commodore semiconductor group

NMOS

MPS

2332

STATIC READ ONLY MEMORY (4096x8)

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DESCRIPTION

The 2332 high performance read only memory is organized 4096 words by 8 bits with access times of less than 350 ns. This ROM is designed to be compatible with all microprocessor and similar applications where high performance, large bit storage and simple interfacing are important design considerations. This device offers TTL input and output levels.

The 2332 operates totally asynchronously. No clock input is required. The two programmable chip select inputs allow four 32K ROMS to be OR-tied without external decoding.

Designed to replace two 2716 16K EPROMS, the 2332 can eliminate the need to redesign printed circuit boards for volume mask programmed ROMS after prototyping with EPROMS.

- 4096 x 8 Bit Organization
- Single +5 Volt Supply
- Access Time — 2332 450 ns
  2332A 350 ns
- Completely TTL Compatible
- Totally Static Operation
- Three-State Outputs for Wire-OR Expansion
- Two Programmable Chip Selects
- Pin Compatible with 2716 & 2732 EPROM
- Replacement for Two 2716s
- 2708/2716 EPROMS Accepted as Program Data Inputs
- 400mV Noise Immunity on Inputs

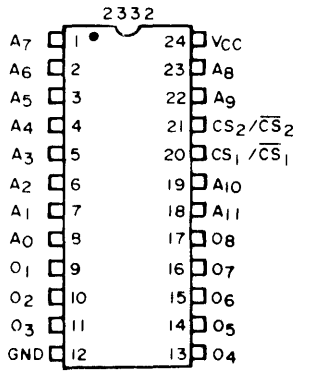
ORDERING INFORMATION

MXS 2332 ___

FREQUENCY RANGE
NO SUFFIX = 450ns
A = 350ns

PACKAGE DESIGNATOR
C = CERAMIC
P = PLASTIC

PIN CONFIGURATION



ROMs

ABSOLUTE MAXIMUM RATINGS

Ambient Operating Temperature	0° to +70°C
Storage Temperature	−65°C to +150°C
Supply Voltage to Ground Potential	−0.5V to +7.0V
Applied Output Voltage	−0.5V to +7.0V
Applied Input Voltage	−0.5V to +7.0V
Power Dissipation	1.0W

COMMENT

Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

D.C. CHARACTERISTICS

T_A = 0°C to +70°C, V_{CC} = 5.0V ±5% (unless otherwise specified)

Symbol	Parameter	Min.	Max.	Units	Test Conditions
I_{CC1}	Power Supply Current		100	mA	$V_{IN} = V_{CC}$, V_O = Open, T_A = 0°C
I_{CC2}	Power Supply Current		95	mA	$V_{IN} = V_{CC}$, V_O = Open, T_A = 25°C
I_O	Output Leakage Current		10	µA	Chip Deselected, V_O = O to V_{CC}
I_I	Input Load Current		10	µA	V_{CC} = Max. V_{IN} = O to V_{CC}
V_{OL}	Output Low Voltage		0.4	Volts	V_{CC} = Min. I_{OL} = 2.1mA
V_{OH}	Output High Voltage	2.4		Volts	V_{CC} = Min. I_{OH} = −400µA
V_{IL}	Input Low Voltage	−0.5	0.8	Volts	See note 1
V_{IH}	Input High Voltage	2.0	V_{CC}+1	Volts	

A. C. CHARACTERISTICS

T_A = 0°C to +70°C, V_{CC} = 5.0V ±5% (unless otherwise specified)

Symbol	Parameter	2332		2332A		Units	Test Conditions
		Min.	Max.	Min.	Max.		
t_{ACC}	Address Access Time		450		350	ns	See Note 2
t_{CO}	Chip Select Delay		200		200	ns	
t_{DF}	Chip Deselect Delay		175		175	ns	
t_{OH}	Previous Data Valid After Address Change Delay	40		40		ns	

CAPACITANCE

T_A = 25°C, f = 1.0MHz, See Note 3

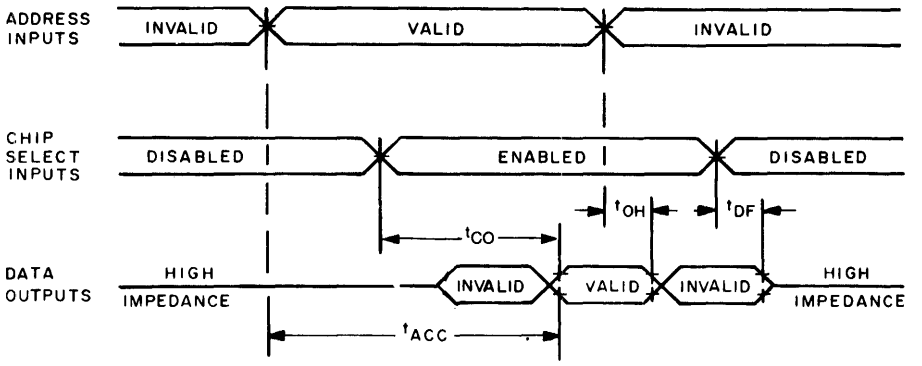
Symbol	Parameter	Min.	Max.	Units	Test Conditions
C_{IN}	Input Capacitance		8	pF	All Pins except Pin under Test Tied to AC Ground
C_{OUT}	Output Capacitance		10	pF	

Note 1: Input levels that swing more negative than −0.5V will be clamped and may cause damage to the device.

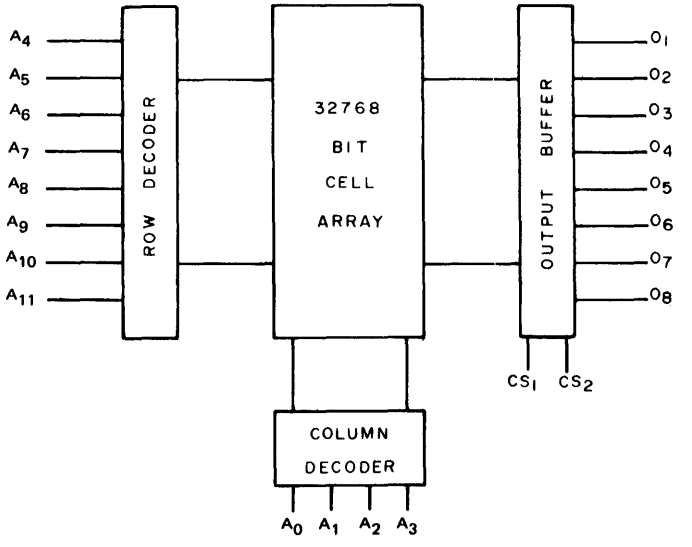
Note 2: Loading 1 TTL + 100 pF, input transition time: 20 ns.
Timing measurement levels: input 1.5V, output 0.8V and 2.0V. C_L = 100 pF.

Note 3: This parameter is periodically sampled and is not 100% tested.

TIMING DIAGRAM



BLOCK DIAGRAM



TYPICAL CHARACTERISTICS