

HD74LS151

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

REJ03D0497-0200

Rev.2.00

Feb.18.2005

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.

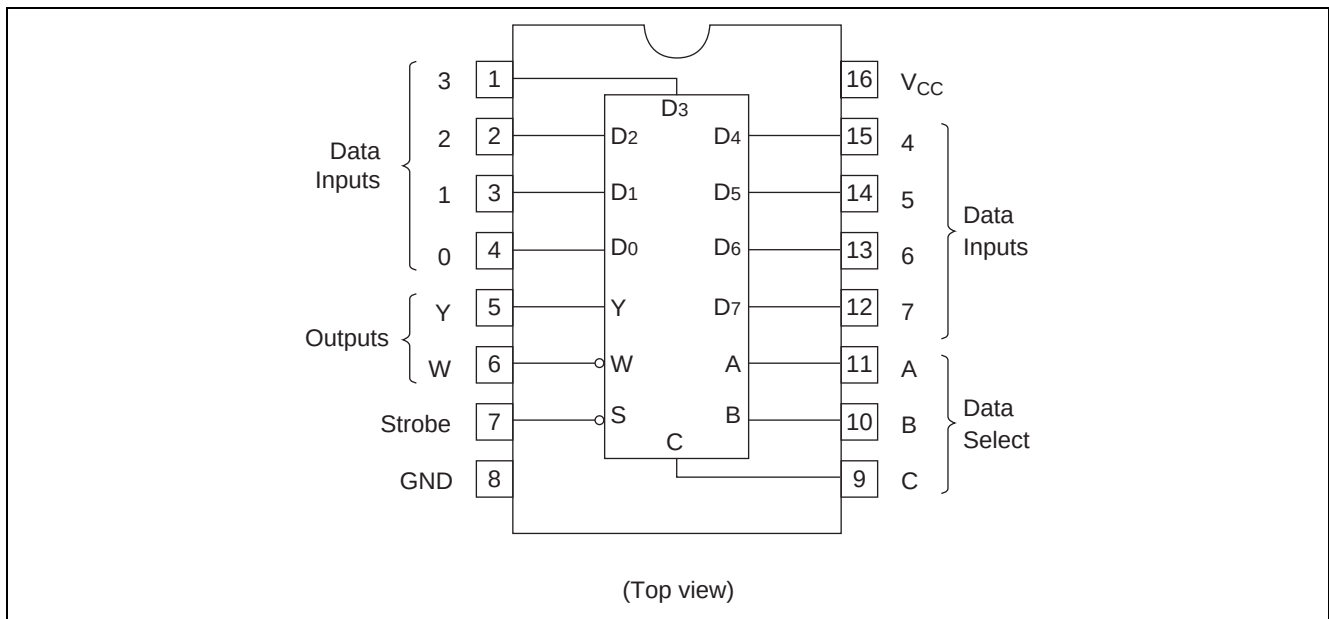
Features

- 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

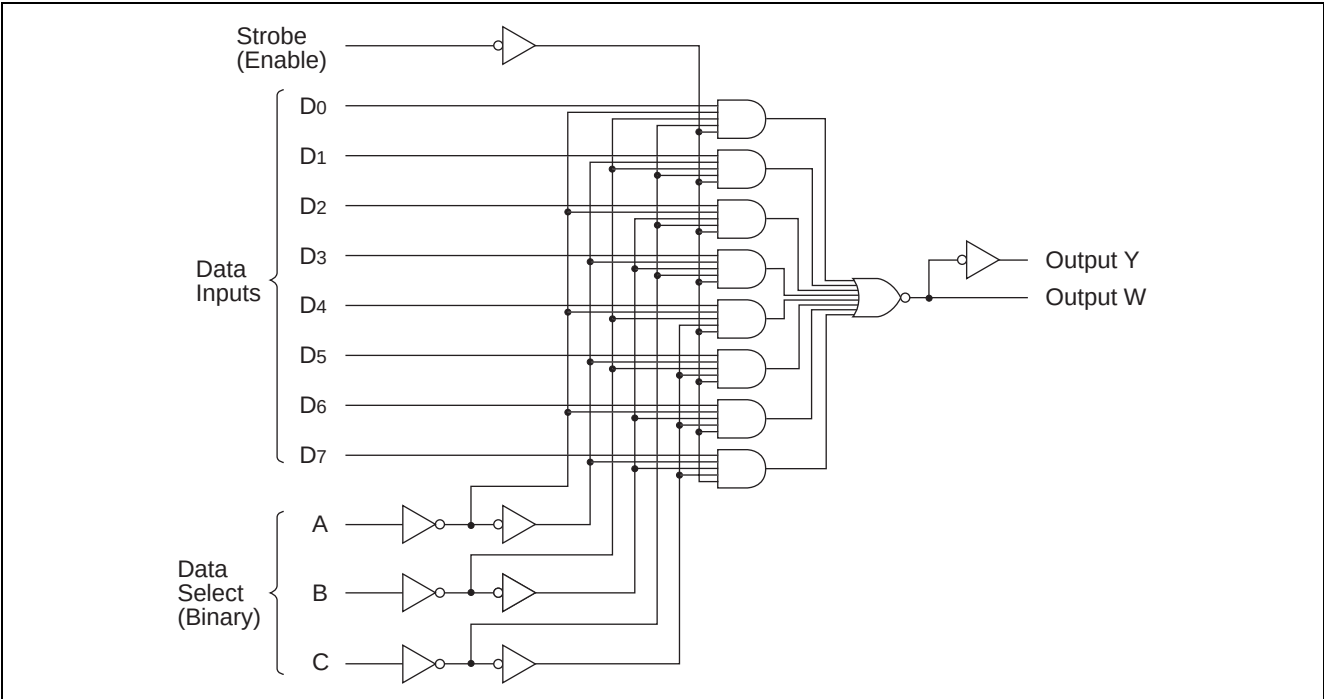


Function Table

Inputs				Outputs	
Select			Strobe S	Y	W
C	A	B			
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	°C

Electrical Characteristics

(Ta = −20 to +75 °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	$V_{CC} = 4.75 \text{ V}$, $V_{IH} = 2 \text{ V}$, $V_{IL} = 0.8 \text{ V}$, $I_{OH} = -400 \mu A$
	V_{OL}	—	—	0.4	V	$I_{OL} = 4 \text{ mA}$ $V_{CC} = 4.75 \text{ V}$, $V_{IH} = 2 \text{ V}$, $I_{OL} = 8 \text{ mA}$ $V_{IL} = 0.8 \text{ V}$
		—	—	0.5		
Input current	I_{IH}	—	—	20	μA	$V_{CC} = 5.25 \text{ V}$, $V_I = 2.7 \text{ V}$
	I_{IL}	—	—	−0.4	mA	$V_{CC} = 5.25 \text{ V}$, $V_I = 0.4 \text{ V}$
	I_I	—	—	0.1	mA	$V_{CC} = 5.25 \text{ V}$, $V_I = 7 \text{ V}$
Short-circuit output current	I_{OS}	−20	—	−100	mA	$V_{CC} = 5.25 \text{ V}$
Supply current**	I_{CC}	—	6.0	10.0	mA	$V_{CC} = 5.25 \text{ V}$
Input clamp voltage	V_{IK}	—	—	−1.5	V	$V_{CC} = 4.75 \text{ V}$, $I_{IN} = -18 \text{ mA}$

Note: * $V_{CC} = 5 \text{ V}$, Ta = 25°C** I_{CC} is measured with all outputs open and all inputs at 4.5 V.

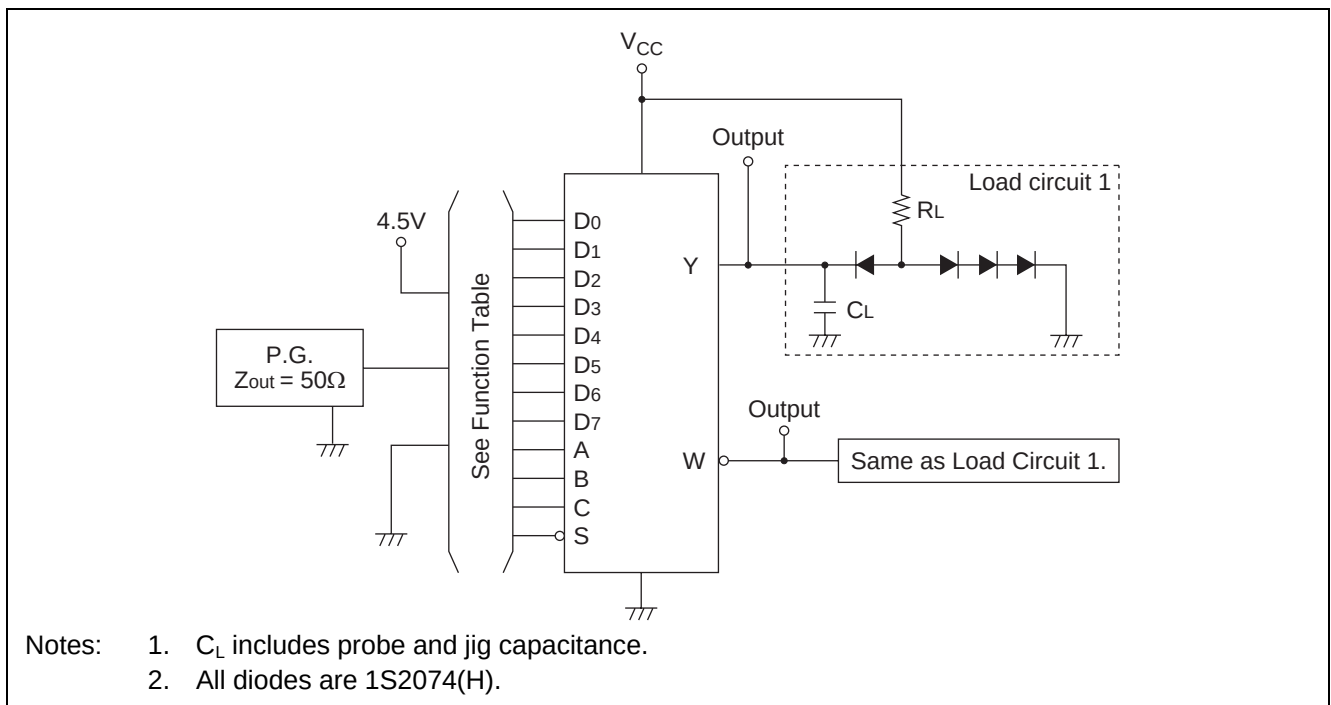
Switching Characteristics

(V_{CC} = 5 V, Ta = 25°C)

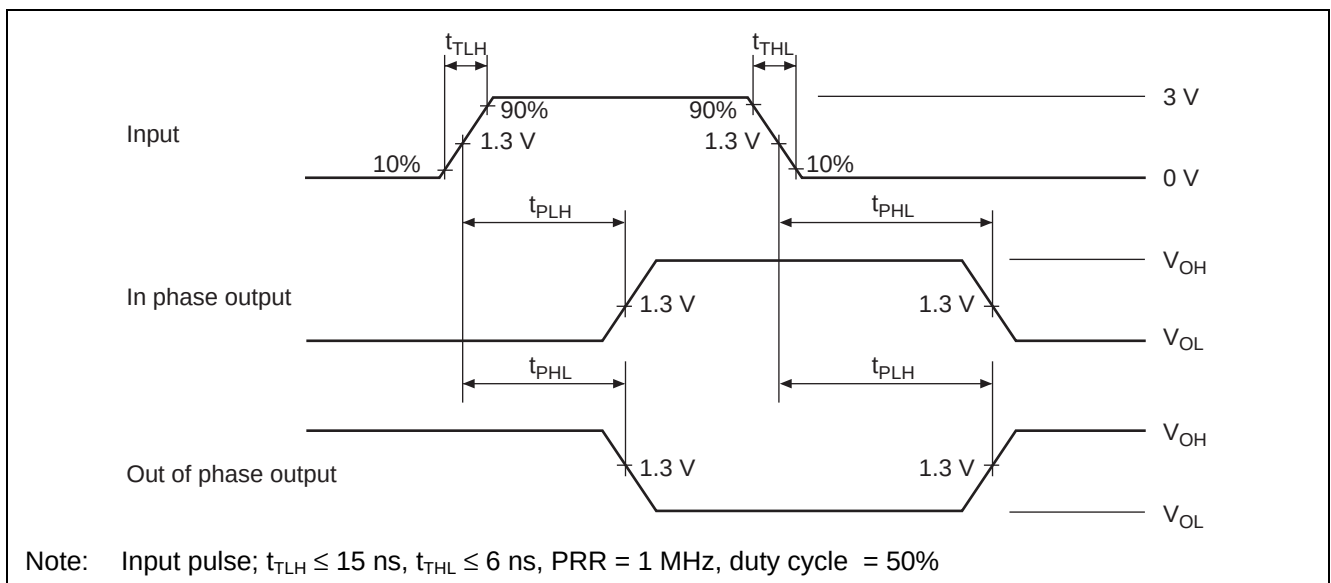
Item	Symbol	Inputs	Outputs	min.	typ.	max.	Unit	Condition
Propagation delay time	t_{PLH}	A, B, C (4 Level)	Y	—	27	43	ns	$C_L = 15 \text{ pF}$, $R_L = 2 \text{ k}\Omega$
	t_{PHL}			—	18	30		
	t_{PLH}	A, B, C (3 Level)	W	—	14	23		
	t_{PHL}			—	20	32		
	t_{PLH}	Strobe	Y	—	26	42		
	t_{PHL}			—	20	32		
	t_{PLH}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

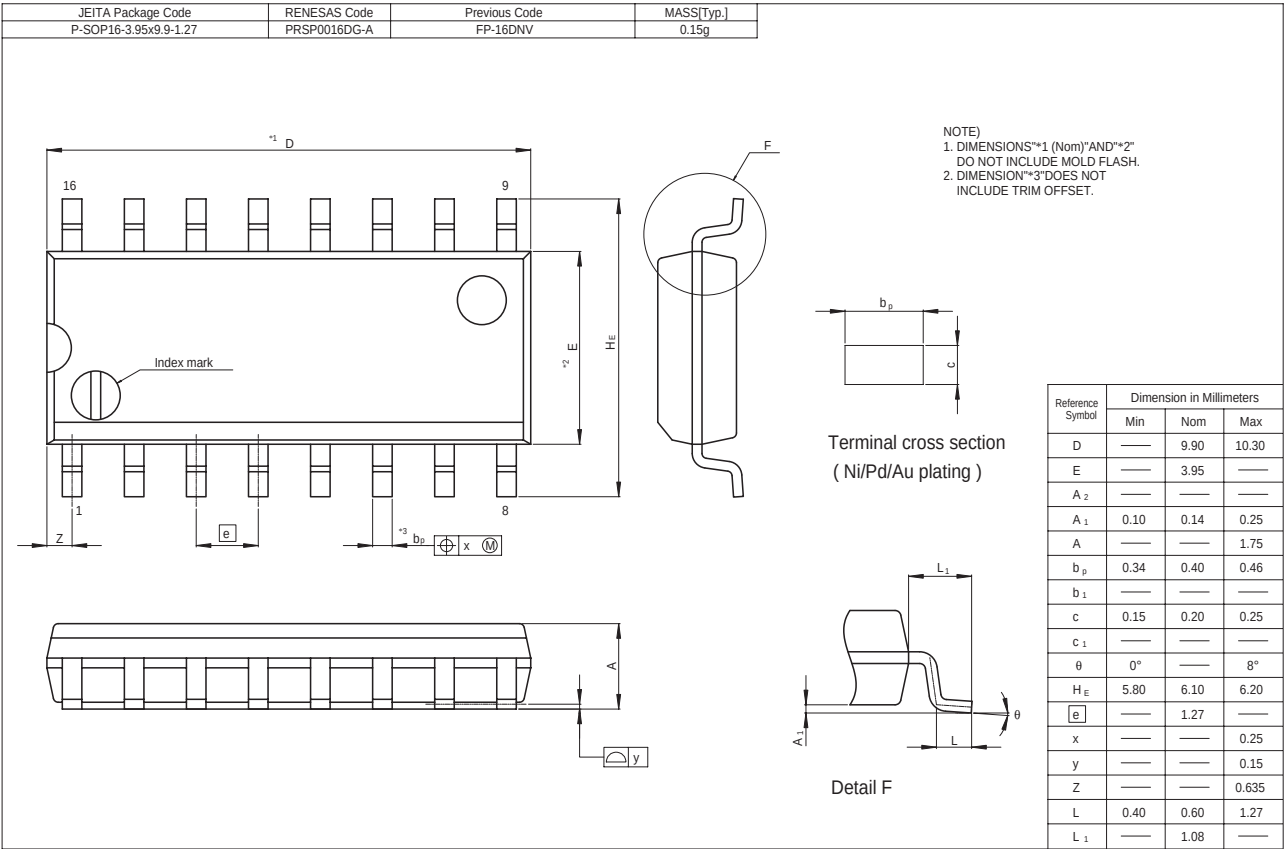
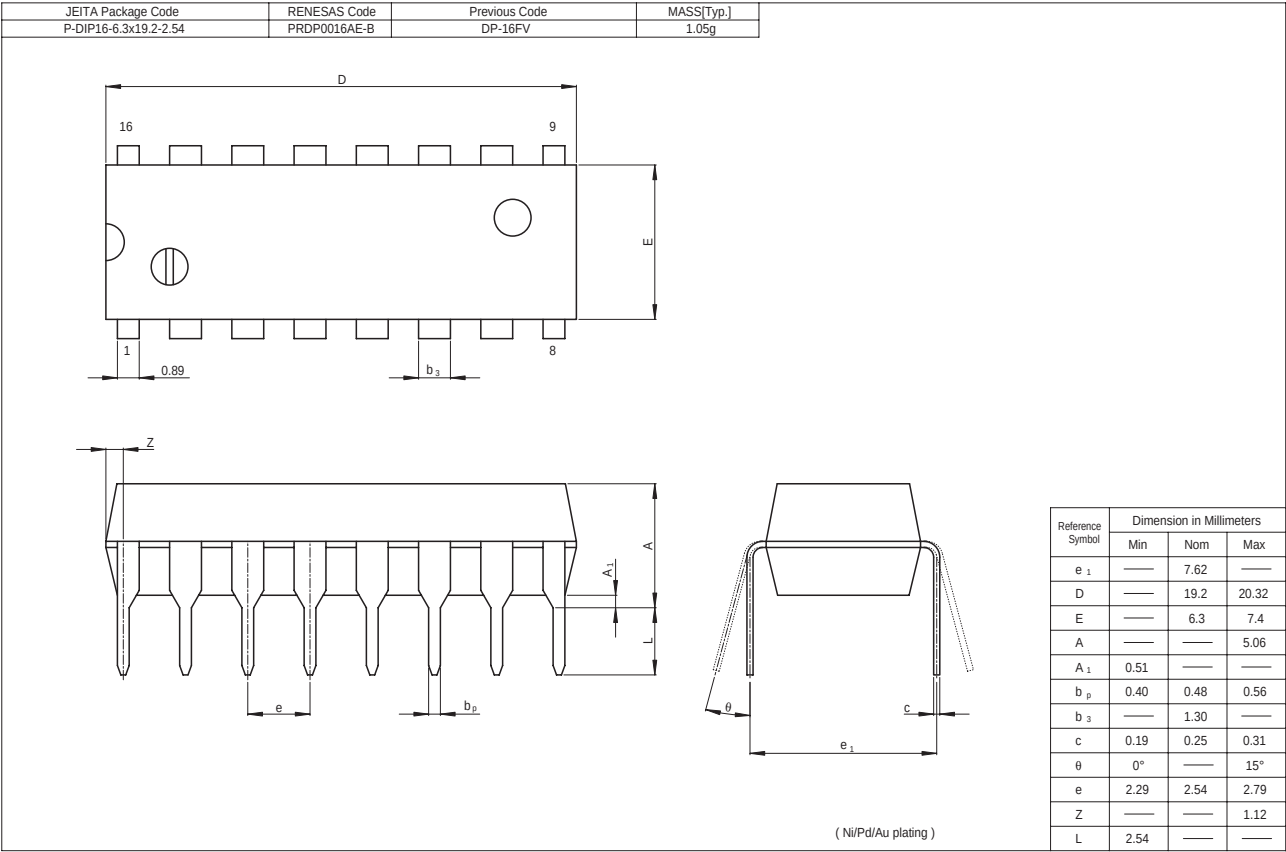
Test Circuit



Waveform



Package Dimensions



Renesas Technology Corp. Sales Strategic Planning Div. Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan

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