

HD74LS157

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

REJ03D0442-0200

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 true data to minimize propagation delay time.

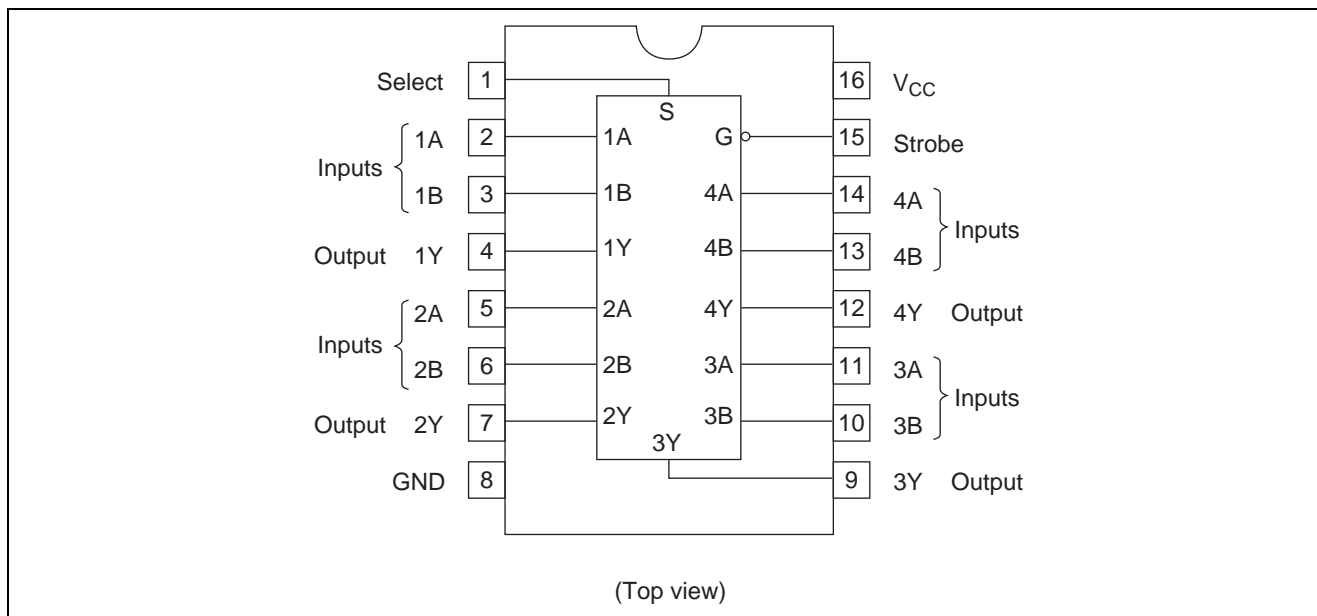
Features

- Ordering Information

Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74LS157P	DILP-16 pin	PRDP0016AE-B (DP-16FV)	P	—
HD74LS157FPEL	SOP-16 pin (JEITA)	PRSP0016DH-B (FP-16DAV)	FP	EL (2,000 pcs/reel)
HD74LS157RPEL	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

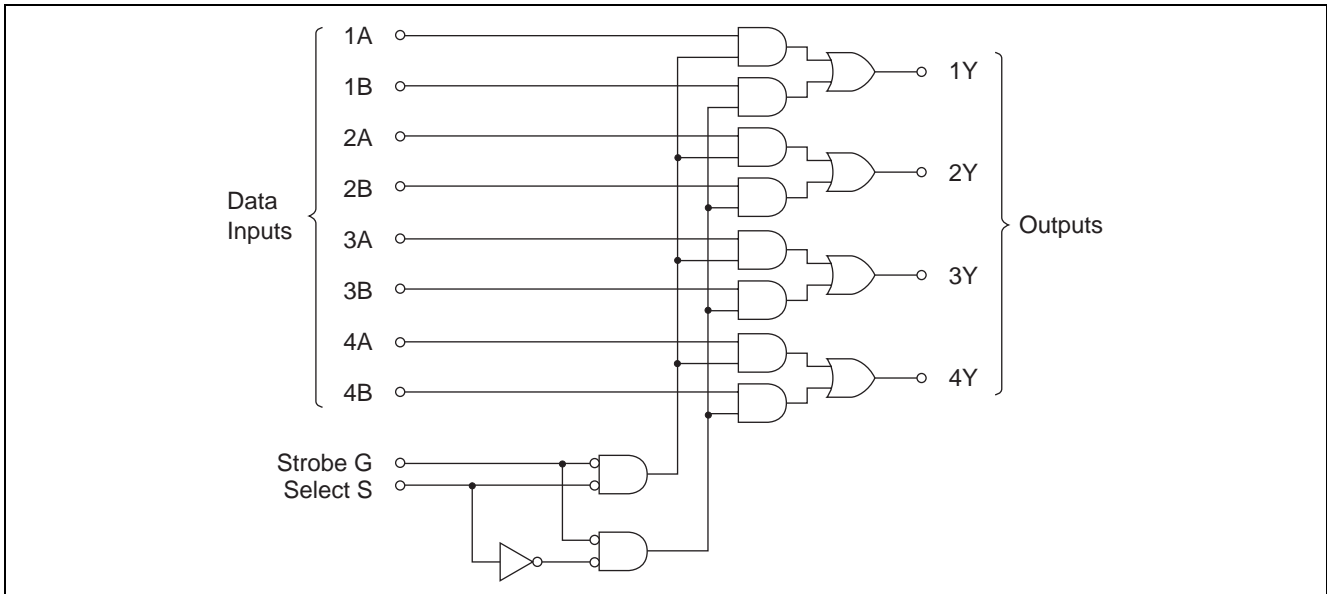


Function Table

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

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	V _{CC} = 4.75 V, V _{IH} = 2 V, V _{IL} = 0.8 V
—		—	0.5			
Input current	S, G	I _{IH}	—	—	40	V _{CC} = 5.25 V, V _I = 2.7 V
	A, B		—	—	20	
	S, G	I _{IL}	—	—	-0.8	
	A, B		—	—	-0.4	
	S, G	I _I	—	—	0.2	
	A, B		—	—	0.1	
Short-circuit output current	I _{OS}	-20	—	-100	mA	V _{CC} = 5.25 V
Supply current**	I _{CC}	—	9.7	16	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.

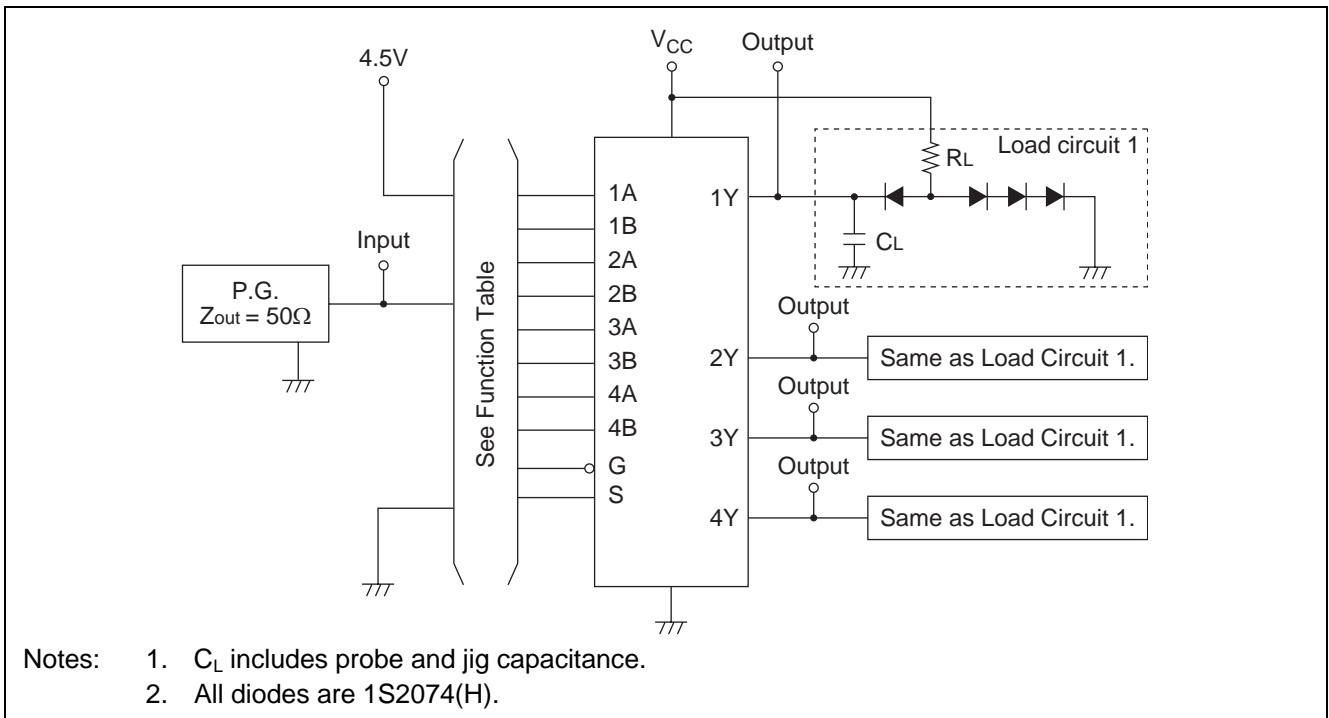
Switching Characteristics

(V_{CC} = 5 V, Ta = 25°C)

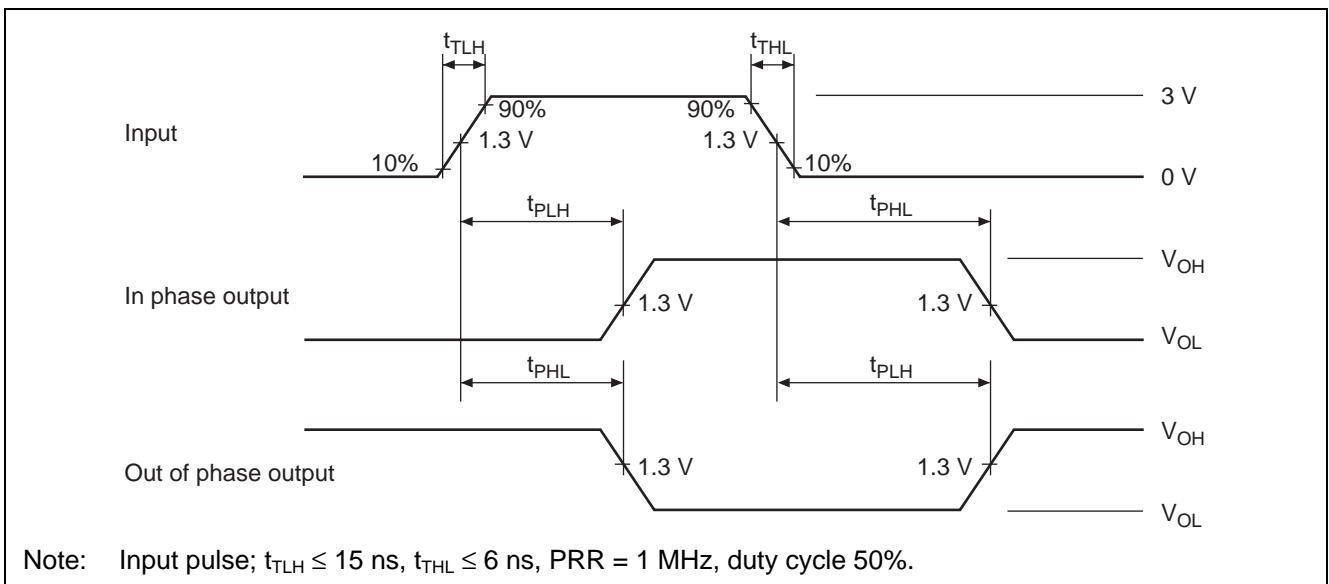
Item	Symbol	Inputs	Output	min.	typ.	max.	Unit	Condition
Propagation delay time	t _{PLH}	Data	Y	—	9	14	ns	C _L = 15 pF, R _L = 2 kΩ
	t _{PHL}			—	9	14	ns	
	t _{PLH}	Strobe	Y	—	13	20	ns	
	t _{PHL}			—	14	21	ns	
	t _{PLH}	Select	Y	—	15	23	ns	
	t _{PHL}			—	18	27	ns	

Testing Method

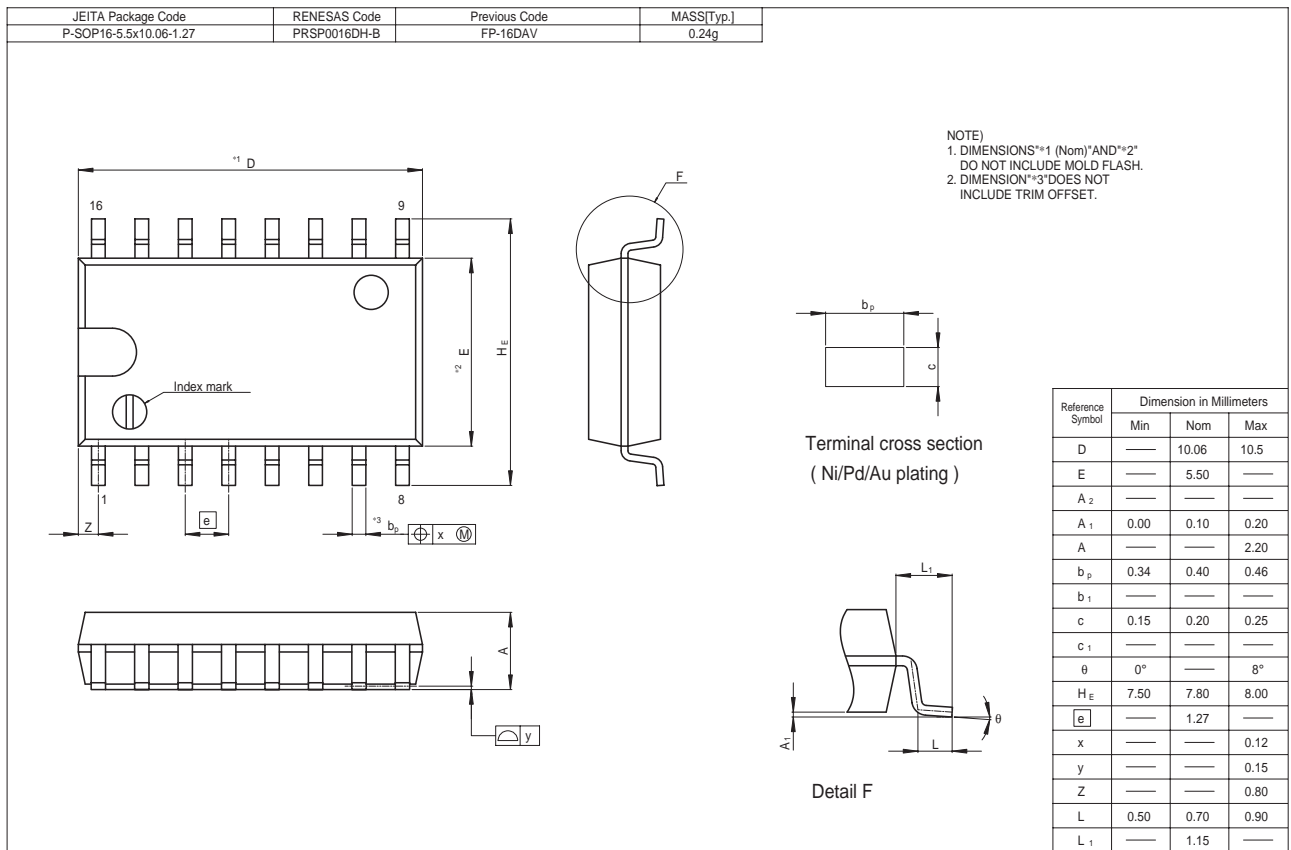
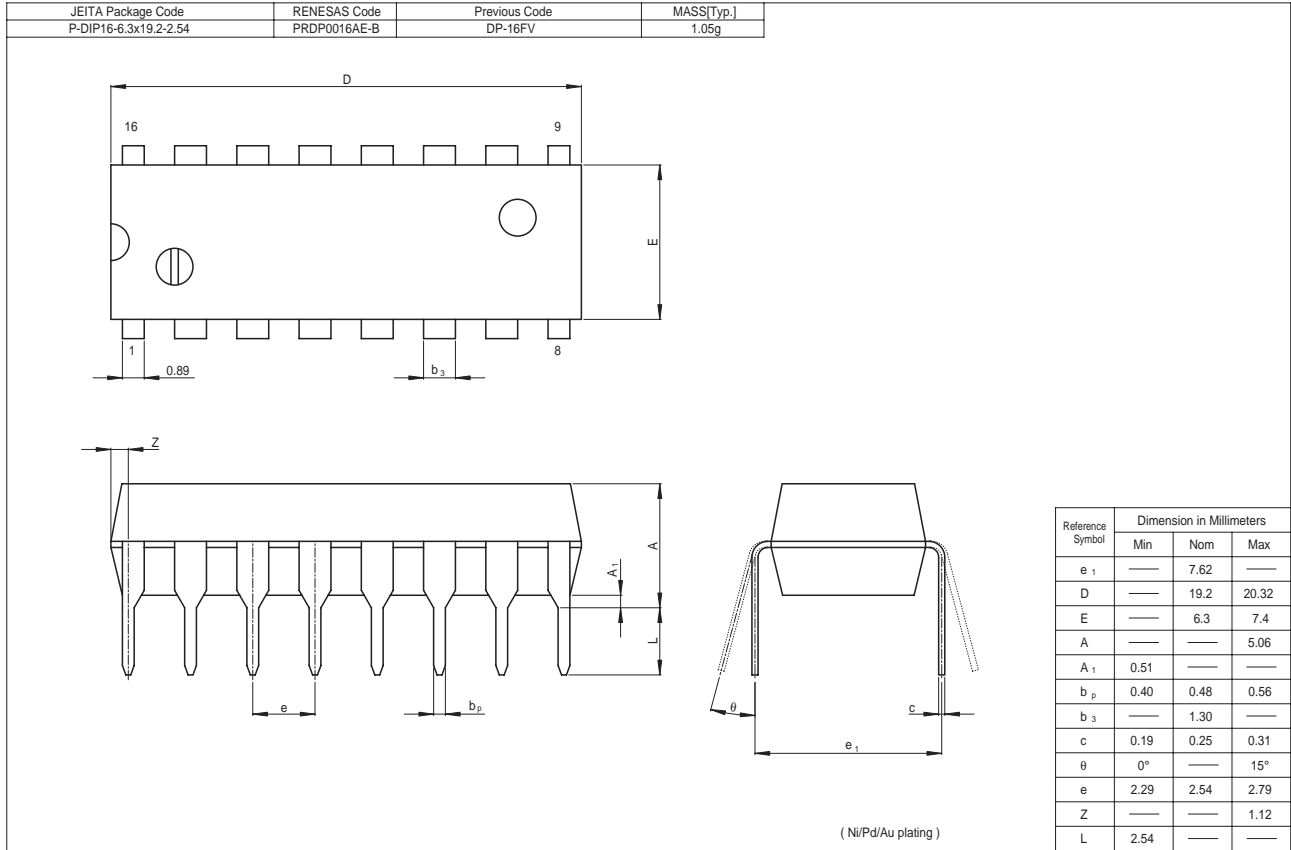
Test Circuit



Waveform

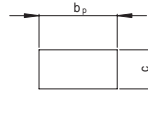
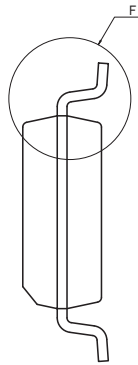
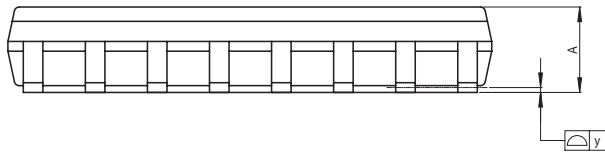
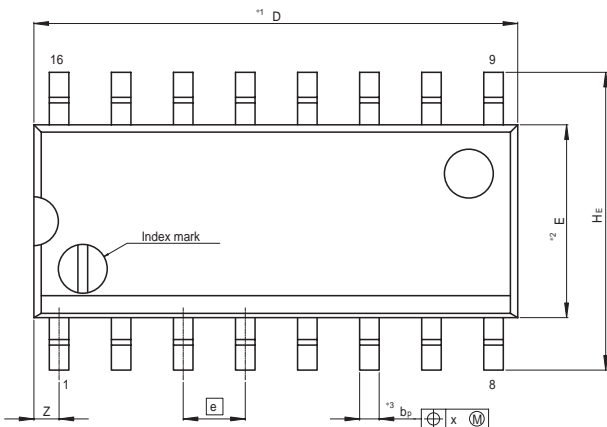


Package Dimensions

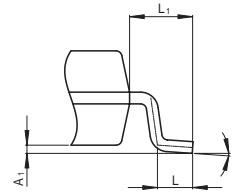


HD74LS157

JEITA Package Code P-SOP16-3.95x9.9-1.27	RENESAS Code PRSP0016DG-A	Previous Code FP-16DNV	MASS[Typ.] 0.15g
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Terminal cross section
(Ni/Pd/Au plating)



Detail F

NOTE)
1. DIMENSIONS *1 (Nom) *2 AND *3
DO NOT INCLUDE MOLD FLASH.
2. DIMENSION *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°
H _E	5.80	6.10	6.20
e	—	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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