# 256 Kbit (32Kb x8) TIMEKEEPER® SRAM

DATA BRIEFING

- INTEGRATED ULTRA LOW POWER SRAM, REAL TIME CLOCK, POWER-FAIL CONTROL CIRCUIT and BATTERY
- BYTEWIDE™ RAM-LIKE CLOCK ACCESS
- BCD CODED YEAR, MONTH, DAY, DATE, HOURS, MINUTES and SECONDS
- FREQUENCY TEST OUTPUT for REAL TIME CLOCK
- AUTOMATIC POWER-FAIL CHIP DESELECT and WRITE PROTECTION
- WRITE PROTECT VOLTAGES (V_{PFD} = Power-fail Deselect Voltage):
  – M48T35: 4.5V $\leq$ V_{PFD} $\leq$ 4.75V
  – M48T35Y: 4.2V $\leq$ V_{PFD} $\leq$ 4.5V
- SELF-CONTAINED BATTERY and CRYSTAL in the CAPHAT DIP PACKAGE
- SOIC PACKAGE PROVIDES DIRECT CONNECTION for a SNAPHAT HOUSING CONTAINING the BATTERY and CRYSTAL
- SNAPHAT® HOUSING (BATTERY and CRYSTAL) is REPLACEABLE
- PIN and FUNCTION COMPATIBLE with JEDEC STANDARD 32Kb x8 SRAMs

SOH28 (MH)

SNAPHAT (SH)
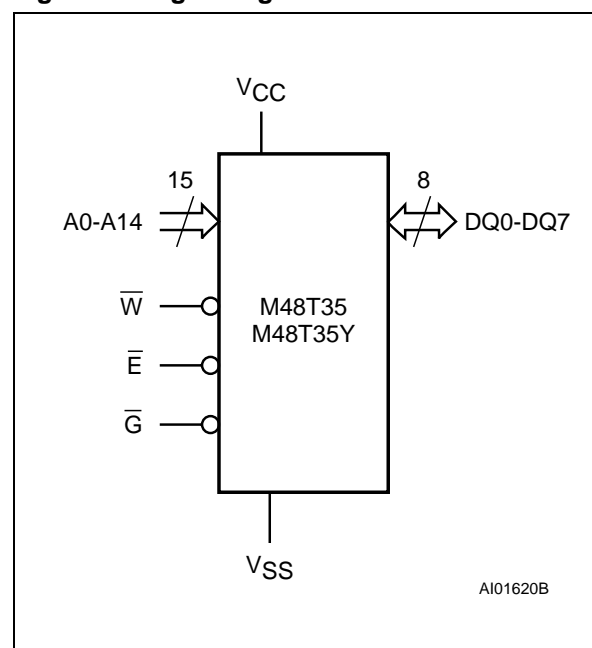Battery/Crystal

PCDIP28 (PC)
Battery/Crystal
CAPHAT
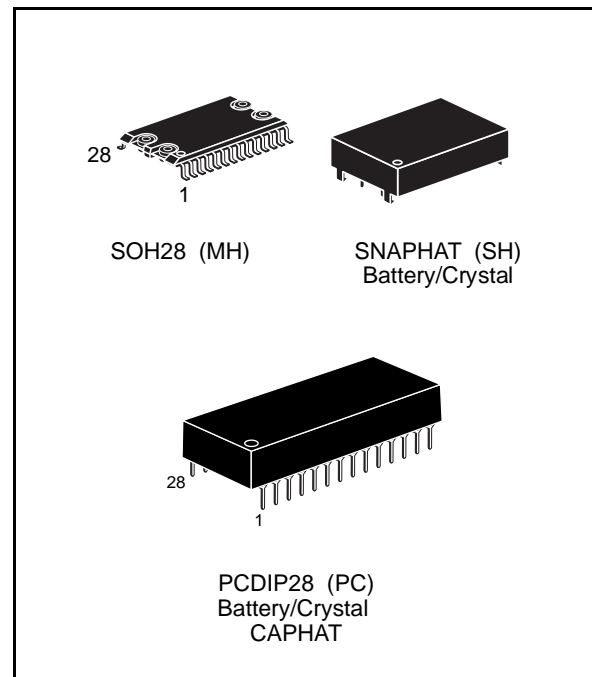
DESCRIPTION

The M48T35/35Y TIMEKEEPER® RAM is a 32Kb x8 non-volatile static RAM and real time clock. The monolithic chip is available in two special packages to provide a highly integrated battery backed-up memory and real time clock solution.

The M48T35/35Y is a non-volatile pin and function equivalent to any JEDEC standard 32Kb 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.
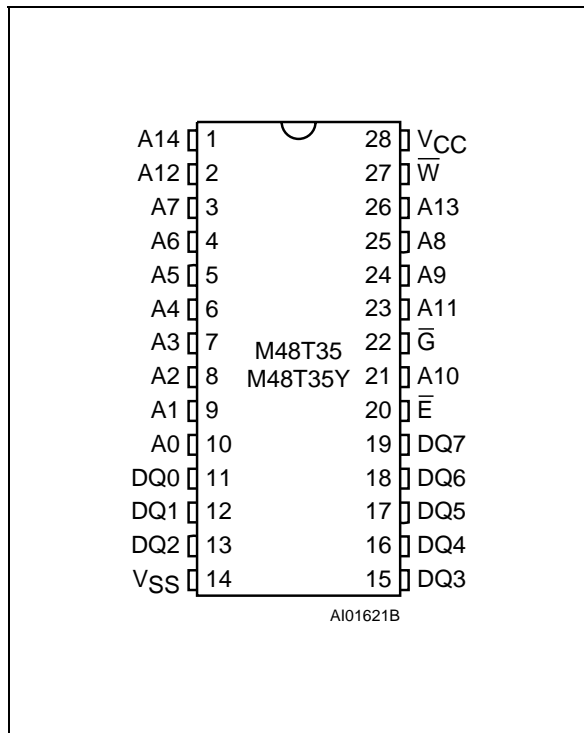
The 28 pin 600mil DIP CAPHAT™ houses the M48T35/35Y silicon with a quartz crystal and a long life lithium button cell in a single package.
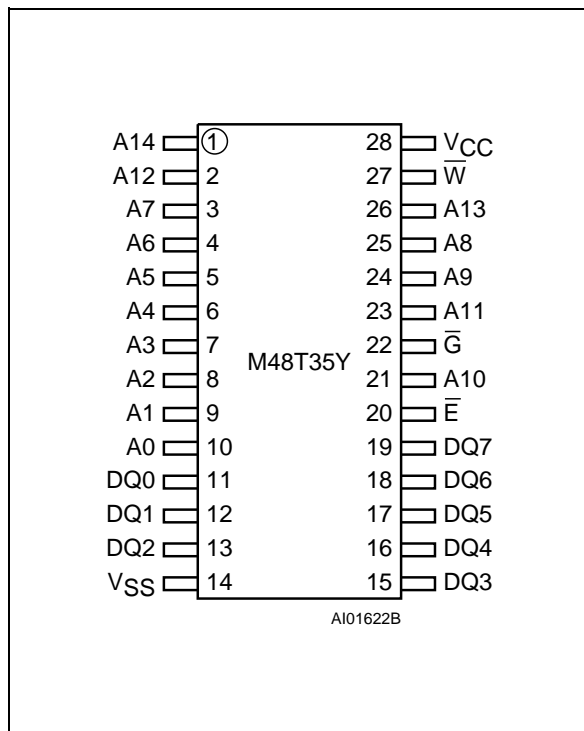
Figure 1. Logic Diagram

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DIP Pin Connections

A14	1		28	V_{CC}
A12	2		27	$\overline{W}$
A7	3		26	A13
A6	4		25	A8
A5	5		24	A9
A4	6		23	A11
A3	7	M48T35	22	$\overline{G}$
A2	8	M48T35Y	21	A10
A1	9		20	$\overline{E}$
A0	10		19	DQ7
DQ0	11		18	DQ6
DQ1	12		17	DQ5
DQ2	13		16	DQ4
V_{SS}	14		15	DQ3

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SO Pin Connections

A14	1		28	V_{CC}
A12	2		27	$\overline{W}$
A7	3		26	A13
A6	4		25	A8
A5	5		24	A9
A4	6		23	A11
A3	7	M48T35Y	22	$\overline{G}$
A2	8		21	A10
A1	9		20	$\overline{E}$
A0	10		19	DQ7
DQ0	11		18	DQ6
DQ1	12		17	DQ5
DQ2	13		16	DQ4
V_{SS}	14		15	DQ3

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Signal Names

A0-A14	Address Inputs
DQ0-DQ7	Data Inputs / Outputs
E	Chip Enable
G	Output Enable
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 STMicroelectronics Sales Office nearest to you.

Example: M48T35Y   -70   MH   1   TR

Supply Voltage and Write Protect Voltage

35 [1] V_{CC} = 4.75V to 5.5V
       V_{PFD} = 4.5V to 4.75V

35Y V_{CC} = 4.5V to 5.5V
       V_{PFD} = 4.2V to 4.5V

Speed

-70   70ns

Package

PC   PCDIP28
MH [2]   SOH28

Temp. Range

1   0 to 70 °C

Shipping Method for SOIC

blank   Tubes
TR   Tape & Reel
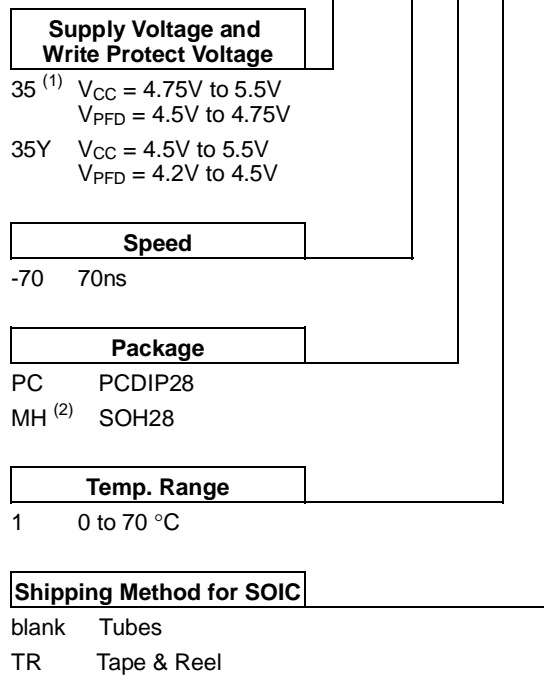
Notes: 1. The M48T35 part is offered with the PCDIP28 (i.e. CAPHAT) package only.
2. The SOIC package (SOH28) requires the battery/crystal package (SNAPHAT) which is ordered separately under the part number "M4T28-BR12SH1" in plastic tube or "M4T28-BR12SH1TR" in Tape & Reel form.

Caution: Do not place the SNAPHAT battery/crystal package "M4T28-BR12SH1" in conductive foam since this will drain the lithium button-cell battery.