FM3808DK
FM3808 Development Kit

RAMTRON

Features

- 32Kx8 FRAM with self-contained on-board real-time clock
- Convenient 32-pin DIP platform for developing with FM3808
- Provides 28-pin "memory-only" footprint for easy software development
- Includes all necessary discretes
- Onboard super- (gold-) cap backs up clock functions in the absence of power
- Includes optional pins for INT output and an external backup battery

Description

The FM3808DK is a development kit for the FM3808 32Kx8 FRAM plus real-time clock. It is designed to provide simple solutions for three issues during the system development phase. They are 1) elimination of fine pitch surface mount considerations, 2) elimination of issues surrounding selection and procurement of discrete components such as the timekeeping crystal, and 3) elimination of battery backup and handling concerns. None of these issues is difficult during the system-manufacturing phase, but they can be inconvenient during system development and prototyping.

The FM3808DK provides a 600-mil 32-pin DIP footprint. Users have the option to treat it as a 28-pin DIP, which is essentially a 32Kx8 memory pin out. The 28-pin footprint matches the FM1808 or a standard SRAM. This allows software to be developed and tested without supporting clock features until the system is ready for them. The internal clock registers, which are memory mapped, can be supported as the software becomes ready.

Certain customers may decide that the FM3808DK meets their production needs better than the stand alone FM3808. As the module is primarily intended as a development kit and since the module is not encapsulated, such users should contact Ramtron to discuss their environmental and quantity needs. The FM3808DK is guaranteed over an industrial temperature range of -40°C to +85°C.

Pin Configuration
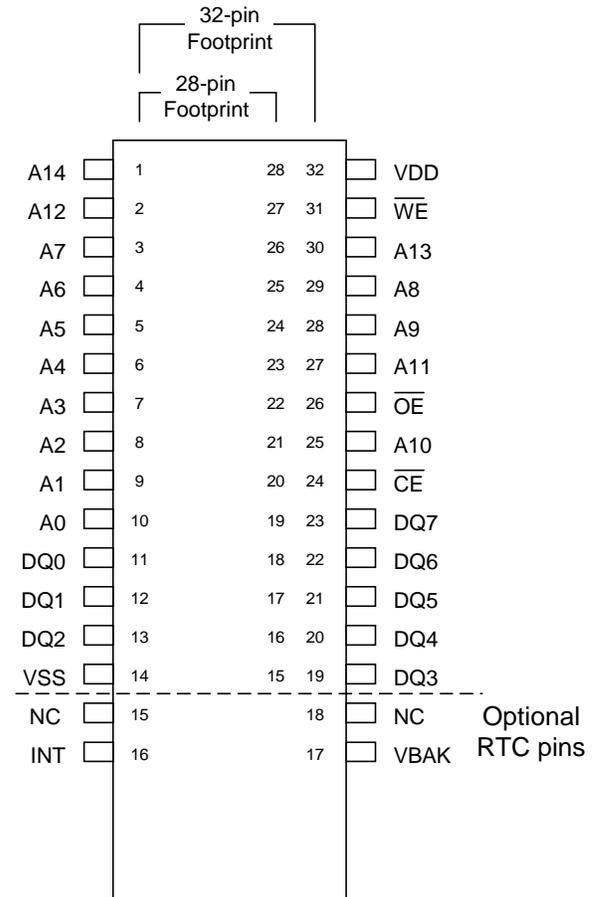
Ordering Information	
FM3808DK	32-pin DIP module

Rev. 0.1
July 2001
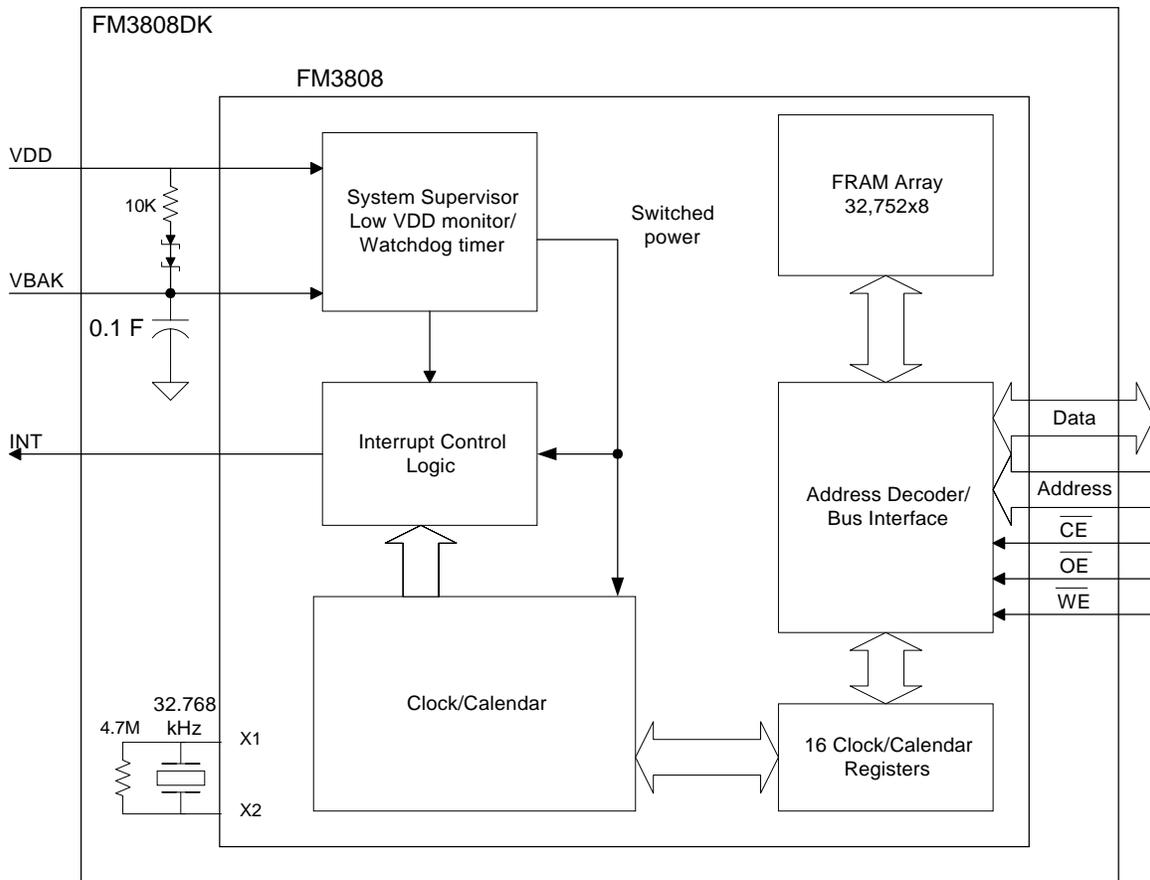
Figure 1. Block Diagram

Pin Description

Pin Name	I/O	Pin Description
A0-A14	Input	Address inputs
DQ0-7	Input/ Output	Data I/O. 8-bit bi-directional data bus.
/CE	Input	Chip Enable. /CE selects the device when low. The falling edge of /CE causes the address to be latched internally. Address changes that occur after /CE goes low will be ignored until the next falling edge occurs.
/WE	Input	Write Enable. Asserting /WE low causes the FM3808 to write the contents of the data bus.
/OE	Input	Output Enable. When /OE is low the FM3808 drives the data bus when valid data is available. Deasserting /OE high causes the DQ pins to be tri-stated.
INT	Output	Interrupt output. Programmable to either active high or open-drain, active low.
V_{DD}	Supply	Supply Voltage (5V)
V_{SS}	Supply	Ground
V_{BAK}	Supply	Backup supply voltage: It backs up the clock and must be between 2.5V and V_{DD}-0.3V. The FM3808DK contains a backup super-capacitor. The user may connect an additional backup source as needed. Care should be used if interfacing a battery, since the FM3808DK contains a charging circuit for the cap. Current is drawn from V_{BAK} when $V_{DD} < V_{BAK}$.
NC	-	Not used, may be removed by the user.
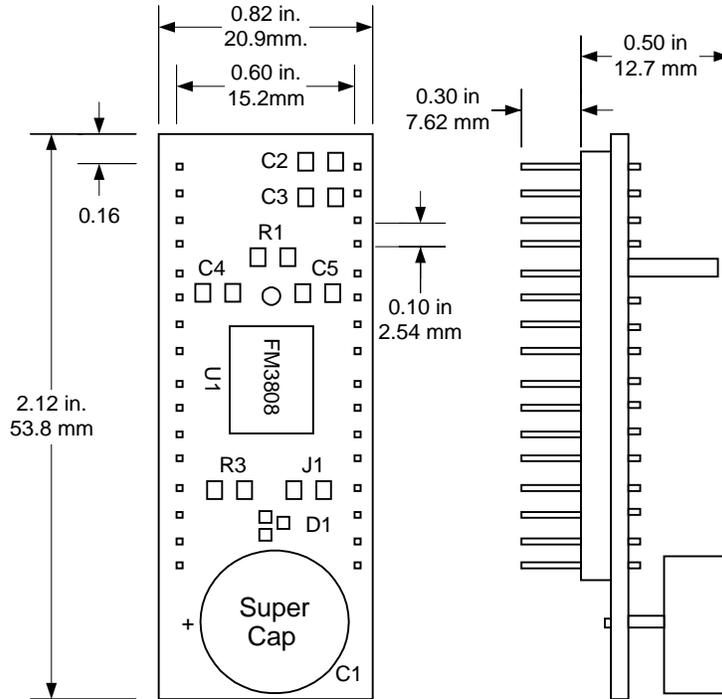
Figure 2. Mechanical Drawing

Table 1. Bill of Materials

Symbol	Part #	Description	Manufacturer
U1	FM3808-S-70	256Kb FRAM with RTC	Ramtron
C2	-	1 μF capacitor	
C3	-	0.1 μF capacitor	
-	GDX-1C/A	Crystal 32.768 KHz, ± 10ppm, 6pF	Golledge
R1	-	4.7 MΩ Resistor (oscillator resistor)	
R3	-	10 KΩ resistor (Super Cap current limiter)	
J1	-	Jumper to select 1 or 2 clamp diode hookup	
C1	P6952-ND	0.1F Super Cap (or equivalent)	Panasonic
C4		Crystal tuning capacitor (optional)	
C5		Crystal tuning capacitor (optional)	
D1	BAS 70 -04	Schottky Diode Pair	Diodes Inc.