



## Real Time Clock with I2C or SPI, Crystal Temperature Compensation, Power Supply Switchover and Battery Trickle Charger

### Description

The EM3027 is a Real Time Clock IC with an I2C or SPI Serial Interface with voltage/temperature sensing, switch circuitry, trickle charger and low power oscillator. RTC functions include counters for seconds, minutes, hours, days, weekdays, month days, months and years with leap-year compensation. It features also programmable alarm for time events (minutes, hour, days, weekdays and month).

### Benefits

- ❑ High precision frequency
- ❑ Battery or super-cap backup provides full time keeping security.
- ❑ High flexibility with two standard interfaces: I2C and SPI
- ❑ 32.768kHz clock output (with enable)

### Key Features

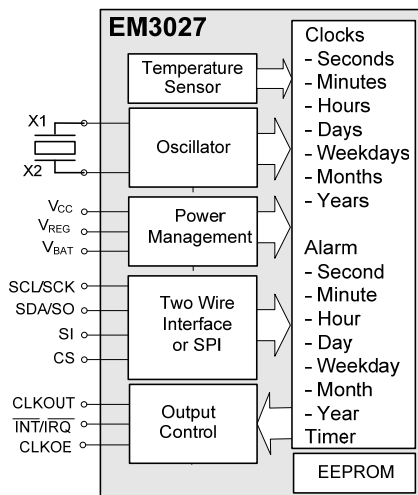
- ❑ Crystal frequency Temperature compensation
- ❑ Very high frequency stability <10 ppm over full voltage and temperature ranges when device is calibrated with crystal
- ❑ -40°C to +125°C operating temperature
- ❑ 600nA typical supply current

- ❑ 1.3V to 5.5V supply voltage
- ❑ I2C or SPI serial interface
- ❑ Temperature sensor
- ❑ Readable thermometer sensor
- ❑ Battery or super-cap backup with automatic switch-over circuitry and trickle charger
- ❑ 16 bit timer
- ❑ One EEPROM Byte and eight RAM Bytes for Application
- ❑ Programmable clock output for peripheral devices (32.768kHz, 1024Hz, 32Hz, 1Hz)
- ❑ Alarm and timers functions open-drain interrupt output

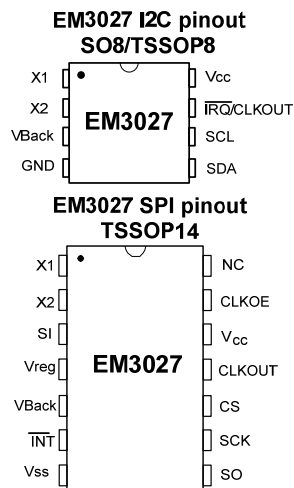
### Applications

- ❑ Industrial metering and process control
- ❑ Automotive
- ❑ Point of sales terminals
- ❑ Vending machine
- ❑ White goods
- ❑ Medical equipments

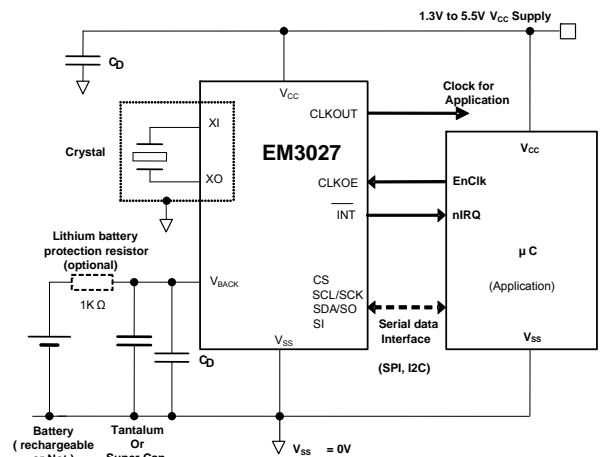
### Block diagram



### Pin out



### Typical Application



Part Number	Package	Functional Temperature	Serial Interface	Delivery Form
EM3027IDSSO08A+	SO8	-40 +85°C	I2C	Stick, 97 pcs
EM3027IDSSO08B+	SO8	-40 +85°C	I2C	Tape & Reel, 2500 pcs
EM3027IDXSO08B+	SO8	-40 +125°C	I2C	Tape & Reel, 2500 pcs
EM3027IDSTP8A+	TSSOP8	-40 +85°C	I2C	Stick, 100 pcs
EM3027IDSTP8B+	TSSOP8	-40 +85°C	I2C	Tape & Reel, 4000 pcs
EM3027IDXTP8B+	TSSOP8	-40 +125°C	I2C	Tape & Reel, 4000 pcs
EM3027SDSTP14A+	TSSOP14	-40 +85°C	SPI	Stick, 96 pcs
EM3027SDSTP14B+	TSSOP14	-40 +85°C	SPI	Tape & Reel, 3500 pcs
EM3027SDXTP14B+	TSSOP14	-40 +125°C	SPI	Tape & Reel, 3500 pcs

\* The I<sup>2</sup>C Bus is a trademark of Philips Electronics N.V.