

OBJECTIVE SPECIFICATION

2115/2115L-F,I,N • 2125/2125L-F,I,N

DESCRIPTION

The 2115 and 2125 family are read/write RAMs which are designed for buffer control storage and high performance main memory applications.

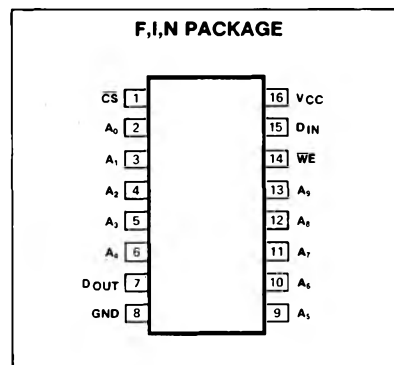
These devices offer the advantages of high performance, low power dissipation, and system cost savings, making them ideal where cost is a prime factor. N-channel technology allows the design and production of high speed MOS RAMs which are compatible to the performance of Bipolar RAMs.

FEATURES

- Power dissipation: 0.2mW/bit typ (2115L, 2125L)
- Output options:
2115: Uncommitted collector*
2125: Three-state
- Non-inverting data output
- Dual-in-line package
- N-channel MOS silicon gate technology
- Fully pin compatible to 93415 (2115) and 93425 (2125)
- Fully compatible with TTL logic families including inputs, output and single 5V supply

* The 2115 is an MOS device and the output is actually an uncommitted drain.

PIN CONFIGURATION



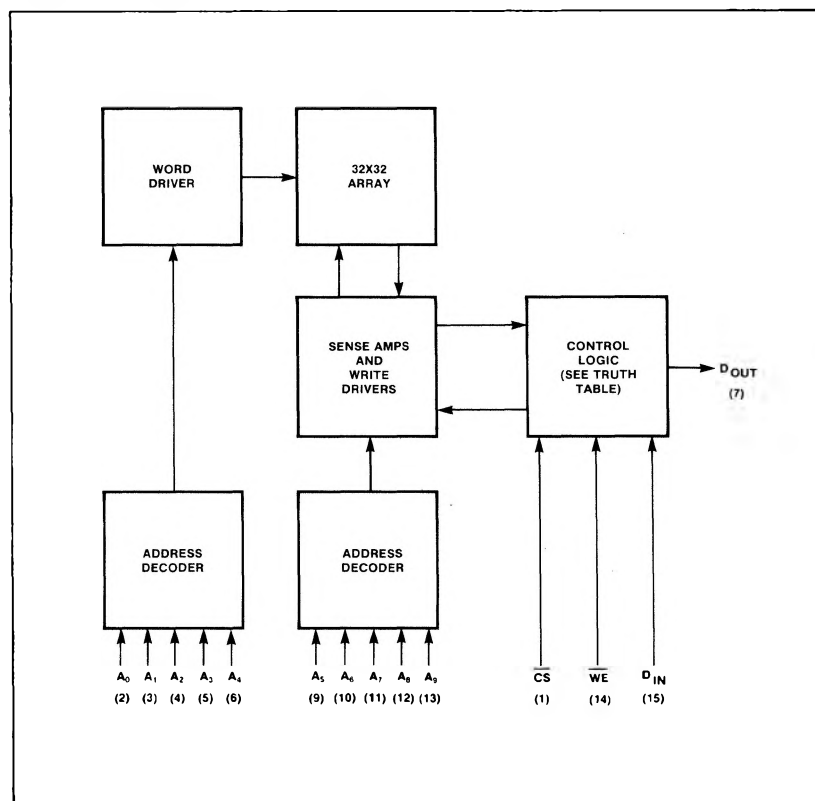
TRUTH TABLE

INPUTS			OUTPUT 2115 FAMILY	OUTPUT 2125 FAMILY	MODE
$\overline{CS}$	WE	DIN	DOUT	DOUT	
H	X	X	H	High Z	Not selected
L	L	L	H	High Z	Write "0"
L	L	H	H	High Z	Write "1"
L	H	X	DOUT	DOUT	Read

PIN DESIGNATION

PIN NO.	SYMBOL	FUNCTION
1	$\overline{CS}$	Chip select
2-6, 9-13	A ₀ -9	Address inputs
7	DOUT	Data output
8	GND	Ground
14	WE	Write enable
15	DIN	Data input

BLOCK DIAGRAM



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ABSOLUTE MAXIMUM RATINGS¹

PARAMETER	RATING	UNIT
T_A Temperature range		°C
T_{STG} Operating	-10 to 85	
Storage	-65 to 150	
All output or supply voltages	-0.5 to 7	V
All input voltages	-0.5 to 5.5	V
Dc output current	20	mA

DC ELECTRICAL CHARACTERISTICS² $V_{CC} = 5V \pm 5\%$, $T_A = 0^\circ C$ to $75^\circ C$

PARAMETER	TEST CONDITIONS	2115/2115L			2125/2125L			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{IL} Input voltage Low				0.8			0.8	V
V_{IH} Input voltage High		2.1			2.1			V
V_{OL} Output voltage Low	$I_{OL} = 16mA$			0.45			0.45	V
V_{OH} Output voltage High	$I_{OH} = -3.2mA$	2.4			2.4			V
I_{IL} Input current Low	$V_{CC} = \text{Max}$ $V_{IN} = 0.4V$		-1	-40		-1	-40	μA
I_{IH} Input current High	$V_{IN} = 4.5V$		1	40		1	40	μA
I_{CEX} Output current Leakage	$V_{CC} = \text{Max}$ $V_{OUT} = 4.5V$		10	100		10	50	μA
I_{OFF} High Z	$V_{OUT} = 0.5V/2.4V$						-100	μA
I_{OS}^3 Short circuit	$V_{CC} = 4.5V$							mA
I_{CCL} Supply current 2115L, 2125L	All inputs grounded, output open		50	65		50	65	mA
I_{CC1} Supply current 2115, 2125			75	100		75	100	mA
C_{IN} Capacitance Input	All inputs = 0V, Output open		4	8		4	8	pF
C_{OUT} Capacitance Output	$\overline{CS} = 5V$		5	8		5	8	pF

AC ELECTRICAL CHARACTERISTICS $V_{CC} = 5V \pm 5\%$, $T_A = 0^\circ C$ to $75^\circ C$

PARAMETER	TO	FROM	2115/2125			2115L/2125L			UNIT
			Min	Typ	Max	Min	Typ	Max	
t_{ACS} READ CYCLE Chip select time	Output	Address	5		45	5		50	ns
t_{RCS} Chip select recovery time					40			40	ns
t_{AA} Access time				75	95		75	95	ns
t_{OH} Previous read data valid after change of address			10			10			ns
t_{WS} WRITE CYCLE Enable time	Write enable High Z	Data out Write enable			40			40	ns
t_{ZWS} (2125, 2125L)									
t_{WR} Write recovery time			5		45	5		50	ns
t_W Write pulse width			50			50			ns
t_{WSD} Setup and hold time Setup time prior to write	$\overline{WE}$ Data	Data $\overline{WE}$	5			15			ns
t_{WHD} Hold time after write									
t_{WSA} Setup time	$\overline{WE}$ Address	Address $\overline{WE}$	30			30			
t_{WHA} Hold time			5			15			
t_{WSCS} Setup time	$\overline{WE}$ Chip select	Chip select $\overline{WE}$	5			15			ns
t_{WHCS} Hold time									

NOTES on following page.

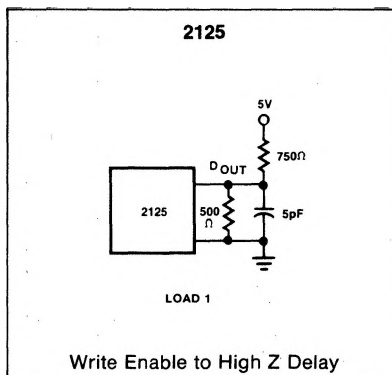
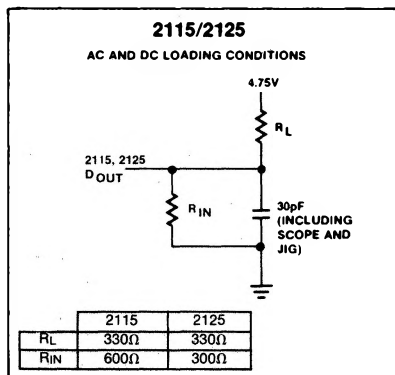
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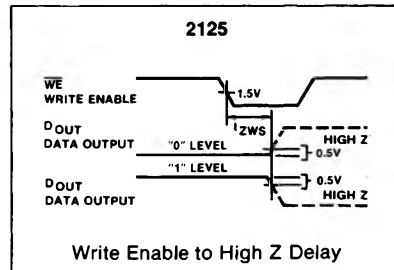
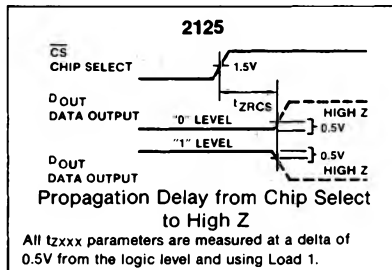
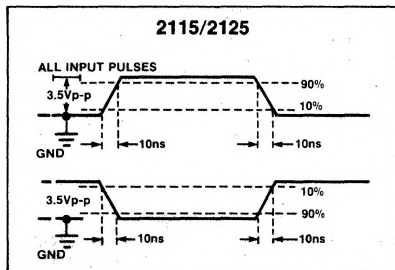
NOTES

- Stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or at any other condition above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.
- The operating ambient temperature ranges are guaranteed with transverse air flow exceeding 400 linear feet per minute and a 2 minute warm-up. Typical thermal resistance values of the package at maximum temperature are:
 θ_{JA} (@ 400fpm air flow) = 45°C/W
 θ_{JA} (still air) = 60°C/W
 θ_{JC} = 25°C/W .
- Duration of short circuit current should not exceed 1sec.

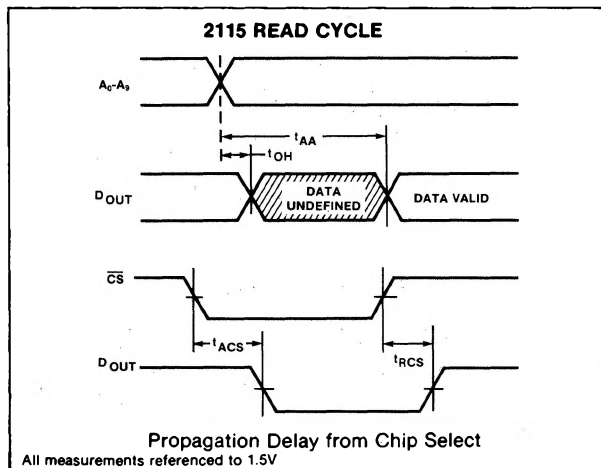
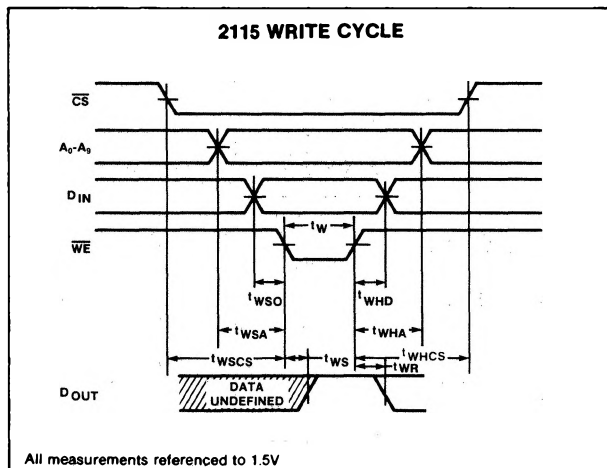
TEST LOAD CIRCUITS



VOLTAGE WAVEFORMS



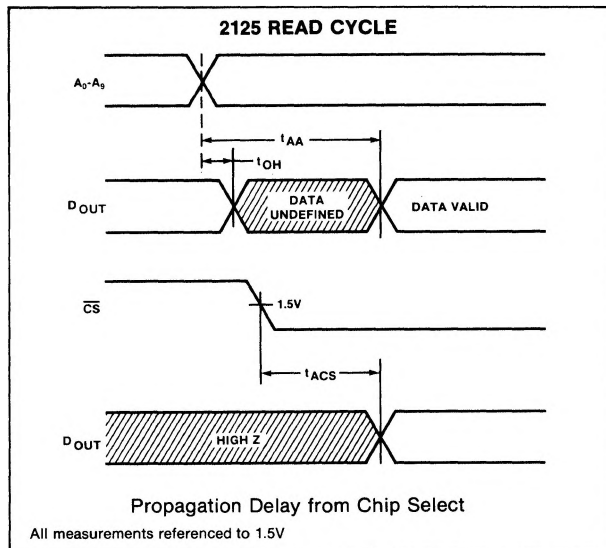
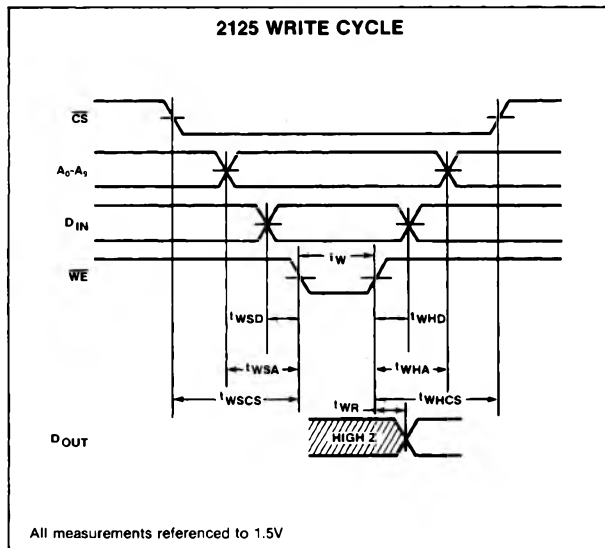
TIMING DIAGRAMS



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TIMING DIAGRAMS (Cont'd)



TYPICAL PERFORMANCE CHARACTERISTICS

