

2304-BIT BIPOLAR RAM (256 × 9)**82S212 (T.S.)****DESCRIPTION**

The organization of the 82S212 allows byte wide storage of data, including parity. Where parity is not required, the ninth bit can be used as a tag for each word stored. The 82S212 is ideal for scratch-pad, push-down stacks, buffer memories, and other internal memory applications in which space and performance requirements dictate a wide data path in favor of word depth.

The 82S212 data inputs and outputs are common (common I/O) with separate output disable (OD) line that allows ease of read/write operations using a common bus.

The 82S212 is available in both the commercial and military temperature ranges. For the commercial temperature range (0°C to 75°C) specify N82S212F or N and for the military temperature range (–55°C to +125°C) specify S82S212F.

FEATURES

- **Address access time:**
N82S212: 45ns max
S82S212: 70ns max
- **Power dissipation:** 0.3mW/bit
- **Tri-state outputs**
- **Schottky clamped TTL**

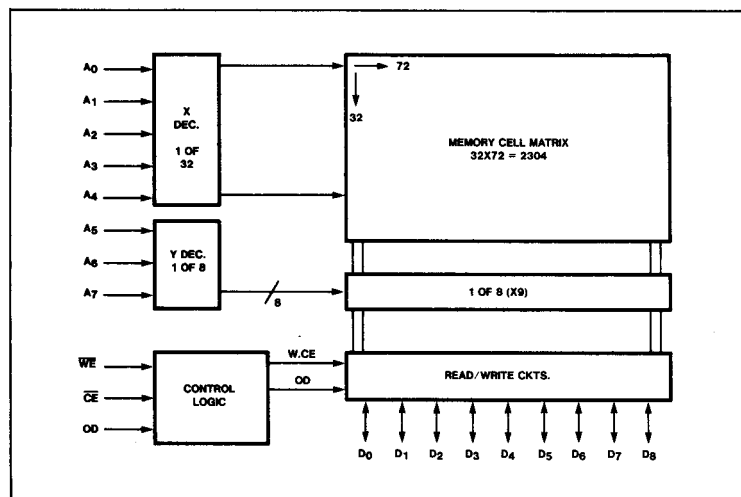
APPLICATIONS

- Cache memory
- Buffer storage
- Writable control store

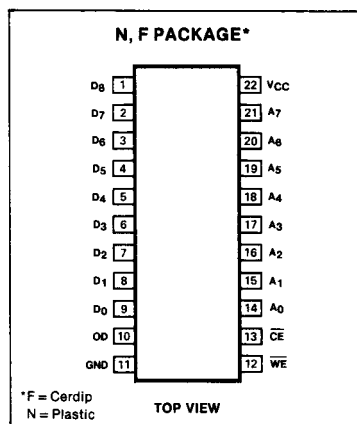
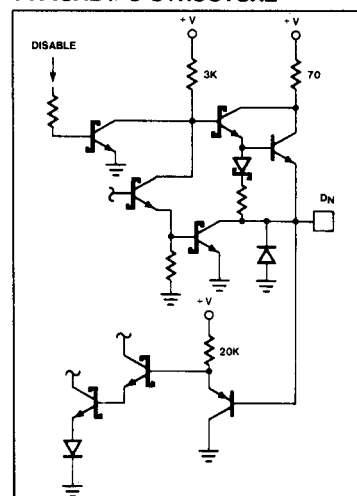
TRUTH TABLE

MODE	WE	CE	OD	D _N IN/OUT
Disable output	X	X	1	High Z
Disable R/W	X	1	X	High Z
Write	0	0	1	Data in
Read	1	0	0	Data out

X = Don't care

BLOCK DIAGRAM**ABSOLUTE MAXIMUM RATINGS**

PARAMETER		RATING	UNIT
V _{CC}	Supply voltage	+7	Vdc
V _{IN}	Input voltage	+5.5	Vdc
V _O	Off-state output voltage	+5.5	Vdc
	Temperature range		°C
T _A	Operating		
	Commercial	0 to +75	
	Military	−55 to +125	
T _{STG}	Storage	−65 to +150	

PIN CONFIGURATION*F = Cerdip
N = Plastic**TYPICAL I/O STRUCTURE**

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DC ELECTRICAL CHARACTERISTICS¹N82S212: 0°C ≤ T_A ≤ +75°C, 4.75V ≤ V_{CC} ≤ 5.25VS82S212: -55°C ≤ T_A ≤ +125°C, 4.75V ≤ V_{CC} ≤ 5.25V

PARAMETER ¹	TEST CONDITIONS	N82S212			S82S212			UNIT
		Min	Typ	Max	Min	Typ	Max	
V _{IL} V _{IH} V _{IC}	Input voltage Low High Clamp ²	2.0		.85	2.2		.80	V
	V _{CC} = Min							
	V _{CC} = Max							
V _{OL}	Output voltage Low ³			0.5			0.5	V
I _{IL} I _{IH}	Input current Low High			-100 25			-150 40	μA
I _O (OFF)	Output current Hi-Z state			40			60	μA
I _{OS}	Short circuit ^{4, 5}			-100 -70			-100 -80	mA
I _{CC}	V _{CC} supply current ⁵		135	185			200	mA
C _{IN} C _{OUT}	Capacitance Input Output		5 8			5 8		pF

AC ELECTRICAL CHARACTERISTICS¹R₁ = 470Ω, R₂ = 1kΩ, C_L = 30pFN82S212: 0°C ≤ T_A ≤ +75°C, 4.75V ≤ V_{CC} ≤ 5.25VS82S212: -55°C ≤ T_A ≤ +125°C, 4.75V ≤ V_{CC} ≤ 5.25V

PARAMETER	TO	FROM	N82S212			S82S212			UNIT
			Min	Typ ³	Max	Min	Typ ³	Max	
T _{AA}	Access time Address	Output Address			45			70	ns
T _{OE} T _{CE}	Enable time Output Output	Output Output Chip enable	5		25 25			50 50	ns
T _{OD} T _{CD}	Disable time Output Output	Output Output Chip enable			25 25			50 50	ns
T _{WP}	Pulse width Write		25			45			ns
T _{WSC} T _{WHD}	Setup time Hold time	Write Chip enable	5 5			10 10			
T _{WSD} T _{WHD}	Setup time Hold time	Write Data	25 5			45 5			
T _{WSA} T _{WHA}	Setup time Hold time	Write Address	5 5			10 15			
T _{SO} T _{HO}	Setup time (from disabled state) Hold time	Chip enable OD Chip enable	5 5			5 5			

NOTES

1. The operating ambient temperature ranges are guaranteed with transverse air flow exceeding 400 linear feet per minute and a 2 minute warmup.

2. All voltages are with respect to network ground terminal.

3. All typical values are at V_{CC} = 5V, T_A = 25°C.

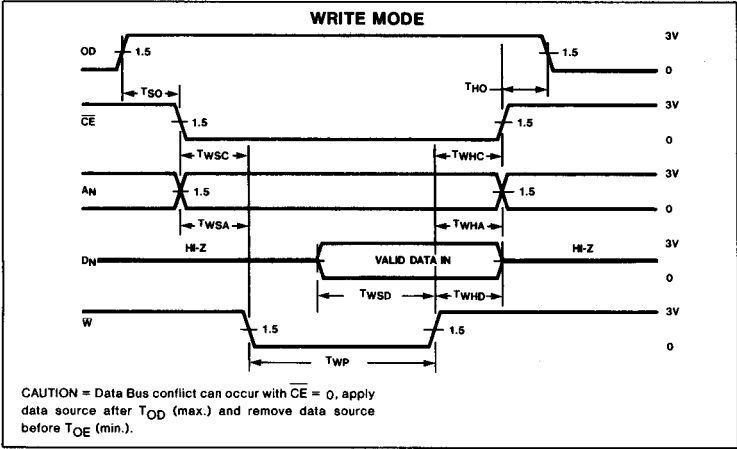
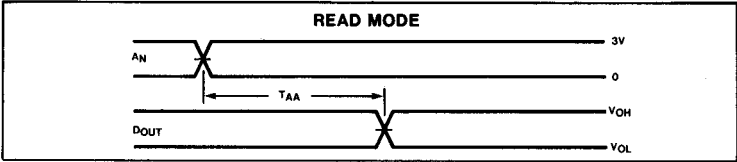
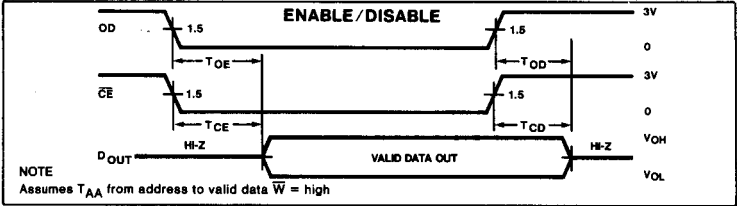
4. Measured on one pin at a time.

5. Duration of I_{OS} test should not exceed one second.

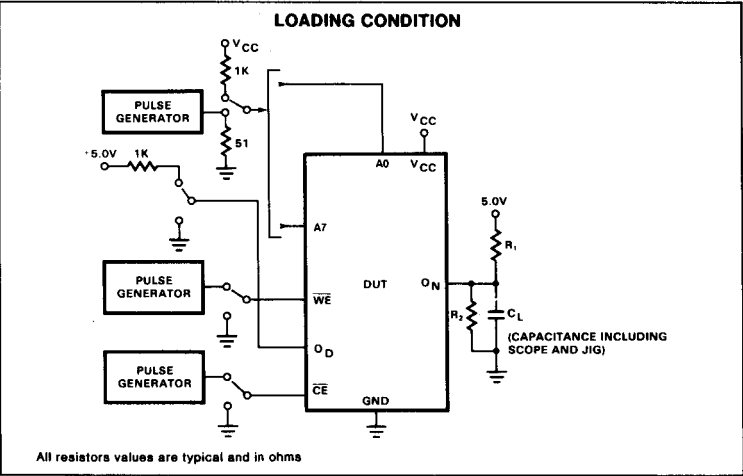
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82S212 (T.S.)

TIMING DIAGRAMS



TEST LOAD CIRCUIT



VOLTAGE WAVEFORM

