

Low Voltage MCUs Doubles Battery Life for Battery-powered Products



Silicon Laboratories Inc. has released a family of microcontrollers (MCUs) capable of operating down to 0.9 V, enabling portable devices to derive power from a single-cell battery for the first time. The C8051F9xx family's 8-bit architecture with an integrated high-efficiency DC/DC boost converter, which can supply up to 65 mW of power for both internal MCU use and to drive other components, creates a true single-cell battery system solution. For products powered by user-replaceable batteries such as wireless sensor networks, smoke alarms, portable medical devices, remote controls, computer peripherals and portable audio devices, the C8051F9xx family enables smaller form factor products, longer battery life and lower overall system cost in both single- and dual-cell modes. In many low-power applications, operating from 0.9 up to 3.6 V, the MCU is in sleep mode for the majority of the time, waking up periodically to capture data. The C8051F9xx utilizes innovative design techniques to deliver a typical sleep-mode current of less than 50 nA. The MCU can wake-up from its low power sleep mode with the CPU operating at 25 MIPS and ready to make an A/D converter (ADC) measurement within just two microseconds. This allows the MCU to spend a minimum amount of time performing measurements and algorithms. To save battery life in active mode, the C8051F9xx's power-efficient architecture yields an active-mode current as low as 170 μ A/MHz. The C8051F9xx family is believed to be the first MCU to integrate 64 kB of Flash and 4 kB of RAM into a 4 mm \times 4 mm package, providing customers with increased memory for typical applications such as data logging.

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