



# COMMODORE SEMICONDUCTOR GROUP

a division of Commodore Business Machines, Inc.

950 Rittenhouse Rd., Norristown, PA 19403 • Tel.: 215/666-7950 • TWX: 510/660-4168

## HMOS

23128 STATIC READ ONLY MEMORY (16384x8)

### 23128 STATIC READ ONLY MEMORY (16384x8)

#### DESCRIPTION

The 23128 high performance read only memory is organized 16384 words by 8 bits with a wide range of access times. 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 23128 operates totally asynchronously. No clock input is required. The programmable chip select inputs allow selection of 8 ROMS.

- 16384 x 8 Bit Organization
- Single +5 Volt Supply
- Access Time — 450ns, 300ns, 250ns
- Completely TTL Compatible
- Totally Static Operation
- Three-State Outputs for Wire-OR Expansion
- Three Programmable Chip Selects
- 2732/2764 EPROMS Accepted as Program Data Inputs
- 400mV Noise Immunity on Inputs

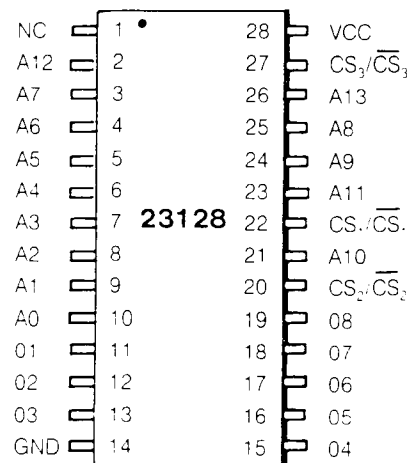
#### ORDERING INFORMATION MXS 23128

FREQUENCY RANGE  
 NO SUFFIX = 450ns  
 A = 300ns  
 B = 250ns  
 C = 200ns\* (1)

PACKAGE DESIGNATOR  
 D = CERAMIC  
 P = PLASTIC

(1) = 200ns\* available in 1987

#### PIN CONFIGURATION



**ABSOLUTE MAXIMUM RATINGS**

Ambient Temperature under Bias	-65°C 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** ( $T_A = 0^\circ\text{C}$  to  $+70^\circ\text{C}$ ,  $V_{CC} = 5.0\text{V} \pm 5\%$ , unless otherwise specified)

Symbol	Parameter	Min.	Max.	Units	Test Conditions
$I_{CC1}$	Power Supply Current		100	mA	$V_{IN} = V_{CC}$ , $V_O = \text{Open}$ , $T_A = 0^\circ\text{C}$
$I_{CC2}$	Power Supply Current		95	mA	$V_{IN} = V_{CC}$ , $V_O = \text{Open}$ , $T_A = 25^\circ\text{C}$
$I_O$	Output Leakage Current		10	$\mu\text{A}$	Chip Deselected, $V_O = 0$ to $V_{CC}$
$I_I$	Input Load Current		10	$\mu\text{A}$	$V_{CC} = \text{Max}$ , $V_{IN} = 0$ to $V_{CC}$
$V_{OL}$	Output Low Voltage		0.4	Volts	$V_{CC} = \text{Min}$ , $I_{OL} = 2.1\text{mA}$
$V_{OH}$	Output High Voltage	2.4		Volts	$V_{CC} = \text{Min}$ , $I_{OH} = -400\mu\text{A}$
$V_{IL}$	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** ( $T_A = 0^\circ\text{C}$  to  $+70^\circ\text{C}$ ,  $V_{CC} = 5.0\text{V} \pm 5\%$ , unless otherwise specified)

Symbol	Parameter	23128		23128A		23128B		Units	Test Conditions
		Min.	Max.	Min.	Max.	Min.	Max.		
$t_{ACC}$	Address Access Time		450		300		250	ns	See Note 2
$t_{CO}$	Chip Select Delay		200		100		100	ns	
$t_{DF}$	Chip Deselect Delay		175		75		75	ns	
$t_{OH}$	Previous Data Valid After Address Change Delay	40		40		40		ns	

**CAPACITANCE** ( $T_A = 25^\circ\text{C}$ ,  $f = 1.0\text{MHz}$ , See Note 3)

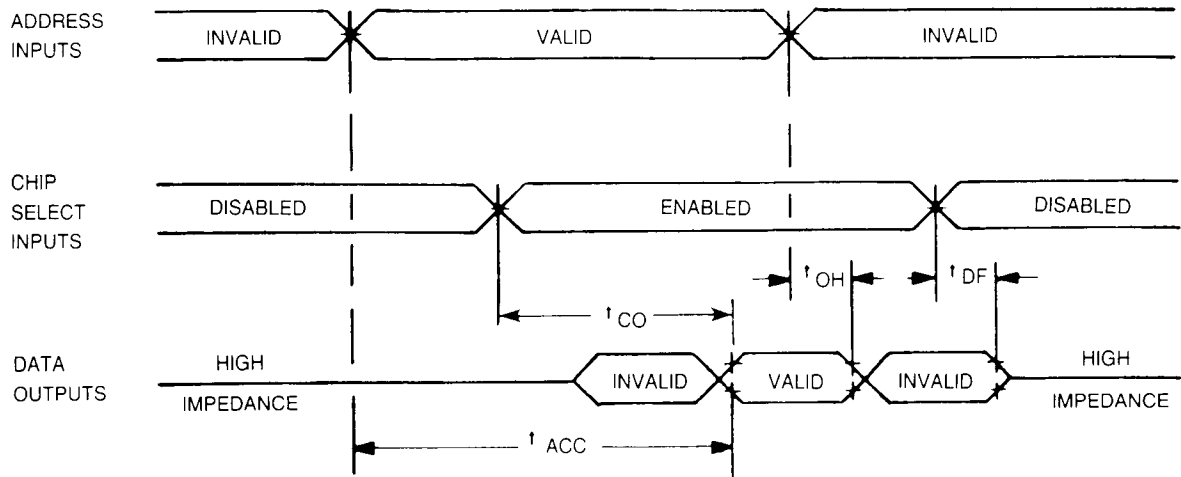
Symbol	Parameter	Min.	Max.	Units	Test Conditions
$C_{IN}$	Input Capacitance		8	pF	All Pins except Pin under Test Tied to AC Ground
$C_{OUT}$	Output Capacitance		10	pF	

Note 1: Input levels that swing more negative than  $-0.5\text{V}$  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.

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

### TIMING DIAGRAMS



### BLOCK DIAGRAM

