



Extreme Low Power RTC

General Description

The EM3028 engineered using the in-house analog low power (ALP) technology provides unmatched true ultra-low current consumption of typically 40nA while running on a standard 32'768 Hz tuning fork crystal. Thus allowing several hours of backup supply using cost effective MLCC capacitors.

It provides full RTC function with programmable counters, alarm, selectable interrupt and clock output functions and also a 32-bit UNIX Time counter.

The internal EEPROM memory hosts all configuration settings and allows for additional 43 bytes of user memory.

All addresses and data are transferred over an I²C-bus interface for communication with a host controller.

It is available in a TSSOP14 plastic package or as a module combining the 32 kHz Crystal with the RTC IC in an ultra-small, hermetically sealed C7 SMD package, factory calibrated to an initial accuracy of ± 1ppm.

Applications

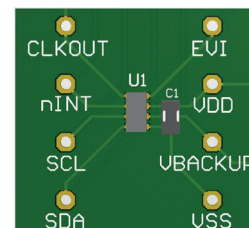
- | IoT
- | Wearable systems
- | Multi-Solar cell platforms
- | Beacons and wireless sensor networks
- | Industrial and environmental monitoring
- | Battery operated platforms

Features

- | Extreme low power consumption: 45 nA @ 3 V.
- | Wide operating voltage range: 1.2 V to 5.5 V.
- | Built-in tuning Fork crystal at 32'768 Hz
- | Time accuracy: possible to calibrate to ±1 ppm @ 25 °C
- | Non-volatile configuration settings with user programmable offset value.
- | Configuration stored in EEPROM and mirrored in RAM
- | Backup Switch and Trickle Charger function.
- | Provides year, month, date, weekday, hours, minutes and seconds.
- | Automatic leap year correction; 2000 to 2099.
- | 32 bit UNIX time counter.
- | Timer, alarm and external event functions with time stamp.
- | Clock output: 32.768 kHz, 8192 Hz, 1024 Hz, 64 Hz, 32 Hz, 1 Hz.
- | 43 bytes non-volatile user memory, 2 bytes user RAM.
- | I²C-bus interface: 400 kHz.
- | Packages (RoHS compliant and Lead-free)
 - | TSSOP14, Part number **EM3028VxTP14** (x = Version nbr)
 - | Ultra small SMD C7 package, 3.2 x 1.5 x 0.8mm Part number **EM3028C7** (with integrated crystal)

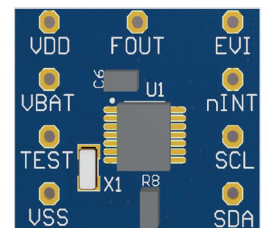
EM3028-C7

Module, integrated crystal



EM3028VxTP14

TSSOP14 with external Crystal



Ordering Information

The versions below are considered standards and should be readily available. For the other delivery form, please contact EM Microelectronic-Marin SA. Please make sure to give the complete part number when ordering.

Part Number		Temperature	Package	Delivery Form
EM3028C7B+	RTC module with integrated 32'768 Hz Crystal Factory calibrated to ± 1ppm	-40 °C to +85 °C	SMD C7 3.2 x 1.5 x 0.8mm	EIA Real, 3000 IC/real
EM3028VxTP14B+	Needs external 32 kHz crystal Please check with EM for available IC versions	-40 °C to +85 °C	TSSOP14	EIA Real, 2500 IC/real