

HD74HC375

Quad. Bistable Latches

HITACHI

ADE-205-500 (Z)
1st. Edition
Sep. 2000

Description

This latch is ideally suited for use as temporary storage for binary information between processing units and input/output or indicator units. Information present at a data (D) input is transferred to the Q output when the enable (G) is high and the Q output will follow the data input as long as the enable remains high. When the enable goes low, the information (that was present at the data input at the time the transition occurred) is retained at the Q output until the enable goes high.

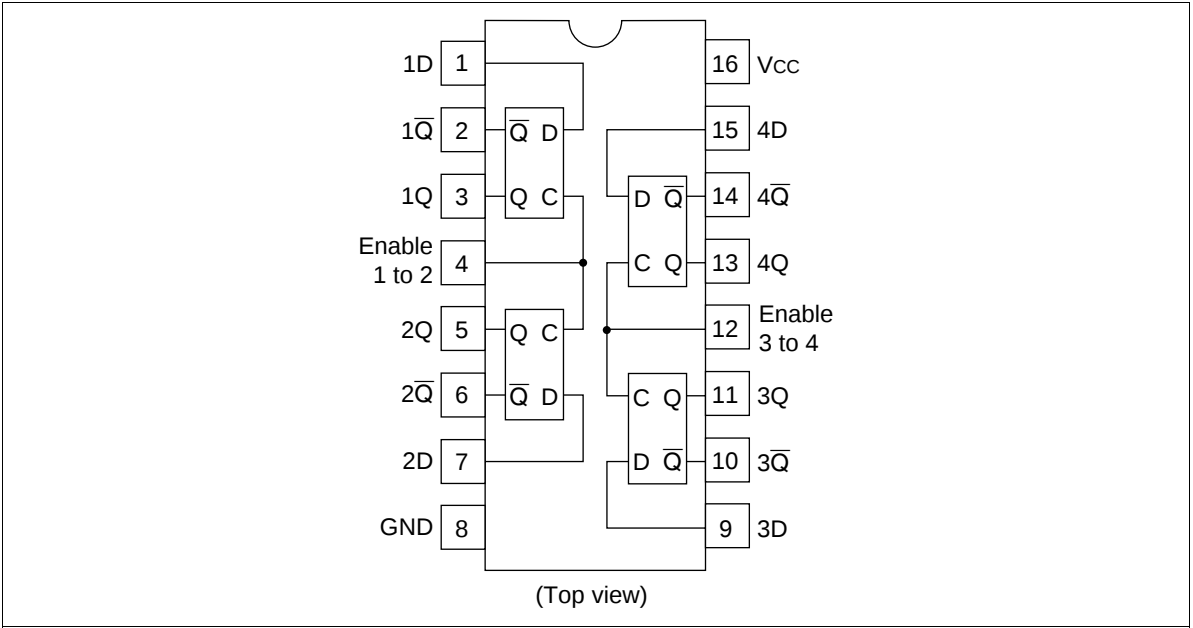
Features

- High Speed Operation: t_{pd} (Data to Q, $\overline{Q}$) = 10 ns typ ($C_L = 50$ pF)
- High Output Current: Fanout of 10 LSTTL Loads
- Wide Operating Voltage: $V_{CC} = 2$ to 6 V
- Low Input Current: 1 μ A max
- Low Quiescent Supply Current: I_{CC} (static) = 4 μ A max ($T_a = 25^\circ\text{C}$)

Function Table

Inputs		Outputs	
D	G	Q	$\overline{Q}$
L	H	L	H
H	H	H	L
X	L	no change	no change

Pin Arrangement



DC Characteristics

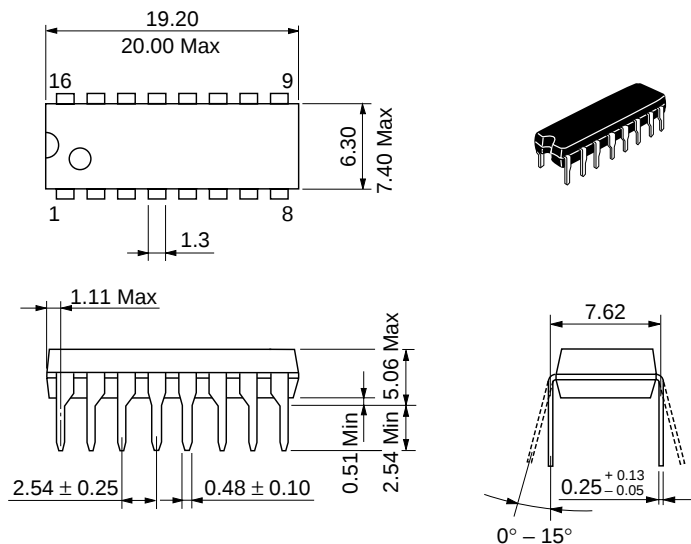
Item	Symbol	V _{CC} (V)	Ta = 25°C			Ta = −40 to +85°C		Unit	Test Conditions	
			Min	Typ	Max	Min	Max			
Input voltage	V _{IH}	2.0	1.5	—	—	1.5	—	V		
		4.5	3.15	—	—	3.15	—			
		6.0	4.2	—	—	4.2	—			
	V _{IL}	2.0	—	—	0.5	—	0.5	V		
		4.5	—	—	1.35	—	1.35			
		6.0	—	—	1.8	—	1.8			
Output voltage	V _{OH}	2.0	1.9	2.0	—	1.9	—	V	Vin = V _{IH} or V _{IL} I _{OH} = −20 μA	
		4.5	4.4	4.5	—	4.4	—			
		6.0	5.9	6.0	—	5.9	—			
		4.5	4.18	—	—	4.13	—			I _{OH} = −4 mA
		6.0	5.68	—	—	5.63	—			I _{OH} = −5.2 mA
	V _{OL}	2.0	—	0.0	0.1	—	0.1	V	Vin = V _{IH} or V _{IL} I _{OL} = 20 μA	
		4.5	—	0.0	0.1	—	0.1			
		6.0	—	0.0	0.1	—	0.1			
		4.5	—	—	0.26	—	0.33			I _{OL} = 4 mA
		6.0	—	—	0.26	—	0.33			I _{OL} = 5.2 mA
Input current	I _{in}	6.0	—	—	±0.1	—	±1.0	μA	Vin = V _{CC} or GND	
Quiescent supply current	I _{CC}	6.0	—	—	4.0	—	40	μA	Vin = V _{CC} or GND, I _{out} = 0 μA	

AC Characteristics (C_L = 50 pF, Input t_r = t_f = 6 ns)

Item	Symbol	V _{CC} (V)	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions
			Min	Typ	Max	Min	Max		
Propagation delay time	t _{PLH}	2.0	—	—	145	—	180	ns	Data to Q or $\overline{Q}$
		4.5	—	10	29	—	36		
		6.0	—	—	25	—	31		
	t _{PHL}	2.0	—	—	160	—	200	ns	G to Q or $\overline{Q}$
		4.5	—	11	32	—	40		
		6.0	—	—	27	—	34		
Pulse width	t _w	2.0	80	—	—	100	—	ns	
		4.5	16	5	—	20	—		
		6.0	14	—	—	17	—		
Setup time	t _{su}	2.0	100	—	—	125	—	ns	
		4.5	20	2	—	25	—		
		6.0	17	—	—	21	—		
Hold time	t _h	2.0	5	—	—	5	—	ns	
		4.5	5	-1	—	5	—		
		6.0	5	—	—	5	—		
Output rise/fall time	t _{TLH}	2.0	—	—	75	—	95	ns	
		4.5	—	5	15	—	19		
		6.0	—	—	13	—	16		
Input capacitance	C _{in}	—	—	5	10	—	10	pF	

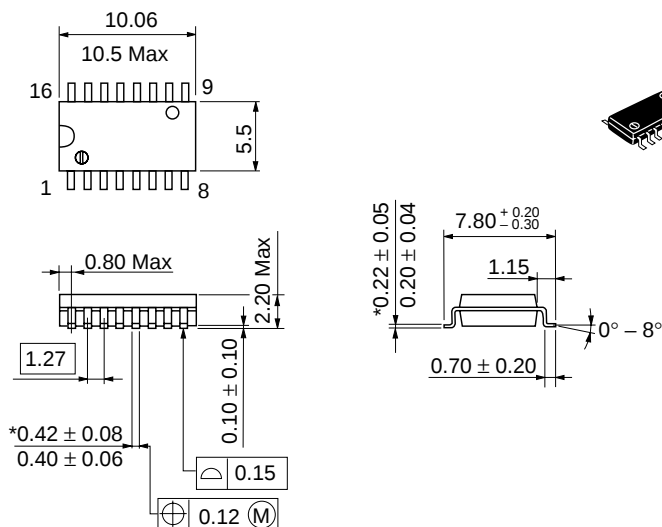
Package Dimensions

Unit: mm



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

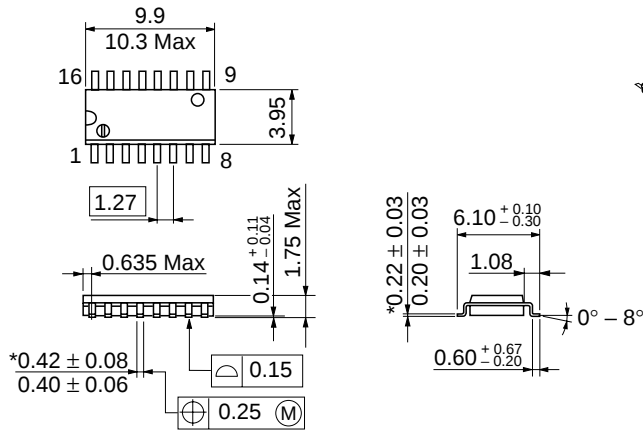
Unit: mm



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

$$\frac{\text{*Dimension including the plating thickness}}{\text{Base material dimension}}$$

Unit: mm



*Dimension including the plating thickness
Base material dimension

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

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