![SIMTEK logo]

STK1391
CMOS nvSRAM / RTC
4K x 8 Nonvolatile Static RAM
with Real Time Clock

FEATURES

- Solid-state nonvolatile SRAM/RTC solution - no batteries required
- Ideal for metering applications
- 25, 30, 35 and 45 ns SRAM read/write access
- NOVCEL™ technology - true nonvolatile RAM
- Software or hardware controlled nonvolatile cycles
- 10 year data retention from each Store cycle
- Full-featured Real Time Clock on-chip
- RTC operates from external capacitor - typical 1 month operation from 0.47F supercap
- Internal 32.768kHz Watch Crystal
- Commercial and Industrial temperature grades
- 32-pin DIP or 400 mil SOIC package

DESCRIPTION

The Simtek STK1391 contains both a fast static RAM with nonvolatile EEPROM shadow and a monolithic real time clock. The SRAM can be read and written an unlimited number of times while independent nonvolatile data resides in EEPROM. Transfers between the EEPROM and the SRAM are controlled by either hardware or software. The real time clock information consists of an additional 64 8-bit registers. The lower 12 registers are used for time information and RTC configuration. The upper 52 registers can be used for user information and are shadowed by EEPROM. The registers are accessible through the SRAM I/O pins by asserting the CK input in conjunction with the chip select pins. Addresses A_0 - A_5 are used for register selection.
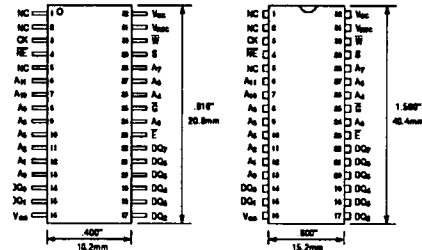
The STK1391 is designed to support long-term, unpowered operation of the RTC from a capacitor, eliminating the need for batteries. When a low power condition is detected (VCC < 4.2V) the STK1390 switches its power source to the capacitor, isolating the RTC from the SRAM.

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LOGIC BLOCK DIAGRAM
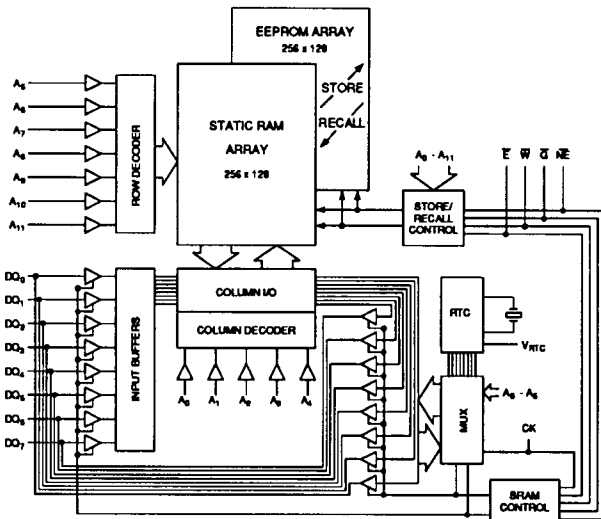
PINOUTS AND PACKAGES

Signal	Description
A_0 - A_{11}	Address Inputs
W	Write Enable
DQ_0 - DQ_7	Data In/Out
E	Chip Enable
S	Chip Select
NE	Nonvolatile Enable
G	Output Enable
CK	RTC Control
V_{CC}	Power (+5V)
V_{SS}	Ground
V_{RTC}	Capacitor Input