



M40Z300 M40Z300W

NVRAM CONTROLLER for up to EIGHT LPSRAM

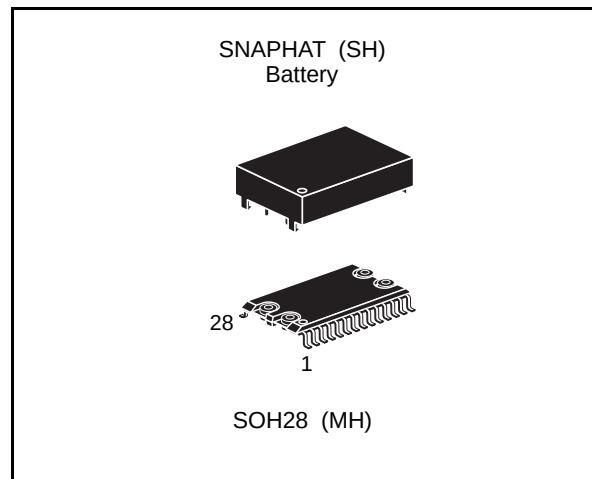
DATA BRIEFING

- CONVERT LOW POWER SRAMs into NVRAMs
- PRECISION POWER MONITORING and POWER SWITCHING CIRCUITRY
- AUTOMATIC WRITE-PROTECTION when V_{CC} is OUT-OF-TOLERANCE
- TWO INPUT DECODER ALLOWS CONTROL for up to 8 SRAMs (with 2 devices active in parallel)
- CHOICE of SUPPLY VOLTAGES and POWER-FAIL DESELECT VOLTAGES:
 - M40Z300:
 - $V_{CC} = 4.5V$ to $5.5V$
 - $THS = V_{SS}$ $4.5V \leq V_{PFD} \leq 4.75V$
 - $THS = V_{OUT}$ $4.2V \leq V_{PFD} \leq 4.5V$
 - M40Z300W:
 - $V_{CC} = 3.0V$ to $3.6V$
 - $THS = V_{SS}$ $2.8V \leq V_{PFD} \leq 3.0V$
 - $V_{CC} = 2.7V$ to $3.3V$
 - $THS = V_{OUT}$ $2.5V \leq V_{PFD} \leq 2.7V$
- RESET OUTPUT ($\overline{RST}$) for POWER ON RESET
- LESS THAN 12ns 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
- BATTERY LOW PIN ($\overline{BL}$)

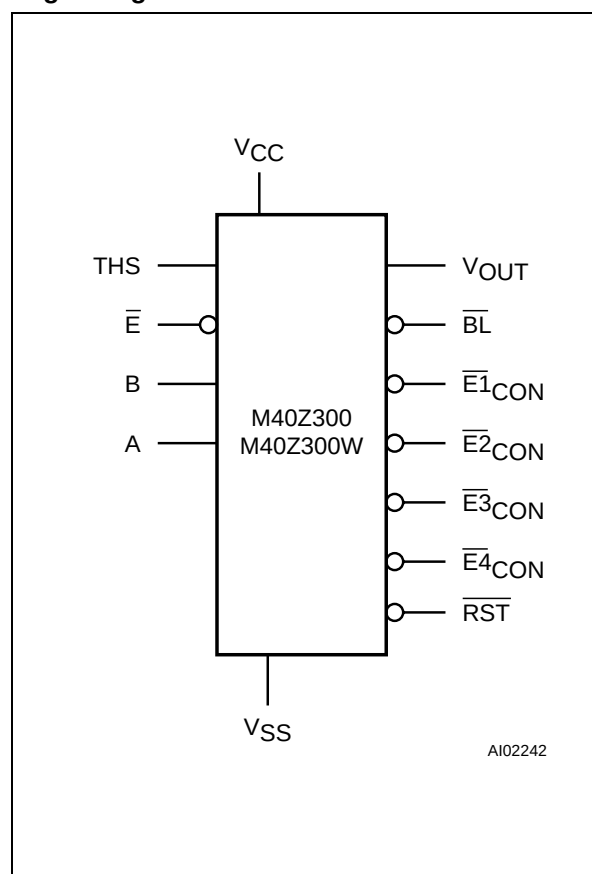
DESCRIPTION

The M40Z300/W 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.

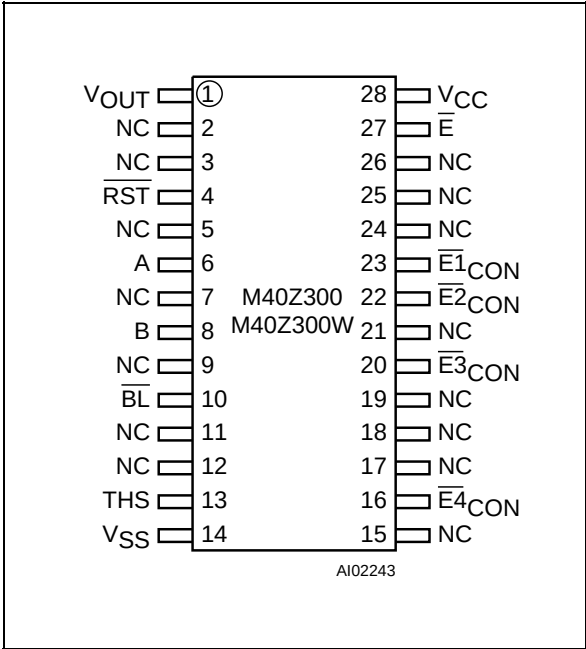
When an invalid V_{CC} condition occurs, the conditioned chip enable outputs ($\overline{E1}_{CON}$ to $\overline{E4}_{CON}$) are forced inactive to write-protect the stored data in the SRAM. During a power failure, the SRAM is switched from the V_{CC} pin to the lithium cell within the SNAPHAT to provide the energy required for data retention. On a subsequent power-up, the SRAM remains write protected until a valid power condition returns.



Logic Diagram



SOIC Pin Connections



Warning: NC = Not Connected.

Signal Names

THS	Threshold Select Input
$\overline{E}$	Chip Enable Input
$\overline{E1CON}$ - $\overline{E4CON}$	Conditioned Chip Enable Output
A, B	Decoder Inputs
$\overline{RST}$	Reset Output
$\overline{BL}$	Battery Low 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 STMicroelectronics Sales Office nearest to you.

Example: M40Z300W MH 1 TR

Supply Voltage and Write Protect Voltage	
300 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	
300W 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.