
HD74AC4514

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

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Description

This device presents a 4 to 16 line decoder with latched inputs. The HD74AC4514 presents a high level at the selected output.

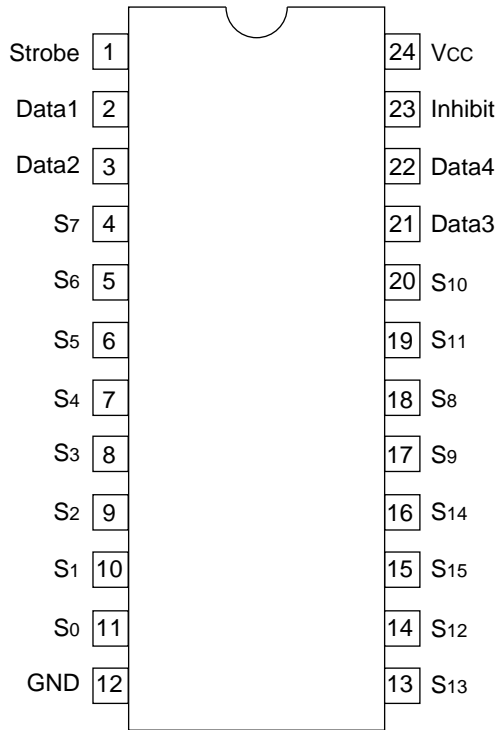
This device consists of four storage latches with common strobe and inhibit (\overline{G}) inputs. When a low signal is applied to the strobe input, the input data is stored, decoded, and presented to the output. When strobe is high, all sixteen HD74HC4514 outputs are at a low logic level.

Feature

- Outputs Source/Sink 24 mA

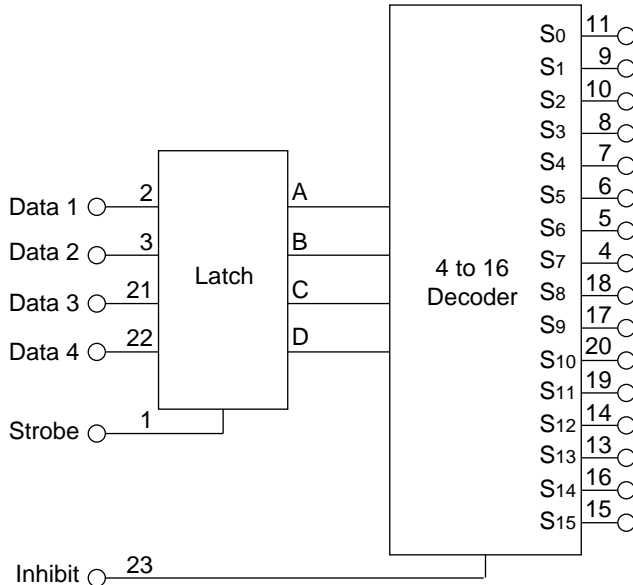
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Pin Arrangement



(Top view)

Logic Symbol



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Pin Names

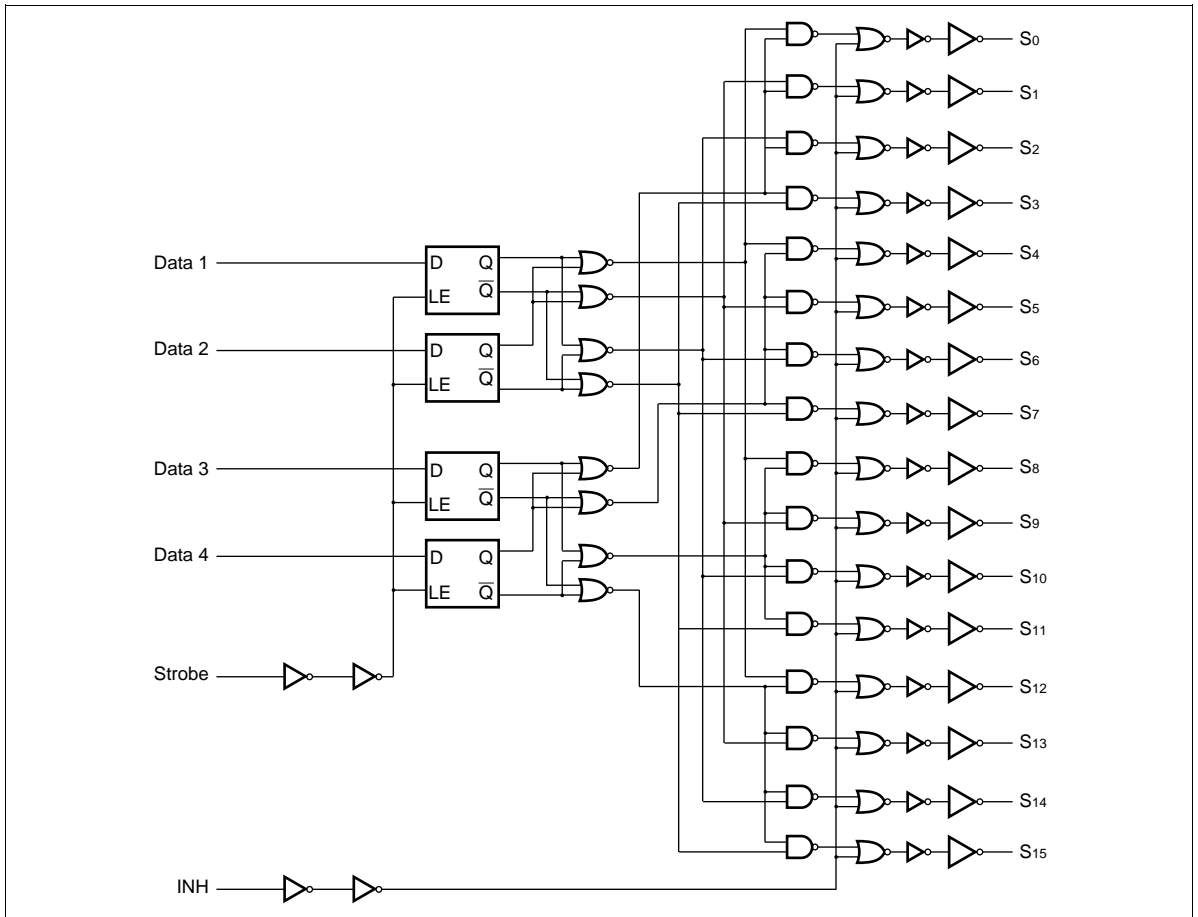
D ₁ to D ₄	Data Inputs
Strobe	Data Strobe Input
Data1 to 4	Data Inputs
S ₀ to S ₁₅	Outputs
Inhibit	Data Enable Input

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 "L"

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Logic Diagram



DC Characteristics (unless otherwise specified)

Item	Symbol	Max	Unit	Condition
Maximum quiescent supply current	I_{CC}	80	μA	$V_{IN} = V_{CC}$ or ground, $V_{CC} = 5.5 V$, $T_a = \text{Worst case}$
Maximum quiescent supply current	I_{CC}	8.0	μA	$V_{IN} = V_{CC}$ or ground, $V_{CC} = 5.5 V$, $T_a = 25^\circ C$

AC Characteristics: HD74AC4514

Item	Symbol	V _{CC} (V)*1	Ta = +25°C C _L = 50 pF			Ta = -40°C to +85°C C _L = 50 pF		Unit
			Min	Typ	Max	Min	Max	
Propagation delay	t _{PLH}	3.3	1.0	12.0	15.5	1.0	17.0	ns
D _n to \overline{O}_n		5.0	1.0	9.0	11.0	1.0	12.0	
Propagation delay	t _{PHL}	3.3	1.0	12.5	15.5	1.0	17.0	ns
D _n to \overline{O}_n		5.0	1.0	9.0	11.0	1.0	12.0	
Propagation delay	t _{PLH}	3.3	1.0	9.5	15.0	1.0	16.0	ns
\overline{OE} to \overline{O}_n		5.0	1.0	7.0	10.5	1.0	11.5	
Propagation delay	t _{PHL}	3.3	1.0	9.0	15.0	1.0	16.5	ns
\overline{OE} to \overline{O}_n		5.0	1.0	6.5	10.5	1.0	11.5	
Propagation delay	t _{PLH}	3.3	1.0	14.0	19.0	1.0	21.0	ns
\overline{LE} to \overline{O}_n		5.0	1.0	10.0	13.5	1.0	15.0	
Propagation delay	t _{PHL}	3.3	1.0	14.5	19.0	1.0	21.0	ns
\overline{LE} to \overline{O}_n		5.0	1.0	10.5	13.5	1.0	15.0	

Note: 1. Voltage Range 3.3 is 3.3 V ± 0.3 V
Voltage Range 5.0 is 5.0 V ± 0.5 V

AC Operating Requirements: HD74AC4514

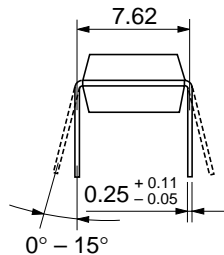
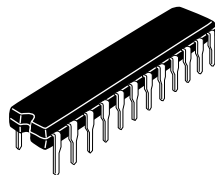
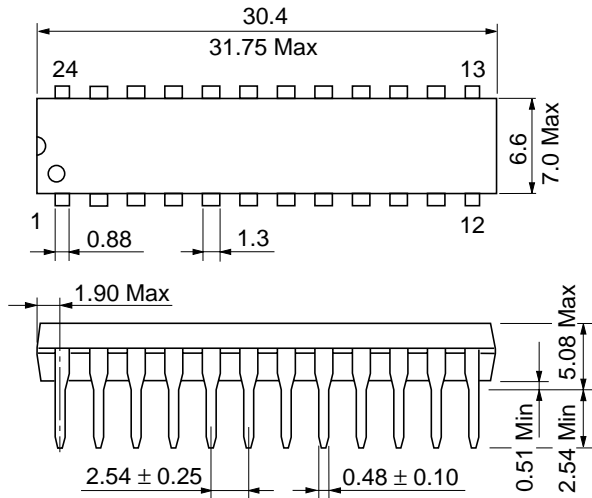
Item	Symbol	V _{CC} (V)*1	Ta = +25°C C _L = 50 pF		Ta = -40°C to +85°C C _L = 50 pF		Unit
			Typ	Guaranteed Minimum			
Setup time, HIGH or LOW	t _{su}	3.3	1.5	3.5	4.0	ns	
D _n to Strobe		5.0	1.0	3.0	3.5		
Hold time, HIGH or LOW	t _h	3.3	-1.0	2.5	3.0	ns	
D _n to Strobe		5.0	-0.5	1.5	2.0		
Pulse width, HIGH	t _w	3.3	3.0	5.5	7.0	ns	
		5.0	3.0	4.5	5.0		

Note: 1. Voltage Range 3.3 is 3.3 V ± 0.3 V
Voltage Range 5.0 is 5.0 V ± 0.5 V

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Capacitance

Item	Symbol	Typ	Unit	Condition
Input capacitance	C_{IN}	4.5	pF	$V_{CC} = 5.5 \text{ V}$
Power dissipation capacitance	C_{PD}	10.0	pF	$V_{CC} = 5.0 \text{ V}$



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

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