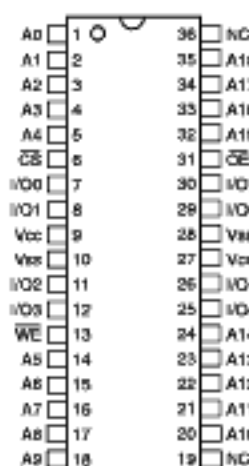




512Kx8 SRAM

PRELIMINARY *

PIN CONFIGURATION
TOP VIEW

PIN DESCRIPTION

A0-13	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 _G	-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 _{SB}
L	H	H	Out Disable	High-Z	I _{CC}
L	H	L	Read	DOUT	I _{CC}
L	L	X	Write	DIN	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	6	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	Min		Units
			Min	Max	
Input Leakage Current	I _{LI}	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} to V _{CC}		10	μA
Operating Supply Current	I _{CC}	$\overline{CS}$ = V _{IL} , $\overline{OE}$ = V _{IH} , f = 5MHz, V _{CC} = 5.5		180	mA
Standby Current	I _{SB}	$\overline{CS}$ = V _{IH} , $\overline{OE}$ = V _{IH} , f = 5MHz, 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	Min			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**(V_{CC} = 5.0V, V_{SS} = 0V, T_A = -55°C to +125°C)

Parameter	Symbol	-15*		-20		-25		Units
		Min	Max	Min	Max	Min	Max	
Read Cycle								
Read Cycle Time	t _{RC}	15		20		25		ns
Address Access Time	t _{AA}		15		20		25	ns
Output Hold from Address Change	t _{OH}	0		0		0		ns
Chip Select Access Time	t _{ACS}		15		20		25	ns
Output Enable to Output Valid	t _{OE}		8		10		12	ns
Chip Select to Output in Low Z	t _{CLZ} ¹	3		3		3		ns
Output Enable to Output in Low Z	t _{OLZ} ¹	0		0		0		ns
Chip Disable to Output in High Z	t _{CHZ} ¹		7		8		10	ns
Output Disable to Output in High Z	t _{OHZ} ¹		7		8		10	ns

* 15ns not available in the lower power option.

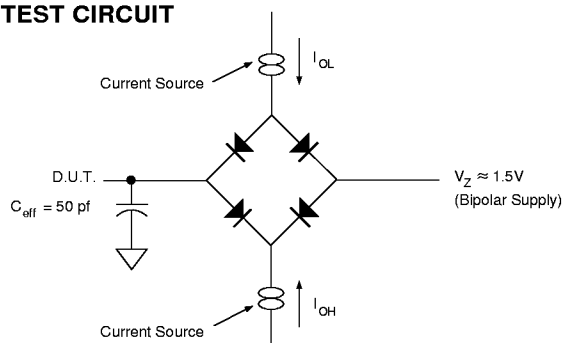
1. This parameter is guaranteed by design but not tested.

AC CHARACTERISTICS(V_{CC} = 5.0V, T_A = -55°C to +125°C)

Parameter	Symbol	-15*		-20		-25		Units
		Min	Max	Min	Max	Min	Max	
Write Cycle								
Write Cycle Time	t _{WC}	15		20		25		ns
Chip Select to End of Write	t _{CW}	12		13		15		ns
Address Valid to End of Write	t _{AW}	12		13		15		ns
Data Valid to End of Write	t _{DW}	8		9		10		ns
Write Pulse Width	t _{WP}	12		13		15		ns
Address Setup Time	t _{AS}	0		0		0		ns
Address Hold Time	t _{AH}	0		0		0		ns
Output Active from End of Write	t _{OW} ¹	0		0		0		ns
Write Enable to Output in High Z	t _{WHZ} ¹		8		8		10	ns
Data Hold Time	t _{DH}	0		0		0		ns

* 15ns not available in the lower power option.

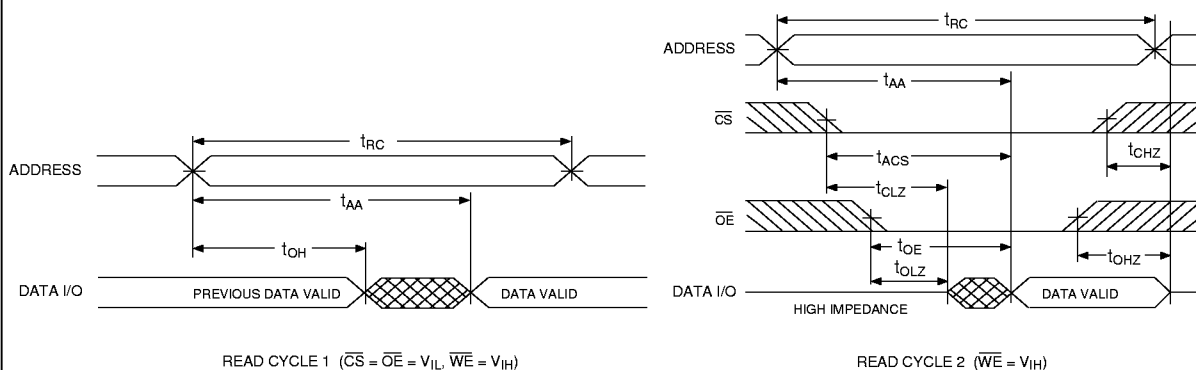
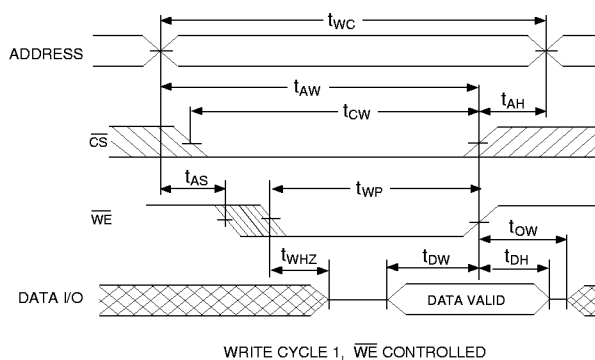
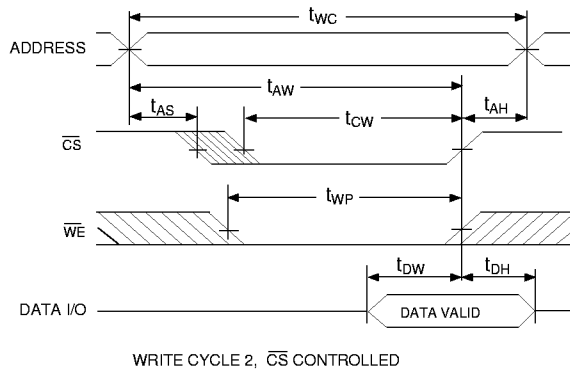
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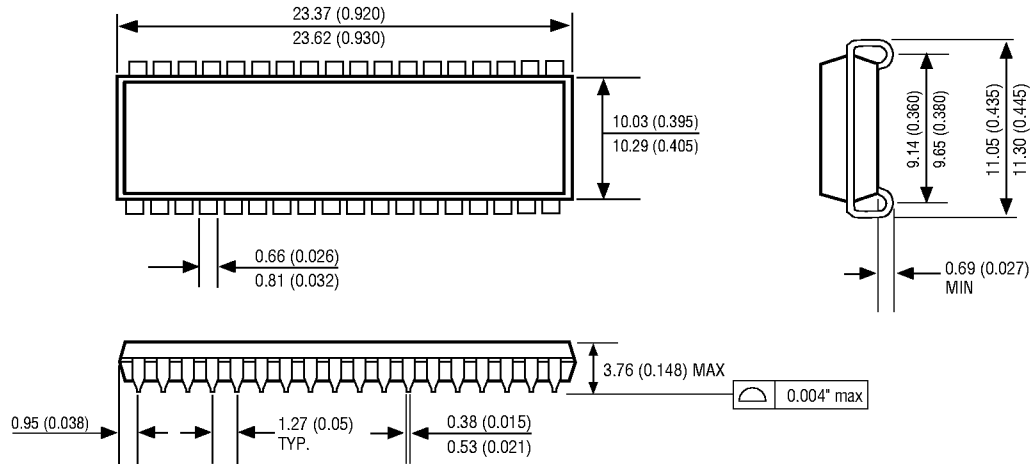
AC TEST CIRCUIT**AC TEST CONDITIONS**

Parameter	Typ	Unit
Input Pulse Levels	V _{IL} = 0, V _{IH} = 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:V_Z is programmable from -2V to +7V.I_{OL} & I_{OH} programmable from 0 to 16mA.Tester Impedance Z₀ = 75 Ω.V_Z is typically the midpoint of V_{OH} and V_{OL}.I_{OL} & I_{OH} 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