

# SIMM232S

# 638-614 TOPLESS

## 2Mx32 DRAM SIMM Low Power Memory Module

### DESCRIPTION

The TOPLESS SIMM232S is a 2M bits x 32 Dynamic RAM high density memory module. It is compatible with industry standard for 72-pin direct connector SIMM.

The SIMM232S was designed for 32-bit operating environments. The memory consists of DRAM chips mounted with COB technology. It distinguishes itself by low power dissipation.

Presence detect pins allow automatic module identification by the memory environment.

### FEATURES

- Memory capacity 8MB, organised as 2M bits x 32.
- Power supply voltage 5.0V+/- 5%, 5.0V+/- 10%
- TTL compatible inputs and outputs.
- Fast Page Mode operation.
- /RAS-only-Refresh.
- /CAS-before-/RAS-Refresh.
- Hidden Refresh.
- 1024 Refresh cycles / 16ms.
- Power dissipation max 4.4W.
- Operating temperature 0°C - 70°C.

### MODULE PARAMETERS

|             | tRAC | tCAC | tRC   |
|-------------|------|------|-------|
| SIMM232S-60 | 60nS | 15nS | 110nS |
| SIMM232S-70 | 70nS | 20nS | 130nS |

### POWER SUPPLY TOLERANCES

| VDD=5V +/- 5% | VDD=5V +/- 10% |
|---------------|----------------|
| SIMM232S-60/5 | SIMM232S-60/10 |
| SIMM232S-70/5 | SIMM232S-70/10 |

### PRESENCE DETECT PINS

|             | PD1 | PD2 | PD3 | PD4 |
|-------------|-----|-----|-----|-----|
| SIMM232S-60 | NC  | NC  | NC  | NC  |
| SIMM232S-70 | NC  | NC  | GND | NC  |

### ABSOLUTE MAXIMUM RATINGS

|                                       | MIN   | MAX                     |
|---------------------------------------|-------|-------------------------|
| VOLTAGE ON VDD SUPPLY RELATIVE TO GND | -0.5V | +6.5V                   |
| VOLTAGE ON ANY PIN RELATIVE TO GND    | -0.5V | VDD +0.6V<br>(6.5V MAX) |
| OPERATING TEMPERATURE                 | 0C    | 70C                     |
| STORAGE TEMPERATURE                   | -25C  | 125C                    |
| OPERATING POWER DISSIPATION           |       | 4.4W                    |

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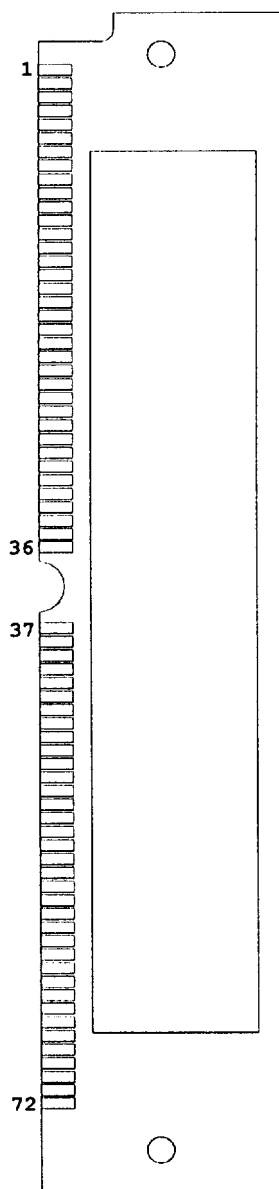
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### PIN NAMES AND FUNCTIONS

| SYMBOL        | PIN FUNCTION          |
|---------------|-----------------------|
| A0 - A9       | Address Inputs        |
| D00 - D35     | Data In/Out           |
| /WE           | Read/Write Input      |
| /RAS0 - /RAS3 | Row Address Strobe    |
| /CAS0 - /CAS3 | Column Address Strobe |
| PD1 - PD4     | Presence Detect       |
| VDD           | Power                 |
| GND           | Ground                |
| NC            | No Connection         |



### PIN CONFIGURATIONS

| PIN | SYMBOL | PIN | SYMBOL |
|-----|--------|-----|--------|
| 1   | GND    | 37  | NC     |
| 2   | D00    | 38  | NC     |
| 3   | D18    | 39  | GND    |
| 4   | D01    | 40  | /CAS0  |
| 5   | D19    | 41  | /CAS2  |
| 6   | D02    | 42  | /CAS3  |
| 7   | D20    | 43  | /CAS1  |
| 8   | D03    | 44  | /RAS0  |
| 9   | D21    | 45  | /RAS1  |
| 10  | VDD    | 46  | NC     |
| 11  | NC     | 47  | /WE    |
| 12  | A0     | 48  | NC     |
| 13  | A1     | 49  | D09    |
| 14  | A2     | 50  | D27    |
| 15  | A3     | 51  | D10    |
| 16  | A4     | 52  | D28    |
| 17  | A5     | 53  | D11    |
| 18  | A6     | 54  | D29    |
| 19  | NC     | 55  | D12    |
| 20  | D04    | 56  | D30    |
| 21  | D22    | 57  | D13    |
| 22  | D05    | 58  | D31    |
| 23  | D23    | 59  | VDD    |
| 24  | D06    | 60  | D32    |
| 25  | D24    | 61  | D14    |
| 26  | D07    | 62  | D33    |
| 27  | D25    | 63  | D15    |
| 28  | A7     | 64  | D34    |
| 29  | NC     | 65  | D16    |
| 30  | VDD    | 66  | NC     |
| 31  | A8     | 67  | PD1    |
| 32  | A9     | 68  | PD2    |
| 33  | /RAS3  | 69  | PD3    |
| 34  | /RAS2  | 70  | PD4    |
| 35  | NC     | 71  | NC     |
| 36  | NC     | 72  | GND    |