



## 16 Kbit (2Kb x8)TIMEKEEPER<sup>®</sup> SRAM

### DATA BRIEFING

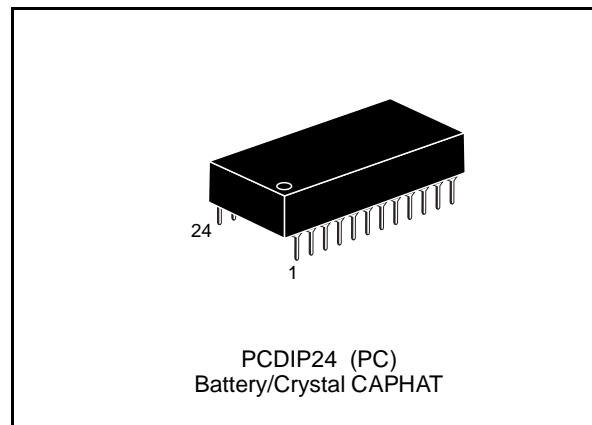
- INTEGRATED ULTRA LOW POWER SRAM, REAL TIME CLOCK and POWER-FAIL CONTROL CIRCUIT
- BYTEWIDE<sup>™</sup> RAM-LIKE CLOCK ACCESS
- BCD CODED YEAR, MONTH, DAY, DATE, HOURS, MINUTES and SECONDS
- TYPICAL CLOCK ACCURACY of  $\pm 1$  MINUTE a MONTH, @ 25°C
- SOFTWARE CONTROLLED CLOCK CALIBRATION for HIGH ACCURACY APPLICATIONS
- AUTOMATIC POWER-FAIL CHIP DESELECT and WRITE PROTECTION
- WRITE PROTECT VOLTAGES ( $V_{PFD}$  = Power-fail Deselect Voltage):
  - M48T02:  $4.5V \leq V_{PFD} \leq 4.75V$
  - M48T12:  $4.2V \leq V_{PFD} \leq 4.5V$
- SELF-CONTAINED BATTERY and CRYSTAL in the CAPHAT DIP PACKAGE
- PIN and FUNCTION COMPATIBLE with JEDEC STANDARD 2Kb x8 SRAMs

### DESCRIPTION

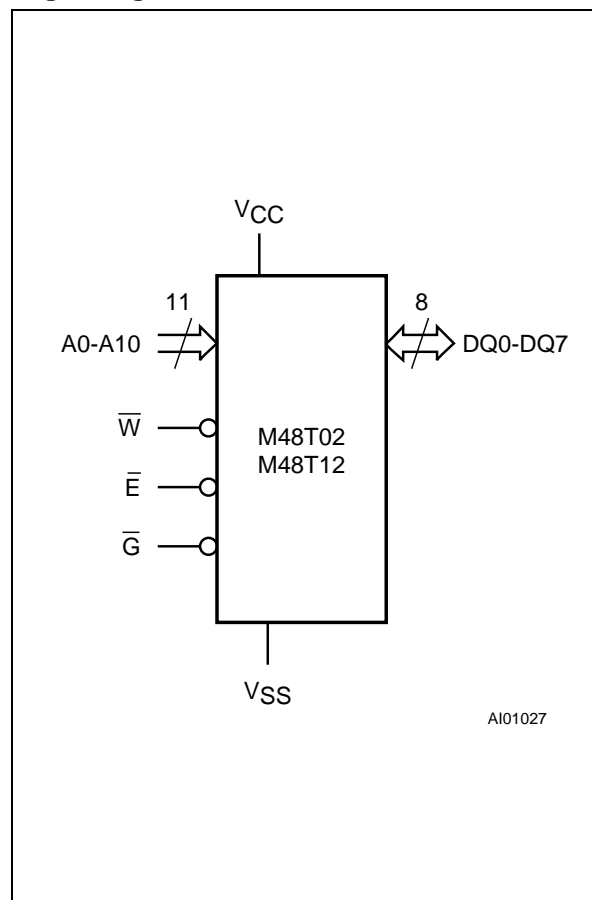
The M48T02/12 TIMEKEEPER<sup>®</sup> RAM is a 2Kb x8 non-volatile static RAM and real time clock which is pin and functional compatible with the DS1642. A special 24 pin 600mil DIP CAPHAT<sup>™</sup> package houses the M48T02/12 silicon with a quartz crystal and a long life lithium button cell to form a highly integrated battery backed-up memory and real time clock solution.

The M48T02/12 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 M48T02/12 is a non-volatile pin and function equivalent to any JEDEC standard 2Kb x8 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.

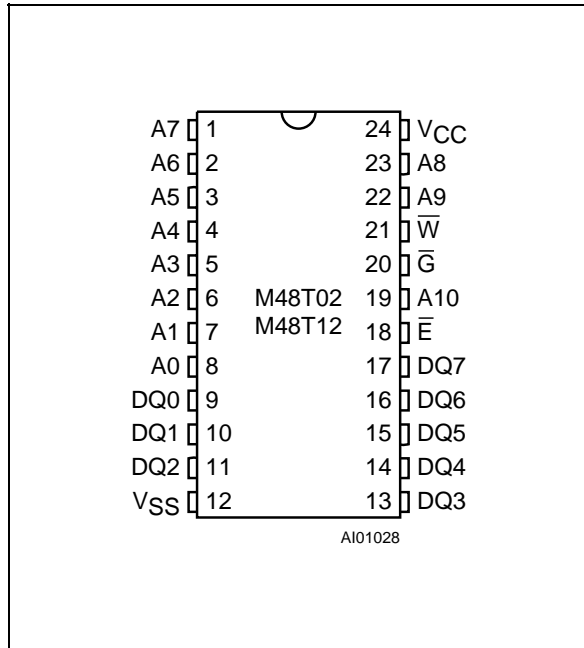


### Logic Diagram



## M48T02, M48T12

### DIP Pin Connections



### Signal Names

A0-A10	Address Inputs
DQ0-DQ7	Data Inputs / Outputs
$\bar{E}$	Chip Enable
$\bar{G}$	Output Enable
$\bar{W}$	Write Enable
V <sub>CC</sub>	Supply Voltage
V <sub>SS</sub>	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: M48T02 -70 PC 1

#### Supply Voltage and Write Protect Voltage

- 02 V<sub>CC</sub> = 4.75V to 5.5V  
V<sub>PFD</sub> = 4.5V to 4.75V
- 12 V<sub>CC</sub> = 4.5V to 5.5V  
V<sub>PFD</sub> = 4.2V to 4.5V

#### Speed

- 70 70ns
- 150 150ns
- 200 200ns

#### Package

PC PCDIP24

#### Temperature Range

- 1 0 to 70 °C