



# AK5816384S / AK5816384G 16,777,216 Word by 8 Bit CMOS Dynamic Random Access Memory

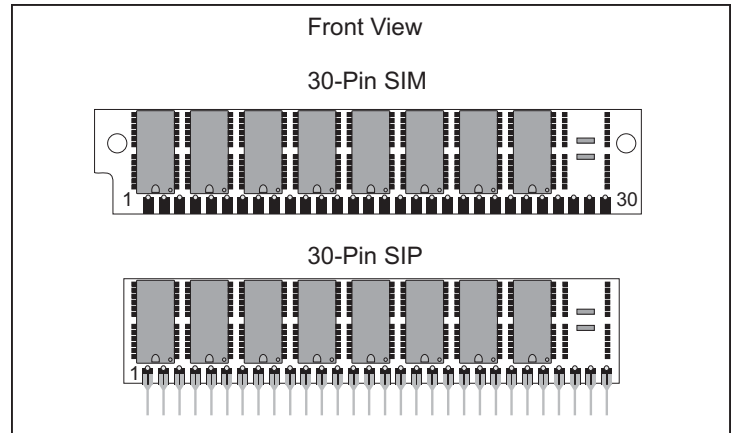
## DESCRIPTION

The Accutek AK5816384 high density memory module is a CMOS DRAM organized in 16 Meg x 8 bit words. The assembly consists of eight 16 Meg x 1 DRAMs in plastic SOJ packages mounted to the front side of a printed circuit board in 30 pad SIM (leadless) or SIP (leadless) configuration. The module is only 0.8 inch high (same height as standard 1 Meg modules), making it ideally suited for applications with low height restrictions.

The operation of the AK5816384 is identical to eight 16 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

- 16,777,216 x 8 bit organization
- Optional 30 Pad leadless SIM (Single In-Line Module) or 30 Pin leadless SIP (Single In-Line Package)
- JEDEC standard pinout
- Each device (data bit) has common DQ lines with common  $\overline{\text{CAS}}$  and  $\overline{\text{RAS}}$  controls
- $\overline{\text{CAS}}$ -before- $\overline{\text{RAS}}$  refresh
- Downward compatible with AK584096, AK581024/481024, AK58256/48256
- TTL-Compatible Inputs and Outputs
- $\overline{\text{RAS}}$ -Only Refresh
- 4096 Cycle Refresh every 64mSEC
- Power:  
3.96 Watt Max Active (60 nS)  
4.40 Watt Max Active (70 nS)  
3.52 Watt Max Active (80 nS)  
44 mWatt Max Standby
- Operating free air temperature 0°C to 70°C
- Fast Page Mode
- 9 Bit version (with parity bit) also available



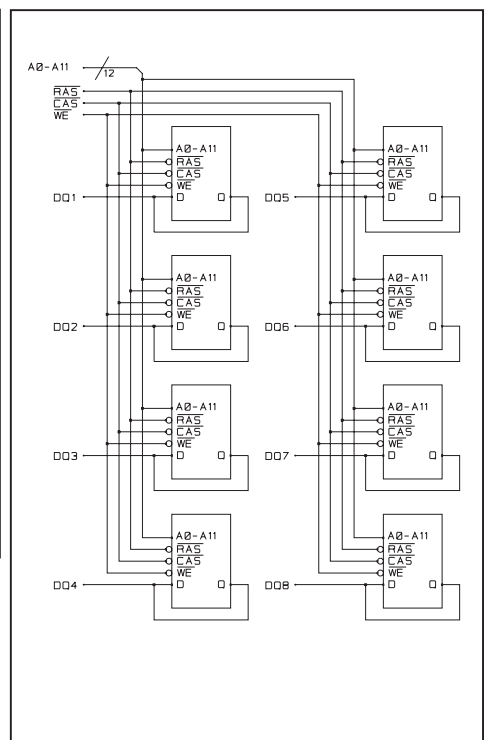
## PIN NOMENCLATURE

DQ <sub>1</sub> - DQ <sub>8</sub>	Data In/Data Out
A <sub>0</sub> - A <sub>11</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	$\overline{\text{CAS}}$	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	A <sub>11</sub>
10	DQ <sub>3</sub>	25	DQ <sub>8</sub>
11	A <sub>4</sub>	26	NC
12	A <sub>5</sub>	27	$\overline{\text{RAS}}$
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: AK5816384S
Leaded SIP: AK5816384G

## ORDERING INFORMATION

## PART NUMBER CODING INTERPRETATION

Position	1	2	3	4	5	6	7	8
<b>1 Product</b>								
	<b>AK = Accutek 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>								
	<b>G = Single In-Line Package (SIP)</b>							
	<b>S = Single In-Line Module (SIM)</b>							
	<b>D = Dual In-Line Package (DIP)</b>							
	<b>W = .050 inch Pitch Edge Connect</b>							
	<b>Z = Zig-Zag In-Line Package (ZIP)</b>							
<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			
	60 = 60 nS		8 = 8 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 shown as examples of the most widely used variations. Contact Accutek if other information is required.

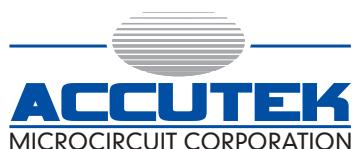
## EXAMPLES:

### AK5816384SP-70

16 Meg x 8, 70 nSEC, Leadless SIM, Fast Page Mode

### AK5816384GP-60

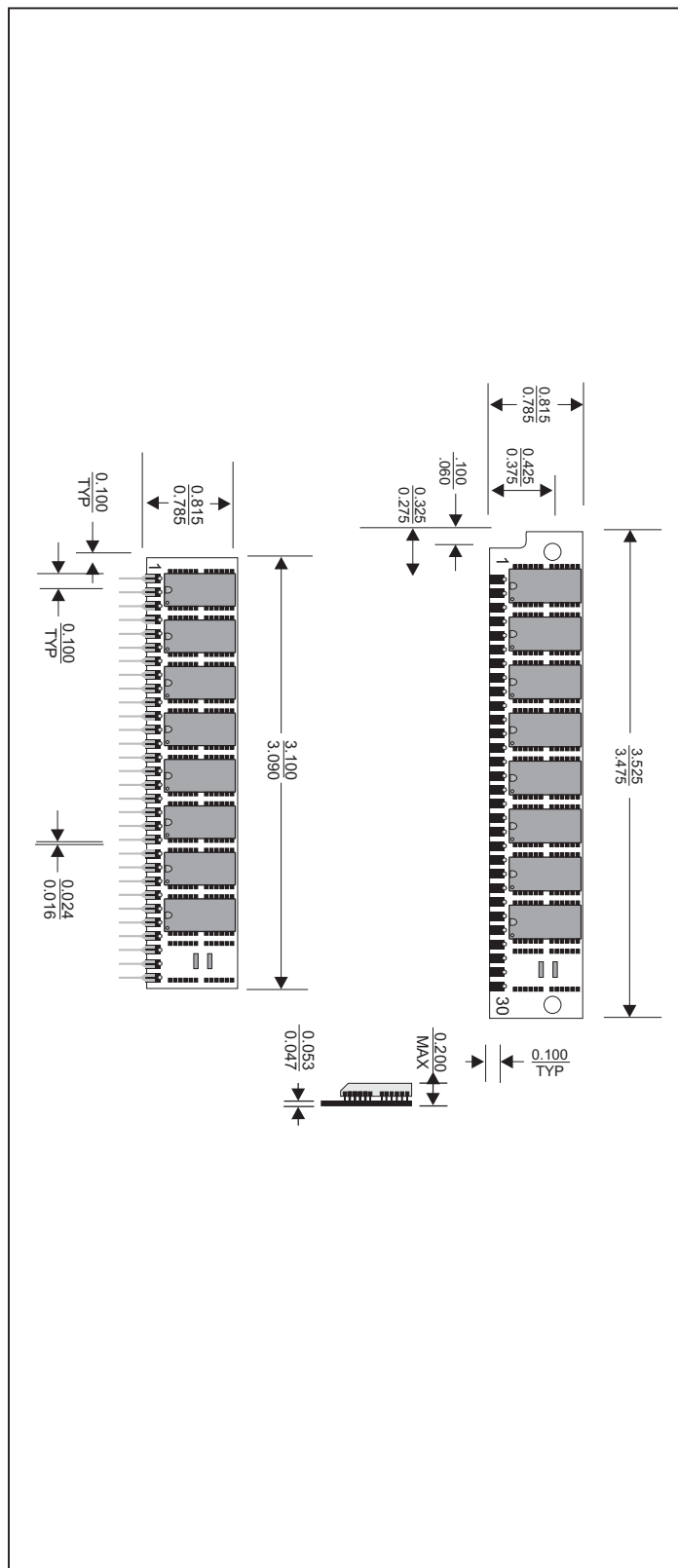
16 Meg x 8, 60 nSEC, Leaded SIP, Fast Page Mode



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## MECHANICAL DIMENSIONS

Inches



Accutek reserves the right to make changes in specifications at any time and without notice. Accutek 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.