

# 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.

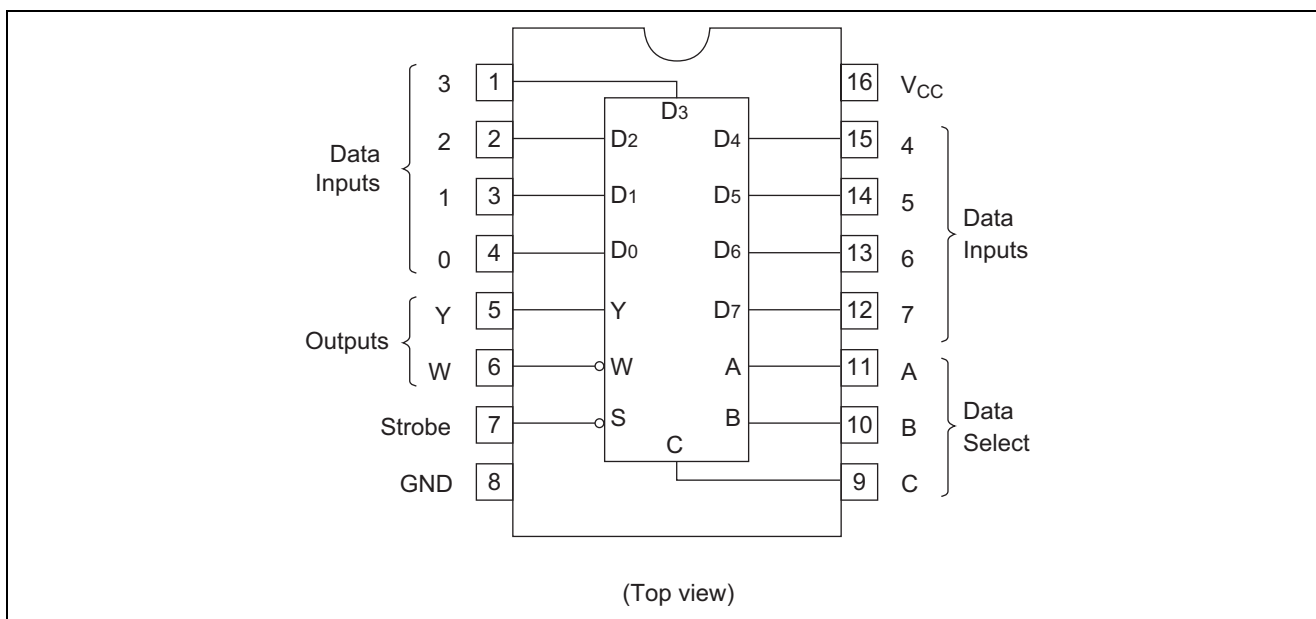
### Features

- 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

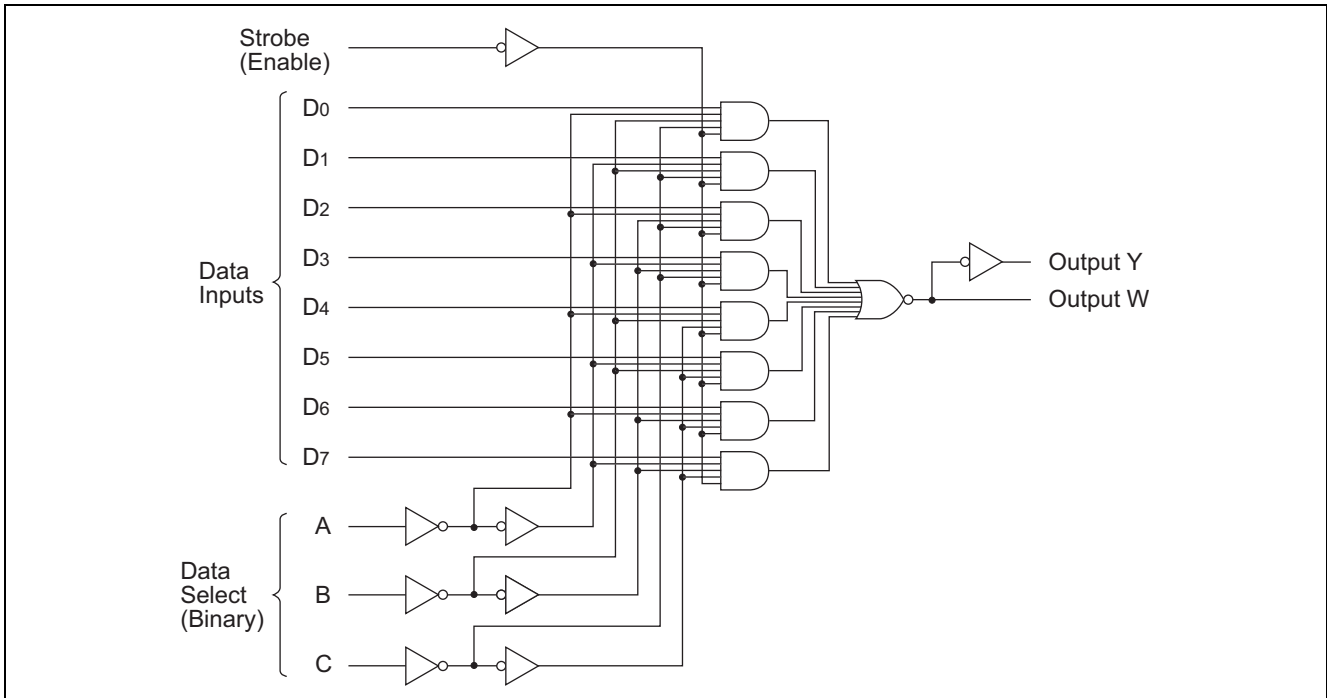


**Function Table**

Inputs				Outputs	
Select			Strobe S	Y	W
C	B	A			
X	X	X	H	L	H
L	L	L	L	D <sub>0</sub>	$\overline{D_0}$
L	L	H	L	D <sub>1</sub>	$\overline{D_1}$
L	H	L	L	D <sub>2</sub>	$\overline{D_2}$
L	H	H	L	D <sub>3</sub>	$\overline{D_3}$
H	L	L	L	D <sub>4</sub>	$\overline{D_4}$
H	L	H	L	D <sub>5</sub>	$\overline{D_5}$
H	H	L	L	D <sub>6</sub>	$\overline{D_6}$
H	H	H	L	D <sub>7</sub>	$\overline{D_7}$

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

**Block Diagram**



**Absolute Maximum Ratings**

Item	Symbol	Ratings	Unit
Supply voltage	V <sub>CC</sub>	7	V
Input voltage	V <sub>IN</sub>	7	V
Power dissipation	P <sub>T</sub>	400	mW
Storage temperature	T <sub>stg</sub>	-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	$\mu A$
	$I_{OL}$	—	—	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, $I_{OH} = -400$ $\mu A$
	$V_{OL}$	—	—	0.4	V	
Input current	$I_{IH}$	—	—	20		$\mu A$
	$I_{IL}$	—	—	-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.

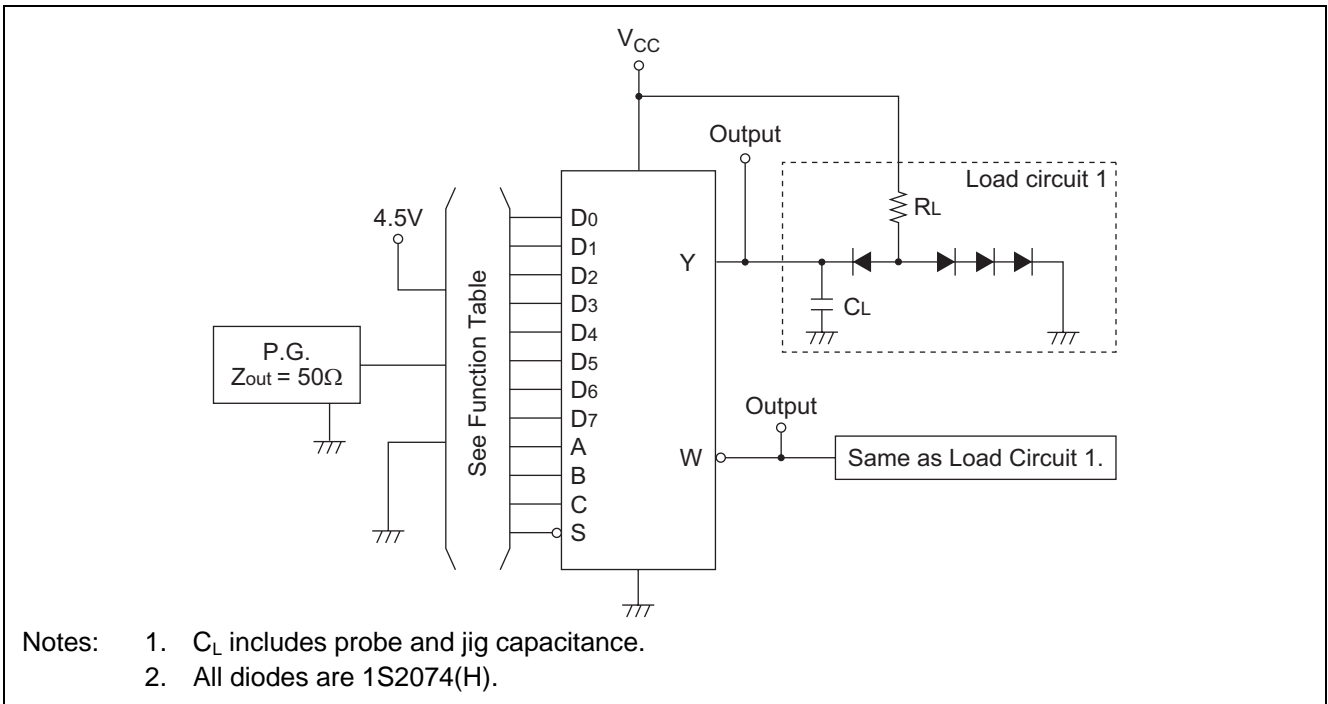
## Switching Characteristics

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

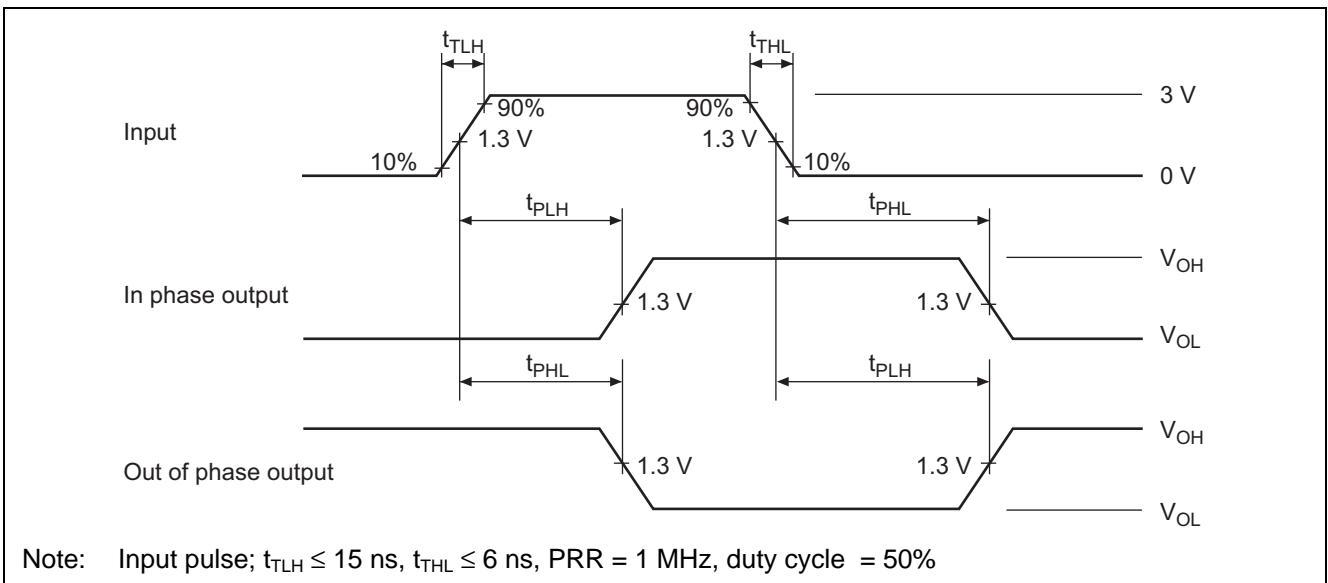
Item	Symbol	Inputs	Outputs	min.	typ.	max.	Unit	Condition
Propagation delay time	$t_{PLH}$	A, B, C (4 Level)	Y	—	27	43	ns	$C_L = 15$ pF, $R_L = 2$ k $\Omega$
	$t_{PHL}$			—	18	30		
	$t_{PLH}$	A, B, C (3 Level)	W	—	14	23		
	$t_{PHL}$			—	20	32		
	$t_{PLH}$	Strobe	Y	—	26	42		
	$t_{PHL}$			—	20	32		
	$t_{PLH}$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

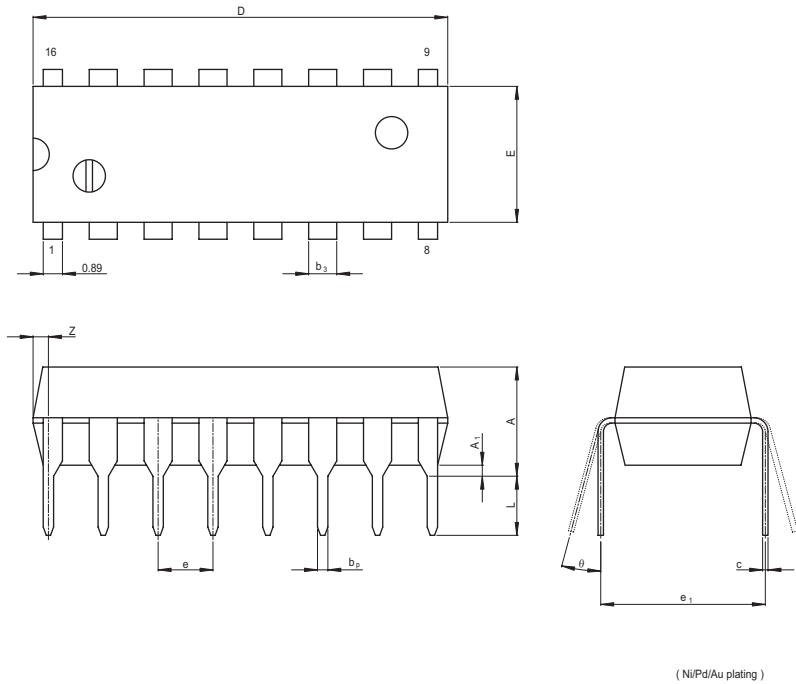


### Waveform



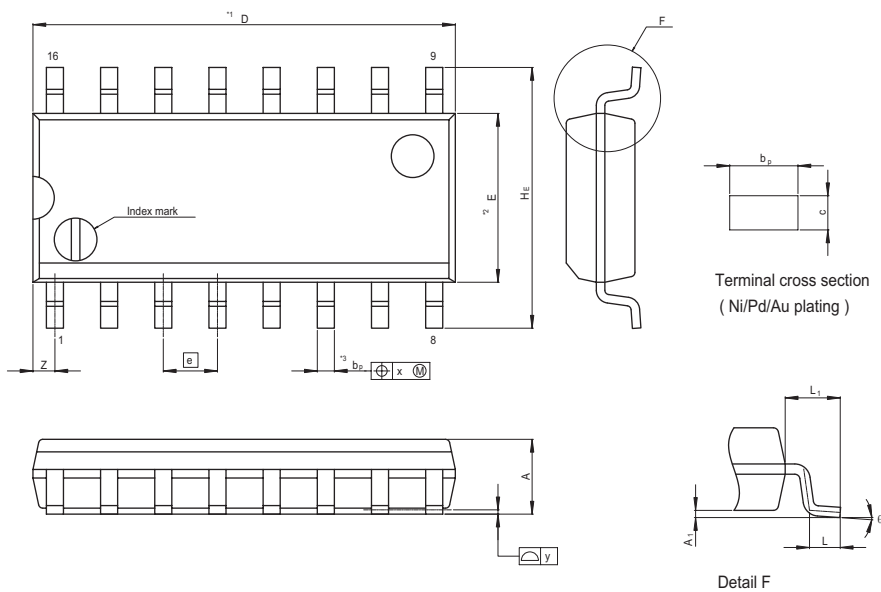
Package Dimensions

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 <sub>1</sub>	—	7.62	—
D	—	19.2	20.32
E	—	6.3	7.4
A	—	—	5.06
A <sub>1</sub>	0.51	—	—
b <sub>p</sub>	0.40	0.48	0.56
b <sub>3</sub>	—	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 <sub>2</sub>	—	—	—
A <sub>1</sub>	0.10	0.14	0.25
A	—	—	1.75
b <sub>p</sub>	0.34	0.40	0.46
b <sub>1</sub>	—	—	—
c	0.15	0.20	0.25
c <sub>1</sub>	—	—	—
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 <sub>1</sub>	—	1.08	—

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