

92D 10619

DT-67-2/- 55

HD74HC4514 • 4-bit Latch/4-to-16-line Decoder

This device presents a 4 to-16 line decoder with latched inputs. The HD74HC4514 presents a high level at the selected output.

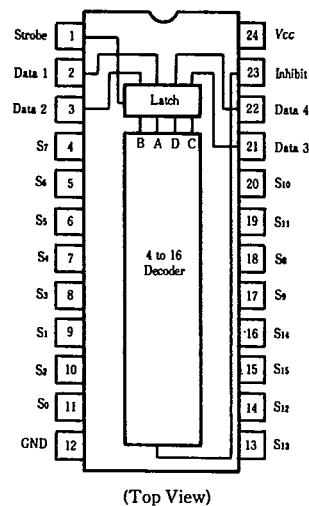
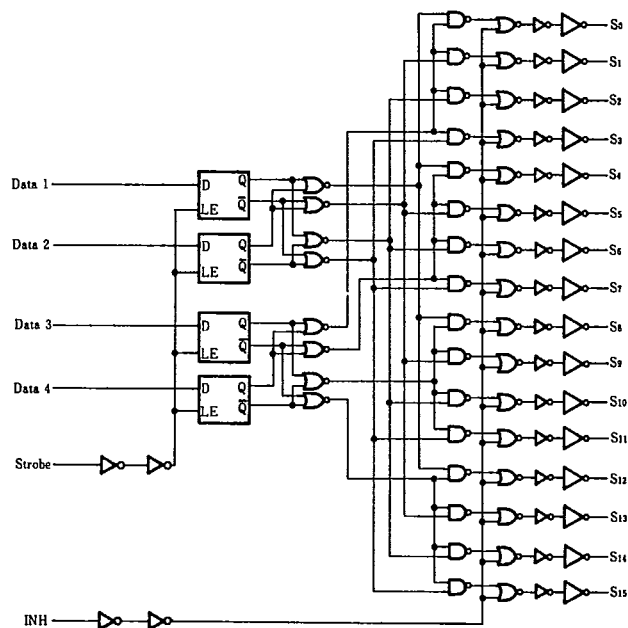
This device consists of four storage latches with common strobe and inhibit ($\bar{G}$) inputs. When a low signal is applied to the strobe input, the input data is stored, decoded, and presented to the output. When strobe is high, all sixteen HD74HC4514 outputs are at a low logic level.

FEATURES

- High Speed Operation: t_{pd} (Data to S)=20ns typ. ($C_L=50pF$)
- High Output Current: Fanout of 10 LSTTL Loads
- Wide Operating Voltage: $V_{CC}=2\sim 6V$
- Low Input Current: $1\mu A$ max.
- Low Quiescent Supply Current: I_{CC} (static)= $4\mu A$ max. ($T_8=25^\circ C$)

TRUTH 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"

PIN ARRANGEMENT**LOGIC DIAGRAM**

92D 10620 D

HD74HC4514

T-67-21-55

■ DC CHARACTERISTICS

Item	Symbol	$V_{CC}(V)$	Test Conditions		$T_a=25^{\circ}C$			$T_a=-40\sim+85^{\circ}C$		Unit	
					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	$V_{in}=V_{IH} \text{ or } V_{IL}$	$I_{OH}=-20\mu A$	1.9	2.0	—	1.9	—	V	
		4.5			4.4	4.5	—	4.4	—		
		6.0			5.9	6.0	—	5.9	—		
		4.5		$I_{OH}=-4mA$		4.18	—	—	4.13		—
		6.0		$I_{OH}=-5.2mA$		5.68	—	—	5.63		—
		6.0				—	—	—	—		—
	V_{OL}	2.0	$V_{in}=V_{IH} \text{ or } V_{IL}$	$I_{OL}=20\mu A$	—	0.0	0.1	—	0.1	V	
		4.5			—	0.0	0.1	—	0.1		
		6.0			—	0.0	0.1	—	0.1		
		4.5		$I_{OL}=4mA$		—	—	0.26	—		0.33
		6.0		$I_{OL}=5.2mA$		—	—	0.26	—		0.33
		6.0				—	—	—	—		—
Input Current	I_{in}	6.0	$V_{in}=V_{CC} \text{ or } GND$		—	—	± 0.1	—	± 1.0	μA	
Quiescent Supply Current	I_{CC}	6.0	$V_{in}=V_{CC} \text{ or } GND, I_{out}=0\mu A$		—	—	4.0	—	40	μA	

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

Item	Symbol	$V_{CC}(V)$	Test Conditions	$T_a = 25^\circ C$			$T_a = -40 \sim +85^\circ C$		Unit
				min.	typ.	max.	min.	max.	
Propagation Delay Time	t_{PLH} t_{PHL}	2.0	Data to Output	—	—	200	—	250	ns
		4.5		—	20	40	—	50	
		6.0		—	—	34	—	43	
		2.0	Inhibit to Output	—	—	175	—	220	
		4.5		—	13	35	—	44	
		6.0		—	—	30	—	37	
		2.0	Strobe to Output	—	—	200	—	250	
		4.5		—	21	40	—	50	
		6.0		—	—	34	—	43	
Setup Time	t_{in}	2.0		100	—	—	125	—	ns
		4.5		20	3	—	25	—	
		6.0		17	—	—	21	—	
Hold Time	t_h	2.0		5	—	—	5	—	ns
		4.5		5	-1	—	5	—	
		6.0		5	—	—	5	—	
Pulse Width	t_w	2.0		80	—	—	100	—	ns
		4.5		16	4	—	20	—	
		6.0		14	—	—	17	—	
Output Rise/Fall Time	t_{TLH} t_{THL}	2.0		—	—	75	—	95	ns
		4.5		—	6	15	—	19	
		6.0		—	—	13	—	16	
Input Capacitance	C_{in}	—		—	5	10	—	10	pF



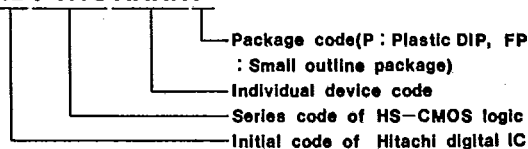
PACKAGE INFORMATION

T-90-20

In the HD74HC series of HS-CMOS logic, either of plastic DIP and small outline packages can be selected.
For your ordering, please refer to the following package code.

● Package code of HS-CMOS Logic

HD74HC XXXXP

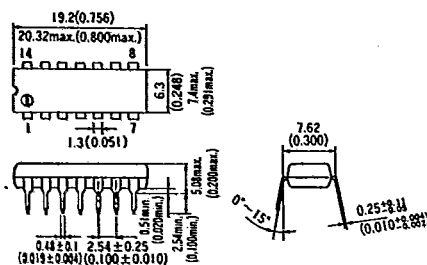


■ PLASTIC DIP PACKAGE [Unit: mm (inch), scale: 1/1]

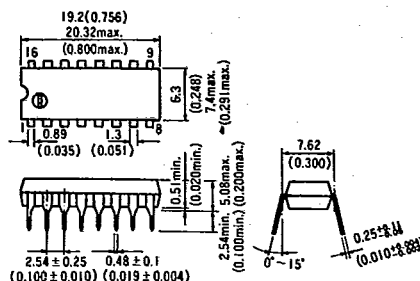
● 14-pin type

● 16-pin type

DP-14



DP-16

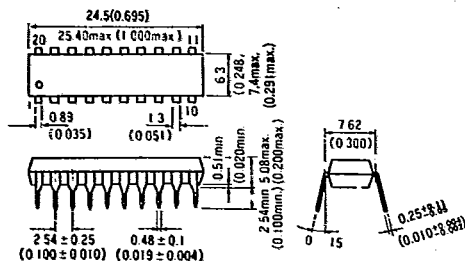


Note) For the present, both packages of 0.89 and 1.3 can be used. Please refer to the Technical Marketing Dept. for further details.

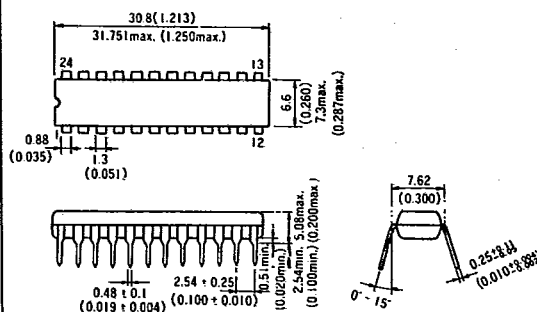
● 20-pin type

● 24-pin type

DP-20N



DP-24N



Note) Because this is under development, the dimensions may be changed partly.

0571

F-06



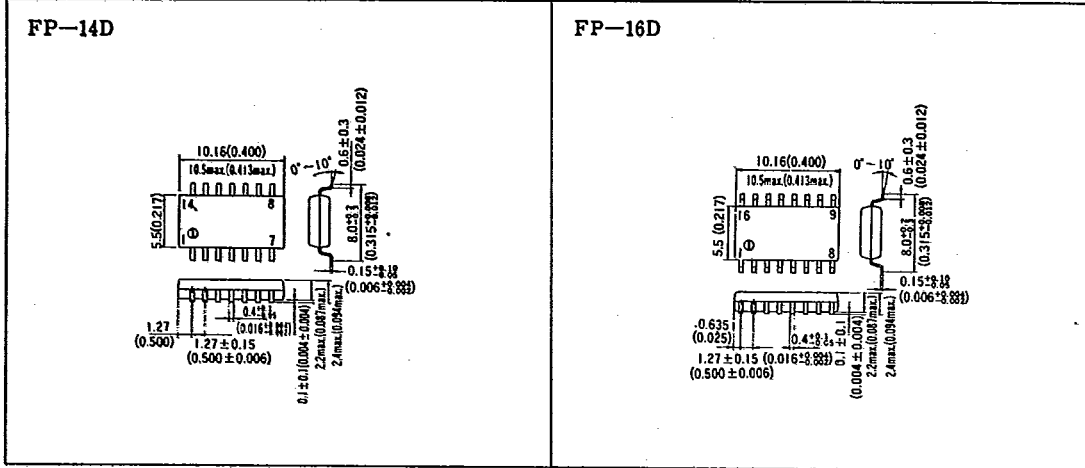
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■ SMALL OUTLINE PACKAGE [Unit: mm (inch), scale: 1½]

● 14—pin type

● 16—pin type



● 20—pin type

