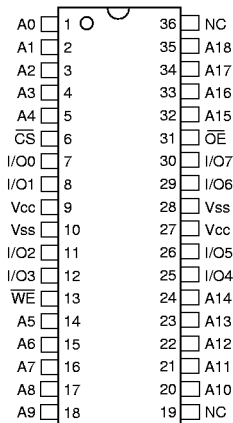




# 512Kx8 SRAM

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	+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 <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 V <sub>SS</sub>	V <sub>G</sub>	-0.5	V <sub>CC</sub> + 0.5	V
Supply Voltage	V <sub>CC</sub>	-0.5	7.0	V

**TRUTH TABLE**

$\overline{CS}$	$\overline{WE}$	$\overline{OE}$	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>

**RECOMMENDED OPERATING CONDITIONS**

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V <sub>CC</sub>	4.5	5.5	V
Input High Voltage	V <sub>IH</sub>	2.2	V <sub>CC</sub> + 0.5	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

**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> = 5V, 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> = 5.5, 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 <sub>IH</sub> , $\overline{OE}$ = V <sub>IH</sub> , V <sub>OUT</sub> = V <sub>SS</sub> to V <sub>CC</sub>		10	μA
Operating Supply Current	I <sub>CC</sub>	$\overline{CS}$ = V <sub>IL</sub> , $\overline{OE}$ = V <sub>IH</sub> , f = 5MHz, V <sub>CC</sub> = 5.5		180	mA
Standby Current	I <sub>SB</sub>	$\overline{CS}$ = V <sub>IH</sub> , $\overline{OE}$ = V <sub>IH</sub> , f = 5MHz, V <sub>CC</sub> = 5.5		15	mA
Output Low Voltage	V <sub>OL</sub>	I <sub>OL</sub> = 8.0mA, V <sub>CC</sub> = 4.5		0.4	V
Output High Voltage	V <sub>OH</sub>	I <sub>OH</sub> = -4.0mA, V <sub>CC</sub> = 4.5	2.4		V

NOTE: DC test conditions: V<sub>IL</sub> = 0.3V, V<sub>IH</sub> = V<sub>CC</sub> - 0.3V**DATA RETENTION CHARACTERISTICS**(T<sub>A</sub> = -55°C to +125°C)

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



AC CHARACTERISTICS

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

Table with 8 columns: Parameter, Symbol, -15\* (Min, Max), -20 (Min, Max), -25 (Min, Max), Units. Rows include Read Cycle parameters like Read Cycle Time, Address Access Time, etc.

\* 15ns not available in the lower power option.

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

AC CHARACTERISTICS

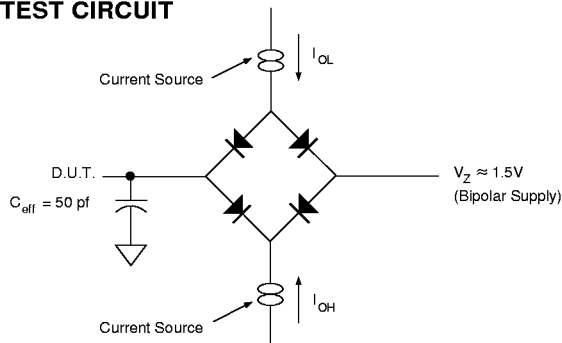
(Vcc = 5.0V, TA = -55°C to +125°C)

Table with 8 columns: Parameter, Symbol, -15\* (Min, Max), -20 (Min, Max), -25 (Min, Max), Units. Rows include Write Cycle parameters like Write Cycle Time, Chip Select to End of Write, etc.

\* 15ns not available in the lower power option.

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

AC TEST CIRCUIT



AC TEST CONDITIONS

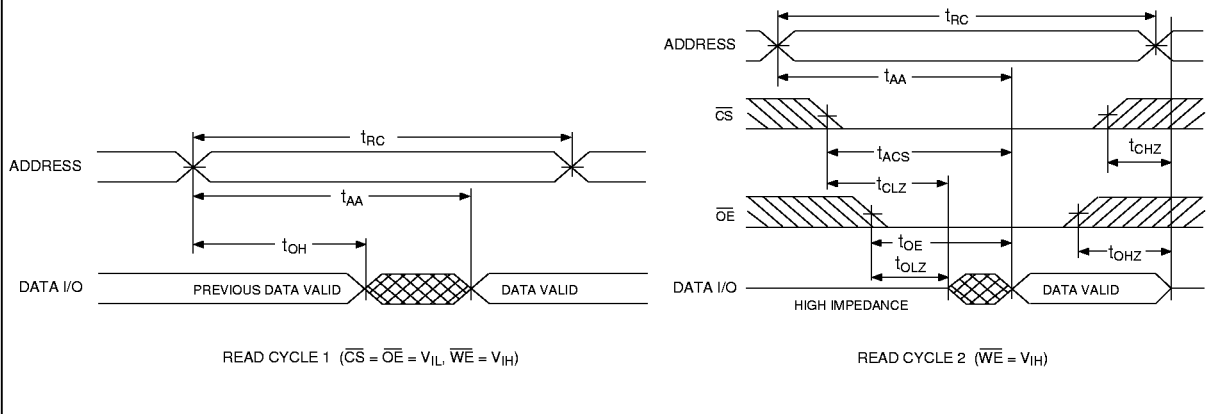
Table with 3 columns: Parameter, Typ, Unit. Rows include Input Pulse Levels, Input Rise and Fall, Input and Output Reference Level, Output Timing Reference Level.

NOTES:

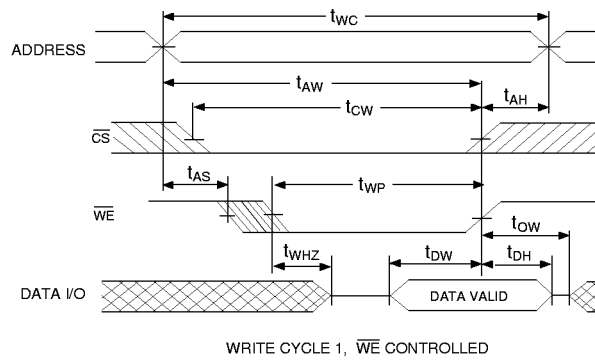
Vz is programmable from -2V to +7V. IOL & IOH programmable from 0 to 16mA. Tester Impedance Z0 = 75 Ω. Vz is typically the midpoint of VOH and VOL. IOL & IOH are adjusted to simulate a typical resistive load circuit. ATE tester includes jig capacitance.



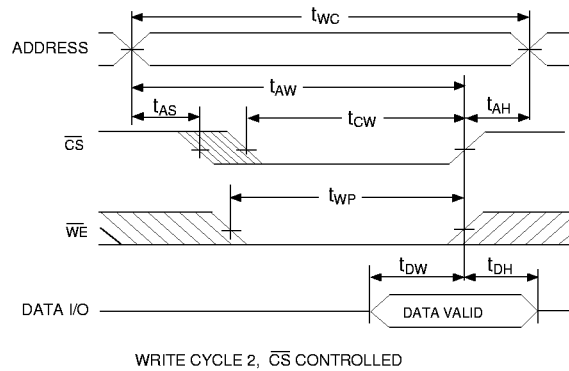
TIMING WAVEFORM - READ CYCLE



WRITE CYCLE -  $\overline{WE}$  CONTROLLED

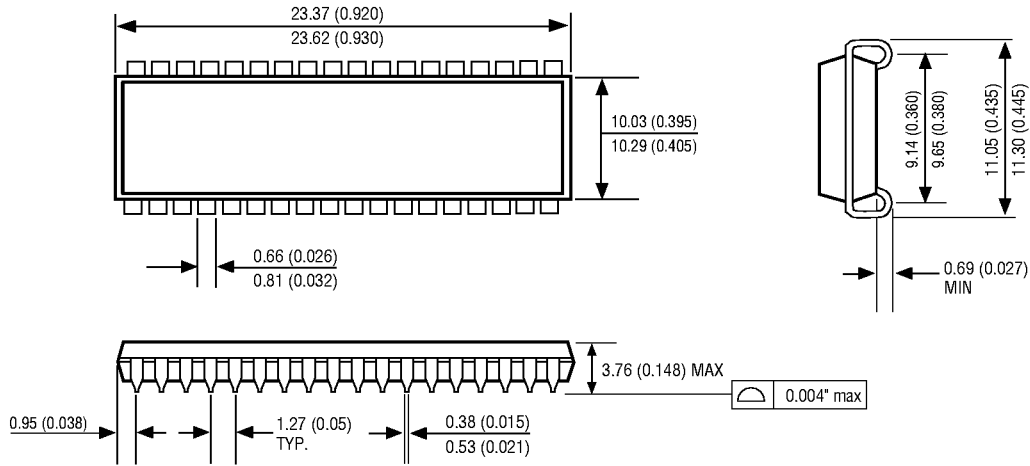


WRITE CYCLE -  $\overline{CS}$  CONTROLLED





**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**