

WHITE MICROELECTRONICS

A division of Bowmar Instrument Corp.

PRIORITY

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Date: May 19, 1998

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Aspect Development

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White Microelectronics

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Mr. O'Leary,

Here is the data sheet, WPS512K8-15RJM, that you requested for Texas Instruments. Have a nice day!

Robert Barney

If any problems occur with this transmission, please call the receptionist at 602-437-1520

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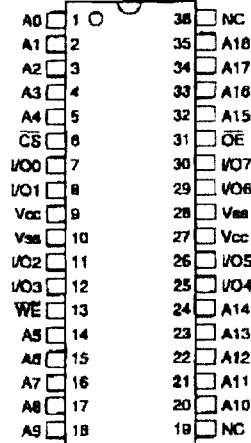
WHMES00084



512Kx8 SRAM

PRELIMINARY*

PIN CONFIGURATION TOP VIEW



PIN DESCRIPTION

A0-18	Address Inputs
I/O0-7	Data Input/Output
CS	Chip Select
OE	Output Enable
WE	Write Enable
Vcc	+5.0V Power
Vss	Ground
NC	No Connect

PLASTIC PLUS™ FEATURES

- Access Times of 15, 20, 25ns
- Standard Commercial Off-The-Shelf (COTS) Memory Devices for Extended Temperature Range
- JEDEC Standard 36 pin Plastic SOJ Package
- Electrical and Speed Characteristics for:
 - Military Temperature (-55°C to +125°C)
 - Industrial Temperature (-40°C to +85°C)
- Burn-in and Temperature Cycling Available
- Organized as 512K x 8
- Center Power/Ground Pins (Revolutionary)
- 5 Volt Power Supply
- Low Power ("L") Version Available
- Battery Back-Up Operation
- Reliability Test Data Available:
 - High Temperature Operating Life
 - High Temperature Storage
 - Pressure Cooker Test
 - Wet High Temperature Operating Life
 - Thermal Shock
 - Temperature Cycling

* This data sheet describes a product under development, not fully characterized, and is subject to change without notice.

PLASTIC PLUS SRAM

**ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Min	Max	Unit
Operating Temperature (Mil.)	T _A	-55	+125	°C
Operating Temperature (Ind.)	T _A	-40	+85	°C
Storage Temperature	T _{STG}	-65	+150	°C
Signal Voltage Relative to V _{SS}	V _I	-0.5	V _{CC} + 0.5	V
Supply Voltage	V _{CC}	-0.5	7.0	V

TRUTH TABLE

\overline{CS}	\overline{WE}	\overline{OE}	Mode	I/O Pin	V _{CC} Current
H	X	X	Power Down	High-Z	I _{SA}
L	H	H	Out Disable	High-Z	I _{CC}
L	H	L	Read	Out	I _{CC}
L	L	X	Write	Out	I _{CC}

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V _{CC}	4.5	5.5	V
Input High Voltage	V _{IH}	2.2	V _{CC} + 0.5	V
Input Low Voltage	V _{IL}	-0.3	+0.8	V
Operating Temperature (Mil.)	T _A	-55	+125	°C
Operating Temperature (Ind.)	T _A	-40	+85	°C

CAPACITANCE(T_A = +25°C)

Parameter	Symbol	Condition	Max	Unit
Input capacitance	C _{IN}	V _{IN} = 0V, f = 1.0MHz	8	pF
Output capacitance	C _{OUT}	V _{OUT} = 0V, f = 1.0MHz	8	pF

This parameter is guaranteed by design but not tested.

DC CHARACTERISTICS(V_{CC} = 5V, V_{SS} = 0V, T_A = -55°C to +125°C)

Parameter	Symbol	Conditions	Units		
			Min	Max	
Input Leakage Current	I _I	V _{CC} = 5.5, V _{IN} = V _{SS} to V _{CC}		10	μA
Output Leakage Current	I _{LO}	$\overline{CS} = V_{IH}, \overline{OE} = V_{IH}, V_{OUT} = V_{SS} \text{ to } V_{CC}$		10	μA
Operating Supply Current	I _{CC}	$\overline{CS} = V_{IL}, \overline{OE} = V_{IH}, f = 5\text{MHz}, V_{CC} = 5.5$		180	mA
Standby Current	I _{SA}	$\overline{CS} = V_{IH}, \overline{OE} = V_{IH}, f = 5\text{MHz}, V_{CC} = 5.5$		15	mA
Output Low Voltage	V _{OL}	I _{OL} = 8.0mA, V _{CC} = 4.5		0.4	V
Output High Voltage	V _{OH}	I _{OH} = -4.0mA, V _{CC} = 4.5	2.4		V

NOTE: DC test conditions: V_{IL} = 0.3V, V_{IH} = V_{CC} - 0.3V**DATA RETENTION CHARACTERISTICS**(T_A = -55°C to +125°C)

Parameter	Symbol	Conditions	Units			
			Min	Typ	Max	
Data Retention Supply Voltage	V _{DR}	$\overline{CS} \geq V_{CC} - 0.2V$	2.0		5.5	V
Data Retention Current	I _{CCDR1}	V _{CC} = 3V		0.5	8	mA
Low Power Data Retention (L)	I _{CCDR1}	V _{CC} = 3V		300	800	μA



AC CHARACTERISTICS
(Vcc = 5.0V, Vss = 0V, TA = -55°C to +125°C)

Table with 9 columns: Parameter, Symbol, -15° (Min, Max), -20 (Min, Max), -25 (Min, Max), Units. Rows include Read Cycle Time, Address Access Time, Output Hold from Address Change, Chip Select Access Time, Output Enable to Output Valid, Chip Select to Output in Low Z, Output Enable to Output in Low Z, Chip Disable to Output in High Z, Output Disable to Output in High Z.

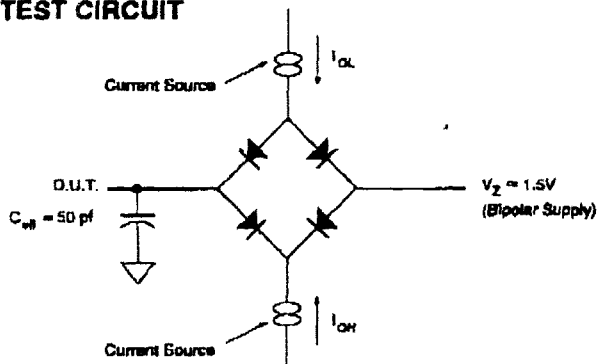
* 15ns not available in the lower power option.
1. This parameter is guaranteed by design but not tested.

AC CHARACTERISTICS
(Vcc = 5.0V, TA = -55°C to +125°C)

Table with 9 columns: Parameter, Symbol, -15° (Min, Max), -20 (Min, Max), -25 (Min, Max), Units. Rows include Write Cycle Time, Chip Select to End of Write, Address Valid to End of Write, Data Valid to End of Write, Write Pulse Width, Address Setup Time, Address Hold Time, Output Active from End of Write, Write Enable to Output in High Z, Data Hold Time.

* 15ns not available in the lower power option.
1. This parameter is guaranteed by design but not tested.

AC TEST CIRCUIT



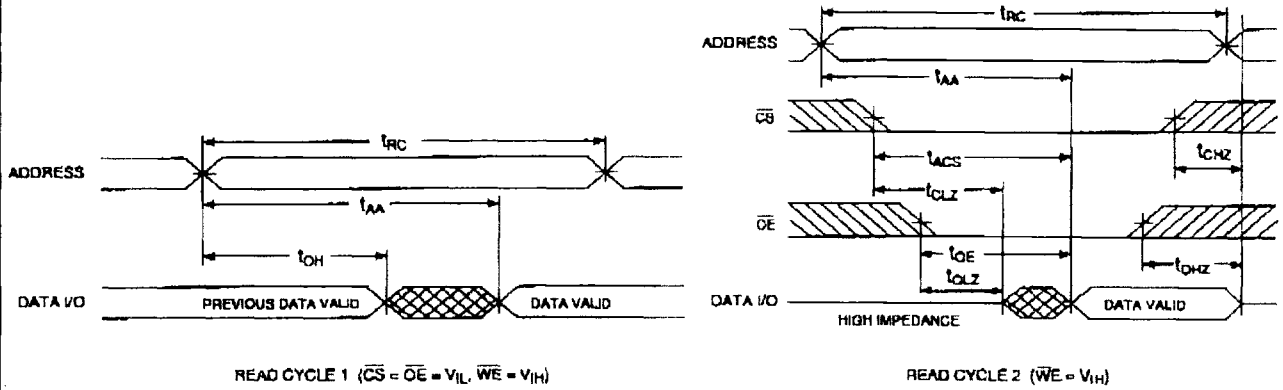
AC TEST CONDITIONS

Table with 3 columns: Parameter, Typ, Unit. Rows include Input Pulse Levels (VIL = 0, VIH = 3.0 V), Input Rise and Fall (5 ns), Input and Output Reference Level (1.5 V), Output Timing Reference Level (1.5 V).

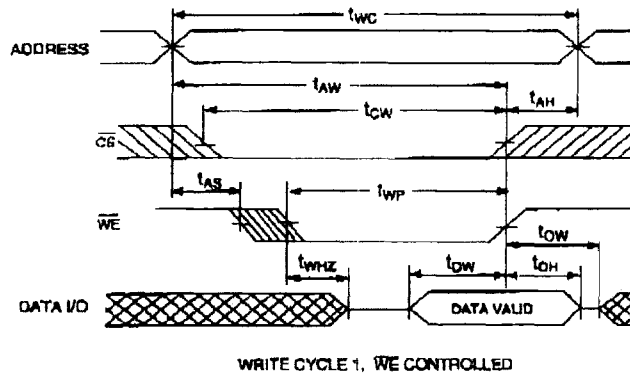
NOTES:
Vz is programmable from -2V to +7V.
IOL & IOH programmable from 0 to 16mA.
Tester Impedance Z0 = 75 Ω.
Vz is typically the midpoint of VOH and VOL.
IOL & IOH are adjusted to simulate a typical resistive load circuit.
ATE tester includes jig capacitance.



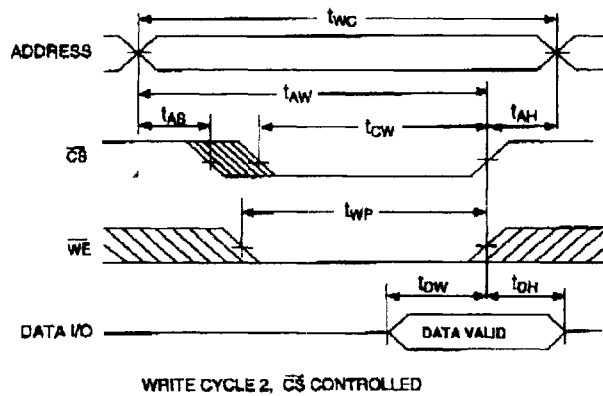
TIMING WAVEFORM - READ CYCLE



WRITE CYCLE - \overline{WE} CONTROLLED

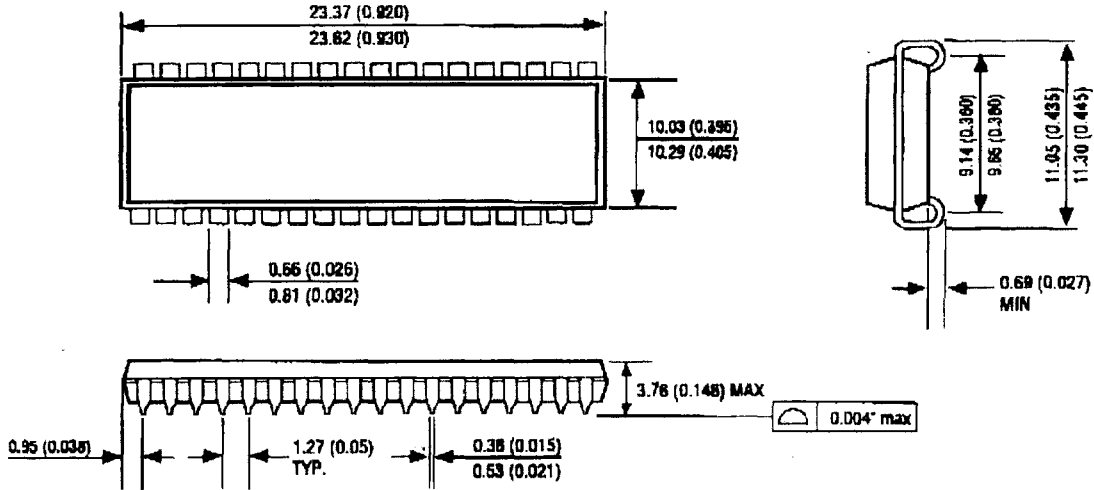


WRITE CYCLE - \overline{CS} CONTROLLED





PACKAGE DIMENSION



DIMENSIONS IN MILLIMETERS AND (INCHES)

ORDERING INFORMATION

W P S 512K 8 X X - XXX R J X X

SPECIAL PROCESS:

- Blank = CMOS
- B = Bi CMOS

DEVICE GRADE:

- M = Military Temperature -55°C to +125°C
- I = Industrial Temperature -40°C to +85°C

PACKAGE:

- RJ = Revolutionary SOJ

ACCESS TIME (ns)

IMPROVEMENT MARK

- B = Burn-in
- T = Temperature Cycling
- C = Burn-in and Temperature Cycle

Blank = Standard Power

L = Low Power

ORGANIZATION, 512K x 8

SRAM

PLASTIC PLUS™

WHITE MICROELECTRONICS