

MCUs Offer Lowest Power Consumption across All Modes of Operation, Extending Battery Life

Expanding its ultra-low-power F9xx MCU family, Silicon Laboratories Inc., a leader in high-performance, analog-intensive, mixed-signal ICs, today introduced the industry's lowest power capacitive touch-sense microcontrollers (MCUs) delivering wake-on-touch power consumption below one microamp. The latest additions to Silicon Labs' C8051F9xx family include F99x MCUs with integrated touch-sense technology for human interface applications and F98x MCUs targeting power- and cost-sensitive applications such as home automation, smart meters, lighting control, security systems, games and toys.

Like other members of the F9xx MCU family, Silicon Labs' new ultra-low-power F99x and F98x MCUs offer the industry's lowest power consumption in active mode, sleep mode and deep sleep mode. In addition to consuming the lowest current per MHz, a common industry specification, the new MCUs contain an integrated low drop-out (LDO) regulator that keeps the current constant at 150 microamps per MHz over the entire operating range of 1.8 to 3.6 V. The on-chip LDO regulator helps reduce the MCU's drain on the battery by 50 percent compared to competing products, which extends battery life and makes the ultra-low-power F99x and F98x MCUs ideal for battery-powered applications.

The new F99x touch-sense MCUs, a part of Silicon Labs' QuickSense® family of human interface devices, combine ultra-low-power capabilities with fast, accurate capacitive sensing technology to address the rapidly growing touch-sensing market. The F99x devices feature a patent-pending, high-resolution capacitance-to-digital converter (CDC) with a 40 microsecond acquisition time, enabling the industry's fastest capacitive touch-sense capability.

The CDC offers superior noise immunity for reliable performance in challenging conditions and configurations such as thick laminate overlays, electrical noise or variances in circuit board manufacturing.

Available with up to 14 capacitive sensing inputs, the F99x MCUs support sophisticated and highly responsive touch-sense functions to replace traditional mechanical buttons, sliders and wheels. By combining the F99x ultra-low-power MCUs with Silicon Labs' Si11xx QuickSense infrared and ambient light sensors, system designers can develop innovative "touchless" proximity sensing interfaces. These touchless interfaces enable users to control and interact with end products through simple, intuitive gestures, in addition to using direct capacitive touch-sense control.

The new F99x and F98x MCUs integrate a 25 MHz pipelined 8051-compatible core, a precision oscillator, a 12-bit analog-to-digital converter (ADC), a temperature sensor, a voltage reference and four timers. The new low-power MCUs also add 2, 4

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Published on Wireless Design & Development (<http://www.wirelessdesignmag.com>)

and 8 kB flash options to the F9xx family, which offers a broad range of footprint - and software-compatible ultra-low-power MCUs scaling up to 64 kB of flash. For added board design flexibility, the F99x and F98x MCUs are available in standard 24-pin QFN and 24-pin QSOP packages as well as a new, space-saving 20-pin 3 mm x 3 mm QFN package option that's ideal for space-constrained applications.

Source URL (retrieved on 08/21/2014 - 10:55pm):

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