

Features

512Kx32 bit CMOS Static

Random Access Memory

- Access Times: 15, 17, 20, 25 and 35ns
- Individual Byte Selects
- Fully Static, No Clocks
- TTL Compatible I/O

High Density Package

- 72 Pin ZIP, No. 173
- 72 lead SIMM, No. 174 (Gold Option)
- Common Data Inputs and Outputs

Single +5V ($\pm 10\%$) Supply Operation

512Kx32 Static RAM

CMOS, High Speed Module

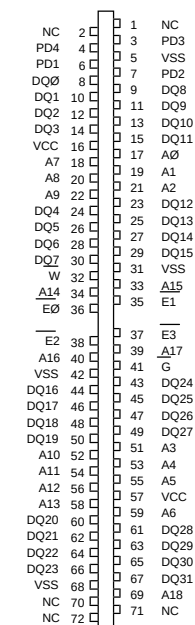
The EDI8F32512C is a high speed 16 megabit Static RAM module organized as 512K words by 32 bits. This module is constructed from four 512Kx8 Static RAMs in SOJ packages on an epoxy laminate (FR4) board.

Four chip enables ($\overline{E0}$ - $\overline{E3}$) are used to independently enable the four bytes. Reading or writing can be executed on individual bytes or any combination of multiple bytes through proper use of selects. The EDI8F32512C is offered in 72 pin ZIP and 72 lead SIMM packages, which enable 16 megabits of memory to be placed in less than 1.3 square inches of board space.

All inputs and outputs are TTL compatible and operate from a single 5V supply. Fully asynchronous circuitry requires no clocks or refreshing for operation and provides equal access and cycle times for ease of use.

Pins PD1- PD4, are used to identify module memory density in applications where alternate modules can be interchanged.

Pin Configurations and Block Diagram



PD1, PD2, PD4 = Open
 PD3 = VSS

Pin Names

A0-A18

$\overline{E0}$ - $\overline{E3}$

W

$\overline{G}$

DQ0-DQ31

VCC

VSS

NC

Address Inputs

Chip Enables

Write Enable

Output Enable

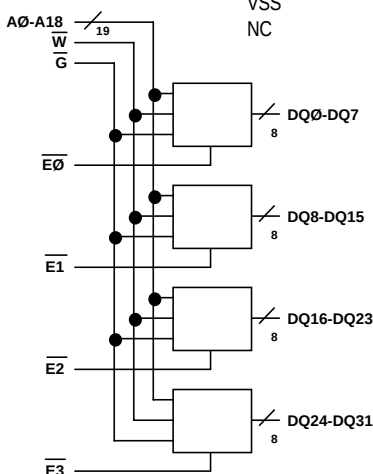
Common Data

Input/Output

Power ($+5V \pm 10\%$)

Ground

No Connection



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• One Research Drive • Westborough, MA 01581 USA • 508-366-5151 • FAX 508-836-4850 •
Electronic Designs Europe Ltd. • Shelley House, The Avenue • Lightwater, Surrey GU18 5RF
 United Kingdom • 01276 472637 • FAX 01276 473748
<http://www.electronic-designs.com>

Absolute Maximum Ratings*

Voltage on any pin relative to VSS	-0.5V to 7.0V
Operating Temperature TA (Ambient)	
Commercial	0°C to +70°C
Industrial	-40°C to +85°C
Storage Temperature, Plastic	-55°C to +125°C
Power Dissipation	5.0 Watts
Output Current	20 mA

*Stress greater than 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 any other conditions greater than those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

Recommended DC Operating Conditions

Parameter	Sym	Min	Typ	Max	Units
Supply Voltage	VCC	4.5	5.0	5.5	V
Supply Voltage	VSS	0	0	0	V
Input High Voltage	VIH	2.2	--	6.0	V
Input Low Voltage	VIL	-0.3	--	0.8	V

AC Test Conditions

Input Pulse Levels	VSS to 3.0V
Input Rise and Fall Times	5ns
Input and Output Timing Levels	1.5V
Output Load	1TTL, CL = 30pF

(note: For TEHQZ,TGHQZ and TWLQZ, CL = 5pF)

DC Electrical Characteristics

Parameter	Sym	Conditions	Min	Typ*	Max	Units
Operating Power Supply Current	ICC1	$\bar{W}, \bar{E} = VIL, I/O = 0mA, \text{Min Cycle}$			800	mA
Standby (TTL) Power Supply Current	ICC2	$\bar{E} \geq VIH, VIN \leq VIL \text{ or } VIN \geq VIH$			300	mA
Full Standby Power Supply Current	ICC3	$\bar{E} \geq VCC-0.2V$			80	mA
CMOS		$VIN \geq VCC-0.2V \text{ or } VIN \leq 0.2V$		(BiCMOS)	120	mA
Input Leakage Current	ILI	$VIN = 0V \text{ to } VCC$	--	--	±20	µA
Output Leakage Current	ILO	$V I/O = 0V \text{ to } VCC$	--	--	±20	µA
Output High Voltage	VOH	$IOH = -4.0mA$	2.4	--	--	V
Output Low Voltage	VOL	$IOL = 8.0mA$	--	--	0.4	V

*Typical: TA = 25°C, VCC = 5.0V

Truth Table

$\bar{E}$	$\bar{W}$	$\bar{G}$	Mode	Output	Power
H	X	X	Standby	HIGH Z	ICC2/ICC3
L	H	L	Read	DOUT	ICC1
L	L	X	Write	DIN	ICC1
L	H	H	Output Deselect	HIGH Z	ICC1

Capacitance

(f=1.0MHz, VIN=VCC or VSS)

Parameter	Sym	Max	Unit
Address Lines	CI	45	pF
Data Lines	CD/Q	20	pF
Chip Enable Line	CC	20	pF
Write Line	CN	45	pF

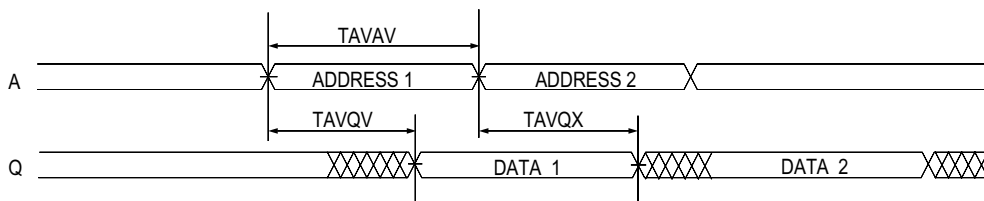
These parameters are sampled, not 100% tested.

AC Characteristics Read Cycle

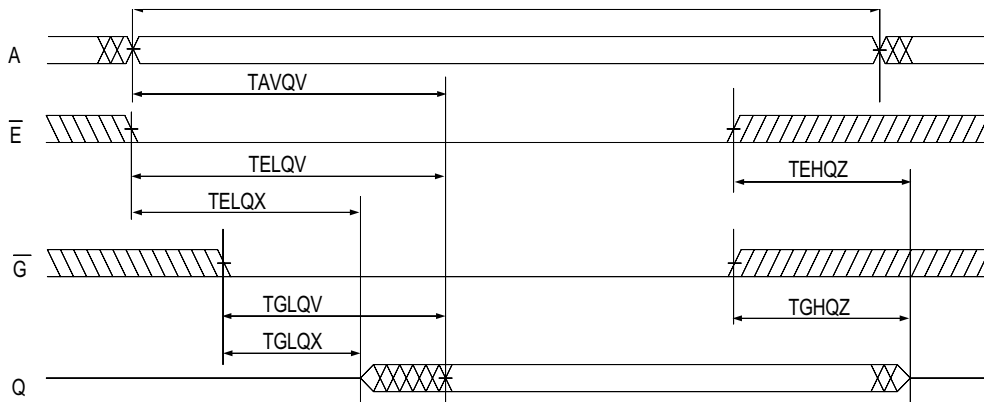
Parameter	Symbol		15ns		17ns		20ns		25ns		35ns	
	JEDEC	Alt.	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Read Cycle Time	TAVAV	TRC	15		17		20		25		35	ns
Address Access Time	TAVQV	TAA	15		17		20		25		35	ns
Chip Enable Access	TELQV	TACS	15		17		20		25		35	ns
Chip Enable to Output in Low Z (1)	TELQX	TCLZ	3		3		3		3		3	ns
Chip Disable to Output in High Z (1)	TEHQZ	TCHZ	6		7		10		12		15	ns
Output Hold from Address Change	TAVQX	TOH	3		3		3		3		3	ns
Output Enable to Output Valid	TGLQV	TOE	6		6		8		10		12	ns
Output Enable to Output in Low Z (1)	TGLQX	TOLZ	0		0		0		0		0	ns
Output Disable to Output in High Z(1)	TGHQZ	TOHZ	6		7		8		10		12	ns

Notes: 1. Parameter guaranteed, but not tested.

Read Cycle 1 - $\bar{W}$ High, $\bar{G}$, $\bar{E}$ Low



Read Cycle 2 - $\bar{W}$ High

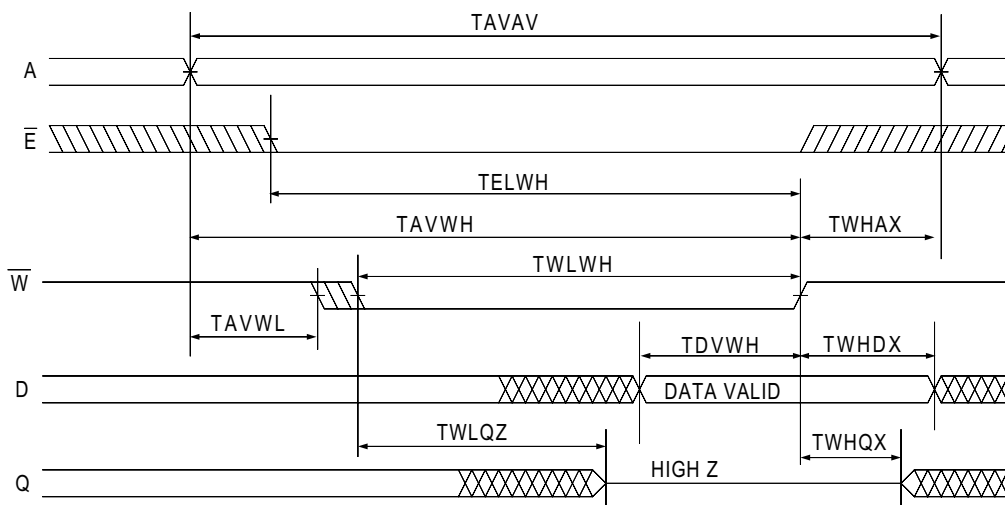


AC Characteristics Write Cycle

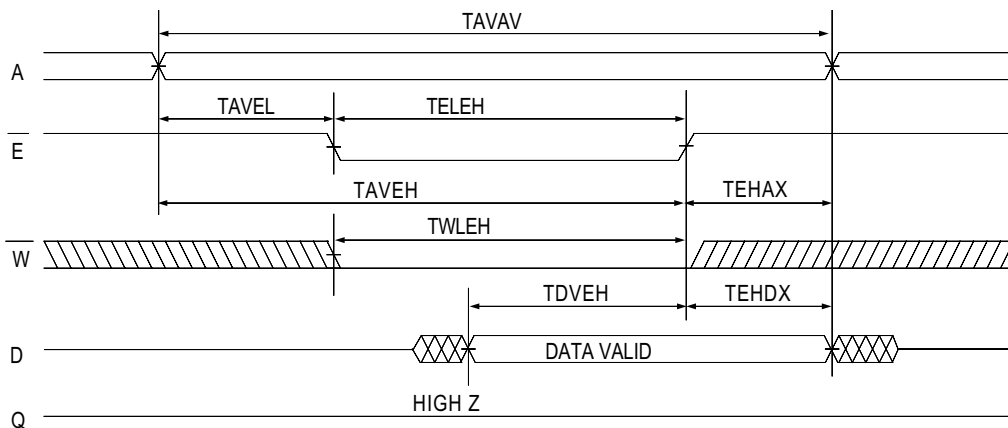
Parameter	Symbol		15ns		17ns		20ns		25ns		35ns	
	JEDEC	Alt.	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Write Cycle Time	TAVAV	TWC	15		17		20		25		35	ns
Chip Enable to End of Write	TELWH	TCW	8		12		15		20		25	ns
	TWLEH	TCW	8		12		15		20		25	ns
Address Setup Time	TAVWL	TAS	0	0	0	0	0	0	0	0	0	ns
	TAVEL	TAS	0	0	0	0	0	0	0	0	0	ns
Address Valid to End of Write	TAVWH	TAW	8		12		15		15		20	ns
	TAVEH	TAW	8		12		15		15		20	ns
Write Pulse Width	TWLWH	TWP	10		12		15		15		20	ns
	TELEH	TWP	10		12		15		15		20	ns
Write Recovery Time	TWHAX	TWR	0	0	0	0	0	0	0	0	0	ns
	TEHAX	TWR	0	0	0	0	0	0	0	0	0	ns
Data Hold Time	TWHDX	TDH	0	0	0	0	0	0	0	0	0	ns
	TEHDX	TDH	0	0	0	0	0	0	0	0	0	ns
Write to Output in High Z (1)	TWLQZ	TWHZ	0	6	0	8	0	8	0	12	0	15
Data to Write Time	TDVWH	TDW	7		8		9		10		20	ns
	TDVEH	TDW	7		8		9		10		20	ns
Output Active from End of Write (1)	TWHQX	TWLZ	3		3		3		3		3	ns

Notes: 1. Parameter guaranteed, but not tested.

Write Cycle 1 - $\overline{W}$ Controlled



Write Cycle 2 - $\bar{E}$ Controlled



Ordering Information

Part Number	Speed (ns)	Package No.
EDI8F32512B15MMC	15	174
EDI8F32512C17MMC	17	174
EDI8F32512C20MMC	20	174
EDI8F32512C25MMC	25	174
EDI8F32512C35MMC	35	174
EDI8G32512C17MMC	17	174
EDI8G32512C20MMC	20	174
EDI8G32512C25MMC	25	174
EDI8G32512C35MMC	35	174

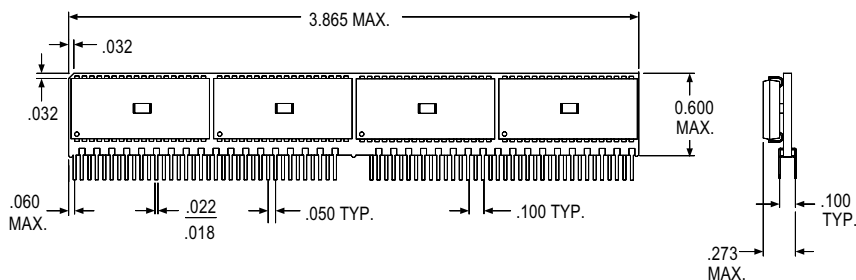
Part Number	Speed (ns)	Package No.
EDI8F32512C17MZC	17	173
EDI8F32512C20MZC	20	173
EDI8F32512C25MZC	25	173
EDI8F32512C35MZC	35	173

Note: To order gold SIMM option, refer to "EDI8G32512CXXMMC"; to order plastic SIMM refer to "EDI8F32512CXXMMC".

Package Description

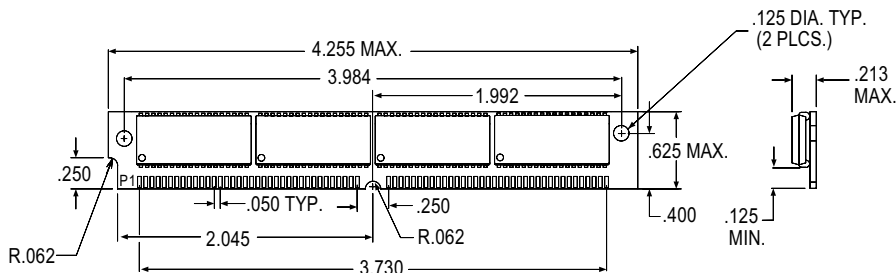
Package No. 173

72 Pin ZIP



Package No. 174

72 lead SIMM



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