

# AK5322048BW

## 2,097,152 Word by 32 Bit CMOS

### Dynamic Random Access Memory

#### DESCRIPTION

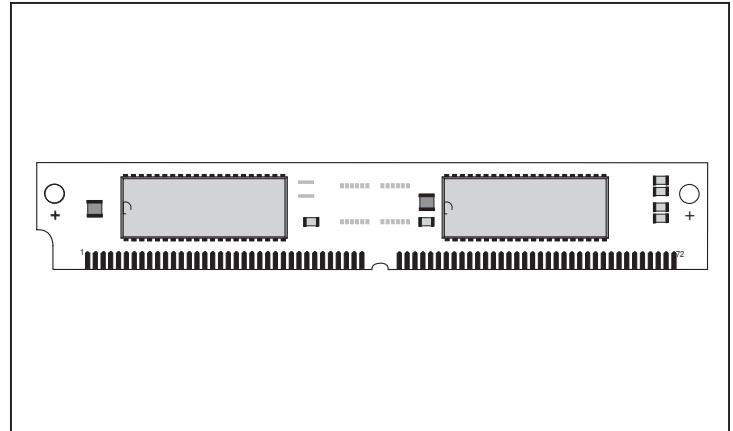
The Accutek AK5322048BW high density memory module is a CMOS dynamic RAM organized in 2048K x 32 bit words. The module consists of four standard 1 Meg x 16 bits DRAMs in plastic SOJ packages. The assembly has two DRAMs mounted on each side of a printed circuit board in a 72 pad leadless SIM configuration.

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 AK5322048BW is identical to sixteen 1 Meg x 4 DRAMs. There are four  $\overline{\text{CAS}}$  lines and two  $\overline{\text{RAS}}$  lines. On each bank of 1M x 32, independent byte control is accomplished by four  $\overline{\text{CAS}}$  lines. Each separate  $\overline{\text{CAS}}$  line controls one byte of the 1 Meg x 16 DRAM.

#### FEATURES

- 2,097,152 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
- 1024 Refresh Cycles, 16 mSEC
- Available in Fast Page Mode or EDO



- Power:
  - 3.96 Watt Max Active (50nS)
  - 3.52 Watt Max Active (60 nS)
  - 3.08 Watt Max Active (70 nS)
  - 44 mW Max Standby
- Downward compatible with AK5321024W, AK532512W and AK532256W
- Upward compatible with AK5324096W and AK5328192W

#### ADDITIONAL OPTIONS AVAILABLE

- 1 Meg x 32 version, AK5321024BW
- 1 Meg x 36 version, AK5361024BW
- 2 Meg x 36 version, AK5362048BW

#### PIN NOMENCLATURE

|   |                       |
|---|-----------------------|
| A <sub>0</sub> - A <sub>9</sub>                       | Address Inputs        |
| DQ <sub>0</sub> - DQ <sub>35</sub>                    | Data In/Data Out      |
| $\overline{\text{WE}}$                                | Write Enable          |
| $\overline{\text{RAS}}_0$ - $\overline{\text{RAS}}_3$ | Row Address Strobe    |
| $\overline{\text{CAS}}_0$ - $\overline{\text{CAS}}_3$ | Column Address Strobe |
| PD <sub>1</sub> - PD <sub>4</sub>                     | Presence Detect       |
| V <sub>ss</sub>                                       | Ground                |
| V <sub>cc</sub>                                       | 5v Supply             |
| NC  | No Connect            |

#### MODULE OPTIONS

Leadless SIM: AK5322048BW

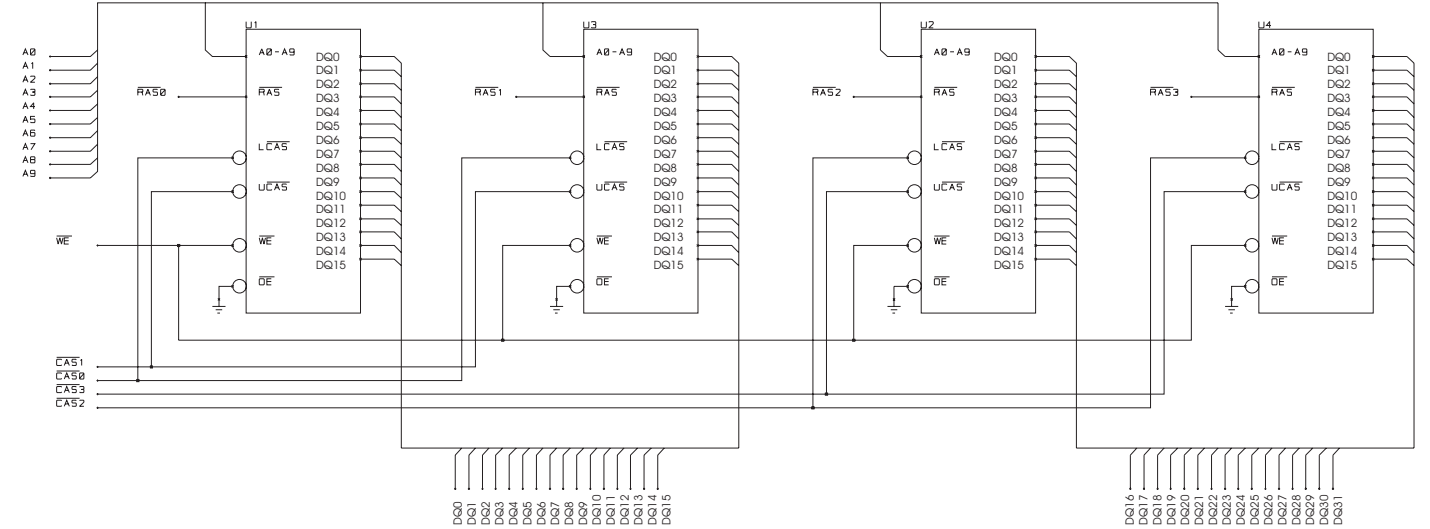
#### PIN ASSIGNMENT

| PIN # | SYMBOL          | PIN # | SYMBOL                    | PIN # | SYMBOL                    | PIN # | SYMBOL          |
|-------|-----------------|-------|---------------------------|-------|---------------------------|-------|-----------------|
| 1     | V <sub>ss</sub> | 19    | NC                        | 37    | NC                        | 55    | DQ11            |
| 2     | DQ0             | 20    | DQ4                       | 38    | NC                        | 56    | DQ27            |
| 3     | DQ16            | 21    | DQ20                      | 39    | V <sub>ss</sub>           | 57    | DQ12            |
| 4     | DQ1             | 22    | DQ5                       | 40    | $\overline{\text{CAS}}_0$ | 58    | DQ28            |
| 5     | DQ17            | 23    | DQ21                      | 41    | $\overline{\text{CAS}}_2$ | 59    | V <sub>cc</sub> |
| 6     | DQ2             | 24    | DQ6                       | 42    | $\overline{\text{CAS}}_3$ | 60    | DQ29            |
| 7     | DQ18            | 25    | DQ22                      | 43    | $\overline{\text{CAS}}_1$ | 61    | DQ13            |
| 8     | DQ3             | 26    | DQ7                       | 44    | $\overline{\text{RAS}}_0$ | 62    | DQ30            |
| 9     | DQ19            | 27    | DQ23                      | 45    | $\overline{\text{RAS}}_1$ | 63    | DQ14            |
| 10    | V <sub>cc</sub> | 28    | A7                        | 46    | NC                        | 64    | DQ31            |
| 11    | NC              | 29    | NC                        | 47    | $\overline{\text{WE}}$    | 65    | DQ15            |
| 12    | A0              | 30    | V <sub>cc</sub>           | 48    | NC                        | 66    | NC              |
| 13    | A1              | 31    | A8                        | 49    | DQ8                       | 67    | PD1             |
| 14    | A2              | 32    | A9                        | 50    | DQ24                      | 68    | PD1             |
| 15    | A3              | 33    | $\overline{\text{RAS}}_3$ | 51    | DQ9                       | 69    | PD3             |
| 16    | A4              | 34    | $\overline{\text{RAS}}_2$ | 52    | DQ25                      | 70    | PD4             |
| 17    | A5              | 35    | NC                        | 53    | DQ10                      | 71    | NC              |
| 18    | A6              | 36    | NC                        | 54    | DQ26                      | 72    | V <sub>ss</sub> |

#### Presence Detect

|     | -50             | -60 | -70             |
|-----|-----------------|-----|-----------------|
| PD1 | NC              | NC  | NC              |
| PD2 | VC              | NC  | NC              |
| PD3 | V <sub>ss</sub> | NC  | V <sub>ss</sub> |
| PD4 | V <sub>ss</sub> | NC  | NC              |

# FUNCTIONAL DIAGRAM



# MECHANICAL DIMENSIONS

