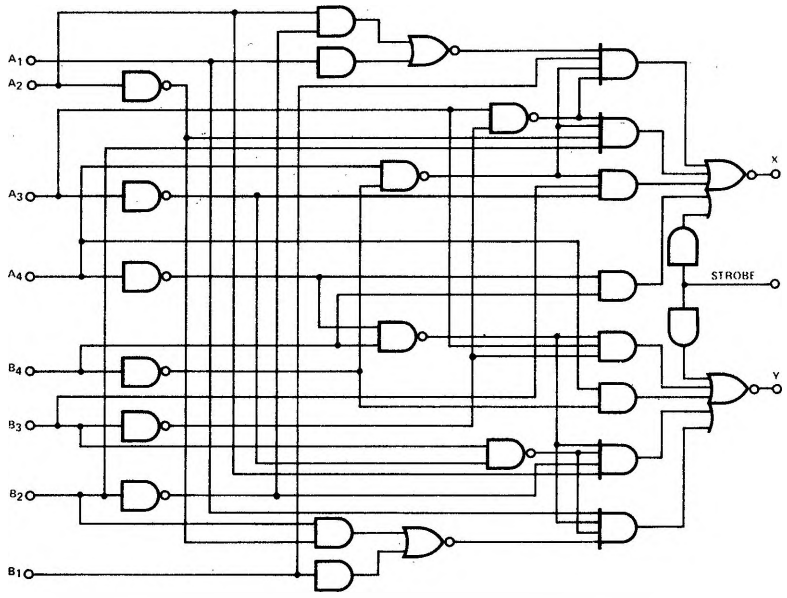
DESCRIPTION

The 8269, a 4 BIT COMPARATOR, is an array of gates designed to perform the numerical comparison of two four-bit binary numbers. The outputs indicate whether the two numbers are equal in value, or which number is the greater. The 8269 is a functional and pin-for-pin replacement for the DM8200.

TRUTH TABLE

INPUT				OUTPUT	
A_n		B_n	STROBE	X	Y
A	>	B	0	1	0
A	<	B	0	0	1
A	=	B	0	1	1
A	≷	B	1	0	0

LOGIC DIAGRAM



ELECTRICAL CHARACTERISTICS (Over Recommended Operating Temperature And Voltage)

CHARACTERISTICS	LIMITS				TEST CONDITIONS
	MIN.	TYP.	MAX.	UNITS	
"1" Output Voltage	2.6	3.5		V	I_{out} = 800μA
"0" Output Voltage		0.2	0.4	V	I_{out} = 16mA
"1" Input Current			80	μA	V_{in} = 4.5V
"0" Input Current	-0.1		-3.2	mA	V_{in} = 0.4V
Power Consumption			278/53	mW/mA	V_{CC} = 5.25V
Short Circuit Output Current	-18		-55	mA	V_{out} = 0V, V_{CC} = 5.25V

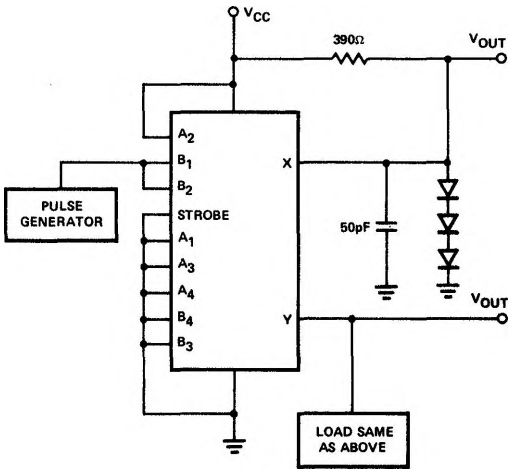
T_A = 25° C and V_{CC} = 5.0V

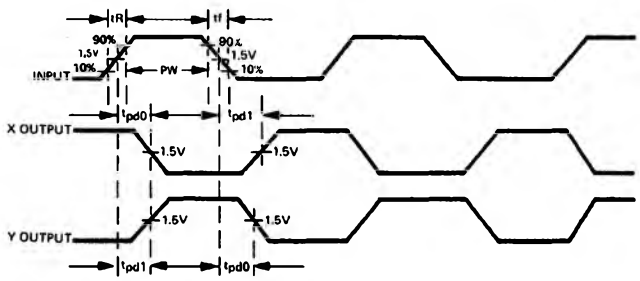
CHARACTERISTICS	LIMITS				TEST CONDITIONS
	MIN.	TYP.	MAX.	UNITS	
Propagation Delay					
tpd1 (Data Input to Output)			40	ns	Test Figure 1
tpd0 (Data Input to Output)			30	ns	Test Figure 1
tpd1 (Strobe to Output)			27	ns	Test Figure 2
tpd0 (Strobe to Output)			18	ns	Test Figure 2

NOTES:

1. All voltage and capacitance measurements are referenced to the ground terminal.
   Terminals not specifically referenced are left electrically open.
2. All measurements are taken with ground pin tied to zero volts.
3. Positive current flow is defined as into the terminal referenced.
4. Positive logic definition: "UP" Level = "1", "DOWN" Level = "0".
5. Precautionary measures should be taken to ensure current limiting in accordance with Absolute Maximum Ratings should the isolation diodes become forward biased.
6. Output source current is supplied through a resistor to ground.
7. Output sink current is supplied through a resistor to V_{CC}.
8. Manufacturer reserves the right to make design and process changes and improvements.

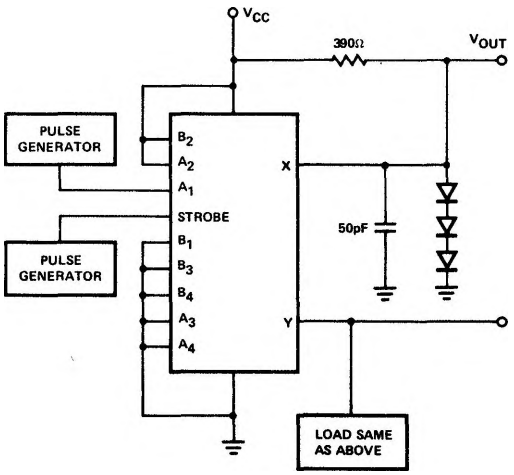
AC TEST FIGURE AND WAVEFORMS

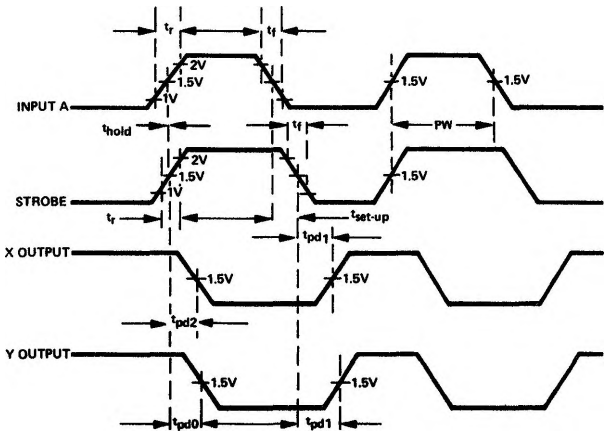




INPUT PULSE:
F = 1mHz
PW = 100ns
$t_r = t_f$ = 10ns ±1ns
AMP. = 3.0V

FIGURE 1





INPUT PULSE:
INPUT A
F = 1mHz
PW = 100ns
$t_r = t_f$ = 10ns ±1ns
AMP. = 3.0V

STROBE INPUT
f = 1mHz
t_{hold} = 0ns
$t_{set\text{-}up}$ = 10ns
$t_r = t_f$ = 10ns ±1ns

FIGURE 2