

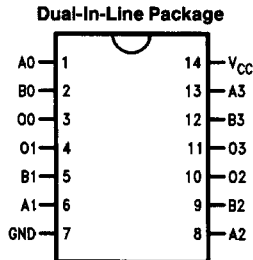


## DM9386 4-Bit Quad Exclusive-NOR with Open-Collector Outputs

### General Description

The DM9386 consists of four independent Exclusive-NOR gates with open-collector outputs. Single 1-bit comparisons may be made with each gate, or multiple bit comparisons may be made by connecting the outputs of the four gates together. Typical power dissipation is 170 mW. The DM9386 is equivalent to the 8242.

### Connection Diagram



TL/F/9798-1

**Order Number DM9386N**  
**See NS Package Number N14A**

Pin Names	Description
A0, B0	Gate 0 Inputs
A1, B1	Gate 1 Inputs
A2, B2	Gate 2 Inputs
A3, B3	Gate 3 Inputs
O0-O3	Gate Outputs

## Absolute Maximum Ratings (Note)

If Military/Aerospace specified devices are required, please contact the National Semiconductor Sales Office/Distributors for availability and specifications.

Supply Voltage	7V
Input Voltage	5.5V
Operating Free Air Temperature Range	
Commercial	0°C to +70°C
Storage Temperature Range	-65°C to +150°C

Note: The "Absolute Maximum Ratings" are those values beyond which the safety of the device cannot be guaranteed. The device should not be operated at these limits. The parametric values defined in the "Electrical Characteristics" table are not guaranteed at the absolute maximum ratings. The "Recommended Operating Conditions" table will define the conditions for actual device operation.

## Recommended Operating Conditions

Symbol	Parameter	Min	Nom	Max	Units
V <sub>CC</sub>	Supply Voltage	4.75	5	5.25	V
V <sub>IH</sub>	High Level Input Voltage	2			V
V <sub>IL</sub>	Low Level Input Voltage			0.8	V
I <sub>OH</sub>	High Level Output Current	-0.150		-0.150	mA
I <sub>OL</sub>	Low Level Output Current			25	mA
T <sub>A</sub>	Free Air Operating Temperature	0		70	°C

## Electrical Characteristics

Over recommended operating free air temperature range (unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ (Note 1)	Max	Units
V <sub>I</sub>	Input Clamp Voltage	V <sub>CC</sub> = Min, I <sub>I</sub> = -12 mA			-1.5	V
V <sub>OH</sub>	High Level Output Voltage	V <sub>CC</sub> = Min, I <sub>OH</sub> = Max, V <sub>IL</sub> = Max	2.4	3.4		V
V <sub>OL</sub>	Low Level Output Voltage	V <sub>CC</sub> = Min, I <sub>OL</sub> = Max, V <sub>IH</sub> = Min		0.2	0.4	V
I <sub>I</sub>	Input Current @ Max Input Voltage	V <sub>CC</sub> = Max, V <sub>I</sub> = 5.5V			1	mA
I <sub>IH</sub>	High Level Input Current	V <sub>CC</sub> = Max, V <sub>I</sub> = 2.4V			80	μA
I <sub>IL</sub>	Low Level Input Current	V <sub>CC</sub> = Max, V <sub>I</sub> = 0.4V			-3.2	mA
I <sub>OS</sub>	Short Circuit Output Current	V <sub>CC</sub> = Max (Note 2)	-18		-57	mA
I <sub>CC</sub>	Supply Current	V <sub>CC</sub> = Max, V <sub>IN(A)</sub> , V <sub>IN(B)</sub> = 0.4V			47.5	mA

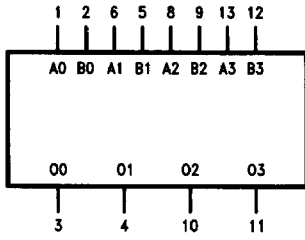
## Switching Characteristics at V<sub>CC</sub> = 5V and T<sub>A</sub> = 25°C (See Section 1 for Test Waveforms and Output Load)

Symbol	Parameter	Conditions	Min	Max	Units
t <sub>PLH</sub>	Propagation Delay Time Low to High Level Output	C <sub>L</sub> = 30 pF R <sub>L</sub> = 530Ω		25	ns
t <sub>PHL</sub>	Propagation Delay Time High to Low Level Output			25	ns

Note 1: All typicals are at V<sub>CC</sub> = 5V, T<sub>A</sub> = 25°C.

Note 2: Not more than one output should be shorted at a time.

### Logic Symbol



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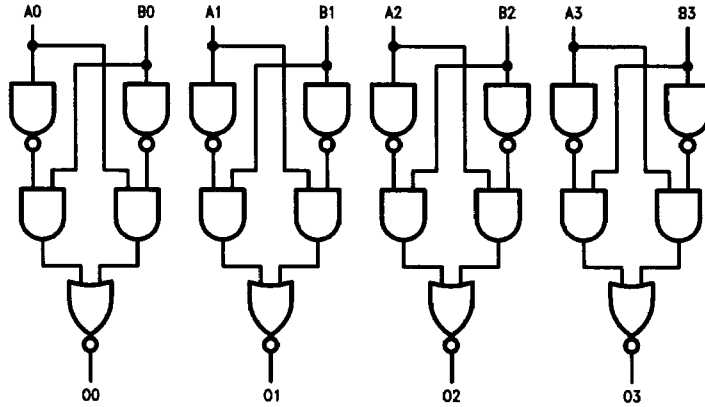
V<sub>CC</sub> = Pin 14  
 GND = Pin 7

### Truth Table

Inputs		Output
A <sub>n</sub>	B <sub>n</sub>	O <sub>n</sub>
L	L	H
H	L	L
L	H	L
H	H	H

H = HIGH Voltage Level  
 L = LOW Voltage Level

### Logic Diagram



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