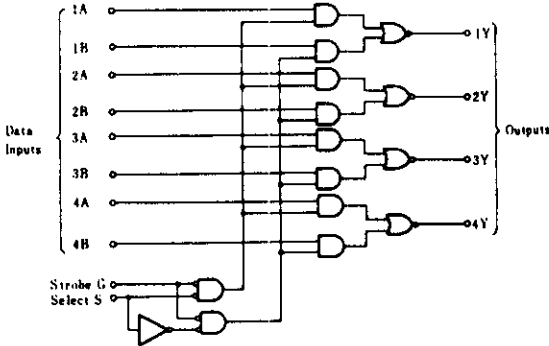


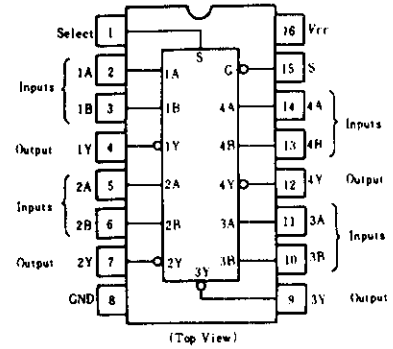
# HD74LS158 • Quadruple 2-line-to-1-line Data Selectors/Multiplexers (inverted outputs)

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.

## ■ BLOCK DIAGRAM



## ■ 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

## ■ ELECTRICAL CHARACTERISTICS ( $T_a = -20 \sim +75^\circ\text{C}$ )

Item	Symbol	Test Conditions	min	typ*	max	Unit	
Input voltage	$V_{IH}$		2.0	—	—	V	
	$V_{IL}$		—	—	0.8	V	
Output voltage	$V_{OH}$	$V_{CC}=4.75\text{V}, V_{IH}=2\text{V}, V_{IL}=0.8\text{V}, I_{OH}=-400\mu\text{A}$	2.7	—	—	V	
	$V_{OL}$	$V_{CC}=4.75\text{V}, V_{IH}=2\text{V}, V_{IL}=0.8\text{V}$	—	—	0.4	V	
		$I_{OL}=4\text{mA}$	—	—	0.5		
Input current	G, S	$I_{IH}$	$V_{CC}=5.25\text{V}, V_I=2.7\text{V}$	—	—	40	$\mu\text{A}$
	A, B			—	—	20	
	G, S	$I_{IL}$	$V_{CC}=5.25\text{V}, V_I=0.4\text{V}$	—	—	-0.8	mA
	A, B			—	—	-0.4	
	G, S	$I_I$	$V_{CC}=5.25\text{V}, V_I=7\text{V}$	—	—	0.2	mA
	A, B			—	—	0.1	
Short-circuit output current	$I_{OS}$	$V_{CC}=5.25\text{V}$	-20	—	-100	mA	
Supply current **	$I_{CC}$	$V_{CC}=5.25\text{V}$	—	4.8	8	mA	
Input clamp voltage	$V_{IK}$	$V_{CC}=4.75\text{V}, I_{IN}=-18\text{mA}$	—	—	-1.5	V	

\*  $V_{CC}=5\text{V}, T_a=25^\circ\text{C}$

\*\*  $I_{CC}$  is measured with all outputs open and all inputs at 4.5V.

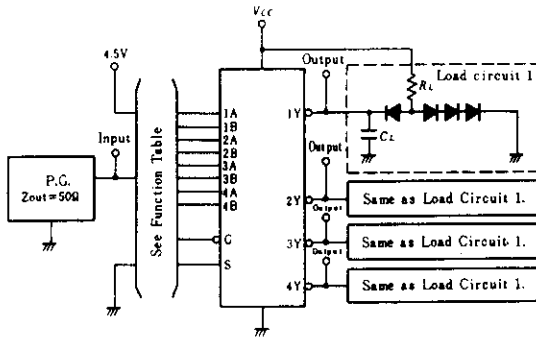
# HD74LS158

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

Item	Symbol	Inputs	Output	Test Conditions	min	typ	max	Unit
Propagation delay time	$t_{PLH}$	Data	Y	$C_L=15pF$ , $R_L=2k\Omega$	—	7	12	ns
	$t_{PHL}$				—	7	12	
	$t_{PLH}$	Strobe	Y		—	11	17	ns
	$t_{PHL}$				—	12	18	
	$t_{PLH}$	Select	Y		—	13	20	ns
	$t_{PHL}$				—	16	24	

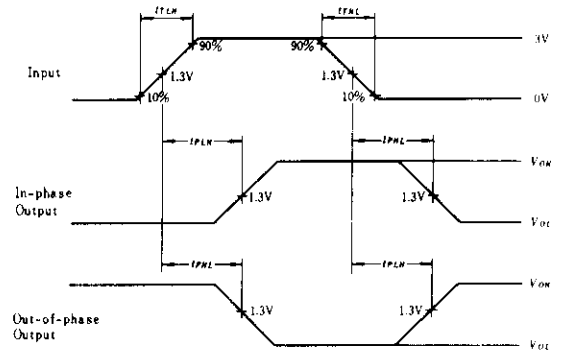
## ■ TESTING METHOD

### 1) Test Circuit

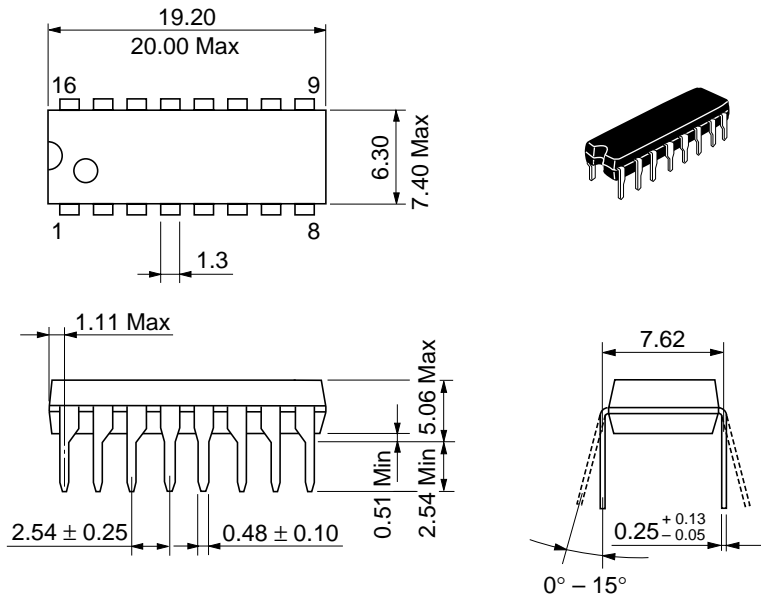


- Notes) 1.  $C_L$  includes probe and jig capacitance.  
 2. All diodes are 1S2074 (H).

### Waveform

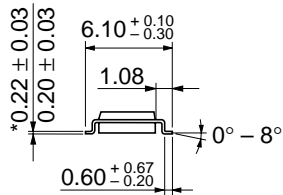
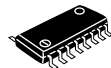
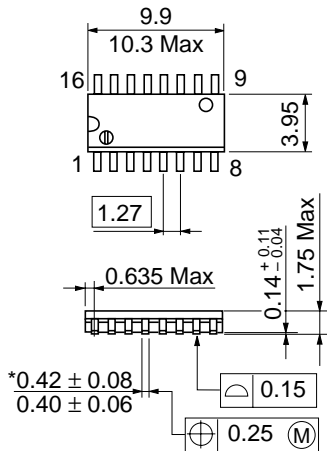


Input pulse:  $t_{TLH} \leq 15ns$ ,  $t_{THL} \leq 6ns$ ,  
 $PRR=1MHz$ , duty cycle 50%.



Hitachi Code	DP-16
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.07 g





\*Dimension including the plating thickness  
Base material dimension

Hitachi Code	FP-16DN
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.15 g

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