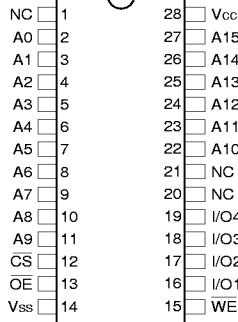




64Kx4 SRAM

PRELIMINARY*

PIN CONFIGURATION TOP VIEW



PIN DESCRIPTION

A0-15	Address Inputs
I/O0-4	Data Input/Output
\overline{CS}	Chip Select
\overline{OE}	Output Enable
\overline{WE}	Write Enable
Vcc	+5.0V Power
Vss	Ground
NC	Not Connected

PLASTIC PLUS™ FEATURES

- Access Times 15, 17, 20nS
- Standard Commercial Off-The-Shelf (COTS) Memory Devices for Extended Temperature Range
- JEDEC Standard 28 Lead Plastic 0.300" 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 64K x 4
- 5 Volt Power Supply
- Low Power CMOS
- 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 GND	V _I	-0.5	V _{CC} + 0.5	V
Supply Voltage	V _{CC}	-0.5	7.0	V

TRUTH TABLE

CS	OE	WE	Mode	Data I/O	Power
H	X	X	Standby	High Z	Standby
L	L	H	Read	Data Out	Active
L	X	L	Write	Data In	Active
L	H	H	Out Disable	High Z	Active

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.

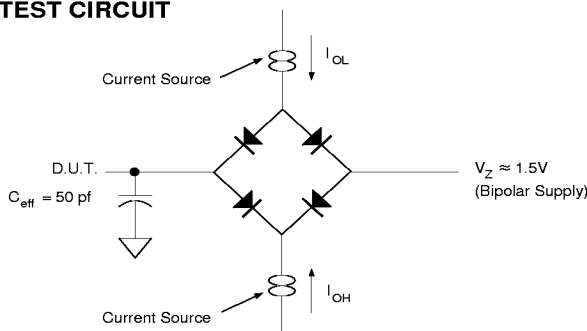
DC CHARACTERISTICS

(V_{CC} = 5.0V, V_{SS} = 0V, T_A = -55°C to +125°C)

Parameter	Symbol	Conditions			Units
			Min	Max	
Input Leakage Current	I _{LI}	V _{CC} = 5.5, V _{IN} = GND to V _{CC}		10	µA
Output Leakage Current	I _{LO}	CS = V _{IH} , OE = V _{IH} , V _{OUT} = GND to V _{CC}		10	µA
Operating Supply Current	I _{CC}	CS = V _{IL} , OE = V _{IH} , f = 5MHz, V _{CC} = 5.5		120	mA
Standby Current	I _{SB}	CS = V _{IH} , OE = V _{IH} , f = 5MHz, V _{CC} = 5.5		10	mA
Output Low Voltage	V _{OL}	I _{OL} = 8mA, V _{CC} = 4.5		0.4	V
Output High Voltage	V _{OH}	I _{OH} = -4mA, V _{CC} = 4.5	2.4		V

NOTE: DC test conditions: V_{IL} = 0.3V, V_{IH} = V_{CC} - 0.3V

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.

**AC CHARACTERISTICS**(V_{CC} = 5.0V, V_{SS} = 0V, T_A = -55°C to +125°C)

Parameter Read Cycle	Symbol	-15		-17		-20		Units
		Min	Max	Min	Max	Min	Max	
Read Cycle Time	t _{RC}	15		17		20		nS
Address Access Time	t _{AA}		15		17		20	nS
Output Hold from Address Change	t _{OH}	3		3		3		nS
Chip Select Access Time	t _{ACS}		15		17		20	nS
Output Enable to Output Valid	t _{OE}		8		9		10	nS
Chip Select to Output in Low Z	t _{CLZ} ¹	4		4		4		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		8		9		10	nS
Output Disable to Output in High Z	t _{OHZ} ¹		8		9		10	nS

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

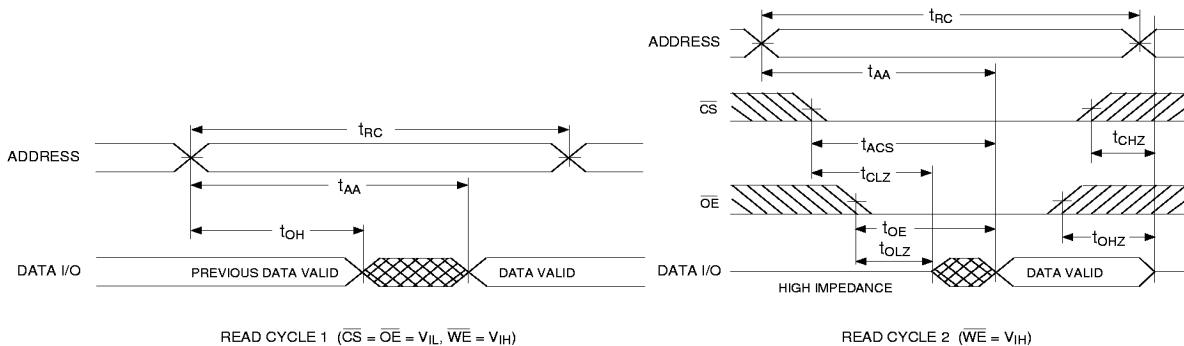
AC CHARACTERISTICS(V_{CC} = 5.0V, T_A = -55°C to +125°C)

Parameter Write Cycle	Symbol	-15		-17		-20		Units
		Min	Max	Min	Max	Min	Max	
Write Cycle Time	t _{WC}	15		17		20		nS
Chip Select to End of Write	t _{CW}	12		13		14		nS
Address Valid to End of Write	t _{AW}	12		13		14		nS
Data Valid to End of Write	t _{DW}	8		9		10		nS
Write Pulse Width (\overline{OE} = high)	t _{WP}	12		13		14		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		9		10		11	nS
Data Hold Time	t _{DH}	0		0		0		nS

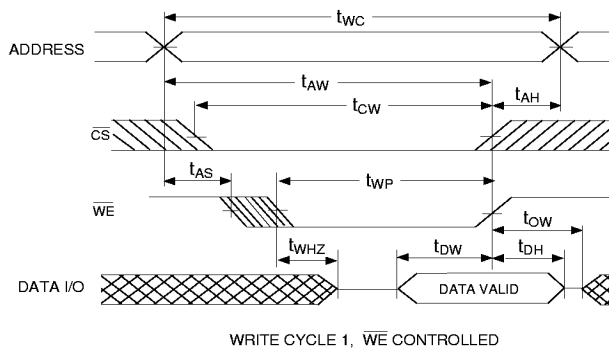
1. This parameter is guaranteed by design but not tested.



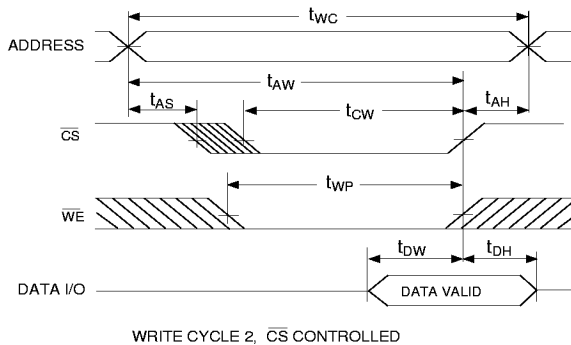
TIMING WAVEFORM - READ CYCLE



WRITE CYCLE - \overline{WE} CONTROLLED

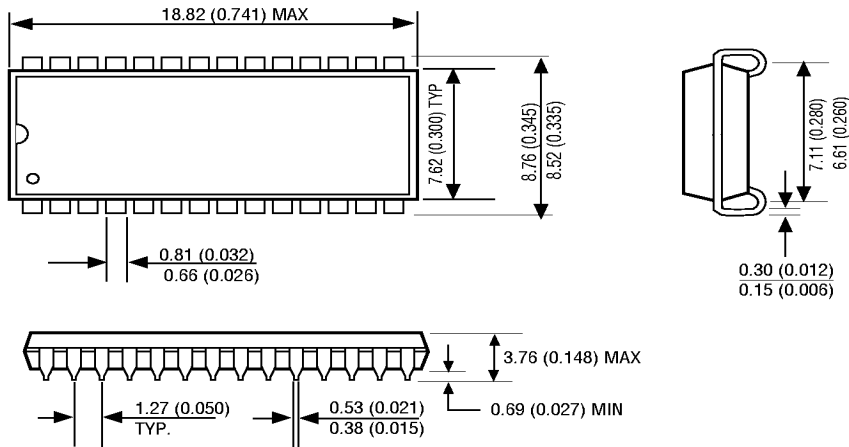


WRITE CYCLE - \overline{CS} CONTROLLED





PACKAGE DIMENSION: 28 LEAD, SOJ



MAX / MIN ; millimeter (inch)

ORDERING INFORMATION

W P S 64K 4 X - XXX S J X

DEVICE GRADE:

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

PACKAGE:

- SJ = 28 Lead SOJ

ACCESS TIME in nS

IMPROVEMENT MARK

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

ORGANIZATION, 64K x 4

SRAM

PLASTIC PLUS™

WHITE MICROELECTRONICS