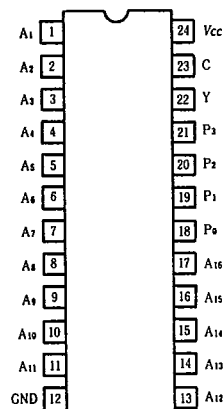


HD74HC678 • 16-bit Address Comparator

The HD74HC678 address comparator simplifies addressing of memory boards and/or other peripheral devices. The four P inputs are normally hard wired with a preprogrammed address. An internal decoder determines what input information applied to the 16 A inputs must be low or high to cause a low state at the output (Y). For example, a positive-logic bit combination of 0111 (decimal 7) at the P input determines that inputs A₁ through A₇ must be low and that inputs A₈ through A₁₆ must be high to cause the output to go low. Equality of the address applied at the A inputs to the preprogrammed address is indicated by the output being low. The HD74HC678 features a transparent latch and a latch enable input (C). When C is high, the device is in the transparent mode. When C is low, the previous logic state of Y is latched.

PIN ARRANGEMENT

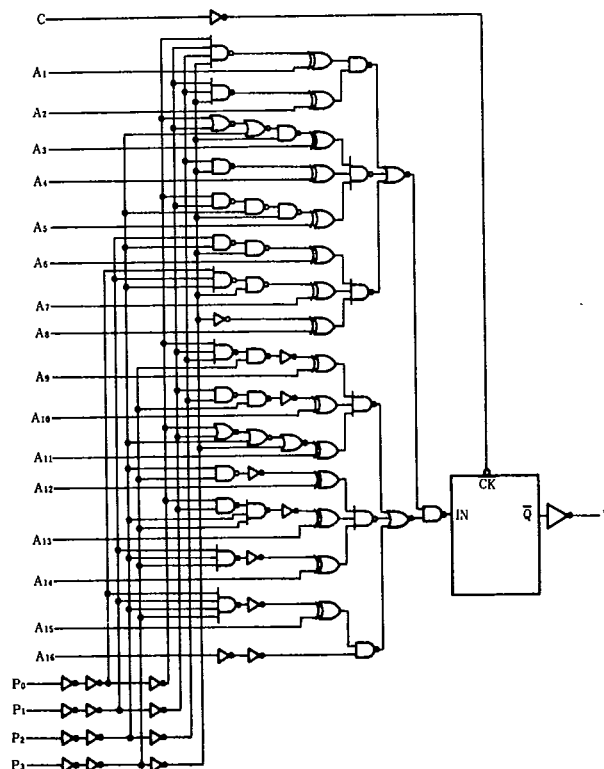


(Top View)

FEATURES

- High Speed Operation
- 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: $I_{CC}(\text{static})=4\mu A$ max. ($T_a=25^\circ C$)

LOGIC DIAGRAM



HD74HC678

[illegible]

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	$V_{ix} = V_{IH} \text{ or } V_{IL}$	$I_{OH} = -20\mu A$	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	—		
	V_{OL}	2.0	$V_{ix} = V_{IH} \text{ or } V_{IL}$	$I_{OL} = 20\mu A$	—	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		
Input Current	I_{ix}	6.0	$V_{ix} = V_{CC} \text{ or GND}$			—	—	± 0.1	—	± 1.0	μA
Quiescent Supply Current	I_{CC}	6.0	$V_{ix} = V_{CC} \text{ or GND, } I_{ix} = 0 \mu A$			—	—	4.0	—	40	μA



92D 10589 DT-45-17

HD74HC678**■ AC CHARACTERISTICS** ($C_L=50\text{pF}$, Input $t_r=t_f=6\text{ns}$)

Item	Symbol	$V_{CC}(\text{V})$	Test Conditions	$T_a=25^\circ\text{C}$			$T_a=-40\sim+85^\circ\text{C}$		Unit
				min.	typ.	max.	min.	max.	
Propagation Delay Time	t_{PLH}	2.0	P to Y	—	—	330	—	410	ns
	t_{PHL}	4.5		—	—	66	—	82	
	t_{PHL}	6.0		—	—	56	—	70	
	t_{PLH}	2.0	A to Y	—	—	210	—	265	ns
	t_{PHL}	4.5		—	—	42	—	53	
	t_{PHL}	6.0		—	—	36	—	45	
	t_{PLH}	2.0	C to Y	—	—	150	—	190	ns
	t_{PHL}	4.5		—	—	30	—	38	
	t_{PHL}	6.0		—	—	26	—	33	
Output Rise/Fall Time	t_{TLH}	2.0		—	—	75	—	95	ns
	t_{THL}	4.5		—	—	15	—	19	
	t_{THL}	6.0		—	—	13	—	16	
Input Capacitance	C_{ia}	—		—	5	10	—	10	pF

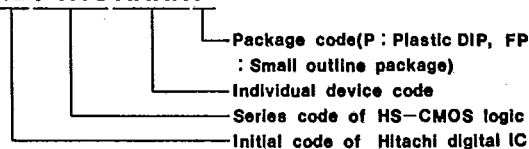
PACKAGE INFORMATION

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

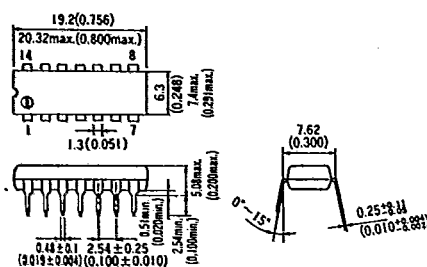


■ PLASTIC DIP PACKAGE [Unit: mm (inch), scale: 1/1]

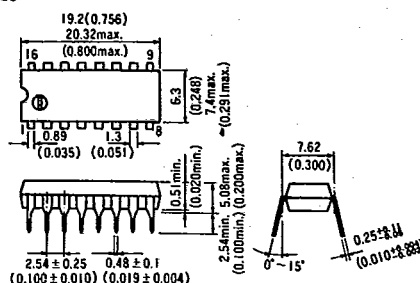
● 14-pin type

● 16-pin type

DP-14



DP-16

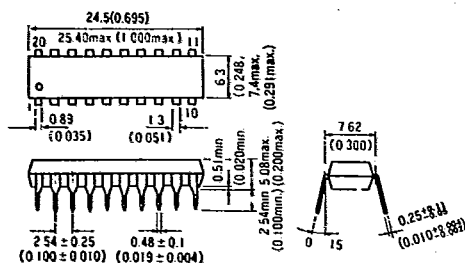


Note) For the present, both packages of 0.89 and 1.3 can be used. Please refer to the Technical Marketing Dept. for further details.

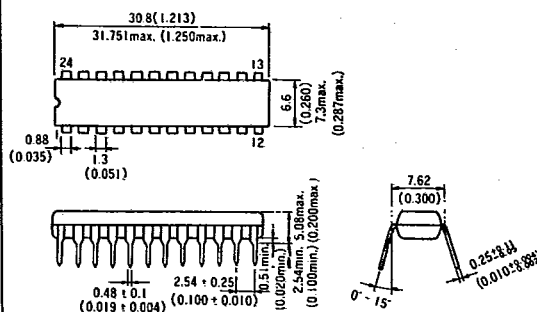
● 20-pin type

● 24-pin type

DP-20N



DP-24N



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

0571

F-06



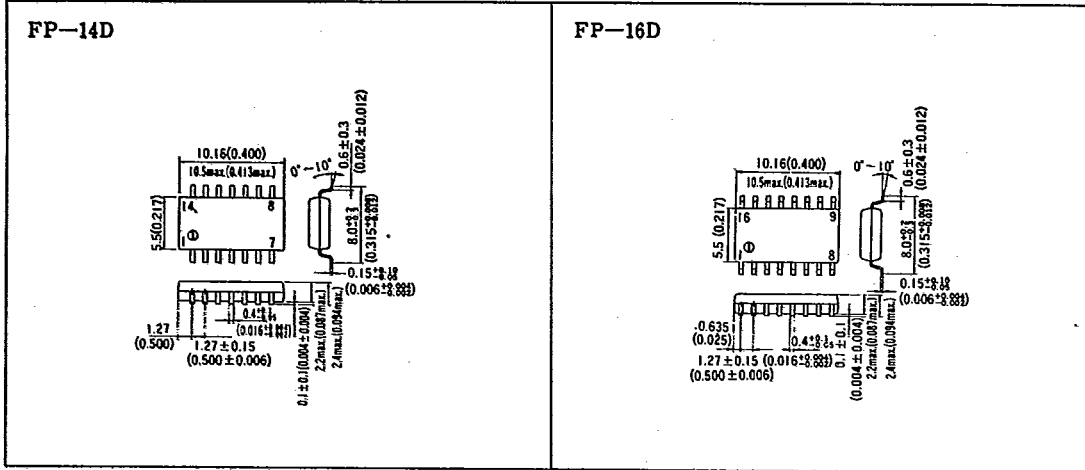
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■ SMALL OUTLINE PACKAGE [Unit: mm (inch), scale: 1½]

● 14—pin type

● 16—pin type



● 20—pin type

