

PRELIMINARY

1,048,576 x 8 CMOS Mask Programmable ROM 32 Pin DIP

FEATURES

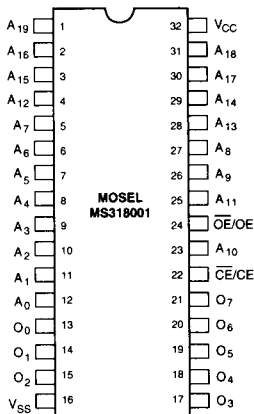
- HIGH Speed: 70*/100/150ns access time
- Low Power operation:
200mW (Active) @ 10MHz, Max.
500μW Standby CMOS levels, Max.
- Fully static operation
- Automatic power down
- Complete TTL compatibility
- EPROMs accepted as program data input
- 32 Pin DIP

DESCRIPTION

The high performance MS318001 Read Only Memory is organized as 1,048,576 bytes by 8 bits. It is designed to be compatible with all microprocessors and similar applications where high performance, low cost, mass storage and simple interfacing are important design considerations.

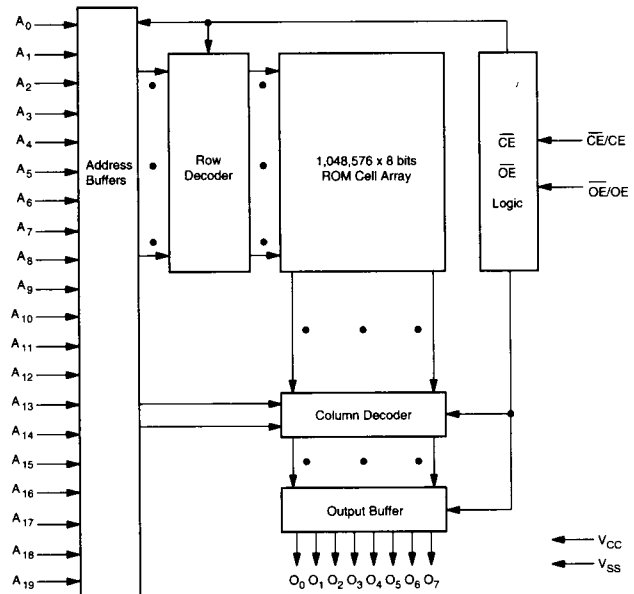
The MS318001 will automatically powerdown when no address transitions occur. Powerdown also occurs when \overline{CE} goes HIGH, and the device stays in a low power standby mode as long as \overline{CE} remains HIGH.

PIN CONFIGURATION



*70ns is advance information only

BLOCK DIAGRAM



MS318001

PIN DESCRIPTIONS

SYMBOL	FUNCTION
A ₀ - A ₁₉	Address Input
O ₀ - O ₇	Data Output
V _{SS}	Ground
V _{CC}	Power Supply
CE/CE	Chip Enable (1)
OE/OE	Output Enable (1)

1. The CE/CE and the OE/OE input control functions are user definable, as active low (default) or active high.

ABSOLUTE MAXIMUM RATINGS (2)

Temperature Under Bias	-10°C to +85°C
Storage Temperature	-45°C to +125°C
Supply Voltage to Ground Potential	-0.3V to +7.0V
Applied Output Voltage	-0.5V to V _{CC} + 0.5V
Applied Input Voltage	-0.5V to V _{CC} + 0.5V

2. Stresses greater than those listed under ABSOLUTE MAXIMUM RATINGS may cause permanent damage to the device. This is a stress rating only. Functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not recommended. Exposure to ABSOLUTE MAXIMUM RATINGS for extended periods may affect device reliability, and degrade its performance characteristics.

OPERATING RANGE

RANGE	AMBIENT TEMPERATURE	V _{CC}
Commercial	0°C to + 70°C	5V ± 10%

DC ELECTRICAL CHARACTERISTICS (over the commercial operating range)

PARAMETER NAME	PARAMETER	TEST CONDITIONS	MS318001			UNIT
			MIN.	TYP.	MAX.	
V _{IL}	Input Low Voltage		-0.3	-	0.8	V
V _{IH}	Input High Voltage		2.2		V _{CC} +0.3	V
I _{IL}	Input Leakage Current	V _{CC} =Max, V _{IN} =0V to V _{CC}	-	-	10	μA
I _{OL}	Output Leakage Current	V _{OUT} =0 V to V _{DD} , CE=V _{IH} , OE=V _{IH}	-	-	10	μA
V _{OL}	Output Low Voltage	V _{CC} =Min, I _{OL} =2.0mA	-	-	0.4	V
V _{OH}	Output High Voltage	V _{CC} =Min, I _{OH} =-1.0mA	2.4	-	-	V
I _{CC}	Operating Power Supply Current (3)	CE=V _{IL} , 10MHz	-	-	50	mA
I _{CCSB}	Standby Power Supply Current	CE=V _{CC} -0.2V, OE = V _{CC} - 0.2V	-	-	100	μA

3. Measured with device selected and outputs unloaded.

CAPACITANCE (T_A = 25°C, f = 1.0MHz) (4)

SYMBOL	PARAMETER	CONDITION	MAX.	UNIT
C _I	Input Capacitance	V _{IN} = 0V	10	pF
C _O	Output Capacitance	V _{OUT} = 0V	15	pF

4. This parameter is guaranteed but not 100% tested.

AC ELECTRICAL CHARACTERISTICS (over the operating range)

CE	OE	MODE	OUTPUT	I _{CC}
H	X	Not Selected	High-Z	I _{CCSB}
L	H	Not Selected	High-Z	I _{CC}
L	L	Selected	Data Out	I _{CC}

AC TEST CONDITIONS

Input Pulse Levels	0 to 3V
Input Rise and Fall Times	5 ns
Timing Level Reference	1.5V
Output Load	See Fig. 1

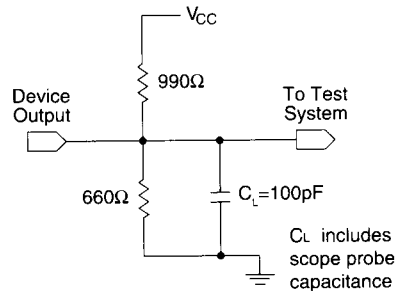


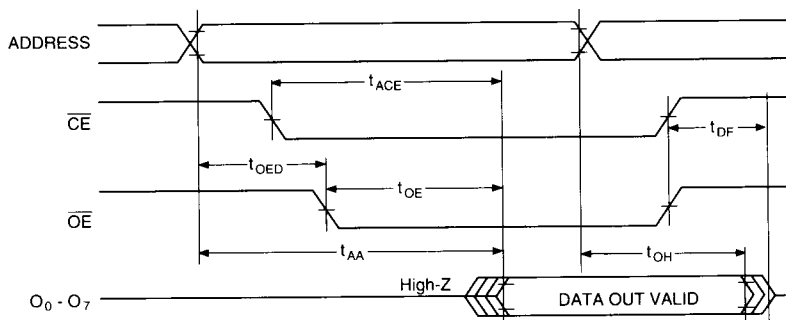
Figure 1. Output Load Circuit

AC ELECTRICAL CHARACTERISTICS (over the operating range)

PARAMETER NAME	PARAMETER	TEST CONDITION	-70		-100		-150		UNIT
			MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	
t _{AA}	Address Access Time	$\overline{CE} = \overline{OE} = V_{IL}, C_L = 100\text{pF}$	-	70	-	100	-	150	ns
t _{ACE}	Chip Enable Access Time	$\overline{OE} = V_{IL}, C_L = 100\text{pF}$	-	70	-	100	-	150	ns
t _{OE}	Output Enable Access Time	Note 1, C _L = 100pF	-	25	-	40	-	50	ns
t _{DF}	Output Disable Time	Note 2, C _L = 5pF	-	25	-	40	-	50	ns
t _{OH}	Output Hold Time	$\overline{CE} = \overline{OE} = V_{IL}, C_L = 100\text{pF}$	0	-	0	-	0	-	ns

1. Maximum \overline{OE} delay, t_{OED}, which does not affect t_{AA} is t_{AA} - t_{OE}.
2. Sample tested only for an output change of 500mV.

TIMING DIAGRAMS



MS318001

ORDERING INFORMATION

SPEED (ns)	ORDERING PART NUMBER	PACKAGE REFERENCE NO.	TEMPERATURE RANGE
70	MS318001-70PC	P32-4	0°C to + 70°C
100	MS318001-100PC	P32-4	0°C to + 70°C
150	MS318001-150PC	P32-4	0°C to + 70°C