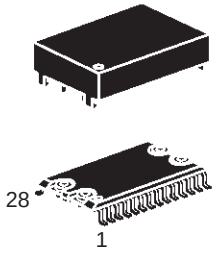
M40Z111
M40Z111W

NVRAM CONTROLLER for up to TWO LPSRAM

DATA BRIEFING

- CONVERT LOW POWER SRAMs into NVRAMs
- PRECISION POWER MONITORING and POWER SWITCHING CIRCUITRY
- AUTOMATIC WRITE-PROTECTION when V_{CC} is OUT-OF-TOLERANCE
- CHOICE of SUPPLY VOLTAGES and POWER-FAIL DESELECT VOLTAGES:
  - M40Z111:
    V_{CC} = 4.5V to 5.5V
    THS = V_{SS} 4.5V ≤ V_{PFD} ≤ 4.75V
    THS = V_{OUT} 4.2V ≤ V_{PFD} ≤ 4.5V
  - M40Z111W:
    V_{CC} = 3.0V to 3.6V
    THS = V_{SS} 2.8V ≤ V_{PFD} ≤ 3.0V
    V_{CC} = 2.7V to 3.3V
    THS = V_{OUT} 2.5 ≤ V_{PFD} ≤ 2.7V
- LESS THAN 15ns CHIP ENABLE ACCESS PROPAGATION DELAY (for 5.0V device)
- PACKAGING INCLUDES a 28-LEAD SOIC and SNAPHAT® TOP (to be Ordered Separately)
- SOIC PACKAGE PROVIDES DIRECT CONNECTION for a SNAPHAT TOP which CONTAINS the BATTERY

SNAPHAT (SH)
Battery



SOH28 (MH)

DESCRIPTION

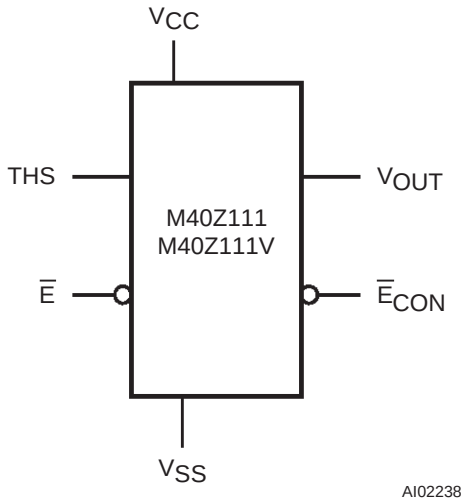
The M40Z111/111W NVRAM Controller is a self-contained device which converts a standard low-power SRAM into a non-volatile memory.

A precision voltage reference and comparator monitors the V_{CC} input for an out-of-tolerance condition. When an invalid V_{CC} condition occurs, the conditioned chip enable ($\overline{E}_{CON}$) output is forced inactive to write-protect the stored data in the SRAM.

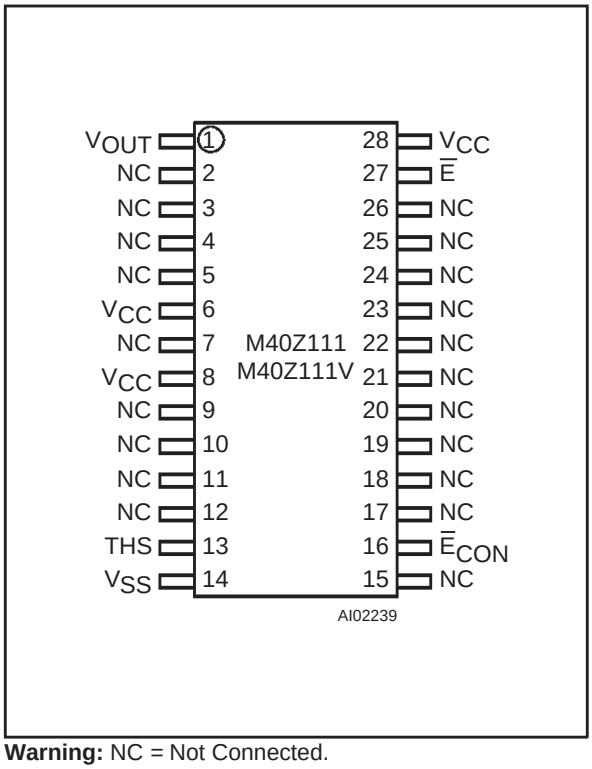
During a power failure, the SRAM is switched from the V_{CC} pin to the lithium cell within the SNAPHAT to provide the energy required for data retention. On a subsequent power-up, the SRAM remains write protected until a valid power condition returns.

The 28 pin 330mil SOIC provides sockets with gold plated contacts at both ends for direct connection to a separate SNAPHAT housing containing the battery.

Logic Diagram



SOIC Pin Connections



Warning: NC = Not Connected.

Signal Names

THS	Threshold Select Input
$\overline{E}$	Chip Enable Input
$\overline{E}_{CON}$	Conditioned Chip Enable Output
V_{OUT}	Supply Voltage Output
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 ST Microelectronics Sales Office nearest to you.

Example: M40Z111W MH 1 TR

Supply Voltage and Write Protect Voltage

111 V_{CC} = 4.5V to 5.5V
THS = V_{SS} 4.5V ≤ V_{PFD} ≤ 4.75V
THS = V_{OUT} 4.2V ≤ V_{PFD} ≤ 4.5V

111W V_{CC} = 3.0V to 3.6V
THS = V_{SS} 2.8V ≤ V_{PFD} ≤ 3.0V
V_{CC} = 2.7V to 3.3V
THS = V_{OUT} 2.5 ≤ V_{PFD} ≤ 2.7V

Package

MH (1) SOH28

Temperature Range

1 0 to 70 °C

Shipping Method for SOIC

blank Tubes

TR Tape & Reel

Note: 1. The SOIC package (SOH28) requires the battery package (SNAPHAT) which is ordered separately under the part number "M4Zxx-BR00SH1" in plastic tube or "M4Zxx-BR00SH1TR" in Tape & Reel form.

Caution: Do not place the SNAPHAT battery package "M4Zxx-BR00SH1" in conductive foam since will drain the lithium button-cell battery.