ACCUTEK
MICROCIRCUIT CORPORATION

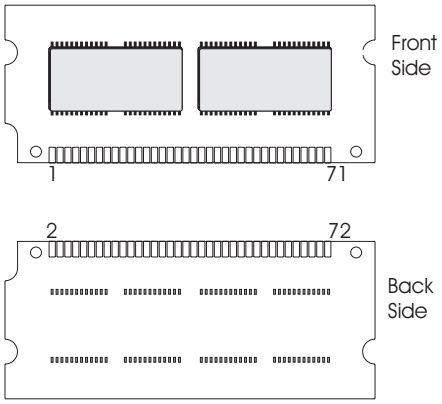
AK5321024N
1,048,576 Word by 32 Bit CMOS Dynamic Random Access Memory

DESCRIPTION

The Accutek AK5321024N high density memory module is a CMOS dynamic RAM organized in 1024K x 32 bit words. The module consists of two standard 1 Meg x 16 DRAMs in plastic TSOP packages. The assembly has 2 drams mounted on the front side of a printed circuit board in a 72 pad leadless Dual Row Sodim 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 AK5321024N is identical to two 1Meg x 16 Drams. There are four $\overline{CAS}$ lines and two $\overline{RAS}$ lines. On each bank of 1Meg x 32, independent byte control is accomplished by four $\overline{CAS}$ lines. Each seperate $\overline{CAS}$ line controls one byte of the 1Meg x 16 Dram. 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 $\overline{RAS_2}$.



FEATURES

- 1,048,576 x 32 bit organization
- 72 pad Dual Row Sodim 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
- Operating free air temperature 0^oC to 70^oC
- Single 5 Volt Power Supply
- 1024 Refresh Cycles, 16 mSEC
- Available in Fast Page Mode and Static Column Mode versions
- Power
  1.76 Watt Max Active (60nS)
  1.65 Watt Max Active (70 nS)
  1.54 Watt Max Active (80 nS)
  11 mW Max StandbyAvailable

ADDITIONAL OPTIONS AVAILABLE

2 Meg x 32 version, AK5322048N

PIN NOMENCLATURE

DQ_0 - DQ_{31}	Data In/Data Out
A_0 - A_9	Address Inputs
$\overline{CAS_0}$ - $\overline{CAS_3}$	Column Address Strobe
$\overline{RAS_0}$, $\overline{RAS_2}$	Row Address Strobe
$\overline{WE}$	Write Enable
PD_0 - PD_6	Presence Detect
Vcc	5v Supply
Vss	Ground
NC	No Connect

MODULE OPTIONS

Leadless SODIM: AK5321024N

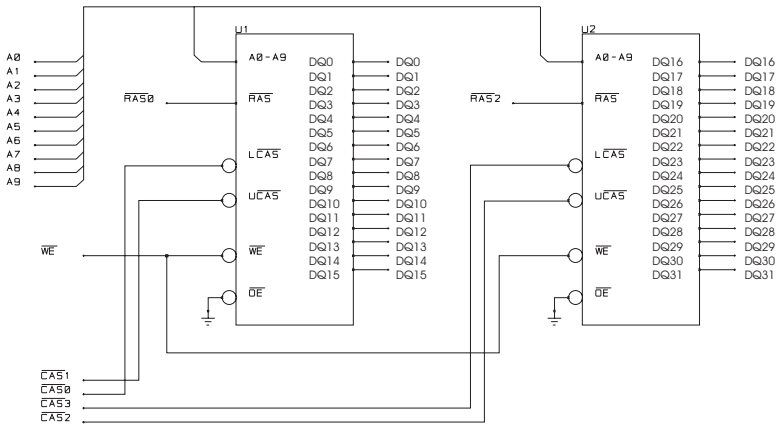
PIN ASSIGNMENT

PIN #	SYMBOL	PIN #	SYMBOL	PIN #	SYMBOL	PIN #	SYMBOL
1	Vss	19	NC	37	DQ16	55	NC
2	DQ0	20	NC	38	DQ17	56	DQ24
3	DQ1	21	DQ8	39	Vss	57	DQ25
4	DQ2	22	DQ9	40	$\overline{CAS0}$	58	DQ26
5	DQ3	23	DQ10	41	$\overline{CAS2}$	59	DQ28
6	DQ4	24	DQ11	42	$\overline{CAS3}$	60	DQ27
7	DQ5	25	DQ12	43	$\overline{CAS1}$	61	Vcc
8	DQ6	26	DQ13	44	$\overline{RAS0}$	62	DQ29
9	DQ7	27	DQ14	45	NC	63	DQ30
10	Vcc	28	A7	46	NC	64	DQ31
11	PD0	29	NC	47	$\overline{WE}$	65	NC
12	A0	30	Vcc	48	NC	66	PD1
13	A1	31	A8	49	DQ18	67	PD2
14	A2	32	A9	50	DQ19	68	PD3
15	A3	33	NC	51	DQ20	69	PD4
16	A4	34	$\overline{RAS2}$	52	DQ21	70	PD5
17	A5	35	DQ15	53	DQ22	71	PD6
18	A6	36	NC	54	DQ23	72	Vss

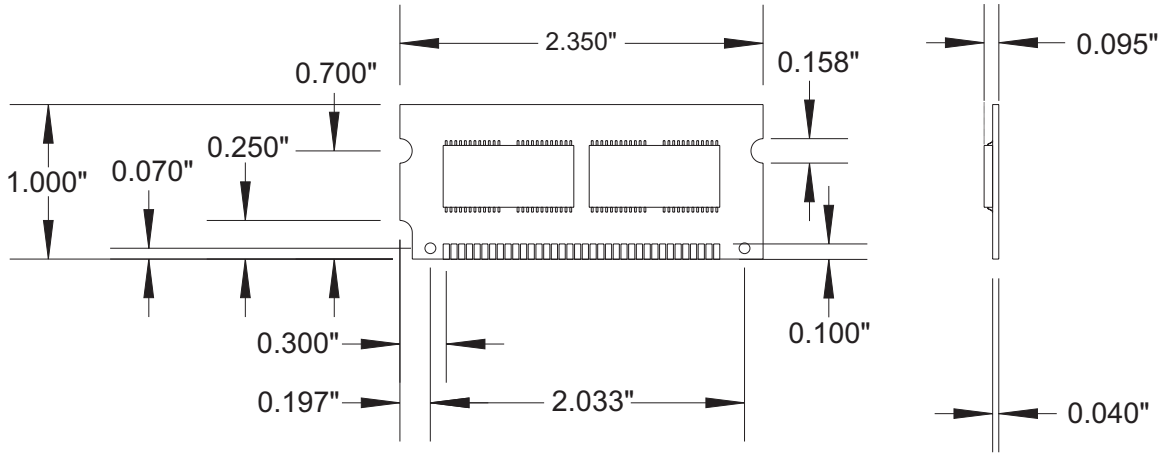
Presence Detect -

Access Time	PD_0	PD_1	PD_2	PD_3	PD_4	PD_5	PD_6
-60	NC	Vss	Vss	NC	NC	NC	NC
-70	NC	Vss	Vss	NC	Vss	NC	NC

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 = b y 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.

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
N = Dual Row Sodim
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	15	=	15 nS
80	=	80 nS	20	=	20nS

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