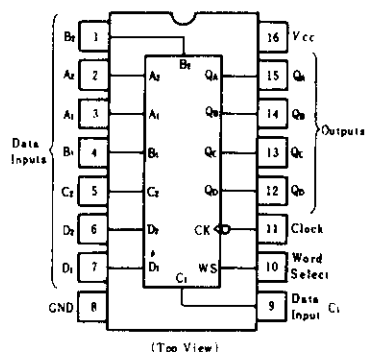


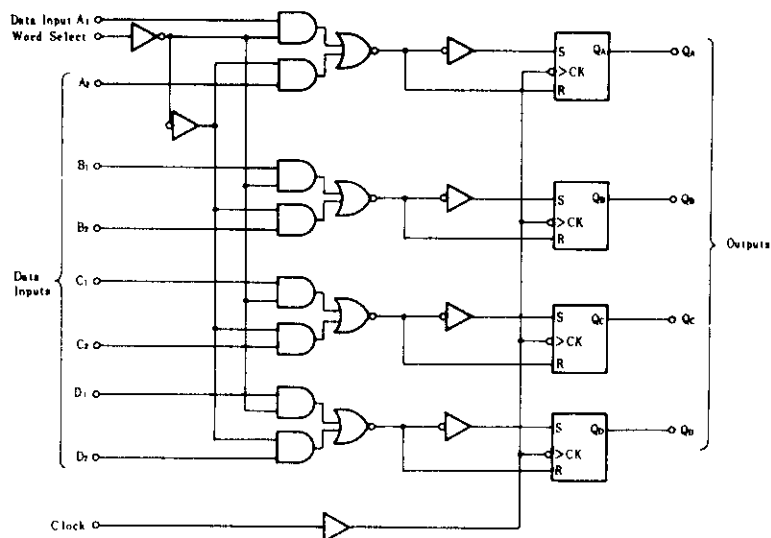
# HD74LS298 • Quadruple 2-input Multiplexers (with storage)

This quadruple two-input multiplexer with storage provides essentially the equivalent functional capabilities of two separate MSI functions (HD74LS157 and HD74LS175). When the word-select input is low, word 1 ( $A_1, B_1, C_1, D_1$ ) is applied to the flip-flops. A high input to word select will cause the selection of word 2 ( $A_2, B_2, C_2, D_2$ ). The selected word is clocked to the output terminals on the negative-going edge of the clock pulse.

## ■ PIN ARRANGEMENT



## ■ BLOCK DIAGRAM



## ■ FUNCTION TABLE

Inputs		Outputs			
Word Select	Clock	$Q_A$	$Q_B$	$Q_C$	$Q_D$
L	↓	$a_1$	$b_1$	$c_1$	$d_1$
H	↓	$a_2$	$b_2$	$c_2$	$d_2$
X	H	$Q_{A0}$	$Q_{B0}$	$Q_{C0}$	$Q_{D0}$

- Notes) 1. H; high level, L; low level, X; irrelevant (any input, including transition)  
 2. ↓; transition from high to low level  
 3.  $a_1, a_2$ , etc; the level of steady-state input at  $A_1, A_2$ , etc.  
 4.  $Q_{A0}, Q_{B0}$ , etc; the level of  $Q_A, Q_B$ , etc. entered on the most-recent ↓ transition of the clock input.

## ■ RECOMMENDED OPERATING CONDITIONS

Item	Symbol	min	typ	max	Unit
Clock pulse width	$t_{w(CK)}$	20	—	—	ns
Setup time	Data	15	—	—	ns
	Word Select	25	—	—	
Hold time	Data	5	—	—	ns
	Word Select	0	—	—	

## 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	
	$V_{OL}$	$V_{CC}=4.75\text{V}, V_{IH}=2\text{V}, V_{IL}=0.8\text{V}$	$I_{OL}=4\text{mA}$	—	—	0.4	V
			$I_{OL}=8\text{mA}$	—	—	0.5	
Input current	$I_{IH}$	$V_{CC}=5.25\text{V}, V_I=2.7\text{V}$	—	—	20	$\mu\text{A}$	
	$I_{IL}$	$V_{CC}=5.25\text{V}, V_I=0.4\text{V}$	—	—	-0.4	mA	
	$I_I$	$V_{CC}=5.25\text{V}, V_I=7\text{V}$	—	—	0.1	mA	
Short-circuit output current	$I_{OS}$	$V_{CC}=5.25\text{V}$	-20	—	-100	mA	
Supply current **	$I_{CC}$	$V_{CC}=5.25\text{V}$	—	13	21	mA	
Input clamp voltage	$V_{IK}$	$V_{CC}=4.75\text{V}, I_{IN}=-18\text{mA}$	—	—	-1.5	V	

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

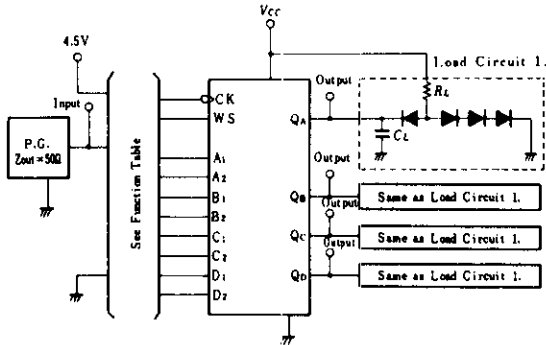
\*\* With all outputs open and all inputs except clock low,  $I_{CC}$  is measured after applying a momentary 4.5V, followed by ground, to the clock input.

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

Item	Symbol	Test Conditions	min	typ	max	Unit
Propagation delay time	$t_{PLH}$	$C_L=15\text{pF}, R_L=2\text{k}\Omega$	—	18	27	ns
	$t_{PHL}$		—	21	32	ns

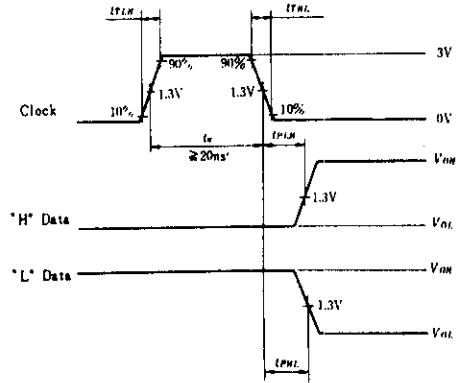
## TESTING METHOD

### 1) Test Circuit

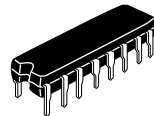
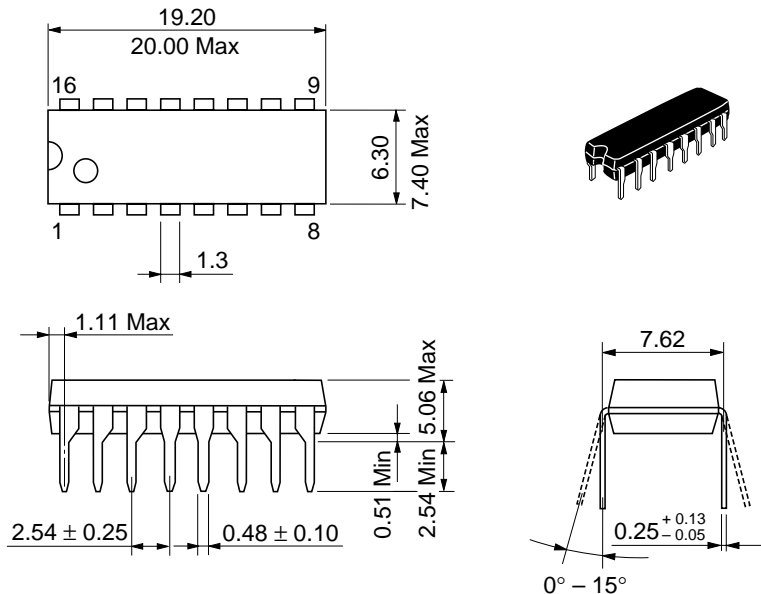


- Notes) 1.  $C_L$  includes probe and jig capacitance.  
2. All diodes are 1S2074 (Ⓜ).

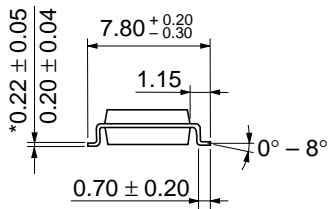
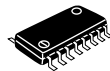
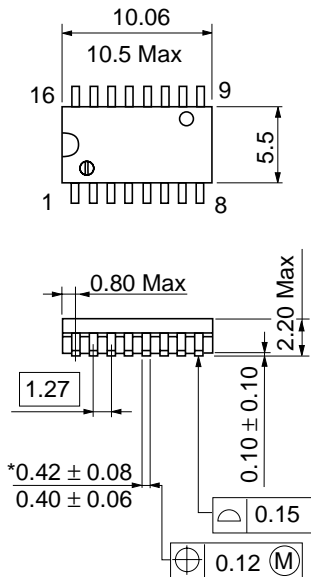
### Waveform



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

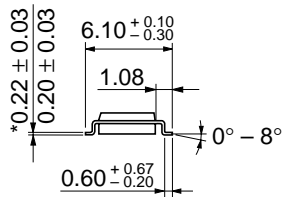
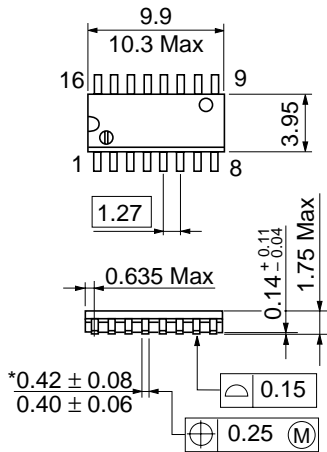


Hitachi Code	DP-16
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.07 g



\*Dimension including the plating thickness  
 Base material dimension

Hitachi Code	FP-16DA
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.24 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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