Preliminary Presentation Sheet



RTC-32k-CAL.01

CHALLENGE

Counting time even when devices are asleep is a requirement for most application. With the growing markets of IoT and wearable devices spending most of time in such a sleep mode, power savings thus appear as a key challenge for Clock and Calendar functions.

Embedding the Real Time Clock (RTC) in the SoC is consequently necessary, as a subpart of the Always-On domain. Thus, benefiting from an extremely low power RTC is mandatory to reach the best battery autonomy.

The RTC-32k-CAL.01 is a low power RTC relying on a crystal oscillator and designed to achieve the requirements of low power modes and deep sleep modes of IoT devices. Together with the qOSCXT-LP-32k-co.01 it will allow you to achieve the lowest power consumption for your Always-On domain.

KEY BENEFITS

- Low power consumption
 - Ultra low power consumption, thank to SESAME standard-cell library
 - Designed to be used together with the qOSCXT-LP-32k-co.01 crystal oscillator, a 50 nA oscillator, contributing to reach the lowest power consumption for the whole Always-On domain.

• High accuracy

The RTC relies on a 32.768 kHz oscillator or on an external clock source with pre-scaler. A digital trimming logic enables to correct the inaccurate clock sources.

• A highly configurable solution

- → A large set of programmable functions are embedded on the RTC: alarms, interrupts.
- → Support of external reference clock for permitting clock calibration.

APPLICATIONS

- IoT, wearables
- Consumer electronics
- Automotive
- Industrial and medical



FEATURES

- The Clock and Calendar functions enable counting seconds, minutes, hours, days, months and years, considering end-of-month and leap-years. Data are stored in binary-coded decimal (BCD) format.
- Programmable alarms can be set.
- **Interrupts** could be generated for events or overflows.
- **External clock source** can be selected. In that case, a pre-scaler can be programmed to adjust the clock frequency to 1 Hz.
- Compliant with AMBA 2 APB specifications
- The RTC embeds its **SCAN** chains, enabling structural testability during the industrial test.



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