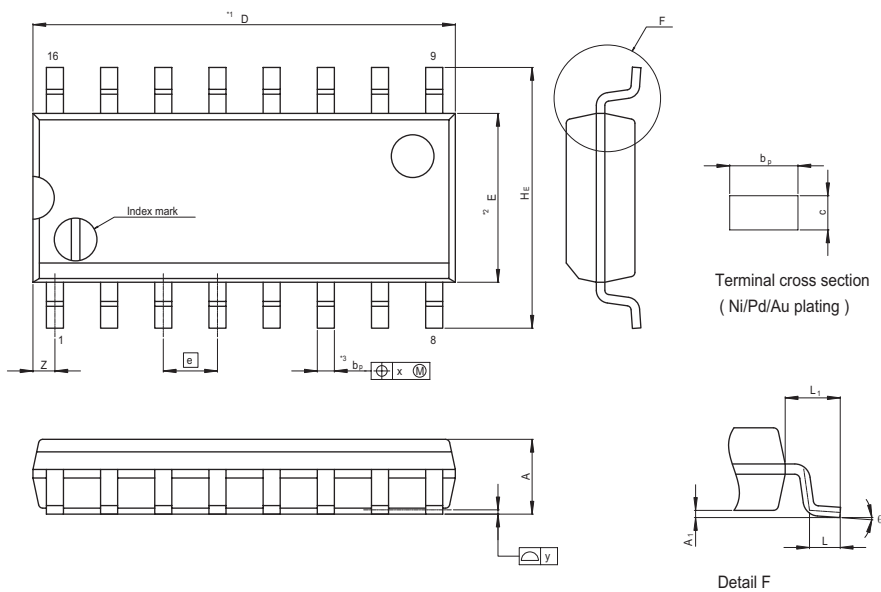
Package Dimensions

JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-DIP16-6.3x19.2-2.54	PRDP0016AE-B	DP-16FV	1.05g



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
e ₁	—	7.62	—
D	—	19.2	20.32
E	—	6.3	7.4
A	—	—	5.06
A ₁	0.51	—	—
b _p	0.40	0.48	0.56
b ₃	—	1.30	—
c	0.19	0.25	0.31
θ	0°	—	15°
e	2.29	2.54	2.79
Z	—	—	1.12
L	2.54	—	—

JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-SOP16-3.95x9.9-1.27	PRSP0016DG-A	FP-16DNV	0.15g



NOTE)
 1. DIMENSIONS**1 (Nom)**AND**2* DO NOT INCLUDE MOLD FLASH.
 2. DIMENSIONS**3*DOES NOT INCLUDE TRIM OFFSET.

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	—	9.90	10.30
E	—	3.95	—
A ₂	—	—	—
A ₁	0.10	0.14	0.25
A	—	—	1.75
b _p	0.34	0.40	0.46
b ₁	—	—	—
c	0.15	0.20	0.25
c ₁	—	—	—
θ	0°	—	8°
HE	5.80	6.10	6.20
⓪	—	1.27	—
x	—	—	0.25
y	—	—	0.15
Z	—	—	0.635
L	0.40	0.60	1.27
L ₁	—	1.08	—

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