

HD74LS158

Quadruple 2-line-to-1-line Data Selectors / Multiplexers (inverted outputs)

REJ03D0443-0200

Rev.2.00

Feb.18.2005

This data selector / multiplexer contains inverters and drivers to supply full on-chip data selection to the four output gates. A separate strobe input is provided. A 4-bit word is selected from one of two sources and is routed to the four outputs. Then, outputs present inverted data to minimize propagation delay time.

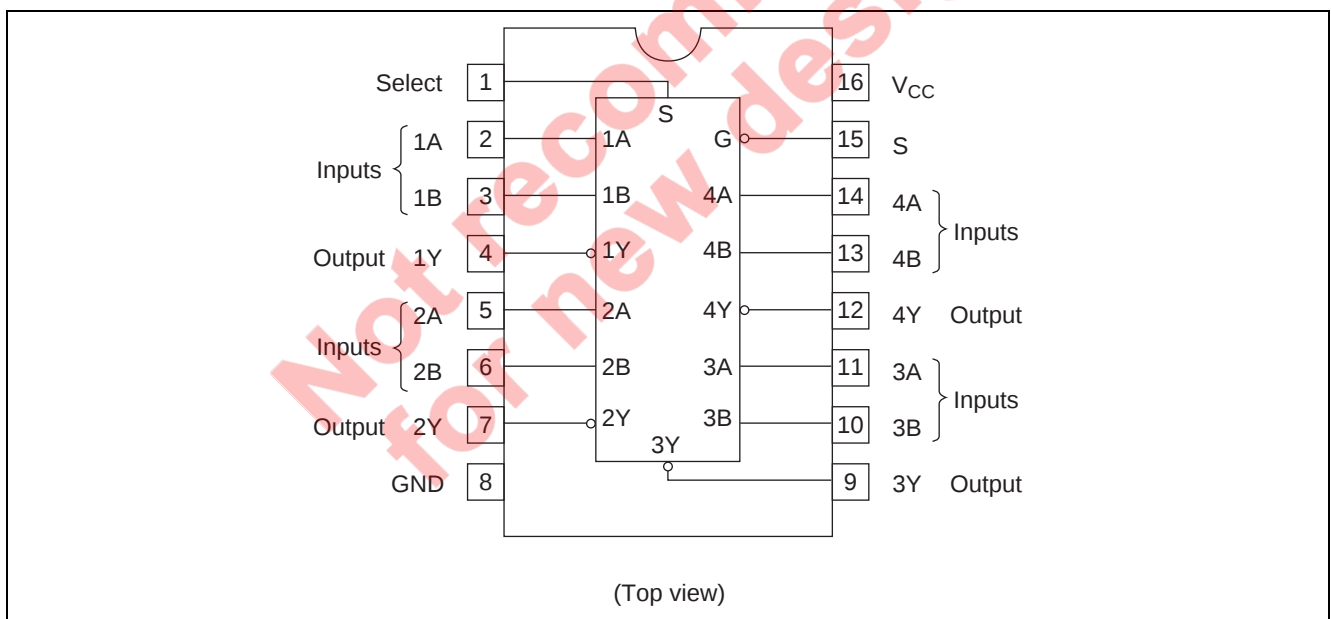
Features

- Ordering Information

Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74LS158FPEL	SOP-16 pin (JEITA)	PRSP0016DH-B (FP-16DAV)	FP	EL (2,000 pcs/reel)

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

Pin Arrangement

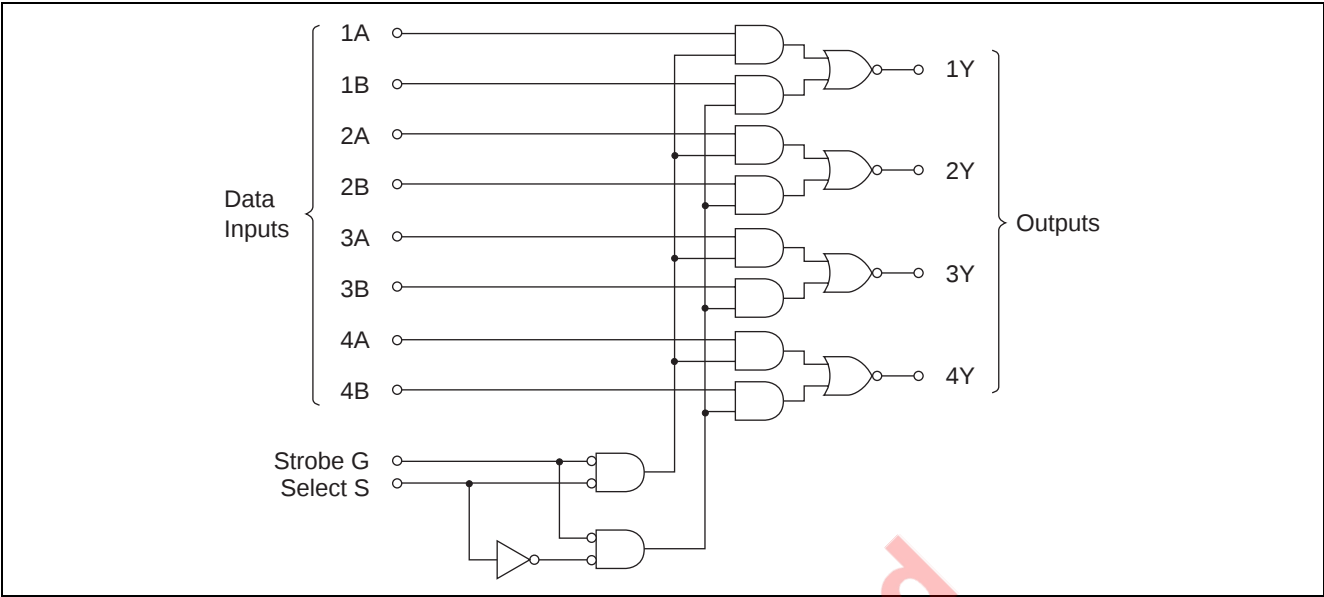


Function Table

Inputs				Output
Strobe	Select	A	B	Y
H	X	X	X	H
L	L	L	X	H
L	L	H	X	L
L	H	X	L	H
L	H	X	H	L

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 V, V _{IH} = 2 V, V _{IL} = 0.8 V, I _{OH} = −400 μA	
		V _{OL}	—	—	0.4	V	I _{OL} = 4 mA	V _{CC} = 4.75 V, V _{IH} = 2 V, V _{IL} = 0.8 V
			—	—	0.5		I _{OL} = 8 mA	
Input current	G, S	I _{IH}	—	—	40	μA	V _{CC} = 5.25 V, V _I = 2.7 V	
	A, B		—	—	20			
	G, S	I _{IL}	—	—	−0.8	mA	V _{CC} = 5.25 V, V _I = 0.4 V	
	A, B		—	—	−0.4			
	G, S	I _I	—	—	0.2	mA	V _{CC} = 5.25 V, V _I = 7 V	
	A, B		—	—	0.1			
Short-circuit output current		I _{OS}	−20	—	−100	mA	V _{CC} = 5.25 V	
Supply current**		I _{CC}	—	4.8	8	mA	V _{CC} = 5.25 V	
Input clamp voltage		V _{IK}	—	—	−1.5	V	V _{CC} = 4.75 V, I _{IN} = −18 mA	

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

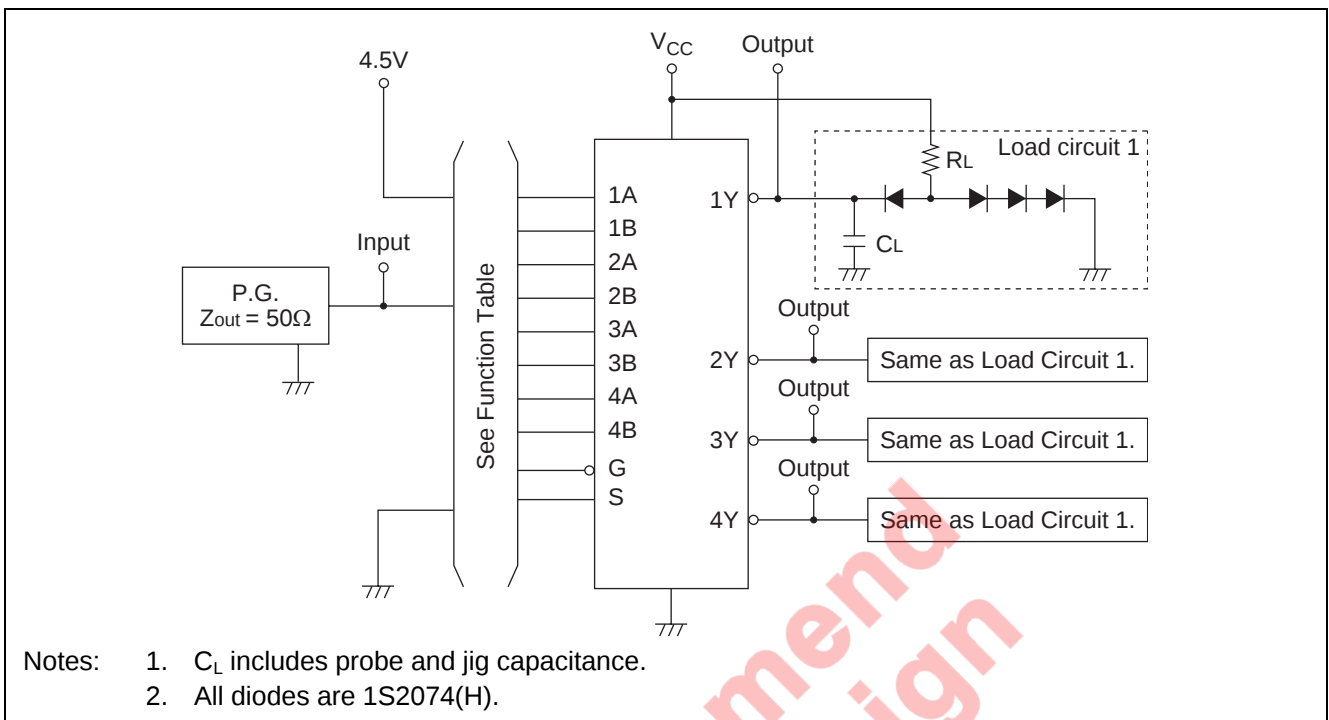
Switching Characteristics

(V_{CC} = 5 V, Ta = 25°C)

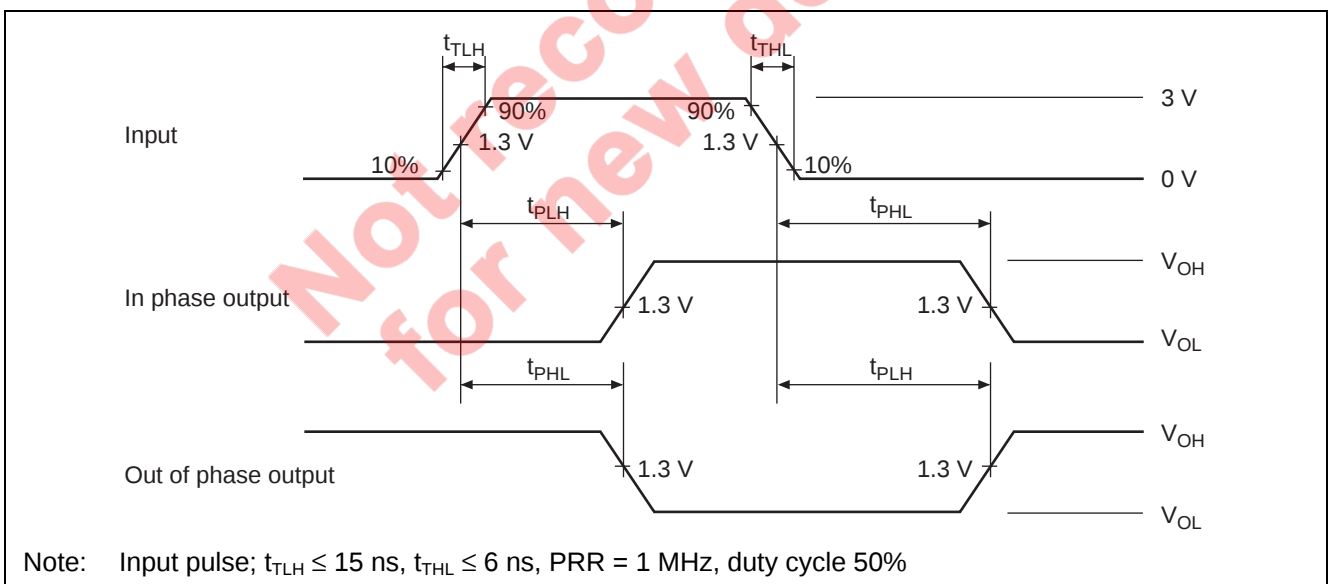
Item	Symbol	Inputs	Output	min.	typ.	max.	Unit	Condition
Propagation delay time	t _{PLH}	Data	Y	—	7	12	ns	C _L = 15 pF, R _L = 2 kΩ
	t _{PHL}			—	7	12		
	t _{PLH}	Strobe	Y	—	11	17	ns	
	t _{PHL}			—	12	18		
	t _{PLH}	Select	Y	—	13	20	ns	
	t _{PHL}			—	16	24		

Testing Method

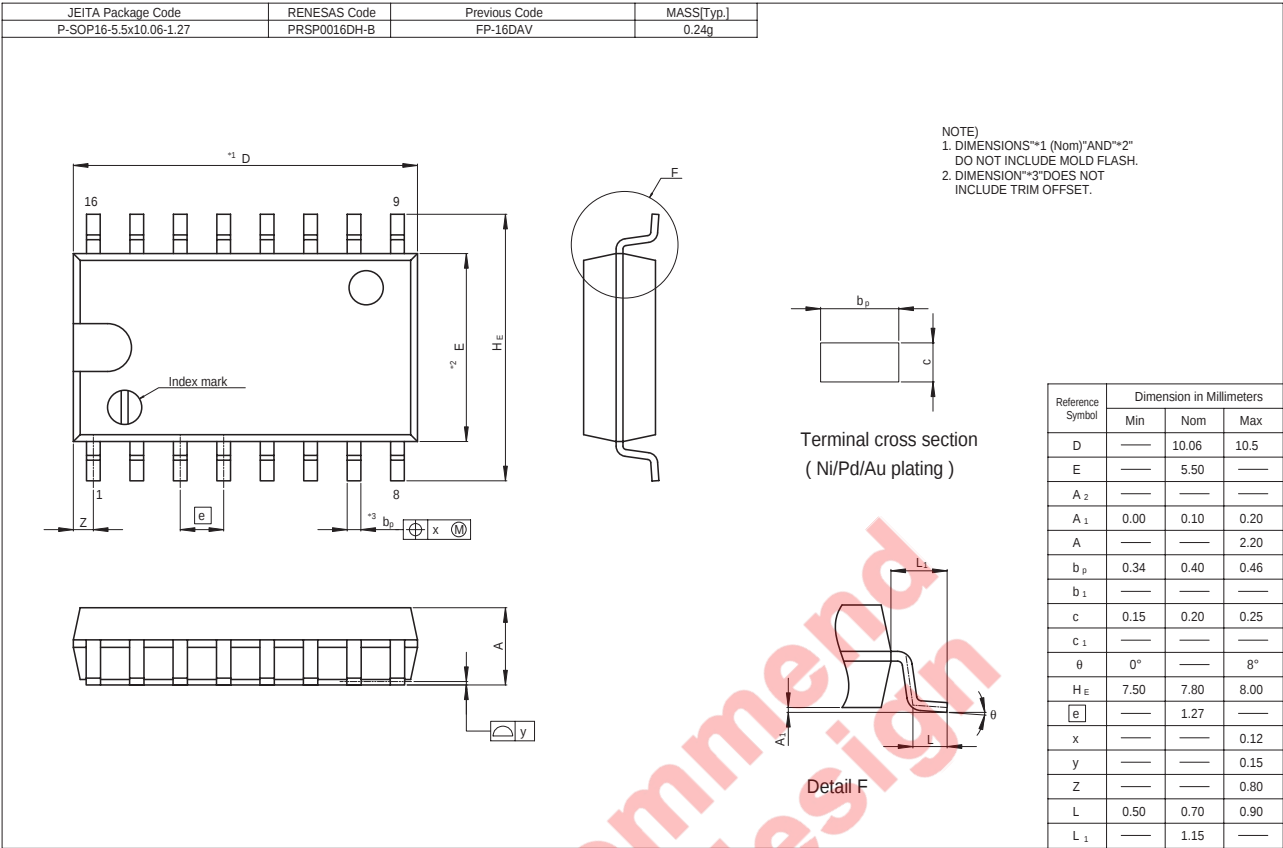
Test Circuit



Waveform



Package Dimensions



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