

# Accutek Microcircuit Corporation

## AK584096AS / AK584096AG 4,194,304 x 8 Bit CMOS Dynamic Random Access Memory

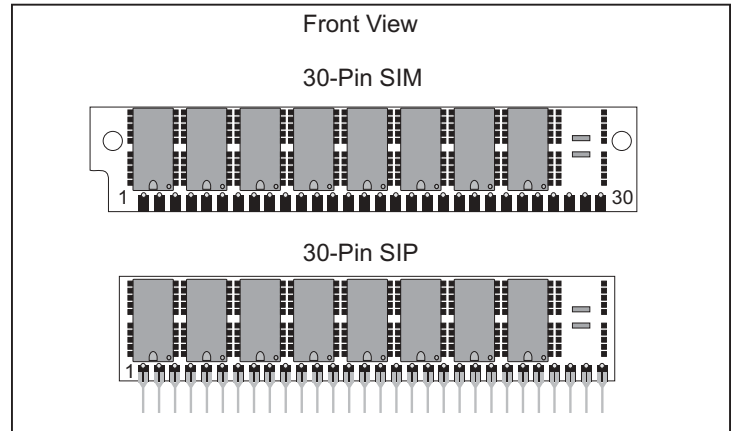
### DESCRIPTION

The Accutek AK584096 high density memory module is CMOS DRAM organized in 4 Meg x 8 bit words. The assembly consists of eight standard 4 Meg x 1 DRAMs in plastic SOJ packages mounted on the front side of a printed circuit board. The module can be configured as a leadless 30 pad SIM or a leaded 30 pin SIP. The module is only 0.800 inch high (same height as a standard 1 Meg module) making it ideally suited for applications with low height restrictions.

The operation of the AK584096 is identical to eight 4 Meg x 1 DRAMs. The data input is tied to the data output and brought out separately for each device, with common  $\overline{\text{RAS}}$ ,  $\overline{\text{CAS}}$  and  $\overline{\text{WE}}$  control. This common I/O feature dictates the use of early-write cycles to prevent contention of D and Q. Since the Write-Enable ( $\overline{\text{WE}}$ ) signal must always go low before  $\overline{\text{CAS}}$  in a write cycle, Read-Write and Read-Modify-Write operation is not possible.

### FEATURES

- 4,194,304 x 8 bit organization
- Optional 30 Pad leadless SIM (Single In-Line Module) or 30 Pin leaded SIP (Single In-Line Package)
- JEDEC standard pinout
- Each device has common D and Q lines with common  $\overline{\text{RAS}}$ ,  $\overline{\text{CAS}}$  and  $\overline{\text{WE}}$  control
- $\overline{\text{CAS}}$ -before- $\overline{\text{RAS}}$  refresh
- Power
  - 4.40 Watt Max Active (80 nSEC)
  - 3.75 Watt Max Active (100 nSEC)
  - 44 mW Max Standby



- Operating free air temperature 0°C to 70°C
- Upward compatible with AK5816384
- Downward compatible with AK58256 and AK581024

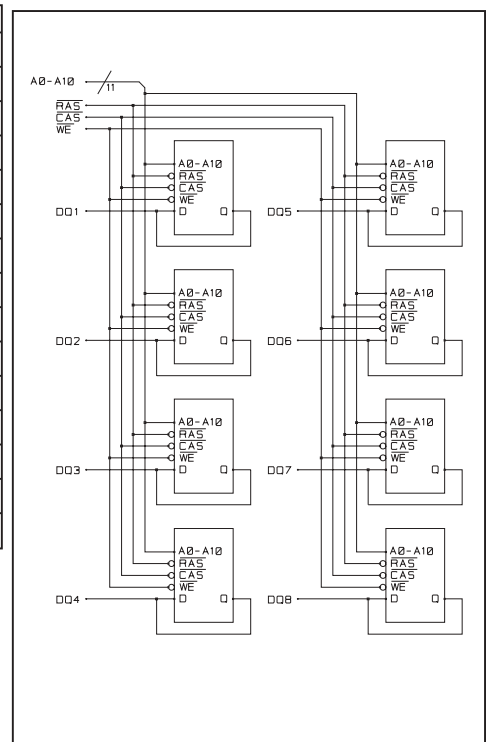
### PIN NOMENCLATURE

DQ <sub>1</sub> - DQ <sub>8</sub>	Data In / Data Out
A <sub>0</sub> - A <sub>10</sub>	Address Inputs
$\overline{\text{CAS}}$	Column Address Strobe
$\overline{\text{RAS}}$	Row Address Strobe
$\overline{\text{WE}}$	Write Enable
V <sub>cc</sub>	5v Supply
V <sub>ss</sub>	Ground
NC	No Connect

### PIN ASSIGNMENT

PIN #	SYMBOL	PIN #	SYMBOL
1	V <sub>cc</sub>	16	DQ <sub>5</sub>
2	CAS	17	A <sub>8</sub>
3	DQ <sub>1</sub>	18	A <sub>9</sub>
4	A <sub>0</sub>	19	A <sub>10</sub>
5	A <sub>1</sub>	20	DQ <sub>6</sub>
6	DQ <sub>2</sub>	21	$\overline{\text{WE}}$
7	A <sub>2</sub>	22	V <sub>ss</sub>
8	A <sub>3</sub>	23	DQ <sub>7</sub>
9	V <sub>ss</sub>	24	NC
10	DQ <sub>3</sub>	25	DQ <sub>8</sub>
11	A <sub>4</sub>	26	NC
12	A <sub>5</sub>	27	RAS
13	DQ <sub>4</sub>	28	NC
14	A <sub>6</sub>	29	NC
15	A <sub>7</sub>	30	V <sub>cc</sub>

### FUNCTIONAL DIAGRAM



### MODULE OPTIONS

Leadless SIM: AK584096AS

Leaded SIP: AK584096AG

## ORDERING INFORMATION

### PART NUMBER CODING INTERPRETATION

Position	1	2	3	4	5	6	7	8
<b>1 Product</b>	<b>AK = Accuthek Memory</b>							
<b>2 Type</b>	4 = Dynamic RAM 5 = CMOS Dynamic RAM 6 = Static RAM							
<b>3 Organization/Word Width</b>	1 = by 1    16 = by 16 4 = by 4    32 = by 32 8 = by 8    36 = by 36 9 = by 9							
<b>4 Size/Bits Depth</b>	64 = 64K    4096 = 4 MEG 256 = 256K    8192 = 8 MEG 1024 = 1 MEG    16384 = 16 MEG							
<b>5 Package Type</b>	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)							
<b>6 Special Designation</b>	P = Page Mode N = Nibble Mode K = Static Column Mode W = Write Per Bit Mode V = Video Ram							
<b>7 Separator</b>	- = 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							
<b>8 Speed (first two significant digits)</b>	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						

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:

#### AK584096ASP-80

4 Meg x 8, 80 nSEC DRAM 30 pin SIM Configuration, Page Mode

#### AK584096AGN-70

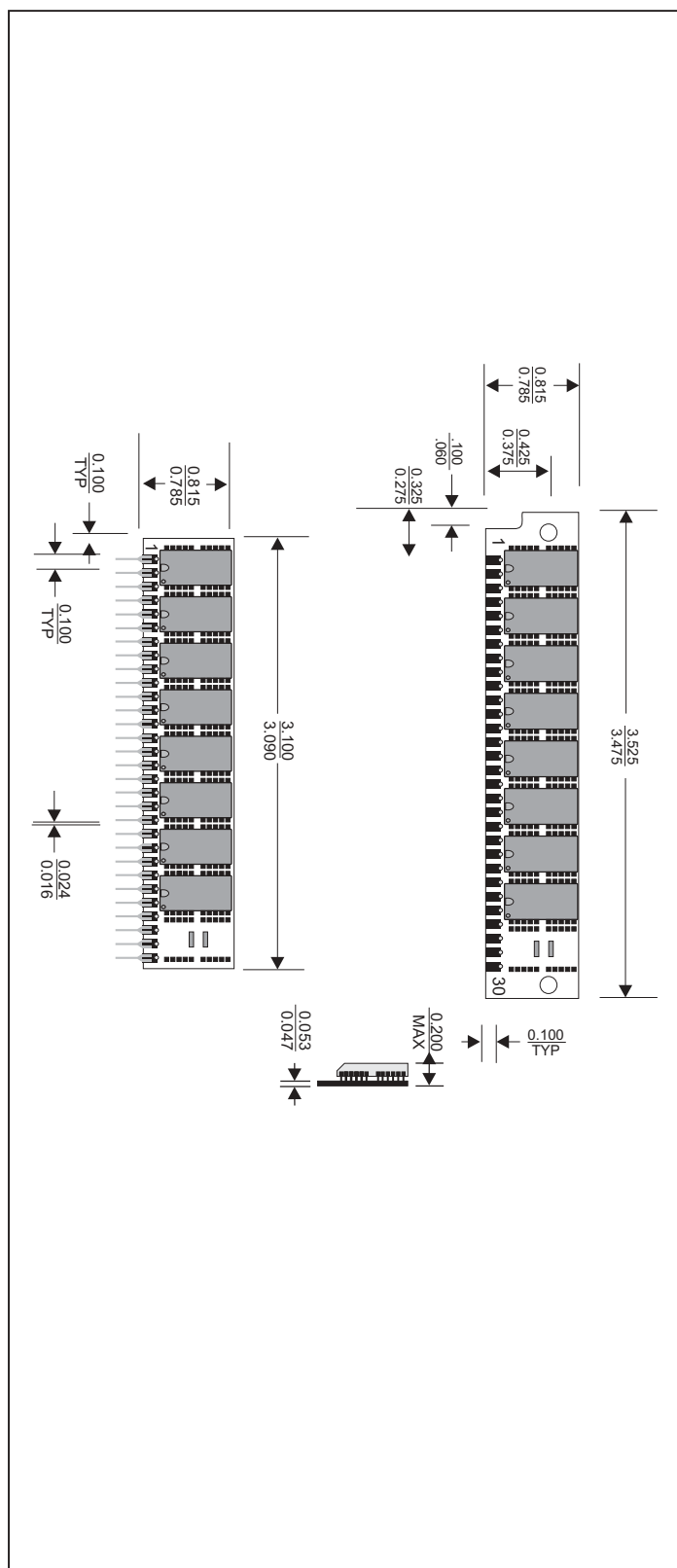
4 Meg x 8, 70 nSEC Dram 30 pin SIP Configuration, Nibble Mode



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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.