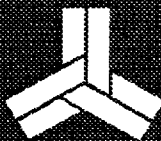


# High-Performance 256/512/1024 KByte SRAM Module



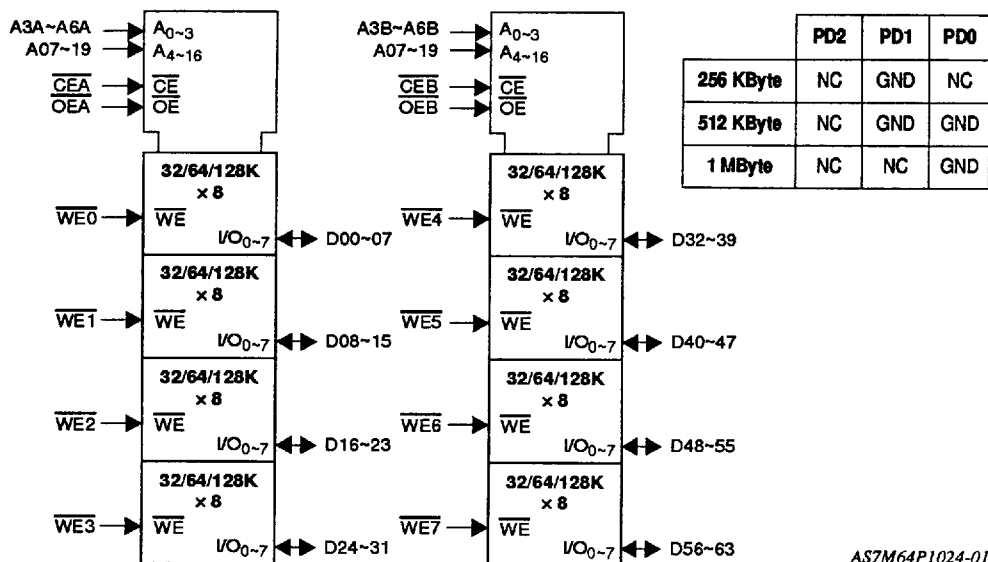
AS7M64P256  
AS7M64P512  
AS7M64P1024

## 256/512/1024 KByte Asynchronous SRAM Module

### FEATURES

- Pentium™-ready 64-bit datapath
  - AS7M64P256: 32K words × 64 bits
  - AS7M64P512: 64K words × 64 bits
  - AS7M64P1024: 128K words × 64 bits
- High speed
  - 10/12/15/20 ns access time
  - 75/66/60/50 MHz system frequency
- Low power
  - Active: 5.28W max (AS7M64P1024-15)
  - CMOS standby: 440 mW max
- 80-pin dual-readout DIMM
  - Same pinout for 256/512/1024KB
  - Burst-mode control signals
  - No motherboard jumpers required
  - Small footprint: less than 1.5 in<sup>2</sup>
- Single 5V Power Supply
- High-quality 4-layer PCB
- Compatible with Burndy CELP socket

### LOGIC BLOCK DIAGRAM



### SELECTION GUIDE

|                          | 7M64P256 |     |     |     | 7M64P512 |     | 7M64P1024 |     | Unit |
|--------------------------|----------|-----|-----|-----|----------|-----|-----------|-----|------|
|                          | -10      | -12 | -15 | -20 | -15      | -20 | -15       | -20 |      |
| Max address access time  | 10       | 12  | 15  | 20  | 15       | 20  | 15        | 20  | ns   |
| Max operating current    | 960      | 920 | 880 | 800 | 920      | 840 | 960       | 880 | mA   |
| Max CMOS standby current | 16       | 16  | 16  | 16  | 40       | 40  | 80        | 80  | mA   |

### PIN ARRANGEMENT

|         |     |    |         |
|---------|-----|----|---------|
| GND     | 81  | 1  | GND     |
| D63     | 82  | 2  | D62     |
| VCC5    | 83  | 3  | [VCC3]  |
| D61     | 84  | 4  | D60     |
| VCC5    | 85  | 5  | [VCC3]  |
| D59     | 86  | 6  | D58     |
| D57     | 87  | 7  | D56     |
| GND     | 88  | 8  | GND     |
| [P7]    | 89  | 9  | [P6]    |
| D55     | 90  | 10 | D54     |
| D53     | 91  | 11 | D52     |
| D51     | 92  | 12 | D50     |
| GND     | 93  | 13 | GND     |
| D49     | 94  | 14 | D48     |
| D47     | 95  | 15 | D46     |
| D45     | 96  | 16 | D44     |
| D43     | 97  | 17 | D42     |
| GND     | 98  | 18 | GND     |
| D41     | 99  | 19 | D40     |
| [P5]    | 100 | 20 | [P4]    |
| D39     | 101 | 21 | D38     |
| D37     | 102 | 22 | D36     |
| D35     | 103 | 23 | D34     |
| GND     | 104 | 24 | GND     |
| D33     | 105 | 25 | D32     |
| D31     | 106 | 26 | D30     |
| D29     | 107 | 27 | D28     |
| D27     | 108 | 28 | D26     |
| D25     | 109 | 29 | D24     |
| GND     | 110 | 30 | GND     |
| [P3]    | 111 | 31 | [P2]    |
| D23     | 112 | 32 | D22     |
| D21     | 113 | 33 | D20     |
| VCC5    | 114 | 34 | [VCC3]  |
| D19     | 115 | 35 | D18     |
| GND     | 116 | 36 | GND     |
| D17     | 117 | 37 | D16     |
| VCC5    | 118 | 38 | [VCC3]  |
| D15     | 119 | 39 | D14     |
| D13     | 120 | 40 | D12     |
| GND     | 121 | 41 | GND     |
| D11     | 122 | 42 | D10     |
| VCC5    | 123 | 43 | [VCC3]  |
| D09     | 124 | 44 | D08     |
| [P1]    | 125 | 45 | [P0]    |
| VCC5    | 126 | 46 | [VCC3]  |
| D07     | 127 | 47 | D06     |
| D05     | 128 | 48 | D04     |
| D03     | 129 | 49 | D02     |
| D01     | 130 | 50 | D00     |
| GND     | 131 | 51 | GND     |
| A38     | 132 | 52 | A3A     |
| A48     | 133 | 53 | A4A     |
| A58     | 134 | 54 | A5A     |
| A68     | 135 | 55 | A6A     |
| A07     | 136 | 56 | A08     |
| GND     | 137 | 57 | GND     |
| A09     | 138 | 58 | A10     |
| A11     | 139 | 59 | A12     |
| A13     | 140 | 60 | A14     |
| A15     | 141 | 61 | A16     |
| A17     | 142 | 62 | A18     |
| GND     | 143 | 63 | GND     |
| A19     | 144 | 64 | PD0     |
| PD1     | 145 | 65 | PD2     |
| [CLK0]  | 146 | 66 | [CLK1]  |
| [CLK2]  | 147 | 67 | [CLK3]  |
| GND     | 148 | 68 | GND     |
| WE7     | 149 | 69 | WE6     |
| WE5     | 150 | 70 | WE4     |
| WE3     | 151 | 71 | WE2     |
| WE1     | 152 | 72 | WE0     |
| GND     | 153 | 73 | GND     |
| [ADSCB] | 154 | 74 | [ADSCA] |
| CEB     | 155 | 75 | CEA     |
| [ADVB]  | 156 | 76 | [ADVA]  |
| OEB     | 157 | 77 | OEA     |
| VCC5    | 158 | 78 | [VCC3]  |
| [ADSPB] | 159 | 79 | [ADSPA] |
| GND     | 160 | 80 | GND     |

AS7M64P1024-02

ALLIANCE SEMICONDUCTOR

9003449 0000140 T50



## FUNCTIONAL DESCRIPTION

The AS7M64P256, AS7M64P512 and AS7M64P1024 are three members of Alliance Semiconductor's high performance asynchronous static RAM family for Pentium™ and other advanced applications. This family provides a plug-and-play upgradeable SRAM solution for personal computer and server cache, as well as high performance DSP and embedded systems applications. Speed grades down to 10 ns are ideal for current and future system requirements.

The AS7M64P256 includes 256 KBytes of fast static memory, organized as one bank of 32K words × 64 bits. The AS7M64P512 includes 512 KBytes, organized as one bank of 64K words × 64 bits. The AS7M64P1024 provides one megabyte of storage, organized as one bank of 128K words × 64 bits.

All three modules share identical pinout specifications except for upper address bits, which are unconnected for

smaller memory sizes as appropriate, and a three-bit Presence Detect (PD) signal, for easy system configuration.

Alliance's industry-leading low power CMOS fast static RAM gives this family of modules excellent power characteristics. The modules dissipate less than 440 mW in CMOS standby mode, and less than 5.28W in operation at 100 MHz.

The 64P modules plug into an inexpensive 80 dual readout connector which occupies less than 1.5 in<sup>2</sup> of board space.

The 7M64P256, 7M64P512 and 7M64P1024 modules operate from a 5V power supply. The modules are plug-compatible with Alliance's 7M64P256 3.3V fast SRAM module. For ease of system design, 5V modules in this family draw power only from V<sub>CC</sub> pins on the left side of the connector (top view, as shown on previous page), while 3.3V modules draw power only from V<sub>CC</sub> pins on the right side of the connector.

## RECOMMENDED OPERATING CONDITIONS

(T<sub>a</sub> = 0 to +70°C)

| Parameter      | Symbol          | Min   | Typ | Max                  | Unit |
|----------------|-----------------|-------|-----|----------------------|------|
| Supply Voltage | V <sub>CC</sub> | 4.5   | 5.0 | 5.5                  | V    |
|                | GND             | 0.0   | 0.0 | 0.0                  | V    |
| Input Voltage  | V <sub>II</sub> | 2.2   | —   | V <sub>CC</sub> +1.0 | V    |
|                | V <sub>IL</sub> | -0.5* | —   | 0.8                  | V    |

\* V<sub>IL</sub> min = -3.0V for pulse width less than t<sub>RC</sub>/2.

## CAPACITANCE<sup>2</sup>

(f = 1 MHz, T<sub>a</sub> = Room Temperature, V<sub>CC</sub> = 5V)

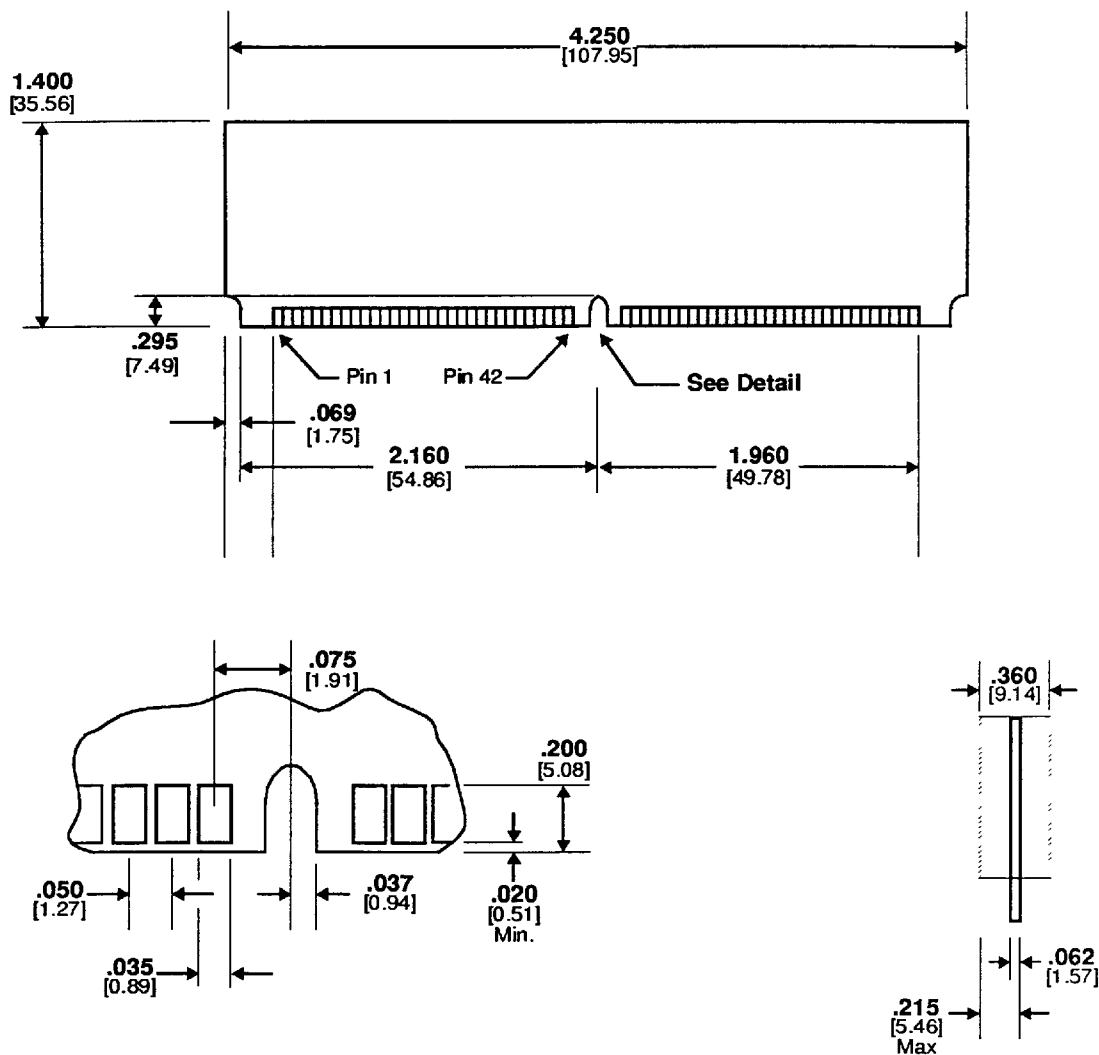
| Parameter                         | Symbol           | Signals                                                | Test Conditions                         | Max | Unit |
|-----------------------------------|------------------|--------------------------------------------------------|-----------------------------------------|-----|------|
| Input capacitance: address        | C <sub>IN8</sub> | A07~19                                                 | V <sub>in</sub> = 0V                    | 70  | pF   |
| Input capacitance: ganged control | C <sub>IN4</sub> | $\overline{\text{CE}}$ , $\overline{\text{OE}}$ , A3~6 | V <sub>in</sub> = 0V                    | 35  | pF   |
| Input capacitance: write enable   | C <sub>IN1</sub> | WE                                                     | V <sub>in</sub> = 0V                    | 10  | pF   |
| Data I/O capacitance              | C <sub>IO1</sub> | D                                                      | V <sub>in</sub> = V <sub>out</sub> = 0V | 12  | pF   |

## DC and AC PARAMETERS

Refer to latest Alliance SRAM datasheets (AS7C256, AS7C512, AS7C1024) for details.



# PHYSICAL DIMENSIONS



Dimensions in inches [millimeters].

AS7M64P1024-03

AS7M64P256  
AS7M64P512  
AS7M64P1024



## ORDERING INFORMATION

| Cache size | Address Access Time |                |                 |                 |
|------------|---------------------|----------------|-----------------|-----------------|
|            | 10 ns               | 12 ns          | 15 ns           | 20 ns           |
| 256 KBytes | AS7M64P256-10C      | AS7M64P256-12C | AS7M64P256-15C  | AS7M64P256-20C  |
| 512 KBytes | —                   | AS7M64P512-12C | AS7M64P512-15C  | AS7M64P512-20C  |
| 1 MByte    | —                   | —              | AS7M64P1024-15C | AS7M64P1024-20C |

## PART NUMBERING SYSTEM

| AS7M               | 64         | P              |                                      | XXXX                 | -XX         | C                                          |
|--------------------|------------|----------------|--------------------------------------|----------------------|-------------|--------------------------------------------|
| SRAM Module Prefix | Data width | Pentium™-ready | Blank = 5V supply<br>3 = 3.3V supply | Cache size in KBytes | Access Time | Commercial Temperature Range, 0°C to 70 °C |

## REPRESENTATIVES, DISTRIBUTORS, AND SALES OFFICES

### DOMESTIC REPS

#### ALABAMA

Concord Component  
(205) 772-8883

#### ARIZONA

Competitive Technology  
(602) 265-9224

#### ARKANSAS

Southern States Marketing  
(501) 922-0807

#### CALIFORNIA

North: Brooks Technical  
(415) 960-3880  
South: Competitive Tech.  
(714) 540-5501

#### COLORADO

Megatronix  
(303) 730-6262

#### CONNECTICUT

Kitchen & Kutchin Inc.  
(203) 239-0212

#### DELAWARE

Vantage Sales  
(609) 424-6777

#### FLORIDA

Micro-Electronic Comp.  
(305) 426-8944

#### GEORGIA

Concord Component  
(404) 416-9597

#### HAWAII

Brooks Technical  
(415) 960-3880

#### IDAHO

E<sup>2</sup>/Electronic Solutions  
(503) 292-8204

#### ILLINOIS

El-Mech  
(312) 794-9100

#### INDIANA

CC Electro Sales  
(317) 921-5000

#### KENTUCKY

CC Electro Sales  
(317) 921-5000

#### LOUISIANA

Southern States Marketing  
North: (501) 922-0807  
South: (713) 868-5780

#### MAINE

Kitchen & Kutchin Inc.  
(617) 229-2660

#### MARYLAND

Beacon North Inc.  
(703) 478-2480

#### MASSACHUSETTS

Kitchen & Kutchin Inc.  
(617) 229-2660

#### MICHIGAN

Enco Group  
(313) 338-8600

#### MINNESOTA

D. A. Case Associates  
(612) 831-6777

#### MISSISSIPPI

Concord Component  
(205) 772-8883

#### MONTANA

E<sup>2</sup>/Electronic Solutions  
(206) 637-0302

#### NEVADA

North: Brooks Technical  
(916) 965-3255  
South: Competitive Tech.  
(802) 265-9224

#### NEW HAMPSHIRE

Kitchen & Kutchin Inc.  
(617) 229-2660

#### NEW JERSEY

North: ERA Associates  
(800) 645-5500

South: Vantage Sales  
(609) 424-6777

#### NEW MEXICO

Competitive Technology  
(602) 265-9224

#### NEW YORK

NYC: ERA Associates  
(516) 543-0510

Upstate: Tri-Tech  
(716) 385-6500

#### NORTH CAROLINA

Concord Component  
(919) 846-3441

#### NORTH DAKOTA

D. A. Case Associates  
(612) 831-6777

#### OHIO

Midwest Marketing Assoc.  
Lyndhurst: (216) 381-8575  
Dayton: (513) 433-2511

#### OKLAHOMA

Southern States Marketing  
(214) 238-7500

#### OREGON

E<sup>2</sup>/Electronic Solutions  
(503) 292-8204

#### PENNSYLVANIA

East: Vantage Sales  
(609) 424-6777  
West: Midwest Marketing  
(216) 381-8575

#### RHODE ISLAND

Kitchen & Kutchin Inc.  
(617) 229-2660

#### SOUTH CAROLINA

Concord Component  
(919) 846-3441

#### SOUTH DAKOTA

D. A. Case Associates  
(612) 831-6777

#### TEXAS

Southern States Marketing  
Austin: (512) 835-5822  
Dallas: (214) 238-7500  
Houston: (713) 868-5180

#### UTAH

Charles Fields & Assoc.  
(801) 299-8228

#### VERMONT

Kitchen & Kutchin Inc.  
(617) 229-2660

#### VIRGINIA

Beacon North Inc.  
(703) 478-2480

#### WASHINGTON

E<sup>2</sup>/Electronic Solutions  
(206) 637-0302

#### WEST VIRGINIA

Beacon North Inc.  
(703) 478-2480

#### WISCONSIN

D. A. Case Associates  
(612) 831-6777

#### WYOMING

Megatronix  
(303) 730-6262

#### CANADA

Tech Trek Ltd.  
Mississauga: (905) 238-0366  
Montreal: (514) 337-7540  
Ottawa: (613) 599-8787  
Vancouver: (604) 276-8735  
Calgary: (403) 291-6866

#### EUROPE all areas

Britcomp Sales  
Surrey, England  
+44-932-347077

#### GERMANY

Eurocomp Elektronik  
Hessen, Germany  
+49-60-316-1076

#### HONG KONG

Eastele Technology  
Kowloon, Hong Kong  
+85-2-798-8860

#### INDIA

Priya Electronics, Inc.  
San Jose, CA USA  
(408) 954-1866

#### ISRAEL

Eldis Technology  
Givataim, Israel  
+972-3-571 0222

#### JAPAN

Actes Engineering  
Tokyo, Japan  
+81-337-693-029

#### KOREA

Mirai Corporation  
Seoul, Korea  
+822-704-0300

#### TDI

San Jose, CA USA  
+1-408-428-9177

#### MALAYSIA, SINGAPORE

Technology Distr. Pte Ltd  
Singapore  
+65-299-7811

#### TAIWAN

Asian Specific Tech.  
Taipei, Taiwan ROC  
+886-2-521-2363  
Puteam International  
Taipei, Taiwan ROC  
+886-2-729-0373

### DISTRIBUTORS

All-American  
Locations Nationwide  
Headquarters:  
(305) 621-8282  
Axis Components  
Sunnyvale, CA  
(408) 524-2960  
Interface Electronics  
Hopkinton, MA  
(800) 632-7792  
(508) 435-0100  
Hunter Electronic Comp.  
Maidenhead Berks, UK  
+44-628-75911

### SALES OFFICES

**HEADQUARTERS**  
Alliance Semiconductor  
San Jose, CA  
(408) 383-4900

**NORTHEAST AREA**  
Alliance Semiconductor  
Boston, MA  
(617) 239-8127

Alliance Semiconductor reserves the right to make changes in this data sheet at any time to improve design and supply the best product possible.

Alliance Semiconductor cannot assume responsibility for circuits shown or represent that they are free from patent infringement.

The Alliance logo is a trademark of Alliance Semiconductor Corporation. All other trademarks are property of their respective holders.

## ALLIANCE SEMICONDUCTOR

3099 North First Street San Jose, CA 95134

(408) 383-4900 Fax (408) 383-4999

Printed in U.S.A.

Copyright © 1994

June 1994

9003449 0000143 76T

40830