

I²C REAL-TIME CLOCK (RTC) WITH BATTERY BACK-UP SWITCH, TIME STAMP AND 64-BYTE RAM

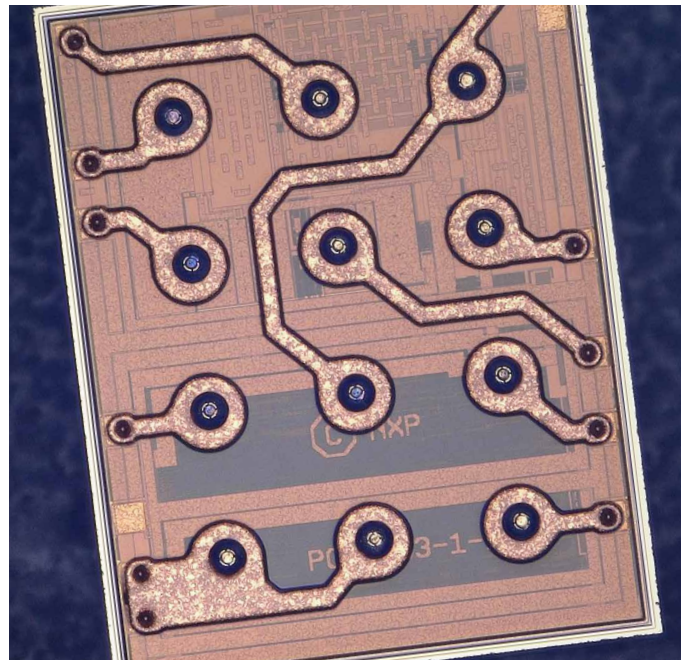
The NXP I²C RTC is an energy-efficient, autonomous timing circuit featuring time stamp, battery back-up, two alarms, and resolution up to 1/100 s in leaded or very small QFN/BGA packages.

KEY FEATURES

- Multiple operating modes
 - Clock (seconds to 99 years)
 - Stopwatch or elapsed-time counter (1/100 s to 999 999 h)
 - Watchdog in parallel
- Battery input voltage can be lower or higher than V_{DD}
- Meets UL requirements
- Time-stamp input, three time-stamp registers
- Two independent alarms
- Electronic frequency tuning via command
- Large clock operating voltage range (0.9 to 5.5 V)
- Ideal for battery-backed operation ($I_{DD} = \sim 0.27 \mu\text{A}$)
- 400 kHz two-line I²C-bus interface (at $V_{DD} = 1.8$ to 5.5 V)
- SO8, TSSOP8, DFN2626 and tiny WLCSP12 package

APPLICATIONS

- Printers, copiers
- Electronic metering
- TVs, Blu-ray™ players, projectors, etc.
- White goods
- Digital cameras
- Accurate, high-duration timers
- Data loggers



PCF85263AUK WLCSP12

NXP's PCF85263A is a CMOS RTC and calendar optimized for low power consumption and switches automatically to battery power when main power is lost.

The PCF85263A RTC can be configured as a stopwatch (or elapsed-time counter) with a resolution of up to 1/100 s. Three time stamps make it easy to register special events. The device can also register tamper detection or time of battery switchover. The PCF85363A has additional 64-byte battery-buffered RAM.

A sophisticated battery backup circuit improves power efficiency. The circuit makes it possible to use a battery with a nominal voltage that is higher or lower than the regular supply voltage. For example, in a system that uses a V_{DD} of 2.5 V, a lithium battery of 3 V can be used as a backup.

The PCF85263A RTC can be used to perform standard RTC functions, such as tracking the actual time and data or acting as a reference timer. To support power management, the PCF85263A can be used to wake the microcontroller from hibernation mode. In systems that use a phase-locked loop (PLL), it can serve as a system reference clock for the PLL input. The PCF85263A RTC can also be used as a watchdog timer, or as an activation timer to start measurements or initiate other functions.

Interrupt selection is possible at every second, minute, or hour and with up to two alarms on two independent outputs. The designer can choose between a permanent or a pulse interrupt signal or one interrupt and a time-stamp input.

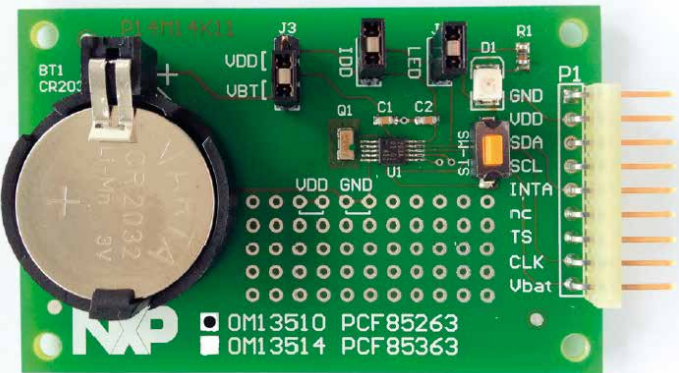
For compensating the quartz frequency tolerance, a dedicated offset register can be programmed.

Full-featured versions are available in leadless WLCSP12 and DFN2626-10 packages. Versions without a time stamp pin are available in the SO8 and TSSOP8 8-pin packages. All are equipped with an I²C Fast-Mode (Fm) 400 kHz interface.

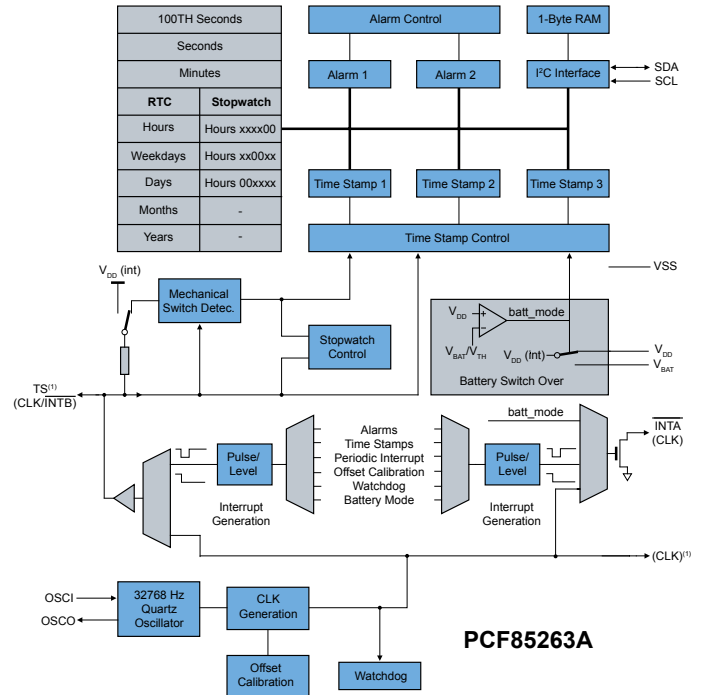
DEMO BOARD

The OM13510 demo board supports the PCF85263A RTC and the OM13514 demo board supports the PCF85363A RTC. The board is shipped ready to use, equipped with a quartz, battery backup and a jumper to select the RTC. In order to start, connect the power supply and use the serial interface to initiate communications for setting the actual time.

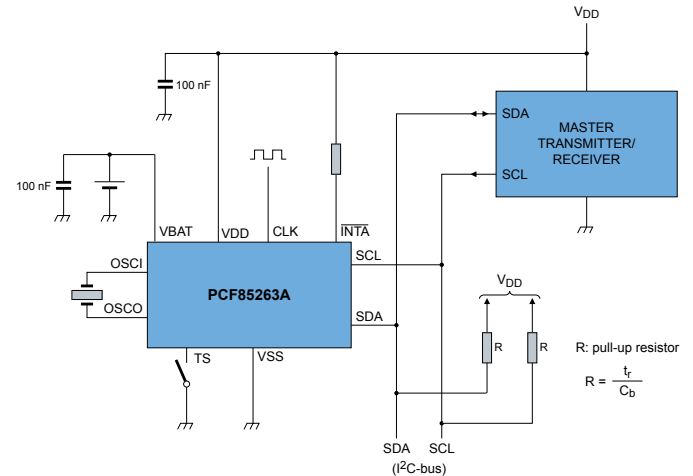
PCF85263A EVALUATION BOARD (OM13510)



PCF85263A BLOCK DIAGRAM



PCF85263A APPLICATION DIAGRAM



Product number	PCF85263AT/A	PCF85263ATT/A**	PCF85263ATL/A**	PCA85263AUK
Interface	FM I ² C-bus	FM I ² C-bus	FM I ² C-bus	FM I ² C-bus
Battery switch, interrupt/CLK output	X	X	X	X
Time-stamp input, separate CLK output	-	-	X	X
Package	SO8	TSSOP8	DFN2626-10	WLCSP12

** PCF85363A with additional 64-Byte battery-buffered RAM