

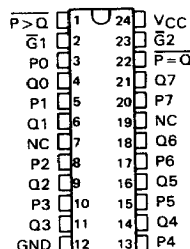
- Compares Two 8-Bit Words
- 'HC682 has 20-k Ω Pullup Resistors on the Q Inputs
- Package Options Include Both Plastic and Ceramic Chip Carriers in Addition to Plastic and Ceramic DIPs
- Dependable Texas Instruments Quality and Reliability

description

These magnitude comparators perform comparisons of two eight-bit binary or BCD words. All types provide $P=Q$ and $P>Q$ outputs. The 'HC682 features 20-k Ω pullup termination resistors on the Q inputs for analog or switch data.

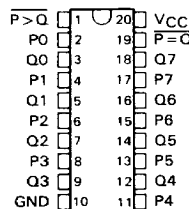
The SN54HC682, SN54HC684, and SN54HC686 are characterized for operation over the full military temperature range of -55°C to 125°C . The SN74HC682, SN74HC684, and SN74HC686 are characterized for operation from -40°C to 85°C .

SN54HC686 ... JT PACKAGE
SN74HC686 ... JT OR NT PACKAGE
(TOP VIEW)

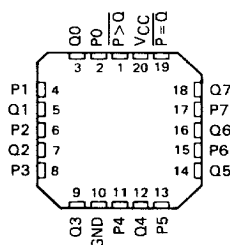


NC—No internal connection

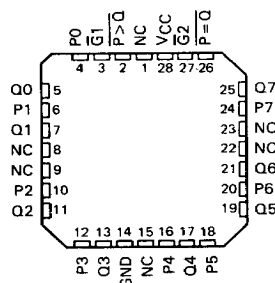
SN54HC682, SN54HC684 ... J PACKAGE
SN74HC682, SN54HC684 ... J OR N PACKAGE
(TOP VIEW)



SN54HC682, SN54HC684 ... FH OR FK PACKAGE
SN74HC682, SN74HC684 ... FH OR FN PACKAGE
(TOP VIEW)



SN54HC686 ... FH OR FK PACKAGE
SN74HC686 ... FH OR FN PACKAGE
(TOP VIEW)



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ADVANCE INFORMATION

**TYPES SN54HC682, SN54HC684, SN54HC686
SN74HC682, SN74HC684, SN74HC686
8-BIT MAGNITUDE COMPARATORS**

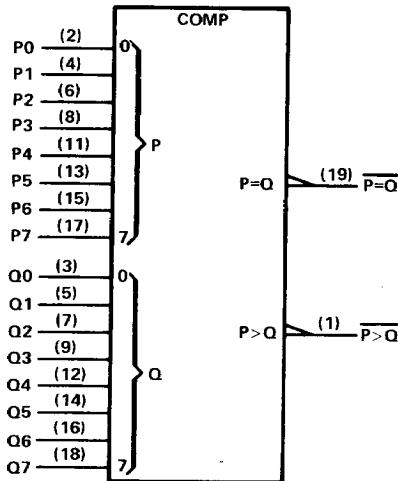
FUNCTION TABLE

DATA	INPUTS		OUTPUTS	
	ENABLES			
P, Q	$\bar{G}1$	$\bar{G}2$	$\overline{P=Q}$	$\overline{P>Q}$
P=Q	L	X	L	H
P>Q	X	L	H	L
P<Q	X	X	H	H
P=Q	H	X	H	H
P>Q	X	H	H	H
X	H	H	H	H

- NOTES: 1. The last 3 lines of the function table apply only to the device having enable inputs, i.e., 'HC686.
2. The $\overline{P<Q}$ function can be generated by applying the $\overline{P=Q}$ and $\overline{P>Q}$ outputs to a 2-input NAND gate.

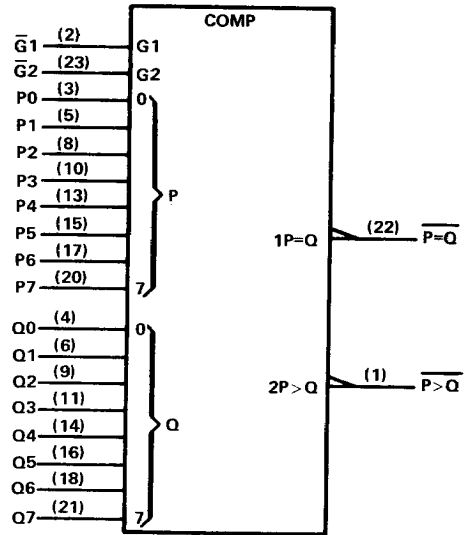
logic symbols

'HC682, 'HC684



'HC682 has 20-k Ω pullup resistors on the Q inputs

'HC686



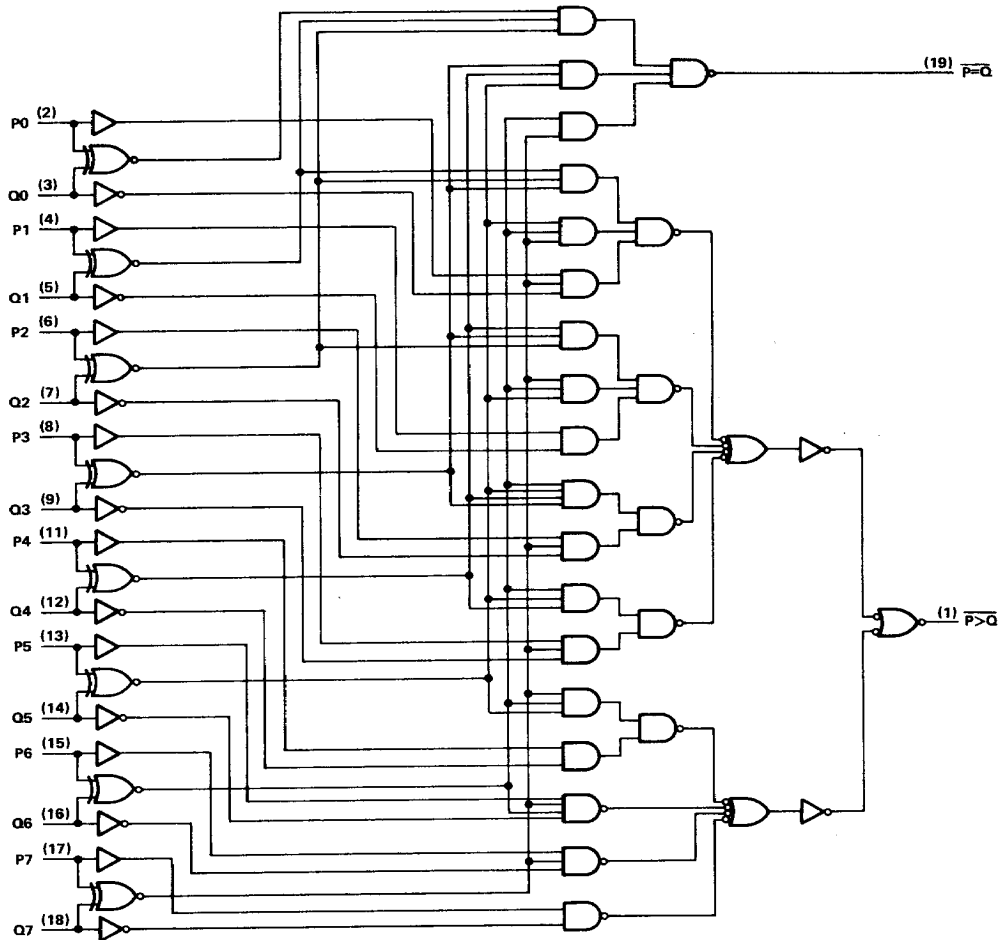
'HC686 pin numbers shown are for JT and NT packages.

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ADVANCE INFORMATION

**TYPES SN54HC682, SN54HC684
SN74HC682, SN74HC684
8-BIT MAGNITUDE COMPARATORS**

'HC682, 'HC684 logic diagram (positive logic)

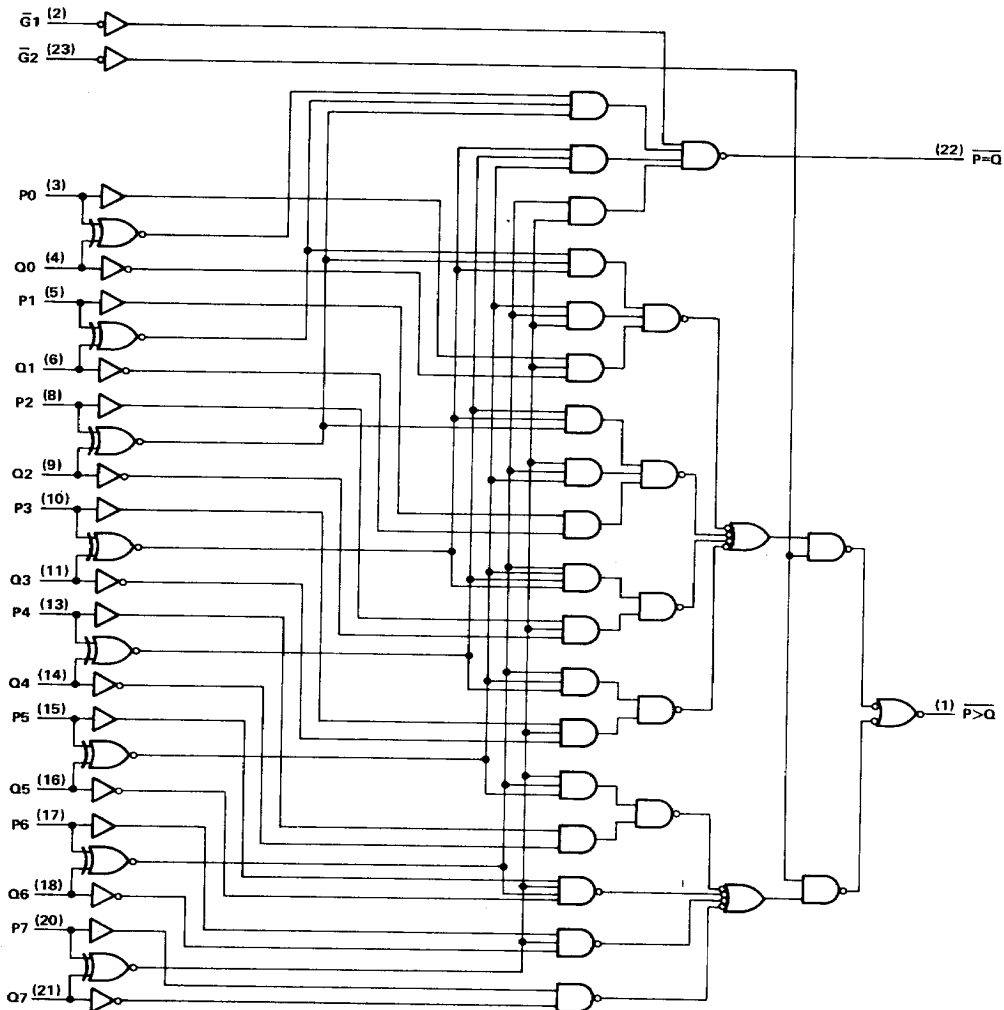


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ADVANCE INFORMATION

TYPES SN54HC686, SN74HC686
8-BIT MAGNITUDE COMPARATORS

HC686 logic diagram (positive logic)



Pin numbers shown are for JT and NT packages.

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ADVANCE INFORMATION

**TYPES SN54HC682, SN54HC684, SN54HC686
SN74HC682, SN74HC684, SN74HC686
8-BIT MAGNITUDE COMPARATORS**

maximum ratings, recommended operating conditions, and electrical characteristics

See Table IV, page 2-10.

'HC682, 'HC684 switching characteristics over recommended operating free-air temperature range (unless otherwise noted), $C_L = 50$ pF (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V_{CC}	$T_A = 25^\circ\text{C}$			SN54HC682 SN54HC684		SN74HC682 SN74HC684		UNIT
				MIN	TYP	MAX	MIN	MAX	MIN	MAX	
t_{pd}	P or Q	Any	2 V		80						ns
			4.5 V		16						
			6 V		14						
t_t		Any	2 V		38						ns
			4.5 V		8						
			6 V		6						

'HC686 switching characteristics over recommended operating free-air temperature range (unless otherwise noted), $C_L = 50$ pF (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V_{CC}	$T_A = 25^\circ\text{C}$			SN54HC686		SN74HC686		UNIT
				MIN	TYP	MAX	MIN	MAX	MIN	MAX	
t_{pd}	P or Q	Any	2 V		80						ns
			4.5 V		16						
			6 V		14						
t_{pd}	$\overline{G}1$ or $\overline{G}2$	Any	2 V		55						ns
			4.5 V		11						
			6 V		9						
t_t		Any	2 V		38						ns
			4.5 V		8						
			6 V		6						

NOTE 1: For load circuit and voltage waveforms see page 1-14.

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ADVANCE INFORMATION