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# 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.

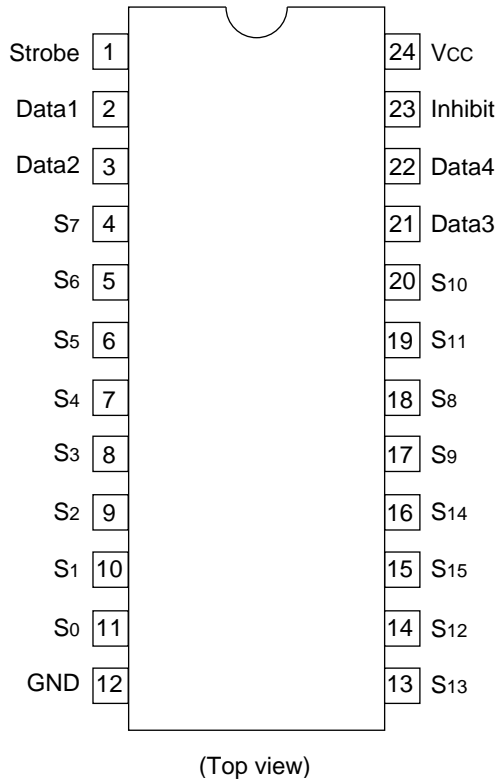
This device consists of four storage latches with common strobe and inhibit ( $\overline{G}$ ) inputs. When a low signal is applied to the strobe input, the input data is stored, decoded, and presented to the output. When strobe is high, all sixteen HD74HC4514 outputs are at a low logic level.

## Feature

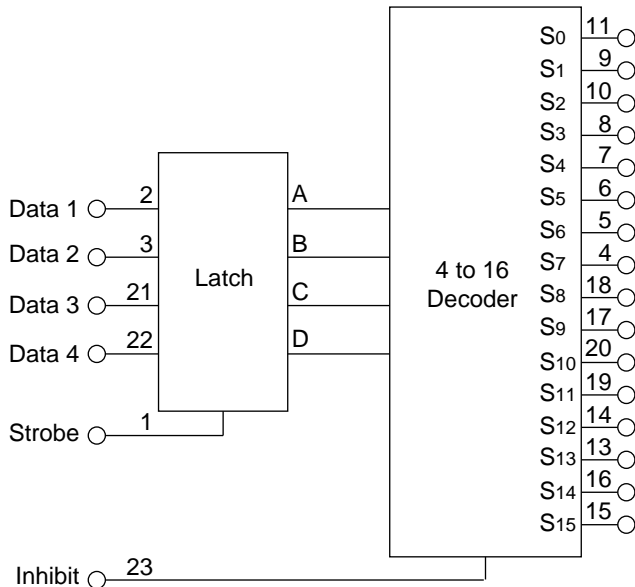
- Outputs Source/Sink 24 mA

# HD74AC4514

## Pin Arrangement



## Logic Symbol



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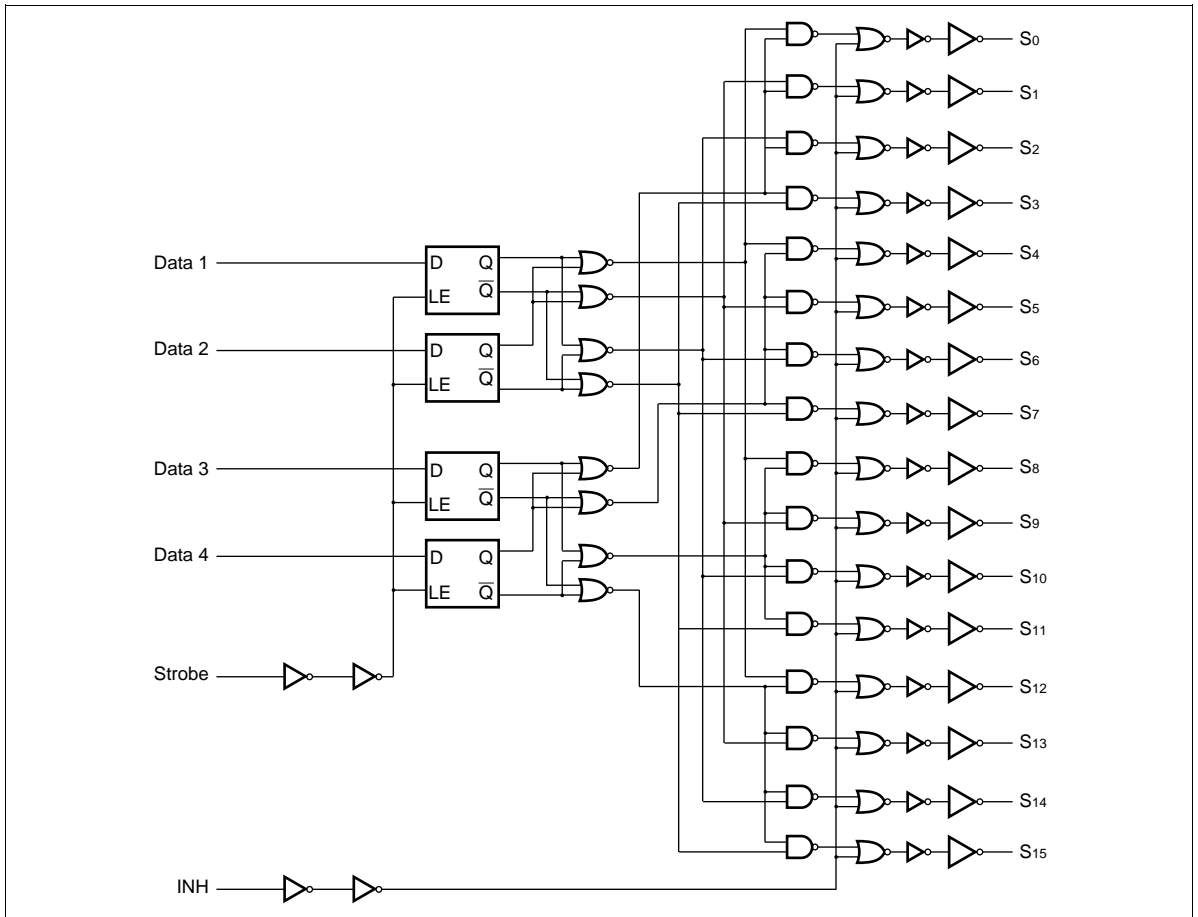
**Pin Names**

D <sub>1</sub> to D <sub>4</sub>	Data Inputs
Strobe	Data Strobe Input
Data1 to 4	Data Inputs
S <sub>0</sub> to S <sub>15</sub>	Outputs
Inhibit	Data Enable Input

**Function Table (Strobe = High)**

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

## Logic Diagram



### DC Characteristics (unless otherwise specified)

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

AC Characteristics: HD74AC4514

Item	Symbol	V <sub>CC</sub> (V)*1	Ta = +25°C C <sub>L</sub> = 50 pF			Ta = -40°C to +85°C C <sub>L</sub> = 50 pF		Unit
			Min	Typ	Max	Min	Max	
Propagation delay	t <sub>PLH</sub>	3.3	1.0	12.0	15.5	1.0	17.0	ns
D <sub>n</sub> to $\overline{O}_n$		5.0	1.0	9.0	11.0	1.0	12.0	
Propagation delay	t <sub>PHL</sub>	3.3	1.0	12.5	15.5	1.0	17.0	ns
D <sub>n</sub> to $\overline{O}_n$		5.0	1.0	9.0	11.0	1.0	12.0	
Propagation delay	t <sub>PLH</sub>	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 <sub>PHL</sub>	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 <sub>PLH</sub>	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 <sub>PHL</sub>	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 <sub>CC</sub> (V)*1	Ta = +25°C C <sub>L</sub> = 50 pF		Ta = -40°C to +85°C C <sub>L</sub> = 50 pF		Unit
			Typ	Guaranteed Minimum	Guaranteed Minimum	Guaranteed Minimum	
Setup time, HIGH or LOW	t <sub>su</sub>	3.3	1.5	3.5	4.0	ns	
D <sub>n</sub> to Strobe		5.0	1.0	3.0	3.5		
Hold time, HIGH or LOW	t <sub>h</sub>	3.3	-1.0	2.5	3.0	ns	
D <sub>n</sub> to Strobe		5.0	-0.5	1.5	2.0		
Pulse width, HIGH	t <sub>w</sub>	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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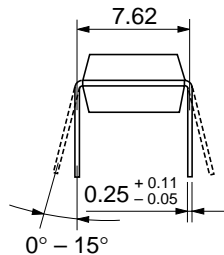
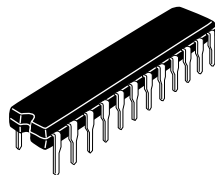
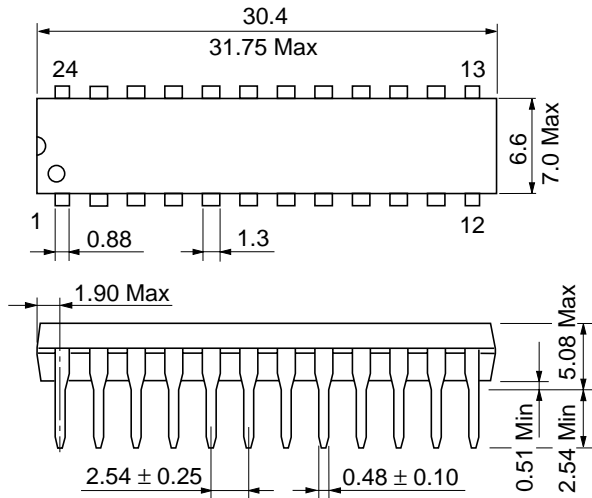
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## Capacitance

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	$V_{CC} = 5.0 \text{ V}$

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

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