## NXP RTC
PCA85063
PCA8565
PCA21125
PCA2129

# Real-time clocks for automotive applications

In automotive applications, exposure to extreme temperatures presents a serious challenge to accurate timing. NXP has the solution.

### PCA85063A NEW

▸ -40 to +105 °C
▸ Interface: I²C-bus, 400 kHz
▸ Low power consumption < 300 nA
▸ For dashboards and infotainment systems
▸ For accurate and consistent timing

### PCA8565

▸ -40 to +125 °C
▸ Interface: I2C-bus, 400 kHz
▸ For battery management
▸ For engine and motor control
▸ For critical applications

### PCA21125

▸ -40 to +125 °C
▸ SPI-bus, 6 MHz
▸ For battery management
▸ For engine and motor control
▸ For critical applications

### PCA2129

▸ -40 to +125 °C
▸ I²C-bus, 400 kHz & SPI-bus, 6.5 MHz
▸ For dashboards and infotainment systems
▸ High timing accuracy via temperature-compensated oscillator
▸ All clocks are exact and synchronous

| Application | PCA85063 | PCA8565 | PCA21125 | PCA2129T |
|---|---|---|---|---|
| Dasboard / infotainment | Ideal fit | Good fit | Good fit | Ideal fit |
| Battery charging | Good fit | Ideal fit | Ideal fit | Good fit |
| System timing | Ideal fit | Ideal fit | Ideal fit | Ideal fit |
| Accurate time distribution | Good fit | | | Ideal fit |
| Temperature range | -40 to +105 °C | -40 to +125 °C | -40 to +125 °C | -40 to +85 °C |
| AEC-Q100 grade | 2 | 1 | 1 | 3 |

Our real-time clocks (RTCs) offer superior performance in critical automotive applications

‣ Consistent timing
‣ Independent timer
‣ Independent watchdog function for system supervision
‣ Periodic interrupts to initiate processes
‣ Alarm function with interrupt
‣ Complete date and time from seconds to years
‣ Time-stamping events, independent of microcontroller
‣ Timing under severe conditions,  e.g. up to +125 °C
‣ Electric tuning, with no external capacitors needed for PCA85063 and PCA2129
‣ Highly accurate and uninterrupted time tracking using temperature-compensated quartz oscillator and battery backup system
‣ Oscillator optimized for quartz crystals in automotive-grade ceramic package
‣ Interfaces to I²C and/or SPI bus

## PCA2129 block diagram
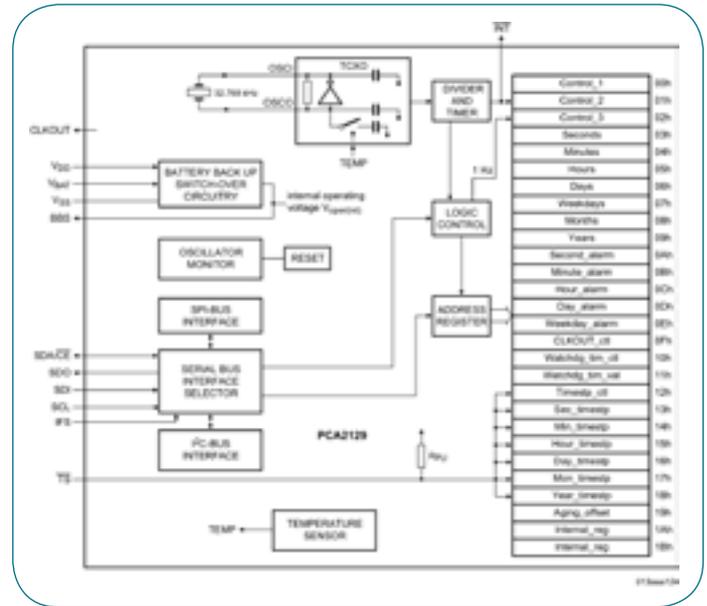


## OM13513 evaluation board for PCA2129T



## OM13515 evaluation board for PCA85063



## Automotive RTC selection guide

| Product number | PCA85063AT | PCA8565TS | PCA21125TS | PCA2129T |
|---|---|---|---|---|
| Interface | I²C-bus | I²C-bus | SPI | SPI, I²C-bus |
| Temperature range | -40 to +105 °C | -40 to +125 °C | -40 to +125 °C | -40 to +85 °C |
| Special feature | Low power | Very wide temperature range | Very wide temperature range | High timing accuracy |
| Demo board* User manual | OM13515 UM10788 | | | OM13513 UM10762 |
| Package | TSSOP8 | TSSOP8 | TSSOP14 | SO161 |

* The I²C-bus demo boards are supported by the I²C-bus USB dongle OM13518 (User Manual UM10789)