

HD100166

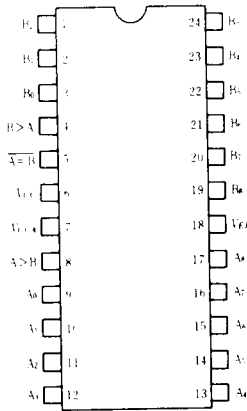
9-bit Comparator

The HD100166 is a 9-bit Magnitude Comparator which compares the arithmetic value of two 9-bit words and indicates whether one word is greater than, or equal to the other.

The outputs do not have pull down resistors, which provides the wire OR functions by trying several outputs together.

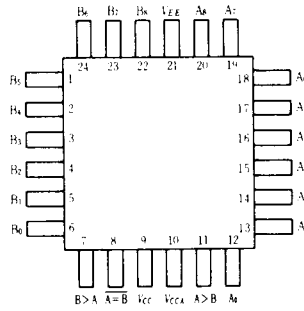
PIN ARRANGEMENT

● HD100166



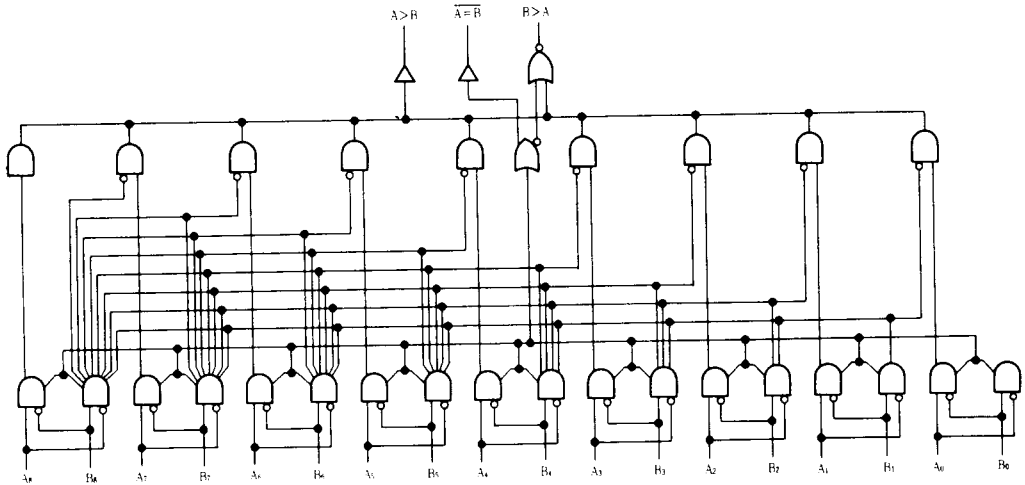
(Top View)

● HD100166F



(Top View)

LOGIC DIAGRAM



■ TRUTH TABLE

Input										Output		
A ₆ B ₆	A ₇ B ₇	A ₄ B ₄	A ₅ B ₅	A ₄ B ₄	A ₃ B ₃	A ₂ B ₂	A ₁ B ₁	A ₀ B ₀	A > B	B > A	A ~ B	
H L									H	L	H	
L H									L	H	H	
A ₄ = B ₄	H L								H	L	H	
A ₄ = B ₄	L H								L	H	H	
A ₄ = B ₄	A ₇ = B ₇	H L							H	L	H	
A ₄ = B ₄	A ₇ = B ₇	L H							L	H	H	
A ₄ = B ₄	A ₇ = B ₇	A ₄ = B ₄	H L						H	L	H	
A ₄ = B ₄	A ₇ = B ₇	A ₄ = B ₄	L H						L	H	H	
A ₄ = B ₄	A ₇ = B ₇	A ₄ = B ₄	A ₅ = B ₅	H L					H	L	H	
A ₄ = B ₄	A ₇ = B ₇	A ₄ = B ₄	A ₅ = B ₅	L H					L	H	H	
A ₄ = B ₄	A ₇ = B ₇	A ₄ = B ₄	A ₅ = B ₅	A ₄ = B ₄	H L				H	L	H	
A ₄ = B ₄	A ₇ = B ₇	A ₄ = B ₄	A ₅ = B ₅	A ₄ = B ₄	L H				L	H	H	
A ₄ = B ₄	A ₇ = B ₇	A ₄ = B ₄	A ₅ = B ₅	A ₄ = B ₄	A ₃ = B ₃	H L			H	L	H	
A ₄ = B ₄	A ₇ = B ₇	A ₄ = B ₄	A ₅ = B ₅	A ₄ = B ₄	A ₃ = B ₃	L H			L	H	H	
A ₄ = B ₄	A ₇ = B ₇	A ₄ = B ₄	A ₅ = B ₅	A ₄ = B ₄	A ₃ = B ₃	A ₂ = B ₂	H L		H	L	H	
A ₄ = B ₄	A ₇ = B ₇	A ₄ = B ₄	A ₅ = B ₅	A ₄ = B ₄	A ₃ = B ₃	A ₂ = B ₂	L H		L	H	H	
A ₄ = B ₄	A ₇ = B ₇	A ₄ = B ₄	A ₅ = B ₅	A ₄ = B ₄	A ₃ = B ₃	A ₂ = B ₂	A ₁ = B ₁	H L	H	L	H	
A ₄ = B ₄	A ₇ = B ₇	A ₄ = B ₄	A ₅ = B ₅	A ₄ = B ₄	A ₃ = B ₃	A ₂ = B ₂	A ₁ = B ₁	L H	L	H	H	
A ₄ = B ₄	A ₇ = B ₇	A ₄ = B ₄	A ₅ = B ₅	A ₄ = B ₄	A ₃ = B ₃	A ₂ = B ₂	A ₁ = B ₁	A ₀ = B ₀	L	L	L	

H = High Level
L = Low Level
Blank = Don't care

■ DC CHARACTERISTICS (V_{EE} = -4.2 to -4.8V, V_{CC} = V_{CCA} = GND, T_a = 0 to +85°C)

Item	Symbol	Test Condition	min	typ	max	Unit
Supply Current	I _{EE}	All input open	119	170	238	mA
Input Current	I _{II}	V _{IX} = V _{IH min}			250	μA

Note) As for other items, refer to the "Common DC Characteristics".

■ AC CHARACTERISTICS (V_{EE} = -2.2 to -2.8V, V_{CC} = V_{CCA} = 2.0V)

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Item	Symbol	Test Condition	0°C		25°C			85°C		Unit
			min	max	min	typ	max	min	max	
Propagation Delay Time	t _{PH}	See test circuit and waveform	1.30	2.90	1.40	2.10	3.00	1.40	3.00	ns
	t _{PL}									
Transition Time	t _{PH}		0.45	1.55	0.45	0.90	1.45	0.45	1.45	ns
	t _{PL}									

● HD100166F

Item	Symbol	Test Condition	0°C		25°C			85°C		Unit
			min	max	min	typ	max	min	max	
Propagation Delay Time	t _{PH}	See test circuit and waveform	1.40	3.10	1.40	2.10	3.00	1.40	3.10	ns
	t _{PL}									
Transition Time	t _{PH}		0.45	1.30	0.45	0.90	1.30	0.45	1.30	ns
	t _{PL}									

Note) The circuits in a test socket or mounted on a printed circuit board and transverse air flow greater than 2.5m/s (500 linear fpm) is maintained.