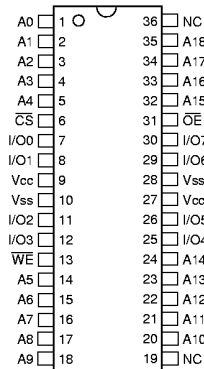




512Kx8 SRAM 3.3V PRELIMINARY\*

PIN CONFIGURATION TOP VIEW



PIN DESCRIPTION

A0-18	Address Inputs
I/O0-7	Data Input/Output
$\overline{CS}$	Chip Select
$\overline{OE}$	Output Enable
$\overline{WE}$	Write Enable
Vcc	+3.3V Power
Vss	Ground
NC	No Connect

PLASTIC PLUS™ FEATURES

- Access Times 15, 17, 20ns
- Standard Commercial Off-The-Shelf (COTS) Memory Devices for Extended Temperature Range
- JEDEC Standard 32 pin Plastic 0.4" 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)
- 3.3 Volt Power Supply
- 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 that 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 <sub>A</sub>	-55	+125	°C
Operating Temperature (Ind.)	T <sub>A</sub>	-40	+85	°C
Storage Temperature	T <sub>STG</sub>	-65	+150	°C
Signal Voltage Relative to GND	V <sub>S</sub>	-0.5	4.6	V
Supply Voltage	V <sub>CC</sub>	-0.5	5.5	V

**RECOMMENDED OPERATING CONDITIONS**

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V <sub>CC</sub>	3.0	3.6	V
Input High Voltage	V <sub>IH</sub>	2.2	V <sub>CC</sub> + 0.3	V
Input Low Voltage	V <sub>IL</sub>	-0.3	+0.8	V
Operating Temperature (Mil.)	T <sub>A</sub>	-55	+125	°C
Operating Temperature (Ind.)	T <sub>A</sub>	-40	+85	°C

**TRUTH TABLE**

$\overline{CS}$	$\overline{OE}$	$\overline{WE}$	Mode	I/O Pin	V <sub>CC</sub> Current
H	X	X	Power Down	High Z	I <sub>SB</sub>
L	H	H	Out Disable	High Z	I <sub>CC</sub>
L	H	L	Read	Dout	I <sub>CC</sub>
L	L	X	Write	Din	I <sub>CC</sub>

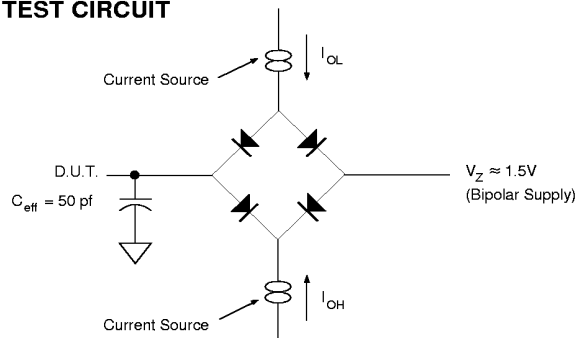
**CAPACITANCE**(T<sub>A</sub> = +25°C)

Parameter	Symbol	Condition	Max	Unit
Input capacitance	C <sub>IN</sub>	V <sub>IN</sub> = 0V, f = 1.0MHz	6	pF
Output capacitance	C <sub>OUT</sub>	V <sub>OUT</sub> = 0V, f = 1.0MHz	8	pF

This parameter is guaranteed by design but not tested.

**DC CHARACTERISTICS**(V<sub>CC</sub> = 3.3V, V<sub>SS</sub> = 0V, T<sub>A</sub> = -55°C to +125°C)

Parameter	Symbol	Conditions			Units
			Min	Max	
Input Leakage Current	I <sub>LI</sub>	V <sub>CC</sub> = 3.3, V <sub>IN</sub> = V <sub>SS</sub> to V <sub>CC</sub>		10	μA
Output Leakage Current	I <sub>LO</sub>	$\overline{CS} = V_{IH}, \overline{OE} = V_{IH}, V_{OUT} = V_{SS} \text{ to } V_{CC}$		10	μA
Operating Supply Current	I <sub>CC</sub>	$\overline{CS} = V_{IL}, \overline{OE} = V_{IH}, f = 5\text{MHz}, V_{CC} = 3.3$		150	mA
Standby Current	I <sub>SB</sub>	$\overline{CS} = V_{IH}, \overline{OE} = V_{IH}, f = 5\text{MHz}, V_{CC} = 3.3$		8	mA
Output Low Voltage	V <sub>OL</sub>	I <sub>OL</sub> = 8.0mA		0.4	V
Output High Voltage	V <sub>OH</sub>	I <sub>OH</sub> = -4.0mA	2.4		V

NOTE: DC test conditions: V<sub>IL</sub> = 0.3V, V<sub>IH</sub> = V<sub>CC</sub> - 0.3V**AC TEST CIRCUIT****AC TEST CONDITIONS**

Parameter	Typ	Unit
Input Pulse Levels	V <sub>IL</sub> = 0, V <sub>IH</sub> = 2.5	V
Input Rise and Fall	5	ns
Input and Output Reference Level	1.5	V
Output Timing Reference Level	1.5	V

**NOTES:**

V<sub>Z</sub> is programmable from -2V to +7V.  
I<sub>OL</sub> & I<sub>OH</sub> programmable from 0 to 16mA.  
Tester Impedance Z<sub>0</sub> = 75 Ω.  
V<sub>Z</sub> is typically the midpoint of V<sub>OH</sub> and V<sub>OL</sub>.  
I<sub>OL</sub> & I<sub>OH</sub> are adjusted to simulate a typical resistive load circuit.  
ATE tester includes jig capacitance.



**AC CHARACTERISTICS**  
(V<sub>CC</sub> = 3.3V, V<sub>SS</sub> = 0V, T<sub>A</sub> = -55°C to +125°C)

Parameter	Symbol	-15		-17		-20		Units
		Min	Max	Min	Max	Min	Max	
<b>Read Cycle</b>								
Read Cycle Time	t <sub>RC</sub>	15		17		20		ns
Address Access Time	t <sub>AA</sub>		15		17		20	ns
Output Hold from Address Change	t <sub>OH</sub>	0		0		0		ns
Chip Select Access Time	t <sub>ACS</sub>		15		17		20	ns
Output Enable to Output Valid	t <sub>OE</sub>		8		9		10	ns
Chip Select to Output in Low Z	t <sub>CLZ</sub> <sup>1</sup>	3		3		3		ns
Output Enable to Output in Low Z	t <sub>OLZ</sub> <sup>1</sup>	0		0		0		ns
Chip Disable to Output in High Z	t <sub>CHZ</sub> <sup>1</sup>		7		8		9	ns
Output Disable to Output in High Z	t <sub>OHZ</sub> <sup>1</sup>		7		8		9	ns

1. This parameter is guaranteed by design but not tested.

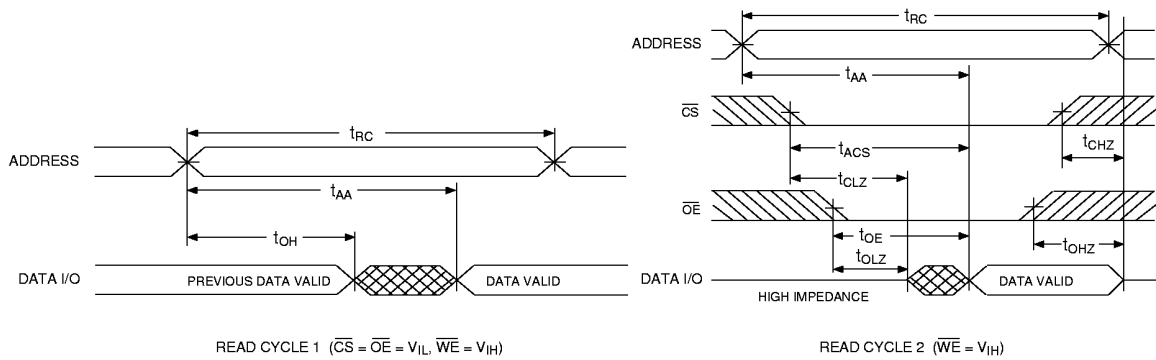
**AC CHARACTERISTICS**  
(V<sub>CC</sub> = 3.3V, T<sub>A</sub> = -55°C to +125°C)

Parameter	Symbol	-15		-17		-20		Units
		Min	Max	Min	Max	Min	Max	
<b>Write Cycle</b>								
Write Cycle Time	t <sub>WC</sub>	15		17		20		ns
Chip Select to End of Write	t <sub>CW</sub>	12		13		13		ns
Address Valid to End of Write	t <sub>AW</sub>	12		13		13		ns
Data Valid to End of Write	t <sub>DW</sub>	8		9		9		ns
Write Pulse Width	t <sub>WP</sub>	12		13		13		ns
Address Setup Time	t <sub>AS</sub>	0		0		0		ns
Address Hold Time	t <sub>AH</sub>	0		0		0		ns
Output Active from End of Write	t <sub>OW</sub> <sup>1</sup>	0		0		0		ns
Write Enable to Output in High Z	t <sub>WHZ</sub> <sup>1</sup>		8		8		8	ns
Data Hold Time	t <sub>DH</sub>	0		0		0		ns

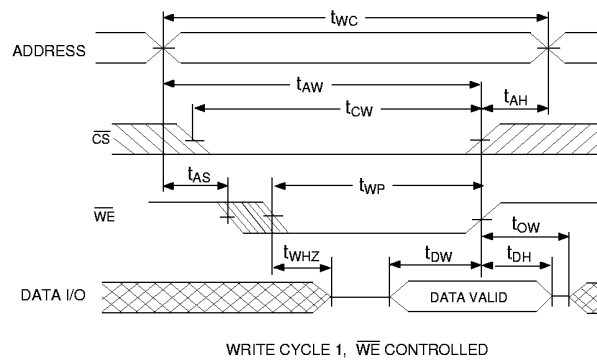
1. This parameter is guaranteed by design but not tested.



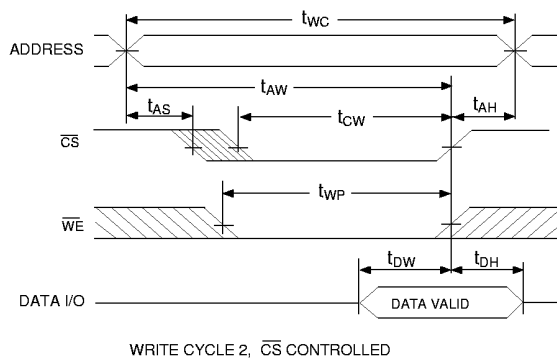
TIMING WAVEFORM - READ CYCLE



WRITE CYCLE -  $\overline{WE}$  CONTROLLED

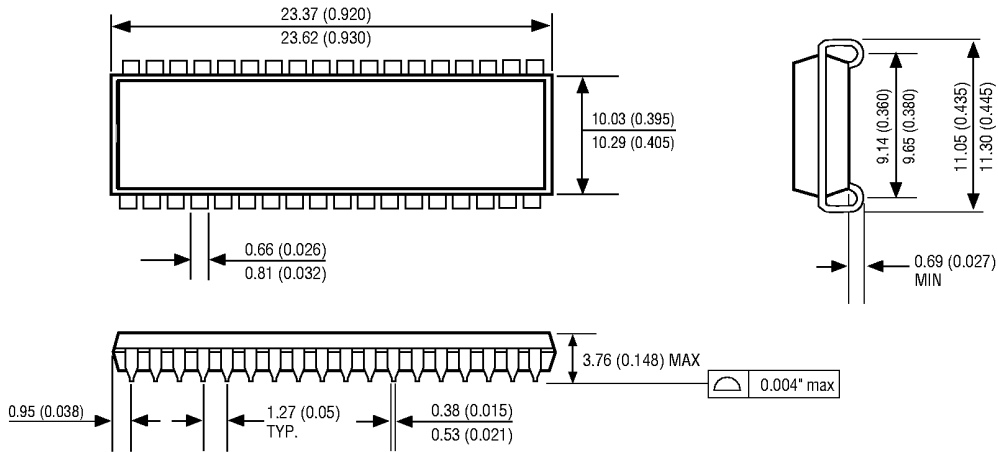


WRITE CYCLE -  $\overline{CS}$  CONTROLLED





PACKAGE DIMENSION



DIMENSIONS IN MILLIMETERS AND (INCHES)

ORDERING INFORMATION

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

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

Low Voltage Supply 3.3V ± 10%

ORGANIZATION, 512K x 8

SRAM

PLASTIC PLUS™

WHITE MICROELECTRONICS