

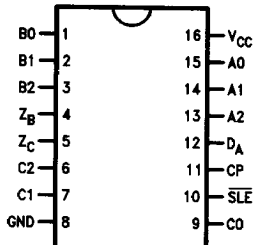
## 9338/DM9338 8-Bit Multiple Port Register

### General Description

The DM9338 is an 8-bit multiple port register designed for high speed random access memory applications where the ability to simultaneously read and write is desirable. A common use would be as a register bank in a three address computer. Data can be written into any one of the eight bits and read from any two of the eight bits simultaneously.

### Connection Diagrams

**Dual-In-Line Package**



TL/F/9794-1

**Order Number 9338DMQB, 9338FMQB or DM9338N**  
**See NS Package Number J16A, N16E or W16A**

Pin Names	Description
A0-A2	Write Address Inputs
D <sub>A</sub>	Data Input
B0-B2	B Read Address Inputs
C0-C2	C Read Address Inputs
CP	Clock Pulse Input (Active Rising Edge)
$\overline{SLE}$	Slave Enable Input (Active LOW)
Z <sub>B</sub>	B Output
Z <sub>C</sub>	C Output

**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	
Military	-55°C to +125°C
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	Military			Commercial			Units
		Min	Nom	Max	Min	Nom	Max	
V <sub>CC</sub>	Supply Voltage	4.5	5	5.5	4.75	5	5.25	V
V <sub>IH</sub>	High Level Input Voltage	2			2			V
V <sub>IL</sub>	Low Level Input Voltage			0.8			0.8	V
I <sub>OH</sub>	High Level Output Current			-0.8			-0.8	mA
I <sub>OL</sub>	Low Level Output Current			16			16	mA
T <sub>A</sub>	Free Air Operating Temperature	-55		125	0		70	°C
t <sub>s</sub> (H)	Setup Time HIGH or LOW	20			20			ns
t <sub>s</sub> (L)	D <sub>A</sub> to CP	12			12			
t <sub>h</sub> (H)	Hold Time HIGH or LOW	0			0			ns
t <sub>h</sub> (L)	D <sub>A</sub> to CP	-8.0			-8.0			
t <sub>s</sub> (H)	Setup Time HIGH or LOW	10			10			ns
t <sub>s</sub> (L)	A <sub>n</sub> to CP	10			10			
t <sub>h</sub> (H)	Hold Time HIGH or LOW	0			0			ns
t <sub>h</sub> (L)	A <sub>n</sub> to CP	0			0			
t <sub>w</sub> (H)	CP Pulse Width HIGH or LOW	23			23			ns
t <sub>w</sub> (L)		13			13			

**Electrical Characteristics**

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

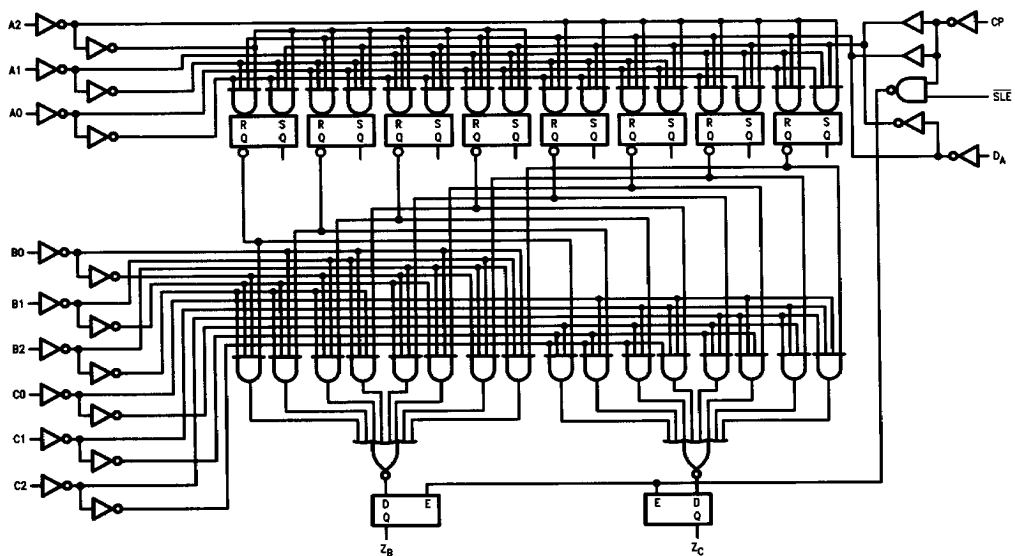
Symbol	Parameter	Conditions	Min	Typ (Note 1)	Max	Units
V <sub>I</sub>	Input Clamp Voltage	V <sub>CC</sub> = Min, I <sub>I</sub> = -12 mA			-1.5	V
V <sub>OH</sub>	High Level Output Voltage	V <sub>CC</sub> = Min, I <sub>OH</sub> = Max V <sub>IL</sub> = Max	2.4	3.4		V
V <sub>OL</sub>	Low Level Output Voltage	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			27	μA
I <sub>IL</sub>	Low Level Input Current	V <sub>CC</sub> = Max, V <sub>I</sub> = 0.4V			-1.1	mA
I <sub>OS</sub>	Short Circuit Output Current	V <sub>CC</sub> = Max (Note 2)	MIL -10		-70	mA
			COM -10		-70	
I <sub>CC</sub>	Supply Current	V <sub>CC</sub> = Max			135	mA

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 Diagram



TL/F/9794-3