
HD74HC4515

4-bit Latch/4-to-16-line Decoder

HITACHI

ADE-205-541 (Z)
1st. Edition
Sep. 2000

Description

This device presents 4-to-16 line decoder with latched inputs. The HD74HC4515 presents a low level at the selected output.

This device consists of four storage latches with common strobe and inhibit ($\overline{G}$) inputs. When a low signal is applied to the strobe input, the input data is stored, decoded, and presented to the output. When inhibit is high, all HD74HC4515 outputs are a high logic level.

Features

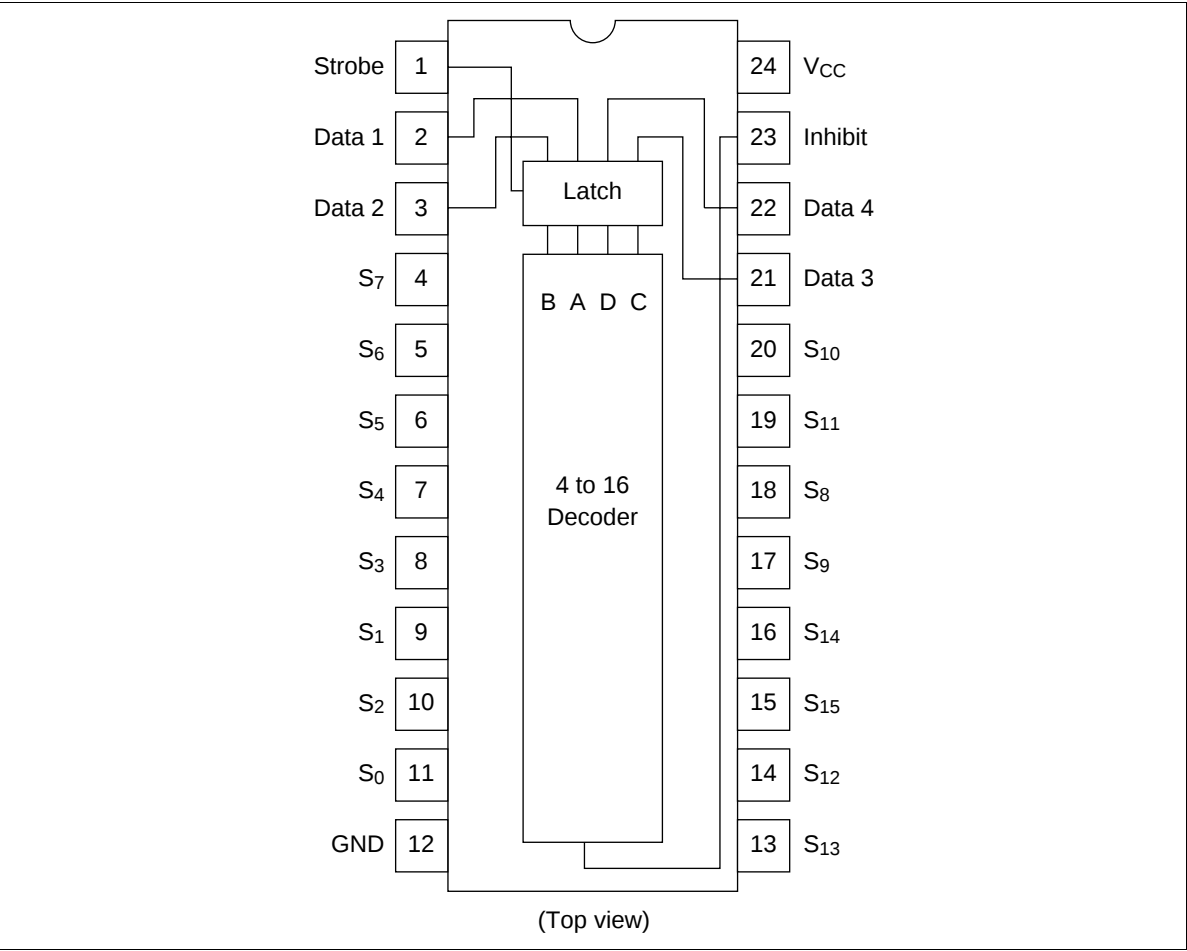
- High Speed Operation: t_{pd} (Data to S) = 20 ns typ ($C_L = 50$ pF)
- High Output Current: Fanout of 10 LSTTL Loads
- Wide Operating Voltage: $V_{CC} = 2$ to 6 V
- Low Input Current: 1 μ A max
- Low Quiescent Supply Current: I_{CC} (static) = 4 μ A max ($T_a = 25^\circ\text{C}$)

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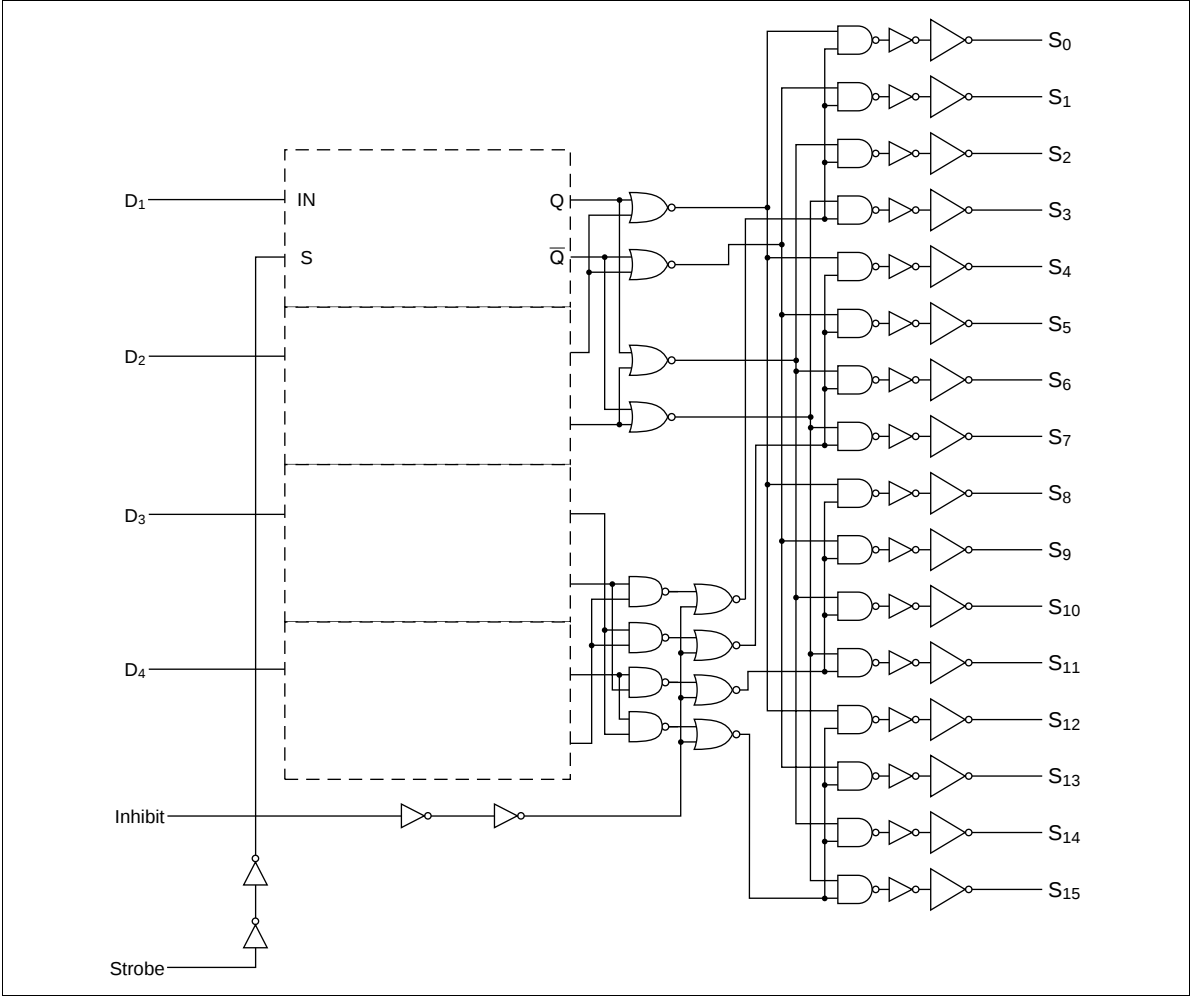
Function Table (Strobe = High)

Inhibit	Data Inputs				Select Outputs
	D	C	B	A	
L	L	L	L	L	S ₀
L	L	L	L	H	S ₁
L	L	L	H	L	S ₂
L	L	L	H	H	S ₃
L	L	H	L	L	S ₄
L	L	H	L	H	S ₅
L	L	H	H	L	S ₆
L	L	H	H	H	S ₇
L	H	L	L	L	S ₈
L	H	L	L	H	S ₉
L	H	L	H	L	S ₁₀
L	H	L	H	H	S ₁₁
L	H	H	L	L	S ₁₂
L	H	H	L	H	S ₁₃
L	H	H	H	L	S ₁₄
L	H	H	H	H	S ₁₅
H	X	X	X	X	All output "H"

Pin Arrangement



Logic Diagram



DC Characteristics

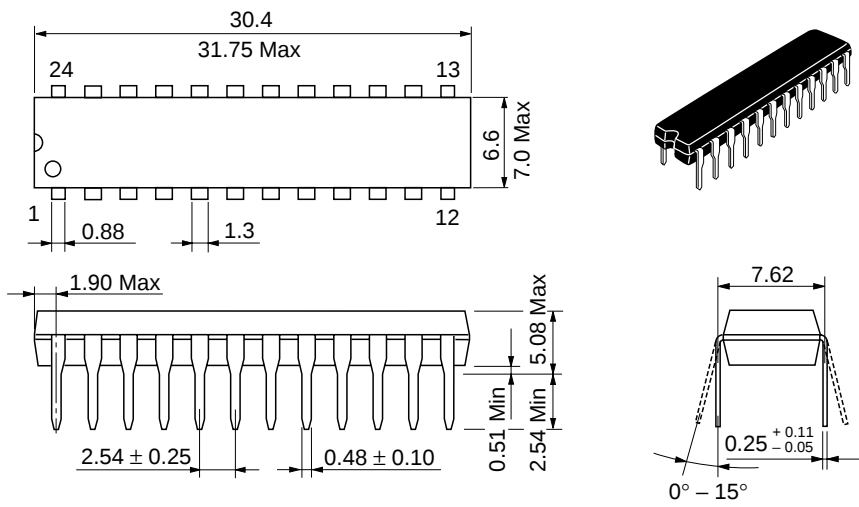
Item	Symbol	V _{CC} (V)	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions	
			Min	Typ	Max	Min	Max			
Input voltage	V _{IH}	2.0	1.5	—	—	1.5	—	V		
		4.5	3.15	—	—	3.15	—			
		6.0	4.2	—	—	4.2	—			
	V _{IL}	2.0	—	—	0.5	—	0.5	V		
		4.5	—	—	1.35	—	1.35			
		6.0	—	—	1.8	—	1.8			
Output voltage	V _{OH}	2.0	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	—	—	225	—	280	ns	Data to output
		4.5	—	20	45	—	56		
		6.0	—	—	38	—	48		
	t _{PLH}	2.0	—	—	230	—	290	ns	Strobe to output
		4.5	—	21	46	—	58		
		6.0	—	—	39	—	49		
	t _{PLH}	2.0	—	—	175	—	220	ns	Inhibit to output
		4.5	—	15	35	—	44		
		6.0	—	—	30	—	37		
Pulse width	t _w	2.0	80	—	—	100	—	ns	Strobe
		4.5	16	5	—	20	—		
		6.0	14	—	—	17	—		
Setup time	t _{su}	2.0	100	—	—	125	—	ns	Data to Strobe
		4.5	20	1	—	25	—		
		6.0	17	—	—	21	—		
Hold time	t _h	2.0	5	—	—	5	—	ns	Strobe to Data
		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		
		6.0	—	—	13	—	16		
Input capacitance	Cin	—	—	5	10	—	10	pF	

Package Dimensions

Unit: mm



Hitachi Code	DP-24N
JEDEC	—
EIAJ	Conforms
Mass (reference value)	1.84 g

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