

AK5328192AW

8,388,608 Word by 32 Bit CMOS

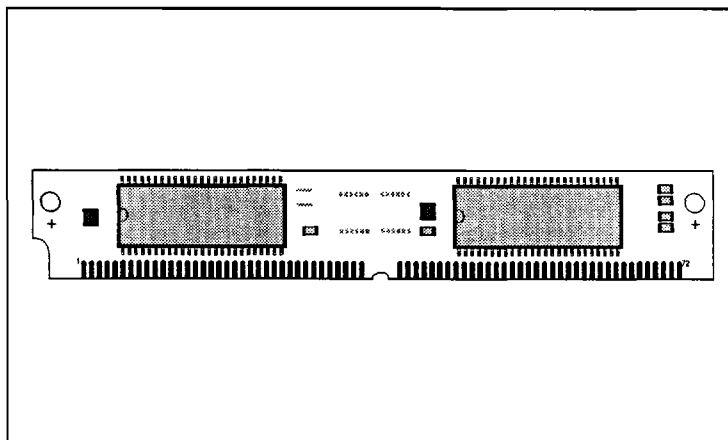
Dynamic Random Access Memory

DESCRIPTION

The Accuthek AK5328192AW high density memory module is a CMOS dynamic RAM organized in 8192K x 32 bit words. The module consists of four standard 4 Meg x 16 bits DRAMs in plastic TSOP packages. The assembly has 2 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 AK5328192AW is identical to sixteen 4 Meg x 4 DRAMs. There are four $\overline{\text{CAS}}$ lines and two $\overline{\text{RAS}}$ lines. On each bank of 4 Meg x 32, independent byte control is accomplished by four $\overline{\text{CAS}}$ lines. Each separate $\overline{\text{CAS}}$ line controls one byte of the 4 Meg x 16 DRAM.



FEATURES

- 8,388,608 x 32 bit organization
- 72 pad Single In-Line Module
- $\overline{\text{CAS}}$ -before- $\overline{\text{RAS}}$, $\overline{\text{RAS}}$ -only or hidden refresh
- Operating free air temperature 0°C to 70°C
- Single 5 Volt Power Supply
- 4096 Refresh Cycles, 32 mSEC
- Available in Fast Page Mode
- Available in EDO

- Power:
1.342 Watt Max Active (50nS)
1.232 Watt Max Active (60 nS)
44 mW Max Standby
- Downward compatible with AK5324096W, AK5322048W, AK5321024W, AK532512W and AK532256W

ADDITIONAL OPTIONS AVAILABLE

- 4 Meg x 32 version, AK5324092AW
- 4 Meg x 36 version, AK5364096AW
- 8 Meg x 36 version, AK5368192AW

PIN NOMENCLATURE

A ₀ - A ₁₁	Address Inputs
DQ ₀ - DQ ₃₅	Data In/Data Out
$\overline{\text{WE}}$	Write Enable
$\overline{\text{RAS}}_0$ - $\overline{\text{RAS}}_1$	Row Address Strobe
$\overline{\text{CAS}}_0$ - $\overline{\text{CAS}}_3$	Column Address Strobe
PD ₁ - PD ₄	Presence Detect
V _{ss}	Ground
V _{cc}	5v Supply
NC	No Connect

PIN ASSIGNMENT

PIN #	SYMBOL	PIN #	SYMBOL	PIN #	SYMBOL	PIN #	SYMBOL
1	V _{ss}	19	A ₁₀	37	NC	55	DQ ₁₁
2	DQ ₀	20	DQ ₄	38	NC	56	DQ ₂₇
3	DQ ₁₆	21	DQ ₂₀	39	V _{ss}	57	DQ ₁₂
4	DQ ₁	22	DQ ₅	40	$\overline{\text{CAS}}_0$	58	DQ ₂₈
5	DQ ₁₇	23	DQ ₂₁	41	$\overline{\text{CAS}}_2$	59	V _{cc}
6	DQ ₂	24	DQ ₆	42	$\overline{\text{CAS}}_3$	60	DQ ₂₉
7	DQ ₁₈	25	DQ ₂₂	43	$\overline{\text{CAS}}_1$	61	DQ ₁₃
8	DQ ₃	26	DQ ₇	44	$\overline{\text{RAS}}_0$	62	DQ ₃₀
9	DQ ₁₉	27	DQ ₂₃	45	$\overline{\text{RAS}}_1$	63	DQ ₁₄
10	V _{cc}	28	A ₇	46	NC	64	DQ ₃₁
11	NC	29	A ₁₁	47	$\overline{\text{WE}}$	65	DQ ₁₅
12	A ₀	30	V _{cc}	48	NC	66	NC
13	A ₁	31	A ₈	49	DQ ₈	67	PD ₁
14	A ₂	32	A ₉	50	DQ ₂₄	68	PD ₁
15	A ₃	33	$\overline{\text{RAS}}_3$	51	DQ ₉	69	PD ₃
16	A ₄	34	$\overline{\text{RAS}}_2$	52	DQ ₂₅	70	PD ₄
17	A ₅	35	NC	53	DQ ₁₀	71	NC
18	A ₆	36	NC	54	DQ ₂₆	72	V _{ss}

MODULE OPTIONS

Leadless SIM: AK5328192AW

Leaded ZIP: AK5328192AZ

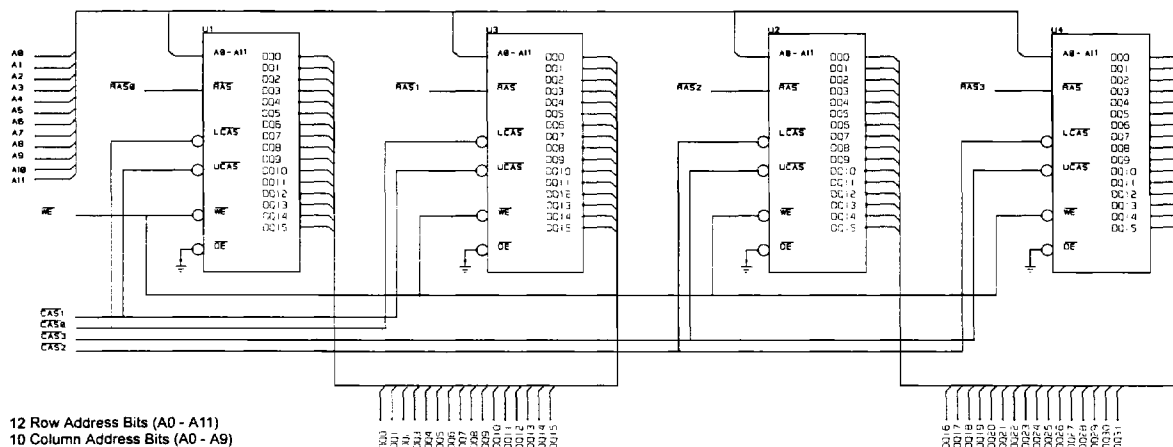
Presence Detect

	-50	-60
PD1	NC	NC
PD2	V _{ss}	V _{ss}
PD3	V _{ss}	NC
PD4	V _{ss}	NC

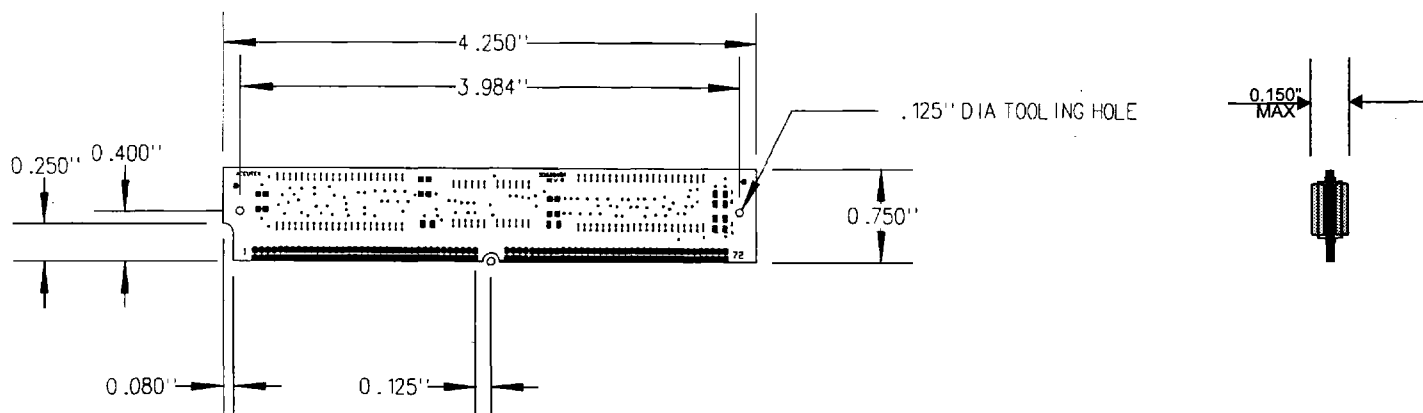
Input Capacitance

C Address	35 pF
C $\overline{\text{WE}}$	43 pF
C $\overline{\text{RAS}}_0$ - $\overline{\text{RAS}}_3$	27 pF
C $\overline{\text{CAS}}_0$ - $\overline{\text{CAS}}_3$	27 pF
C DQ ₀ - DQ ₃₅	27 pF

FUNCTIONAL DIAGRAM



MECHANICAL DIMENSIONS



ORDER INFORMATION

PART NUMBER CODING INTERPRETATION

Position 1 2 3 4 5 6 7 8

1 Product

AK = Accuthek 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 Accuthek if other information is required.

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

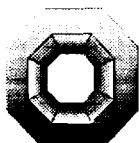
P = Page Mode
N = Nibble Mode
K = Static Column Mode
W = Write Per Bit Mode
V = Video Ram

7 Separator

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

8 Speed (first two significant digits)

DRAMS SRAMS
50 = 50 nS 8 = 8 nS
60 = 60 nS 10 = 10 nS
70 = 70 nS 15 = 15 nS
20 = 20nS



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