

# Am9218/8316E

2048 x 8 Read Only Memory

## DISTINCTIVE CHARACTERISTICS

- 2048 x 8 organization
- Plug-in replacement for 8316E
- Access times as fast as 350 ns
- Fully capacitive inputs – simplified driving
- 3 fully programmable Chip Selects – increased flexibility
- Logic voltage levels compatible with TTL
- Three-state output buffers – simplified expansion
- Drives two full TTL loads
- Single supply voltage – +5.0V
- Low power dissipation
- N-channel silicon gate MOS technology
- 100% MIL-STD-883 reliability assurance testing

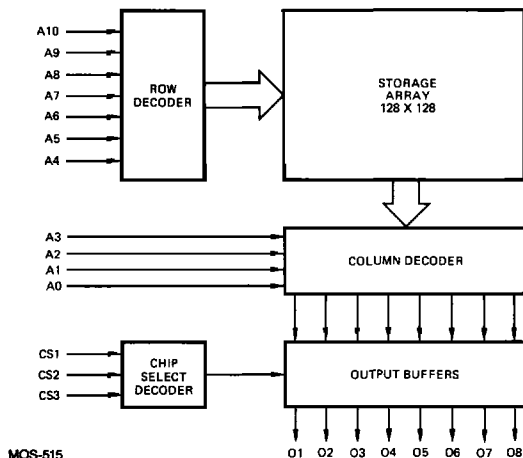
## FUNCTIONAL DESCRIPTION

The Am9218 devices are high performance, 16384-bit, static, mask programmed, read only memories. Each memory is implemented as 2048 words by 8 bits per word. This organization simplifies the design of small memory systems and permits incremental memory sizes as small as 2048 words. The fast access times provided allow the ROM to service high performance microcomputer applications without stalling the processor.

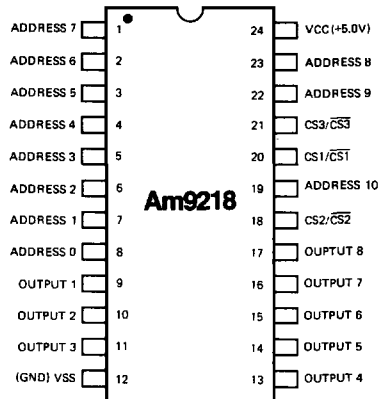
Three programmable Chip Select input signals are provided to control the output buffers. Each Chip Select polarity may be specified by the customer thus allowing the addressing of 8 memory chips without external gating. The outputs of unselected chips are turned off and assume a high impedance state. This permits wire-ORing with additional Am9218 devices and other three-state components.

These memories are fully static and require no clock signals of any kind. A selected chip will output data from a location specified by whatever address is present on the address input lines. Input and output voltage levels are compatible with TTL specifications.

## BLOCK DIAGRAM



## CONNECTION DIAGRAM



MOS-518

## ORDERING INFORMATION

Package Type	Ambient Temperature Specifications	Access Time	
		450ns	350ns
Molded	0°C ≤ T <sub>A</sub> ≤ 70°C	AM9218BPC P8316E	AM9218CPC
Cerdip	0°C ≤ T <sub>A</sub> ≤ 70°C	AM9218BCC	AM9218CCC
Side-Brazed Ceramic	0°C ≤ T <sub>A</sub> ≤ 70°C	AM9218BDC C8316E	AM9218CDC
	-55°C ≤ T <sub>A</sub> ≤ +125°C	AM9218BDM	

**MAXIMUM RATINGS** (Above which the useful life may be impaired)

Storage Temperature	-65°C to +150°C
Ambient Temperature Under Bias	-55°C to +125°C
VCC with Respect to VSS	+7.0V
DC Voltage Applied to Outputs	-0.5V to +7.0V
DC Input Voltage	-0.5V to +7.0V
Power Dissipation	1.0W

The products described by this specification include internal circuitry designed to protect input devices from damaging accumulations of static charge. It is suggested nevertheless, that conventional precautions be observed during storage, handling and use in order to avoid exposure to excessive voltages.

**ELECTRICAL CHARACTERISTICS**

Am9218BDC  $T_A = 0^\circ\text{C to } +70^\circ\text{C}$   
 Am9218CDC  
 C8316A  $V_{CC} = 5.0V \pm 5\%$

Parameters	Description	Test Conditions	Am9218XDC		C8316E		Units
			Min.	Max.	Min.	Max.	
VOH	Output HIGH Voltage	9218 $I_{OH} = -200\mu\text{A}$	2.4				Volts
		8316E $I_{OH} = -100\mu\text{A}$			2.4		
VOL	Output LOW Voltage	9218 $I_{OL} = 3.2\text{mA}$		0.4			Volts
		8316E $I_{OL} = 2.1\text{mA}$				0.4	
VIH	Input HIGH Voltage		2.0	$V_{CC} + 1.0$	2.0	$V_{CC} + 1.0$	Volts
VIL	Input LOW Voltage		-0.5	0.8	-0.5	0.8	Volts
ILO	Output Leakage Current	Chip Disabled		10		10	$\mu\text{A}$
ILI	Input Leakage Current			10		10	$\mu\text{A}$
ICC	VCC Supply Current			70		95	mA

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**ELECTRICAL CHARACTERISTICS**

Am9218BDM  $T_A = -55^\circ\text{C to } +125^\circ\text{C}$   
 $V_{CC} = 5.0V \pm 10\%$

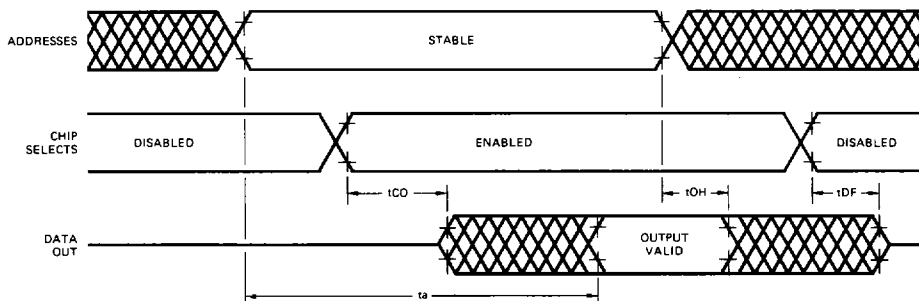
Parameters	Description	Test Conditions	Am9218B		Units
			Min.	Max.	
VOH	Output HIGH Voltage	$I_{OH} = -200\mu\text{A}$	2.2		Volts
VOL	Output LOW Voltage	$I_{OL} = 3.2\text{mA}$		0.45	Volts
VIH	Input HIGH Voltage		2.0	$V_{CC} + 1.0$	Volts
VIL	Input LOW Voltage		-0.5	0.8	Volts
ILO	Output Leakage Current	Chip Disabled		10	$\mu\text{A}$
ILI	Input Leakage Current			10	$\mu\text{A}$
ICC	VCC Supply Current			80	mA

**SWITCHING CHARACTERISTICS OVER OPERATING RANGE**

Am9218XDC/C8316E  $T_A = 0^\circ\text{C to } +70^\circ\text{C}$   $V_{CC} = 5.0V \pm 5\%$   
 Am9218BDM  $T_A = -55^\circ\text{C to } +125^\circ\text{C}$   $V_{CC} = 5.0V \pm 10\%$

Parameters	Description	Test Conditions	Am9218B		Am9218C		8316E		Units
			Min.	Max.	Min.	Max.	Min.	Max.	
$t_a$	Address to Output Access Time	$t_r = t_f = 20\text{ns}$		450		350		450	ns
$t_{CO}$	Chip Select to Output ON Delay	Output Load: one standard TTL gate plus 100pF (Note 1)		150		130		250	ns
$t_{OH}$	Previous Read Data Valid with Respect to Address Change		20		20		--		ns
$t_{DF}$	Chip Select to Output OFF Delay			150		130		250	ns
CI	Input Capacitance	$T_A = 25^\circ\text{C}$ , $f = 1.0\text{MHz}$		7.0		7.0		7.0	pF
CO	Output Capacitance	All pins at 0V		7.0		7.0		7.0	pF

Notes: 1. Timing reference levels: High = 2.0V, Low = 0.8V.

**SWITCHING WAVEFORMS**

MOS-517

