
HD74HC259

8-bit Addressable Latch

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Description

The HD74HC259 has a single data input (D), 8 latch outputs (Q_0 - Q_7), 3 address inputs (A, B, and C), a common enable input (E), and a common clear input. To operate this device as an addressable latch, data is held on the D input, and the address of the latch into which the data is to be entered is held on the A, B and C inputs. When enable is taken low the data flows through to the addressed output. The data is stored when enable transitions from low to high. All unaddressed latches will remain unaffected. With enable in the high state the device is deselected, and all latches remain in their previous state, unaffected by changes on the data or address inputs. To eliminate the possibility of entering erroneous data into the latches, the enable should be held high (inactive) while the address lines are changing.

If enable is held high and clear is taken low all eight latches are cleared to a low state. If enable is low all latches except the addressed latch will be cleared. The addressed latch will instead follow the D input, effectively implementing a 3-to-8 line decoder.

Features

- High Speed Operation: t_{pd} (Data to Output) = 16 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

Clear	G	Output of Addressed Latch	Each Other Output	Function
H	L	D	Q_{io}	Addressable latch
H	H	Q_{io}	Q_{io}	Memory
L	L	D	L	8-line demultiplexer
L	H	L	L	Clear

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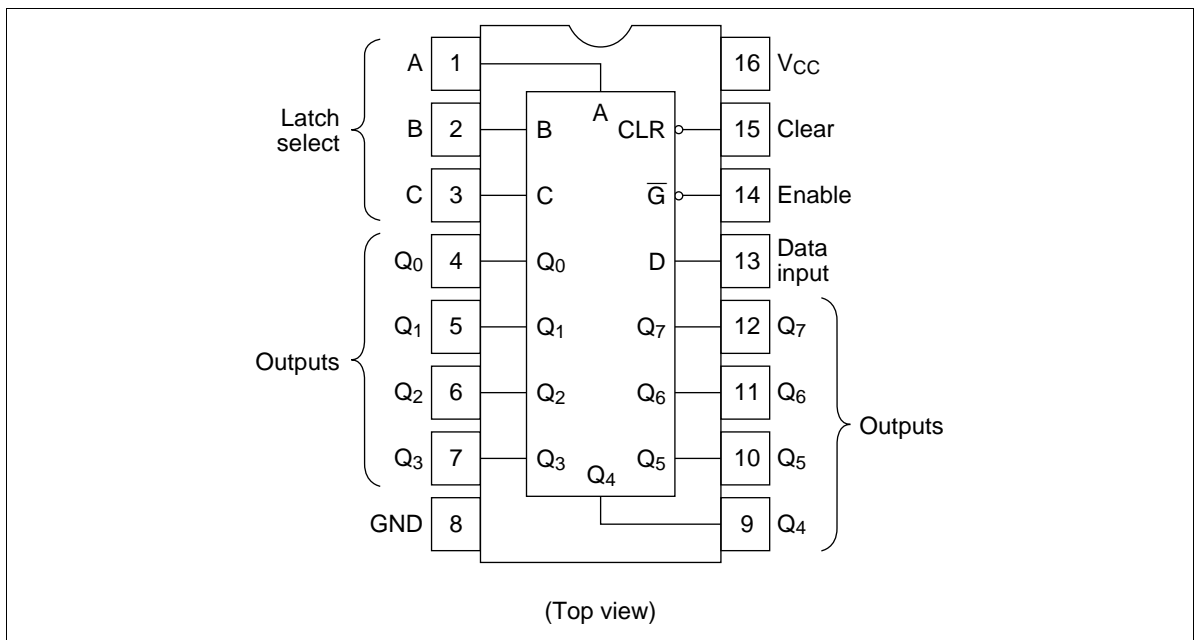
Select Inputs

C	B	A	Latch Addressed
L	L	L	0
L	L	H	1
L	H	L	2
L	H	H	3
H	L	L	4
H	L	H	5
H	H	L	6
H	H	H	7

Notes: 1. D: the level at the data input

2. Q_{i0} : the level of Q_i ($i = 0, 1, \dots, 7$, as appropriate) before the indicated steady-state input conditions were established.

Pin Arrangement



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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	

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

Item	Symbol	V_{CC} (V)	$T_a = 25^\circ\text{C}$		$T_a = -40$ to $+85^\circ\text{C}$		Unit	Test Conditions	
			Min	Typ	Max	Min			Max
Propagation delay time	t_{PHL}	2.0	—	—	185	—	230	ns	Data to output
		4.5	—	16	37	—	46		
		6.0	—	—	31	—	39		
	t_{PLH}	2.0	—	—	215	—	270	ns	Latch select to output
		4.5	—	20	43	—	54		
		6.0	—	—	37	—	46		
		2.0	—	—	200	—	250		
		4.5	—	17	40	—	50		
		6.0	—	—	34	—	43		
t_{PHL}	2.0	—	—	155	—	195	ns	Clear to output	
	4.5	—	15	31	—	39			
	6.0	—	—	26	—	33			
Pulse width	t_w	2.0	80	—	—	100	—	ns	Clear, Enable
		4.5	16	6	—	20	—		
		6.0	14	—	—	17	—		
Setup time	t_{su}	2.0	100	—	—	125	—	ns	Latch select or data to enable
		4.5	20	5	—	25	—		
		6.0	17	—	—	21	—		
Hold time	t_h	2.0	5	—	—	5	—	ns	Latch select or data to enable
		4.5	5	-1	—	5	—		
		6.0	5	—	—	5	—		
Output rise/fall time	t_{TLH}	2.0	—	—	75	—	95	ns	
	t_{THL}	4.5	—	5	15	—	19		
	t_{THL}	6.0	—	—	13	—	16		
Input capacitance	C_{in}	—	—	5	10	—	10	pF	



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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