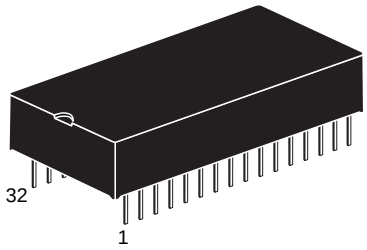
SGS-THOMSON MICROELECTRONICS

M48Z512A
M48Z512AY

4 Mb (512K x 8) ZEROPOWER® SRAM

DATA BRIEFING

- INTEGRATED LOW POWER SRAM, POWER-FAIL CONTROL CIRCUIT and BATTERY
- CONVENTIONAL SRAM OPERATION; UNLIMITED WRITE CYCLES
- 10 YEARS of DATA RETENTION in the ABSENCE of POWER
- AUTOMATIC POWER-FAIL CHIP DESELECT and WRITE PROTECTION
- WRITE PROTECT VOLTAGES (V_{PFD} = Power-fail Deselect Voltage):
  - M48Z512A: $4.50V \leq V_{PFD} \leq 4.75V$
  - M48Z512AY: $4.20V \leq V_{PFD} \leq 4.50V$
- BATTERY INTERNALLY ISOLATED UNTIL POWER IS APPLIED
- PIN and FUNCTION COMPATIBLE with JEDEC STANDARD 512K x 8 SRAMs



PMDIP32 (PM)
Module

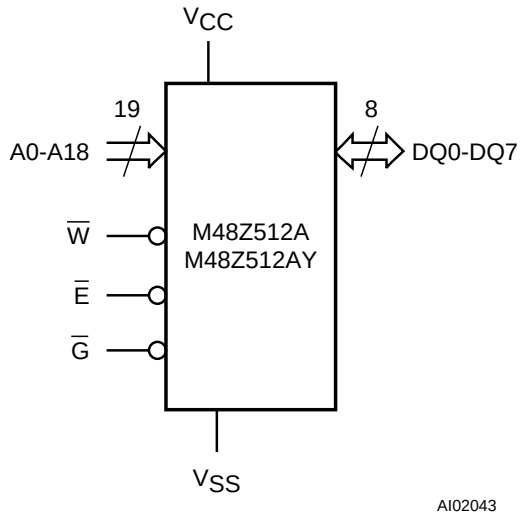
DESCRIPTION

The M48Z512A/512AY 512K x 8 ZEROPOWER® RAM is a non-volatile 4,194,304 bit Static RAM organized as 524,288 words by 8 bits. The device combines an internal lithium battery, a CMOS SRAM and a control circuit in a plastic 32 pin DIP Module.

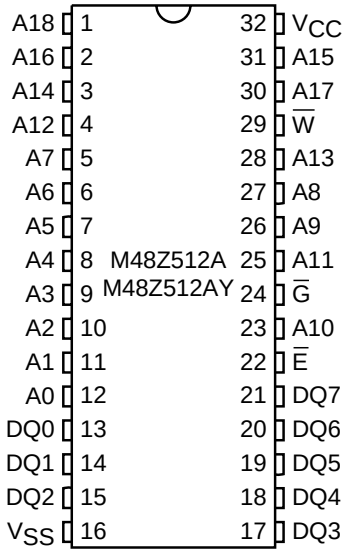
The ZEROPOWER RAM replaces industry standard SRAMs. It provides the nonvolatility of PROMs without any requirement for special write timing or limitations on the number of writes that can be performed.

The M48Z512A/512AY has its own Power-fail Detect Circuit. The control circuitry constantly monitors the single 5V supply for an out of tolerance condition. When V_{CC} is out of tolerance, the circuit write protects the SRAM, providing a high degree of data security in the midst of unpredictable system operations brought on by low V_{CC}. As V_{CC} falls below approximately 3V, the control circuitry connects the battery which sustains data until valid power returns.

Logic Diagram



DIP Pin Connections



Signal Names

A0-A18	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: M48Z512AY -85 PM 1

Supply Voltage and Write Protect Voltage

512A V_{CC} = 4.75V to 5.5V
V_{PFD} = 4.5V to 4.75V

512AY V_{CC} = 4.5V to 5.5V
V_{PFD} = 4.2V to 4.5V

Speed

-70 70ns

-85 85ns

Package

PM PMDIP32

Temperature Range

1 0 to 70 °C

9 (1) Extended Temperature

Note: 1. Contact Sales Offices for availability of Extended Temperature.