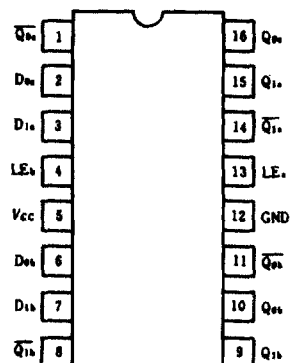


HD74HC75 ● Quad. Bistable Latches

This latch is ideally suited for use as temporary storage for binary information processing, input/output, and indicator units. Information present at the data (D) input is transferred to the Q output when the latch enable (LE) is high. 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 is permitted to go high again.

■ PIN ARRANGEMENT



(Top View)

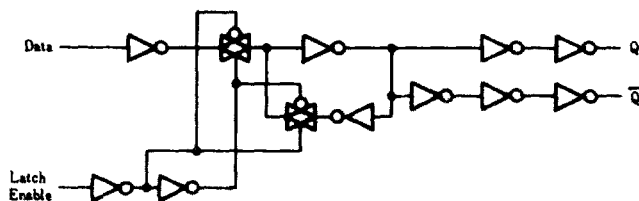
■ FEATURES

- High Speed Operation: t_{pd} (D to Q)=12.5ns typ. ($C_L=50pF$)
- High Output Current: Fanout of 10 LSTTL Loads
- Wide Operating Voltage: $V_{CC}=2\sim 6V$
- Low Input Current: $1\mu A$ max.
- Low Quiescent Supply Current: I_{CC} (static) = $2\mu A$ max. ($T_a=25^\circ C$)

■ FUNCTION TABLE

Inputs		Outputs	
D	Latch Enable	Q	\bar{Q}
L	H	L	H
H	H	H	L
X	L	Q_0	\bar{Q}_0

■ BLOCK DIAGRAM



■ DC CHARACTERISTICS

Item	Symbol	$V_{CC}(V)$	Test Conditions	$T_a=25^\circ C$			$T_a=-40\sim +85^\circ C$		Unit		
				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	$V_{i_s}=V_{IH}$ or V_{IL}	$I_{OH}=-20\mu A$	1.9	2.0	—	1.9	—	V	
		4.5			4.4	4.5	—	4.4	—		
		6.0			5.9	6.0	—	5.9	—		
		$I_{OH}=-4mA$		4.5	4.18	—	—	4.13	—		
				6.0	$I_{OH}=-5.2mA$	5.68	—	—	5.63		—
	V_{OL}	$V_{i_s}=V_{IH}$ or V_{IL}	$I_{OL}=20\mu A$	2.0	—	0.0	0.1	—	0.1	V	
				4.5	—	0.0	0.1	—	0.1		
				6.0	—	0.0	0.1	—	0.1		
			$I_{OL}=4mA$	4.5	—	—	0.26	—	0.33		
				6.0	$I_{OL}=5.2mA$	—	—	0.26	—		0.33
Input Current	I_{i_s}	6.0	$V_{i_s}=V_{CC}$ or GND	—	—	± 0.1	—	± 1.0	μA		
Quiescent Supply Current	I_{CC}	6.0	$V_{i_s}=V_{CC}$ or GND, $I_{i_s}=0\mu A$	—	—	2.0	—	20	μA		

AC CHARACTERISTICS ($C_L=50\text{pF}$, Input $t_r=t_f=6\text{ns}$)

Item	Symbol	V_{CC} (V)	Test Conditions	$T_a=25^\circ\text{C}$			$T_a=-40\sim+85^\circ\text{C}$		Unit
				min	typ	max	min	max	
Propagation Delay Time	t_{PLH}	2.0	D to Q	—	—	125	—	155	ns
		4.5		—	12	25	—	31	
		6.0		—	—	21	—	26	
		2.0	D to \bar{Q}	—	—	110	—	140	
		4.5		—	13	22	—	28	
		6.0		—	—	19	—	24	
	t_{PHL}	2.0	Latch Enable to Q	—	—	145	—	180	
		4.5		—	12	29	—	36	
		6.0		—	—	25	—	31	
		2.0	Latch Enable to \bar{Q}	—	—	125	—	155	
		4.5		—	13	25	—	31	
		6.0		—	—	21	—	26	
Output Rise/Fall Time	t_{TLH} t_{THL}	2.0		—	—	75	—	95	
		4.5		—	5	15	—	19	
		6.0		—	—	13	—	16	
Setup Time	t_{su}	2.0	Data to Latch Enable	100	—	—	125	—	
		4.5		20	4	—	25	—	
		6.0		17	—	—	21	—	
Hold Time	t_h	2.0	Latch Enable to Data	5	—	—	5	—	
		4.5		5	0	—	5	—	
		6.0		5	—	—	5	—	
Pulse Width	t_w	2.0	Latch Enable	80	—	—	100	—	
		4.5		16	5	—	20	—	
		6.0		14	—	—	17	—	
Input Capacitance	C_{in}	—		—	5	10	—	10	pF