

54LS/74LS375

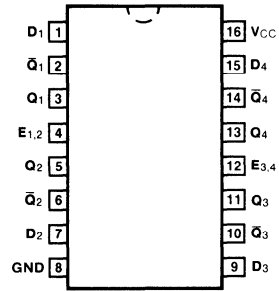
4-BIT LATCH

DESCRIPTION — The '375 is a 4-bit D-type latch for use as temporary storage for binary information between processing units and input/output or indicator units. When its Enable (E) input is HIGH, a latch is transparent, i.e., the Q output will follow the D input each time it changes. When E is LOW a latch stores the last valid data present on the D input preceding the HIGH-to-LOW transition of E. The '375 is functionally identical to the '75 except for the corner power pins.

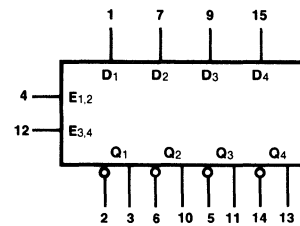
ORDERING CODE: See Section 9

PKGS	PIN OUT	COMMERCIAL GRADE	MILITARY GRADE	PKG TYPE
		V _{CC} = +5.0 V ±5%, T _A = 0°C to +70°C	V _{CC} = +5.0 V ±10%, T _A = -55°C to +125°C	
Plastic DIP (P)	A	74LS375PC		9B
Ceramic DIP (D)	A	74LS375DC	54LS375DM	6B
Flatpak (F)	A	74LS375FC	54LS375FM	4L

CONNECTION DIAGRAM PINOUT A



LOGIC SYMBOL

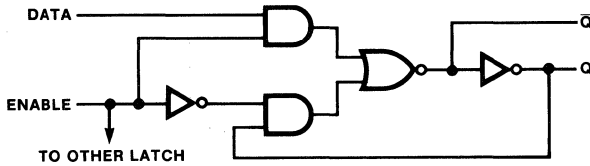


V_{CC} = Pin 16
GND = Pin 8

INPUT LOADING/FAN-OUT: See Section 3 for U.L. definitions

PIN NAMES	DESCRIPTION	54/74LS (U.L.) HIGH/LOW
D ₁ — D ₄	Data Inputs	0.5/0.25
E _{1,2}	Latches 1, 2 Enable Input	2.0/1.0
E _{3,4}	Latches 3, 4 Enable Input	2.0/1.0
Q ₁ — Q ₄	Latch Outputs	10/5.0 (2.5)
\bar{Q}_1 — \bar{Q}_4	Complementary Latch Outputs	10/5.0 (2.5)

LOGIC DIAGRAM
(1/4 of diagram shown)



TRUTH TABLE
(Each Latch)

t_n	t_{n+1}
D	Q
H	H
L	L

t_n = Bit time before Enable negative going transition.
 t_{n+1} = Bit time after Enable negative going transition.
 H = HIGH Voltage Level
 L = LOW Voltage Level

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

SYMBOL	PARAMETER	54/74LS		UNITS	CONDITIONS
		Min	Max		
I_{CC}	Power Supply Current		12	mA	$V_{CC} = \text{Max}$

AC CHARACTERISTICS: $V_{CC} = +5.0 \text{ V}$, $T_A = +25^\circ \text{ C}$ (See Section 3 for waveforms and load configurations)

SYMBOL	PARAMETER	54/74LS		UNITS	CONDITIONS
		$C_L = 15 \text{ pF}$			
		Min	Max		
t_{PLH} t_{PHL}	Propagation Delay D_n to Q_n		27 17	ns	Figs. 3-1, 3-5
t_{PLH} t_{PHL}	Propagation Delay D_n to \bar{Q}_n		20 15	ns	Figs. 3-1, 3-4
t_{PLH} t_{PHL}	Propagation Delay E_n to Q_n		27 25	ns	Figs. 3-1, 3-8
t_{PLH} t_{PHL}	Propagation Delay E_n to \bar{Q}_n		30 15	ns	

AC OPERATING REQUIREMENTS: $V_{CC} = +5.0 \text{ V}$, $T_A = +25^\circ \text{ C}$

SYMBOL	PARAMETER	54/74LS		UNITS	CONDITIONS
		Min	Max		
t_s (H) t_s (L)	Setup Time HIGH or LOW D_n to E_n	20		ns	Fig. 3-14
t_h (H) t_h (L)	Hold Time HIGH or LOW D_n to E_n	0		ns	
t_w (H)	E_n Pulse Width HIGH	20		ns	Fig. 3-8