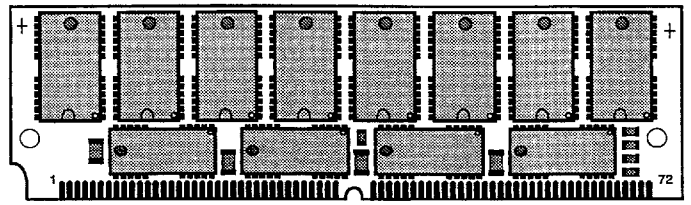
AK5368192WP
8,388,608 by 36 Bit CMOS Dynamic Random Access Memory

DESCRIPTION

The Accutek AK5368192WP high density memory module is a CMOS dynamic RAM organized in 8192K x 36 bit words. The module consists of sixteen standard 4 Meg x 4 DRAMs and eight 4 Meg x 1 DRAMs, each in plastic SOJ packages. The assembly has 12 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 AK5368192 is identical to sixteen 4M x 4 plus eight 4M x 1 Drams. There are four $\overline{CAS}$ lines and four $\overline{RAS}$ lines. On each bank of 4M x 36, independent byte control is accomplished by four $\overline{CAS}$ lines. Each separate $\overline{CAS}$ line controls two 4M x 4 Drams along with a 4M x 1 Dram with data in tied to data out to form a 9 bit byte. Two banks of 36 bits are controlled by the two pairs of $\overline{RAS}$ lines. An eighteen bit data path can be produced by connecting DQ_0 to DQ_{18}, DQ_1 to DQ_{19}, etc. and alternately strobing $\overline{RAS_0}$ with $\overline{RAS_1}$ and $\overline{RAS_2}$ with $\overline{RAS_3}$.



FEATURES

- 8,388,608 x 36 bit organization
- 72 pad Single In-Line Module
- Multiple CAS and RAS lines allow x18 or x36 bit widths
- $\overline{CAS}$-before-$\overline{RAS}$, $\overline{RAS}$-only or hidden refresh
- Operating free air temperature 0°C to 70°C
- Single 5 Volt Power Supply
- Power
  7.30 Watt Max Active (60nS)
  6.68 Watt Max Active (70 nS)
  6.07 Watt Max Active (80 nS)
  252 mW Max Standby
- 2048 Refresh Cycles, 32 mSEC
- Available in Fast Page Mode and Static Column mode versions
- Available in leadless (W) or leaded Zip (Z) versions
- Downward compatible with AK5364096W through AK536256W sizes

EXAMPLES

AK5368192WP-70

8Meg x 36 CMOS Dynamic RAM, SIM, Page Mode, Commercial 70 nSEC Access Time

ADDITIONAL OPTIONS AVAILABLE

- 4 Meg x 32 version, no parity
  Reference Part No. AK5324096W
- 4 Meg x 36 version, drams on one side only
  Reference Part No. AK5364096W
- 8 Meg x 32 version, no parity
  Reference Part No. AK5328192W
- 4096 Refresh Cycles, 64 mSEC available for all module sizes

PIN NOMENCLATURE

DQ_0 - DQ_{35}	Data In/Data Out
A_0 - A_{10}, 2K Refresh	Address Inputs
A_0 - A_{11}, 4K Refresh	Address Inputs
$\overline{CAS_0}$ - $\overline{CAS_3}$	Column Address Strobe
$\overline{RAS_0}$ - $\overline{RAS_3}$	Row Address Strobe
$\overline{WE}$	Write Enable
PD_1 - PD_4	Presence Detect
Vcc	5v Supply
Vss	Ground
NC	No Connect

MODULE OPTIONS

Leadless SIM: AK5368192W
Leaded ZIP: AK5368192Z

PIN ASSIGNMENT

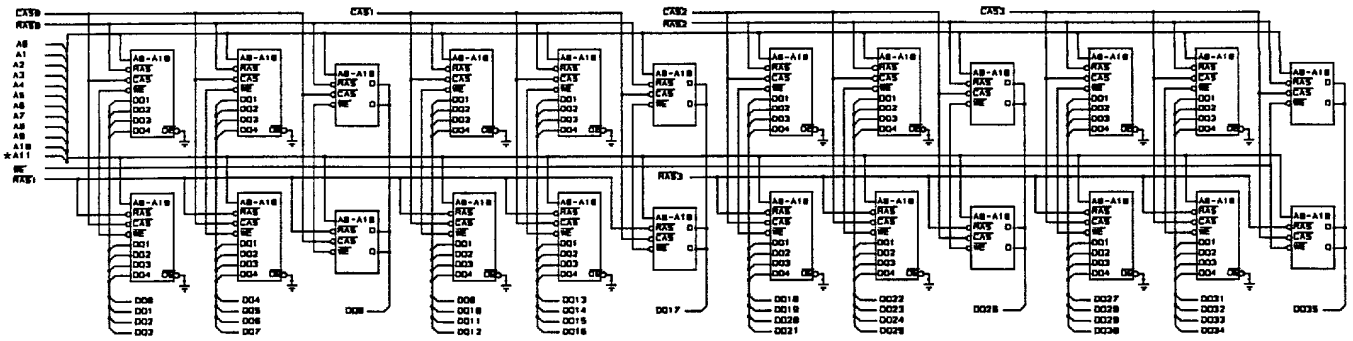
PIN #	SYMBOL	PIN #	SYMBOL	PIN #	SYMBOL	PIN #	SYMBOL
1	Vss	19	A10	37	DQ17	55	DQ12
2	DQ0	20	DQ4	38	DQ35	56	DQ30
3	DQ18	21	DQ22	39	VssV	57	DQ13
4	DQ1	22	DQ5	40	$\overline{CAS0}$	58	DQ31
5	DQ19	23	DQ23	41	$\overline{CAS2}$	59	Vcc
6	DQ2	24	DQ6	42	$\overline{CAS3}$	60	DQ32
7	DQ20	25	DQ24	43	$\overline{CAS1}$	61	DQ14
8	DQ3	26	DQ7	44	$\overline{RAS0}$	62	DQ33
9	DQ21	27	DQ25	45	$\overline{RAS1}$	63	DQ15
10	Vcc	28	A7	46	NC	64	DQ34
11	NC	29	A11	47	$\overline{WE}$	65	DQ16
12	A0	30	Vcc	48	NC	66	NC
13	A1	31	A8	49	DQ9	67	PD1
14	A2	32	A9	50	DQ27	68	PD2
15	A3	33	$\overline{RAS3}$	51	DQ10	69	PD3
16	A4	34	$\overline{RAS2}$	52	DQ28	70	PD4
17	A5	35	DQ26	53	DQ11	71	NC
18	A6	36	DQ8	54	DQ29	72	Vss

Presence Detect - 8 Meg x 36

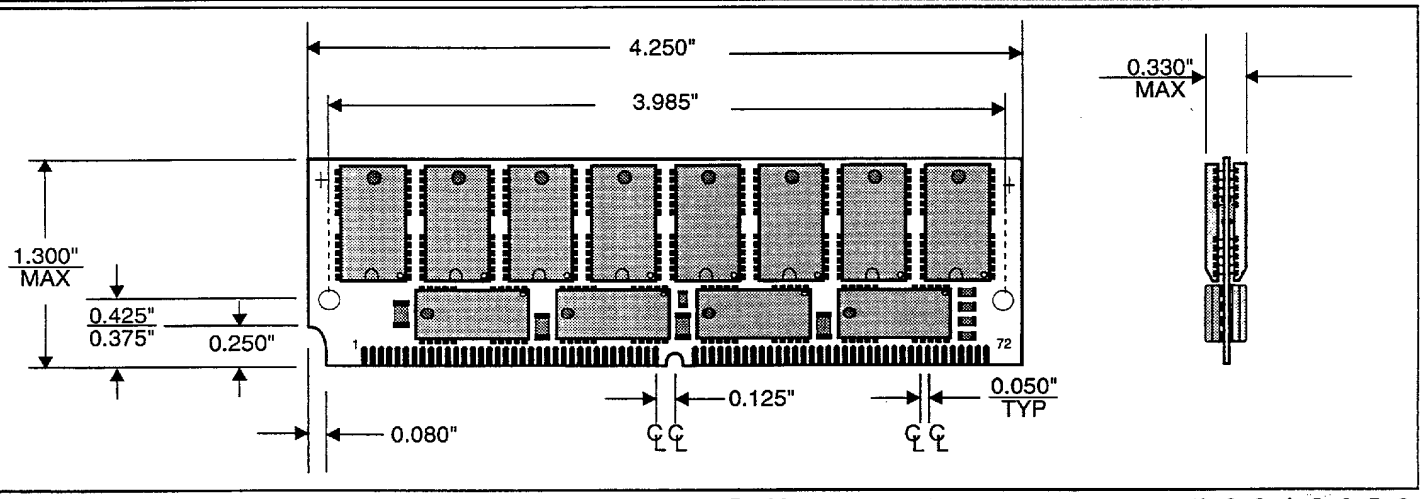
	-60	-70	-80
PD1	NC	NC	NC
PD2	Vss	Vss	Vss
PD3	NC	NC	NC
PD4	NC	NC	Vss

NOTE: PIN 29 - No Connect for 2K, 32 mSEC Refresh
A11 for 4K, 64mSEC Refresh

FUNCTIONAL DIAGRAM



MECHANICAL DIMENSIONS



ORDER INFORMATION

PART NUMBER CODING INTERPRETATION

Position 1 2 3 4 5 6 7 8

1 Product
AK = Accutek Memory

2 Type
4 = Dynamic RAM
5 = CMOS Dynamic RAM
6 = Static RAM

3 Organization/Word Width
1 = by 1 16 = by 16
4 = by 4 32 = by 32
8 = by 8 36 = by 36
9 = by 9

4 Size/Bits Depth

64	=	64K	4096	=	4 MEG
256	=	256K	8192	=	8 MEG
1024	=	1 MEG	16384	=	16 MEG

The numbers and coding on this page do not include all variations available, but are shown as examples of the most widely used variations. Contact Accutek if other information is required.

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Position 1 2 3 4 5 6 7 8

5 Package Type
G = Single In-Line Package (SIP)
S = Single In-Line Module (SIM)
D = Dual In-Line Package (DIP)
W = .050 inch Pitch Edge Connect
Z = Zig-Zag In-Line Package (ZIP)

6 Special Designation
P = Page Mode
N = Nibble Mode
K = Static Column Mode
W = Write Per Bit Mode
V = Video Ram

7 Separator
- = Commercial 0^0C to +70^0C
M = Military Equivalent Screened (-55^0C to +125^0C)
I = Industrial Temperature Tested (-45^0C to +85^0C)
X = Burned In

8 Speed (first two significant digits)

DRAMS			SRAMS	
60	=	60 nS	12	=12 nS
70	=	70 nS	20	=20 nS
80	=	80 nS	25	=25 nS
10	=	100 nS	35	=35 nS