ACCUTEK
MICROCIRCUIT CORPORATION

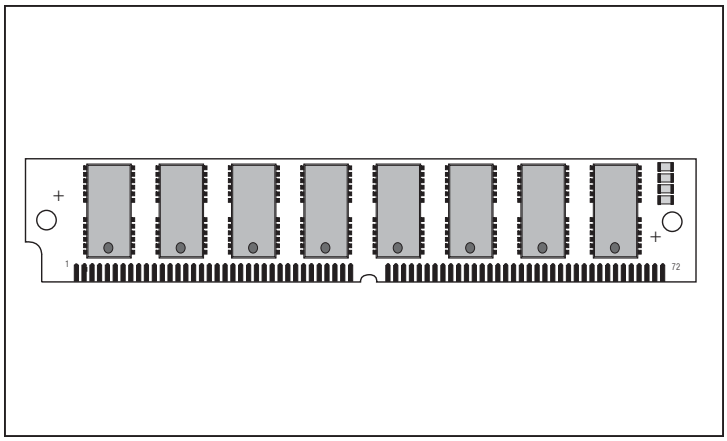
AK5328192W
8,388,608 by 32 Bit CMOS Dynamic Random Access Memory

DESCRIPTION

The Accutek AK5328192W high density memory module is a CMOS dynamic RAM organized in 8192K x 32 bit words. The module consists of sixteen standard 4 Meg x 4 DRAMs in plastic SOJ packages. The assembly has eight drams mounted on each side of a printed circuit board in a 72 pad leadless SIM configuration.

This configuration allows socket-mounting of large quantities of memory in applications where high density and ease of inserting additional memory are important.

The operation of the AK5328192W is identical to sixteen 4M x 4 Drams. There are four $\overline{CAS}$ lines and four $\overline{RAS}$ lines. On each bank of 4M x 32, independent byte control is accomplished by four $\overline{CAS}$ lines. Each separate $\overline{CAS}$ line controls two 4M x 4 Drams to form an 8 bit byte. Two banks of 32 bits are controlled by the two pairs of $\overline{RAS}$ lines. A sixteen bit data path can be produced by connecting DQ_0 to DQ_{16}, DQ_1 to DQ_{17}, etc. and alternately strobing $\overline{RAS_0}$ with $\overline{RAS_1}$ and $\overline{RAS_2}$ with $\overline{RAS_3}$.



FEATURES

- 8,388,608 x 32 bit organization
- 72 pad Single In-Line Module
- Multiple $\overline{CAS}$ and $\overline{RAS}$ lines allow x16 or x32 bit widths
- $\overline{CAS}$-before-$\overline{RAS}$, $\overline{RAS}$-only or hidden refresh
- Power
  5.32 Watt Max Active (60nS)
  4.48 Watt Max Active (70 nS)
  88 mW Max Standby
- Operating free air temperature 0°C to 70°C
- Single 5 Volt Power Supply
- 2048 Refresh Cycles, 32 mSEC
- 4096 Refresh Cycles, 64 mSEC available for all module sizes
- Available in Fast Page Mode and EDO
- Available in leadless (W) or leaded Zip (Z) versions
- Downward compatible with AK5324096, AK5322048, AK5321024, AK532512 andAK532256

EXAMPLES

AK5328192WP-60

8 Meg x 32 CMOS Dynamic RAM, SIM, Page Mode, Commercial 60 nSEC Access Time

PIN NOMENCLATURE

A_0 - A_{10}	Address Inputs
DQ_0 - DQ_{31}	Data In/Data Out
$\overline{CAS_0}$ - $\overline{CAS_3}$	Column Address Strobe
$\overline{RAS_0}$ - $\overline{RAS_3}$	Row Address Strobe
$\overline{WE}$	Write Enable
$\overline{OE}$	Output Enable
PD_1 - PD_4	Presence Detect
Vcc	5v Supply
Vss	Ground
NC	No Connect

MODULE OPTIONS

Leadless SIM: AK5328192W
Leaded ZIP: AK5328192Z

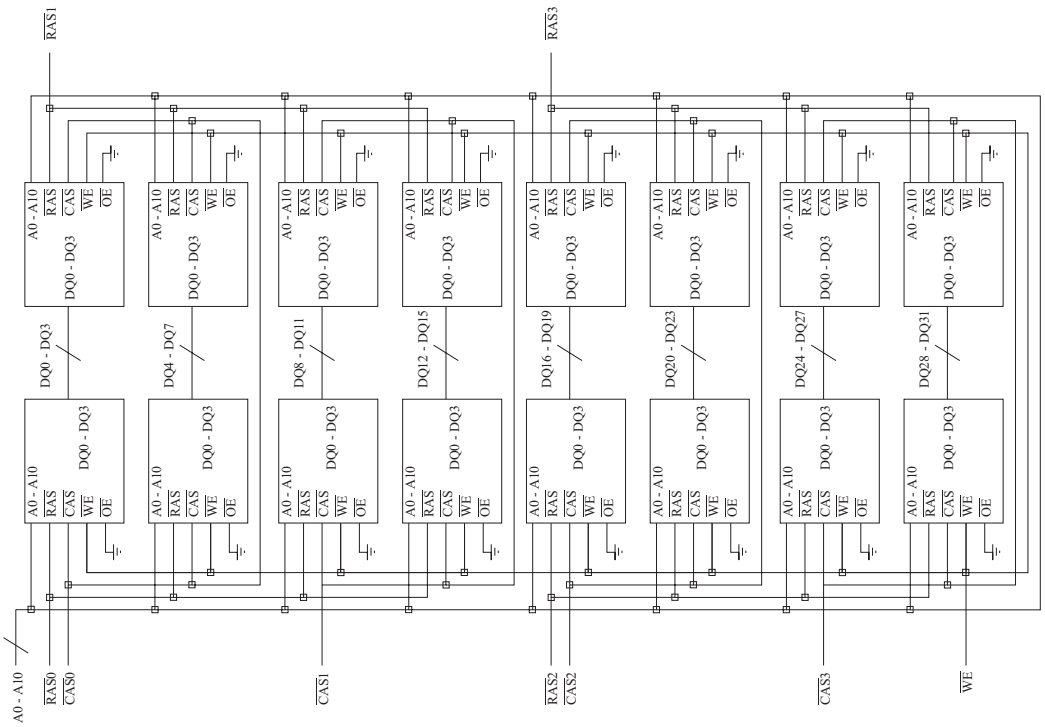
PIN ASSIGNMENT

PIN #	SYMBOL	PIN #	SYMBOL	PIN #	SYMBOL	PIN #	SYMBOL
1	Vss	19	A10	37	NC	55	DQ11
2	DQ0	20	DQ4	38	NC	56	DQ27
3	DQ16	21	DQ20	39	Vss	57	DQ12
4	DQ1	22	DQ5	40	$\overline{CAS0}$	58	DQ28
5	DQ17	23	DQ21	41	$\overline{CAS2}$	59	Vcc
6	DQ2	24	DQ6	42	$\overline{CAS3}$	60	DQ29
7	DQ18	25	DQ22	43	$\overline{CAS1}$	61	DQ13
8	DQ3	26	DQ7	44	$\overline{RAS0}$	62	DQ30
9	DQ19	27	DQ23	45	$\overline{RAS1}$	63	DQ14
10	Vcc	28	A7	46	NC	64	DQ31
11	NC	29	NC	47	$\overline{WE}$	65	DQ15
12	A0	30	Vcc	48	NC	66	NC
13	A1	31	A8	49	DQ8	67	PD1
14	A2	32	A9	50	DQ24	68	PD2
15	A3	33	$\overline{RAS3}$	51	DQ9	69	PD3
16	A4	34	$\overline{RAS2}$	52	DQ25	70	PD4
17	A5	35	NC	53	DQ10	71	NC
18	A6	36	NC	54	DQ26	72	Vss

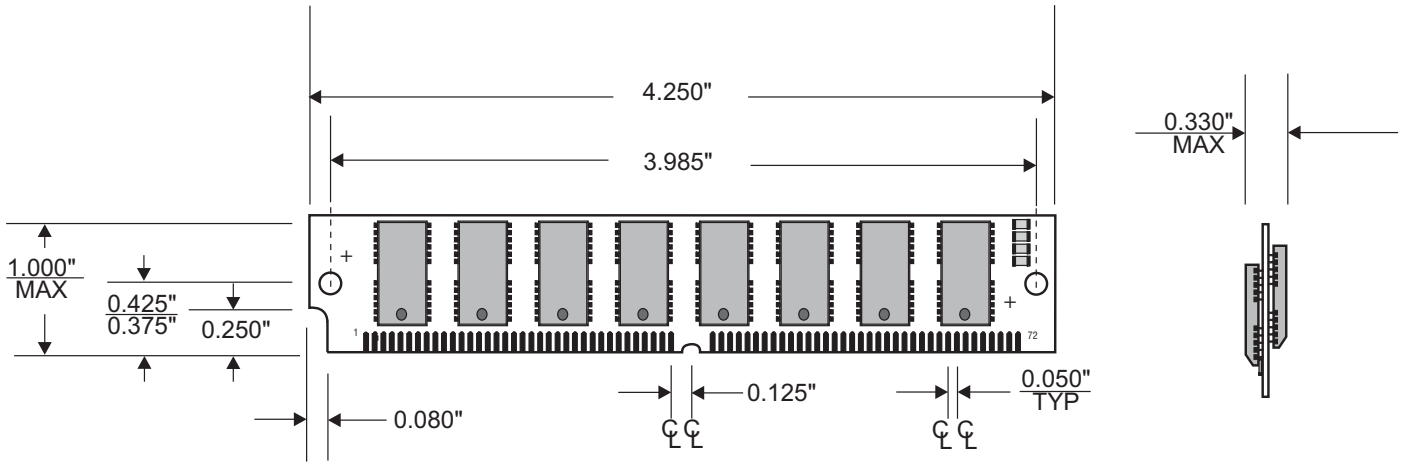
Presence Detect -

	-60	-70
PD1	NC	NC
PD2	Vss	Vss
PD3	NC	Vss
PD4	NC	NC

FUNCTIONAL DIAGRAM



MECHANICAL DIMENSIONS



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