# 16Kb (2K x 8) ZEROPOWER® SRAM

**DATA BRIEFING**

- INTEGRATED ULTRA LOW POWER SRAM, POWER-FAIL CONTROL CIRCUIT and BATTERY
- UNLIMITED WRITE CYCLES
- READ CYCLE TIME EQUALS WRITE CYCLE TIME
- AUTOMATIC POWER-FAIL CHIP DESELECT and WRITE PROTECTION
- WRITE PROTECT VOLTAGES ($V_{PFD}$ = Power-fail Deselect Voltage):
  - M48Z02: $4.50V \leq V_{PFD} \leq 4.75V$
  - M48Z12: $4.20V \leq V_{PFD} \leq 4.50V$
- SELF-CONTAINED BATTERY in the CAPHAT DIP PACKAGE
- PIN and FUNCTION COMPATIBLE with JEDEC STANDARD 2K x 8 SRAMs
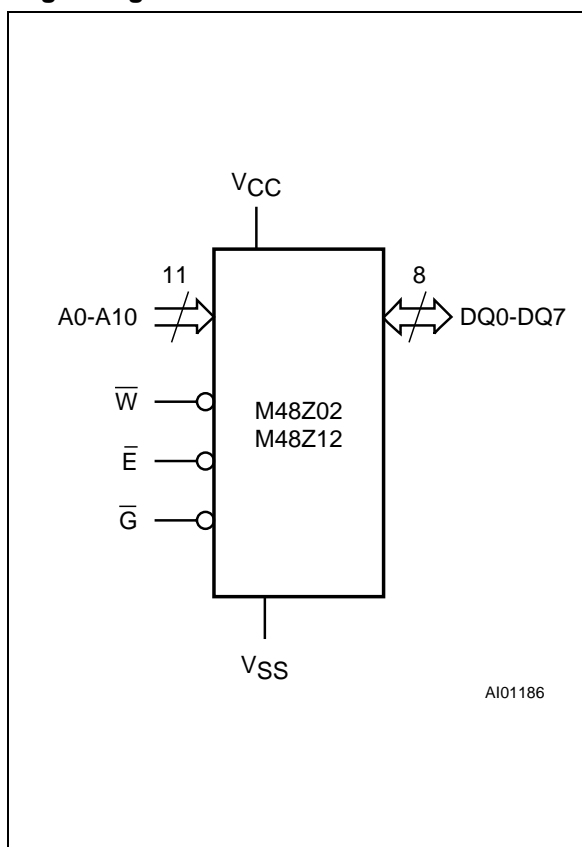


PCDIP24 (PC)
Battery CAPHAT
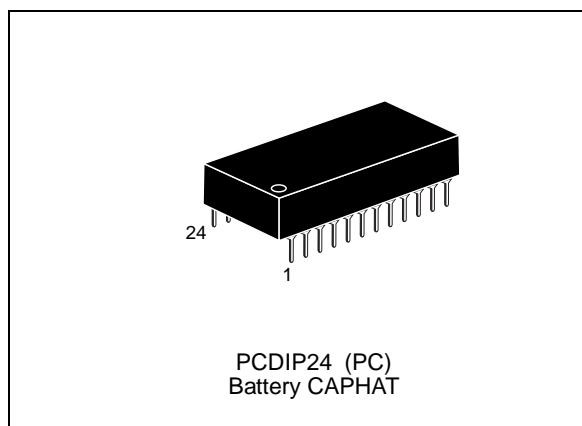
## DESCRIPTION

The M48Z02/12 ZEROPOWER® RAM is a 2K x 8 non-volatile static RAM which is pin and functional compatible with the DS1220.

A special 24 pin 600mil DIP CAPHAT™ package houses the M48Z02/12 silicon with a long life lithium button cell to form a highly integrated battery backed-up memory solution.
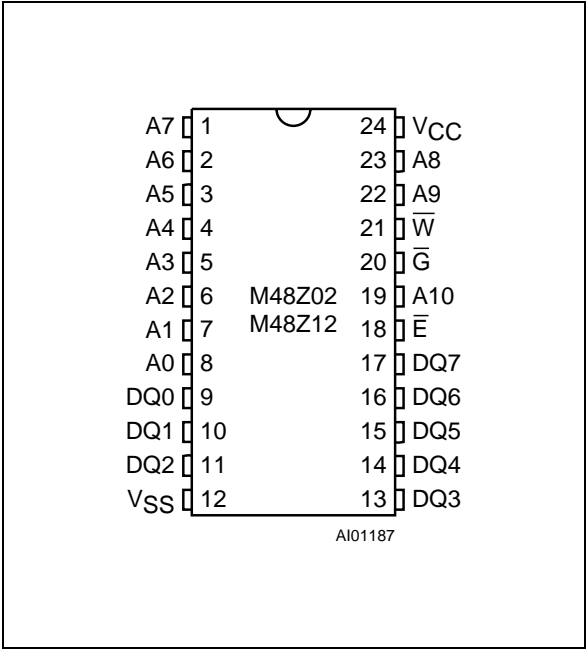
The M48Z02/12 button cell has sufficient capacity and storage life to maintain data and clock functionality for an accumulated time period of at least 10 years in the absence of power over the operating temperature range.

The M48Z02/12 is a non-volatile pin and function equivalent to any JEDEC standard 2K x 8 SRAM. It also easily fits into many ROM, EPROM, and EEPROM sockets, providing the non-volatility of PROMs without any requirement for special write timing or limitations on the number of writes that can be performed.

**Logic Diagram**



AI01186

Complete data available on *DATA-on-DISC CD-ROM* or at *www.st.com*

### DIP Pin Connections

```
            ┌───────┐
     A7 ▯ 1        24 ▯ VCC
     A6 ▯ 2        23 ▯ A8
     A5 ▯ 3        22 ▯ A9
     A4 ▯ 4        21 ▯ W̄
     A3 ▯ 5        20 ▯ Ḡ
     A2 ▯ 6  M48Z02  19 ▯ A10
     A1 ▯ 7  M48Z12  18 ▯ Ē
     A0 ▯ 8        17 ▯ DQ7
    DQ0 ▯ 9        16 ▯ DQ6
    DQ1 ▯ 10       15 ▯ DQ5
    DQ2 ▯ 11       14 ▯ DQ4
    VSS ▯ 12       13 ▯ DQ3
            └───────┘
              AI01187
```

### Signal Names

| | |
|---|---|
| A0-A10 | Address Inputs |
| DQ0-DQ7 | Data Inputs / Outputs |
| $\overline{E}$ | Chip Enable |
| $\overline{G}$ | Output Enable |
| $\overline{W}$ | Write Enable |
| $V_{CC}$ | Supply Voltage |
| $V_{SS}$ | Ground |

### Ordering Information Scheme

For a list of available options or for further information on any aspect of this device, please contact the SGS-THOMSON Sales Office nearest to you.

Example:                   M48Z02   -70   PC   1

| Supply Voltage and Write Protect Voltage | |
|---|---|
| 02 | $V_{CC}$ = 4.75V to 5.5V<br>$V_{PFD}$ = 4.5V to 4.75V |
| 12 | $V_{CC}$ = 4.75V to 5.5V<br>$V_{PFD}$ = 4.2V to 4.5V |

| Speed | |
|---|---|
| -70 | 70ns |
| -150 | 150ns |
| -200 | 200ns |

| Package | |
|---|---|
| PC | PCDIP24 |

| Temperature Range | |
|---|---|
| 1 | 0 to 70 °C |
| 6 | –40 to 85 °C |