To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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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.

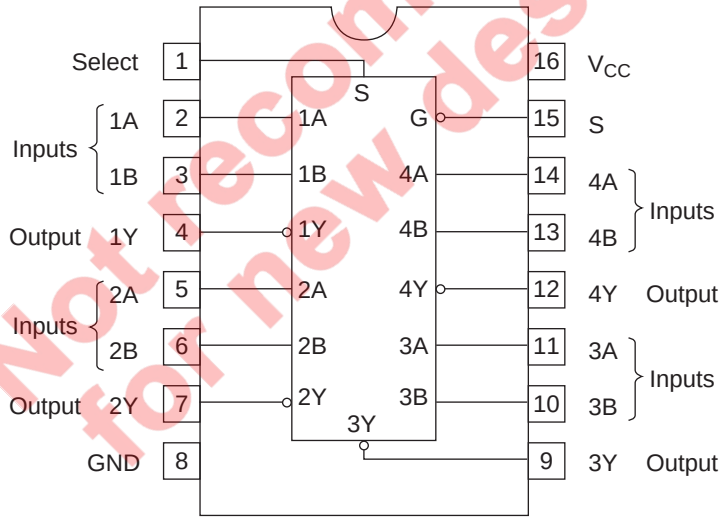
Features

- 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



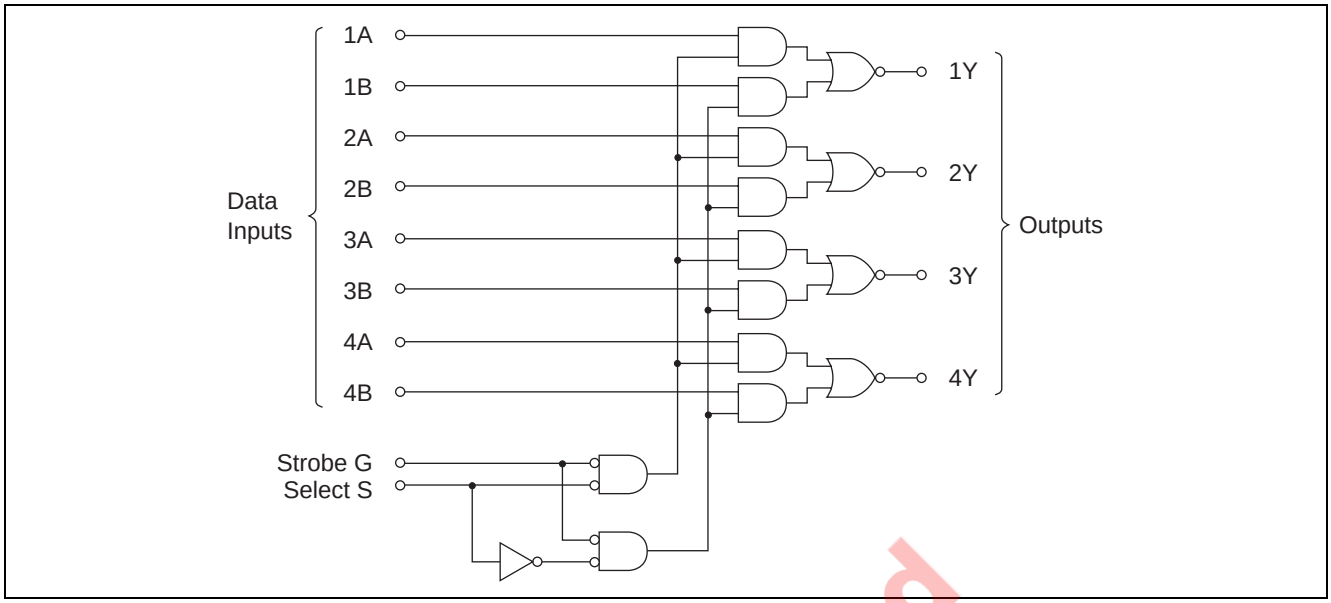
(Top view)

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	Tstg	–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	Topr	–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.

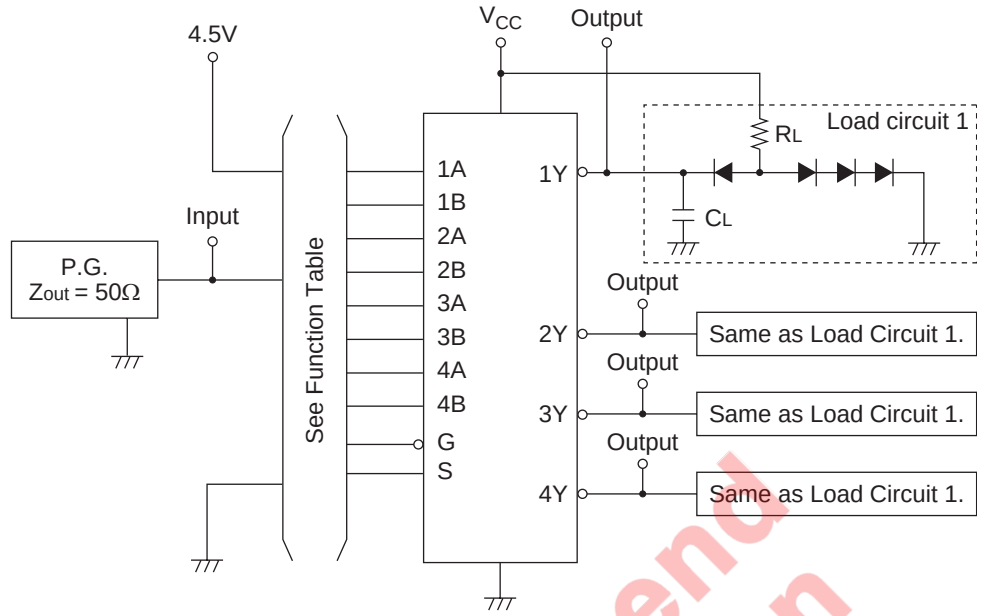
Switching Characteristics

(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		

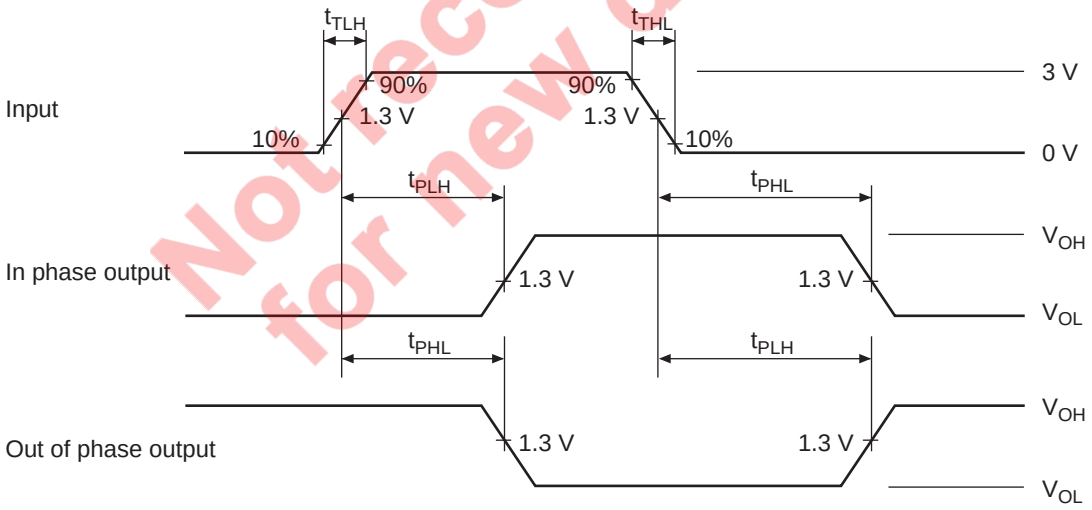
Testing Method

Test Circuit



Notes: 1. C_L includes probe and jig capacitance.
2. All diodes are 1S2074(H).

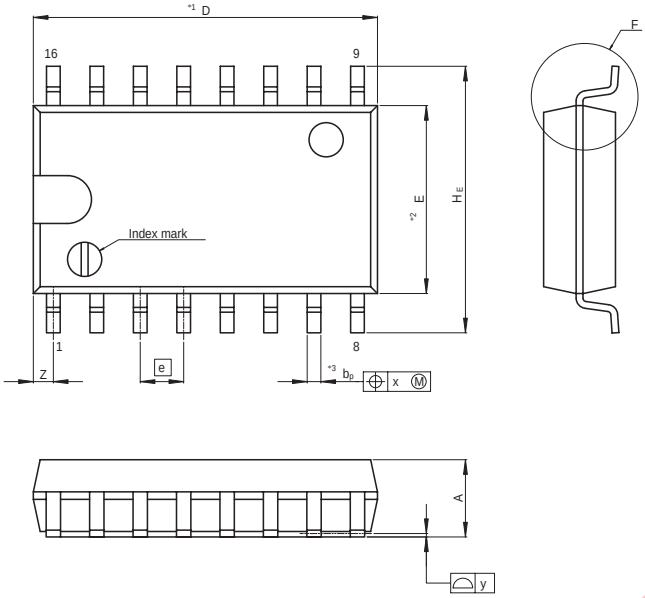
Waveform



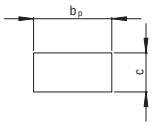
Note: Input pulse; $t_{TLH} \leq 15$ ns, $t_{THL} \leq 6$ ns, PRR = 1 MHz, duty cycle 50%

Package Dimensions

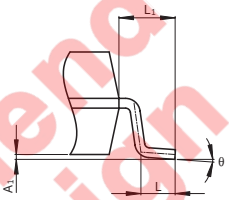
JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-SOP16-5.5x10.06-1.27	PRSP0016DH-B	FP-16DAV	0.24g



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



Terminal cross section
(Ni/Pd/Au plating)



Detail F

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	——	10.06	10.5
E	——	5.50	——
A_2	——	——	——
A_1	0.00	0.10	0.20
A	——	——	2.20
b_p	0.34	0.40	0.46
b_1	——	——	——
c	0.15	0.20	0.25
c_1	——	——	——
θ	0°	——	8°
H_E	7.50	7.80	8.00
e	——	1.27	——
x	——	——	0.12
y	——	——	0.15
Z	——	——	0.80
L	0.50	0.70	0.90
L_1	——	1.15	——

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