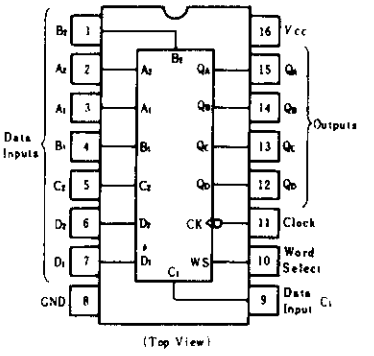
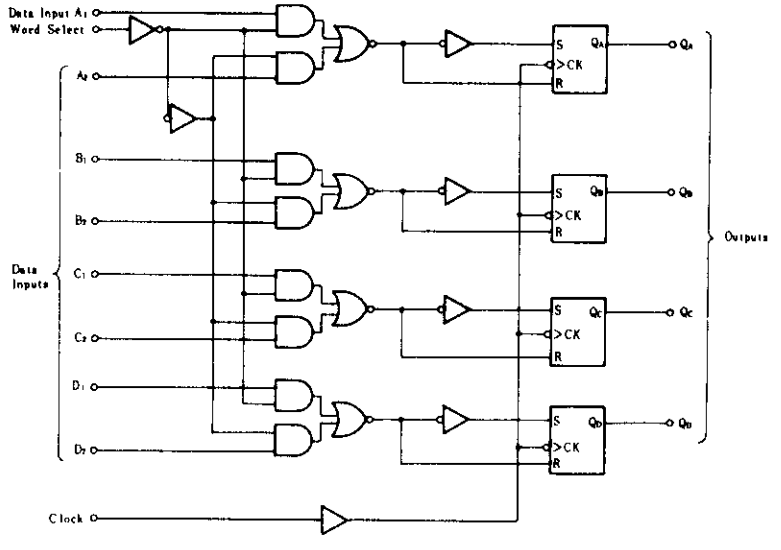
HD74LS298 ●Quadruple 2-input Multiplexers (with storage)

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 applies 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	t_{su}	15	—	—	ns
	Word Select		25	—	—	
Hold time	Data	t_h	5	—	—	ns
	Word Select		0	—	—	

■ELECTRICAL CHARACTERISTICS (Ta=−20~+75°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}=4.75V, V_{IH}=2V, V_{IL}=0.8V, I_{OH}=−400μA		2.7	—	—	V
	V_{OL}	V_{CC}=4.75V, V_{IH}=2V, V_{IL}=0.8V	I_{OL}=4mA	—	—	0.4	V
			I_{OL}=8mA	—	—	0.5	
Input current	I_{IH}	V_{CC}=5.25V, V_I=2.7V		—	—	20	μA
	I_{IL}	V_{CC}=5.25V, V_I=0.4V		—	—	−0.4	mA
	I_I	V_{CC}=5.25V, V_I=7V		—	—	0.1	mA
Short-circuit output current	I_{OS}	V_{CC}=5.25V		−20	—	−100	mA
Supply current **	I_{CC}	V_{CC}=5.25V		—	13	21	mA
Input clamp voltage	V_{IK}	V_{CC}=4.75V, I_{IN}=−18mA		—	—	−1.5	V

* V_{CC}=5V, Ta=25°C

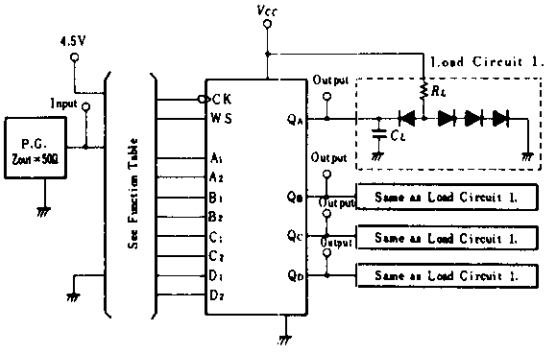
** With all outputs open and all inputs except clock low, I_{CC} is measured after applying a momentary 4.5V, followed by ground, to the clock input.

■SWITCHING CHARACTERISTICS (V_{CC}=5V, Ta=25°C)

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

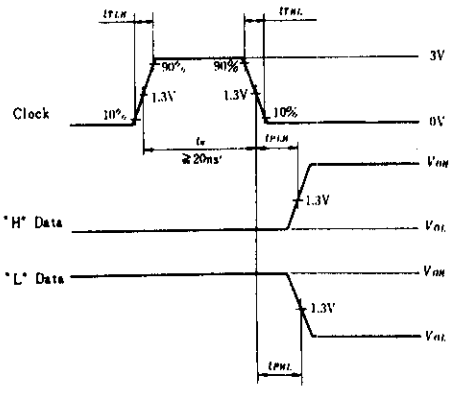
■TESTING METHOD

1) Test Circuit



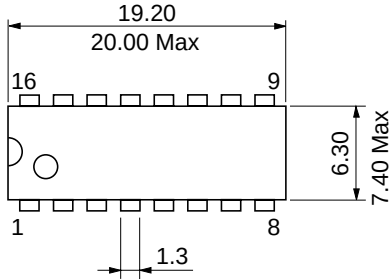
Notes) 1. C_L includes probe and jig capacitance.
2. All diodes are 1S2074 Ⓗ.

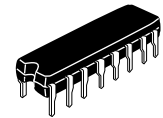
Waveform

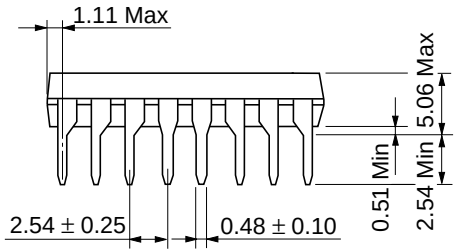


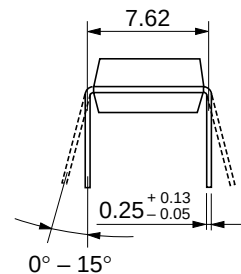
Input pulse; t_{TLH}≦15ns, t_{THL}≦6ns, PRR=1MHz.

Unit: mm



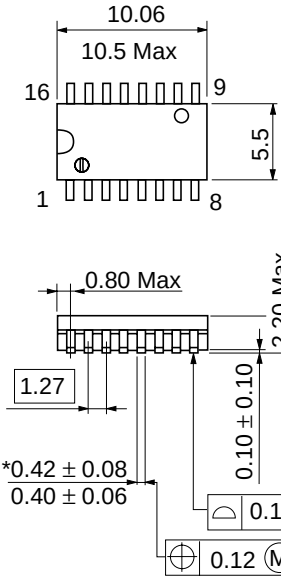


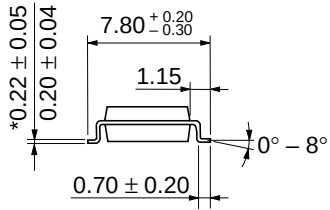


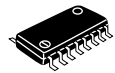


Hitachi Code	DP-16
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.07 g

Unit: mm



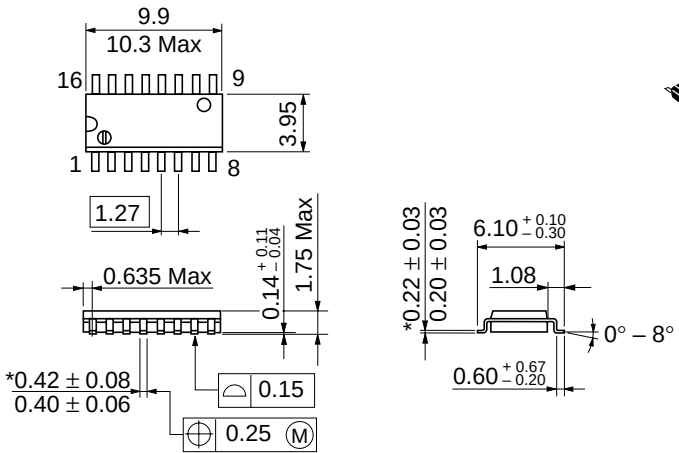




*Dimension including the plating thickness
Base material dimension

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

Unit: mm



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

*Dimension including the plating thickness
Base material dimension

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