

Accutek Microcircuit Corporation

AK6321024W / AK6321024Z 1,048,576 x 32 Bit CMOS/BiCMOS Static Random Access Memory

DESCRIPTION

The Accutek AK631024 SRAM Module consists of fast high performance SRAMs mounted on a low profile, 72 pin SIM or ZIP PCB. The module utilizes four 32 pin 1 Meg x 4 SRAMs in 400 mil SOJ packages and four decoupling capacitor chips mounted on each side of a printed circuit board.

The SRAMs used have common I/O functions and single output enable functions. Also, four separate chip select (\overline{CE}) connections are used to independently enable the four bytes. The modules can be supplied in a variety of access time values from 15nSEC to 30nSEC in CMOS or BiCMOS technology.

The Accutek module is designed to have a maximum seated height of 0.670 inch SIM or 0.550 inch ZIP to provide for the lowest height off the board. Each conforms to JEDEC-standard sizes and pin-out configurations. Using four pins for module memory density identification, PC₀, PD₁, PD₂ and PD₃ minimizes interchangeability and design considerations when changing from one module size to the other in customer applications.

FEATURES

- 1,048,576 x 32 SRAM module in high density configuration
- JEDEC Standardized 72 pin SIM format
- Common I/O, single \overline{OE} functions with four separate chip selects (\overline{CE})
- Low height, 0.670 inch SIM or 0.550 inch ZIP maximum
- Presence Detect PD₀ through PC₃ for identifying module density
- TTL compatible inputs and outputs
- Single 5 volt power supply - AK6321024W, AK6321054Z
- Single 3.3 volt power supply - AK6321024W/3.3, AK6321024Z/3.3
- Fast access times range from 15 nSEC BiCMOS to 25 nSEC

PIN NOMENCLATURE

A ₀ - A ₁₉	Address Inputs
\overline{CE}_1 - \overline{CE}_4	Chip Enable
DQ ₁ - DQ ₃₂	Data In/Data Out
\overline{OE}	Output Enable
PD ₀ - PD ₃	Presence Detect
V _{cc}	5v Supply
V _{ss}	Ground
\overline{WE}	Write Enable
NC	No Connect

MODULE OPTIONS

Leadless SIM: AK6321024W
Leads ZIP: AK6321024Z
Leaded SIP: AK6321024G

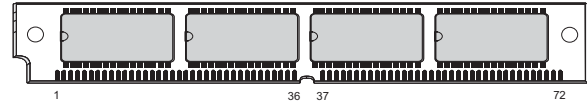
PIN ASSIGNMENT

PIN #	SYMBOL	PIN #	SYMBOL	PIN #	SYMBOL	PIN #	SYMBOL
1	NC	19	A1	37	\overline{CE}_4	55	A5
2	NC	20	A8	38	\overline{CE}_3	56	A12
3	PD ₂	21	A2	39	A17	57	V _{cc}
4	PD ₃	22	A9	40	A16	58	A13
5	V _{ss}	23	DQ ₁₃	41	\overline{OE}	59	A6
6	PD ₀	24	DQ ₅	42	V _{ss}	60	DQ ₂₁
7	PD ₁	25	DQ ₁₄	43	DQ ₂₅	61	DQ ₂₉
8	DQ ₁	26	DQ ₆	44	DQ ₁₇	62	DQ ₂₂
9	DQ ₉	27	DQ ₁₅	45	DQ ₂₆	63	DQ ₃₀
10	DQ ₂	28	DQ ₇	46	DQ ₁₈	64	DQ ₂₃
11	DQ ₁₀	29	DQ ₁₆	47	DQ ₂₇	65	DQ ₃₁
12	DQ ₃	30	DQ ₈	48	DQ ₁₉	66	DQ ₂₄
13	DQ ₁₁	31	V _{ss}	49	DQ ₂₈	67	DQ ₃₂
14	DQ ₄	32	\overline{WE}	50	DQ ₂₀	68	V _{ss}
15	DQ ₁₂	33	A15	51	A3	69	A18
16	V _{cc}	34	A14	52	A10	70	A19
17	A ₀	35	\overline{CE}_2	53	A4	71	NC
18	A ₇	36	\overline{CE}_1	54	A11	72	NC

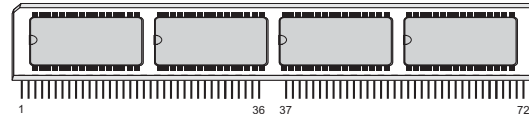
PD₀ = V_{ss} PD₂ = V_{ss}
 PD₁ = Open PD₃ = Open

Front View

72-Pin SIM



72-Pin ZIP

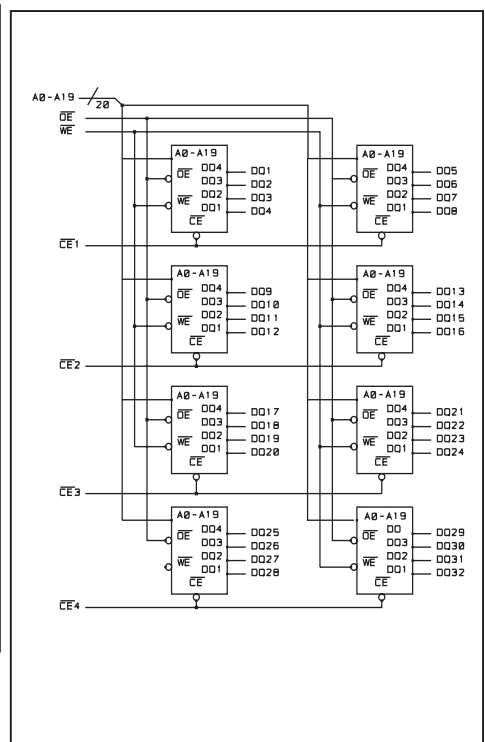


- Power
 - 170mA Active (15nS)
 - 165mA Active (17nS)
 - 160mA Active (20nS)
 - 155mA Active (25nS)
 - 10mA Standby
- Downward pin compatible with 512K x 32 (AK632512) - 72 pin SIM or ZIP, and 256K x 32 (AK632256), 128K x 32 (AK632128), 64K x 32 (AK63264) and 32K x 32 (AK63232) - 64 pin SIM or ZIP designs
- Operating temperature range in free air, 0°C to 70°C

ELECTRICAL SPECIFICATIONS

Timing diagrams and basic electrical characteristics are those of the standard 1 Meg x 4 SRAMs used to construct these modules. Accutek's module design allows the flexibility of selecting industry-compatible 1 Meg x 4 SRAMs from several semiconductor manufacturers.

FUNCTIONAL DIAGRAM



ORDERING 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																	
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)	<table border="0"> <tr> <td>DRAMS</td> <td>SRAMS</td> </tr> <tr> <td>50 = 50 nS</td> <td>8 = 8 nS</td> </tr> <tr> <td>60 = 60 nS</td> <td>10 = 10 nS</td> </tr> <tr> <td>70 = 70 nS</td> <td>12 = 12 nS</td> </tr> <tr> <td>80 = 80 nS</td> <td>15 = 15 nS</td> </tr> </table>								DRAMS	SRAMS	50 = 50 nS	8 = 8 nS	60 = 60 nS	10 = 10 nS	70 = 70 nS	12 = 12 nS	80 = 80 nS	15 = 15 nS
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The numbers and coding on this page do not include all variations available but are show as examples of the most widely used variations. Contact Accuthek if other information is required.

EXAMPLES:

AK6321024W-15

1 Meg x 32, 15 nSEC SRAM Module, SIM Configuration

AK6321024Z-17

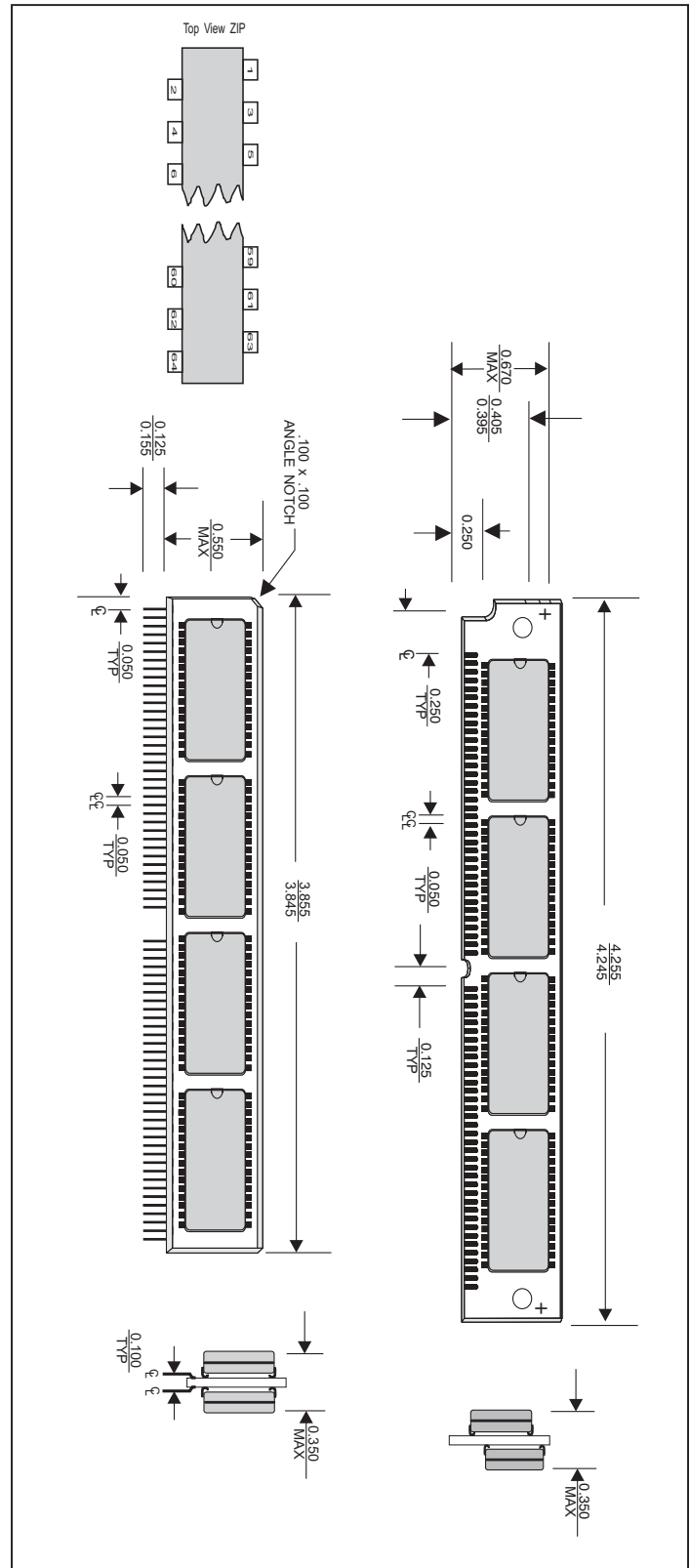
1 Meg x 32, 17 nSEC SRAM Module, ZIP Configuration



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MECHANICAL DIMENSIONS

Inches



Accuthek reserves the right to make changes in specifications at any time and without notice. Accuthek does not assume any responsibility for the use of any circuitry described; no circuit patent licenses are implied. Preliminary data sheets contain minimum and maximum limits based upon design objectives, which are subject to change upon full characterization over the specific operating conditions.