

Silicon Labs Delivers High-Performance, Cost-Effective 8-Bit MCUs Optimized for Motor Control

F85x/6x MCUs Offer Exceptional Analog Integration in Small Package, Supported by New Program of Complimentary Keil Tools for 8-Bit Design

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AUSTIN, Texas--([BUSINESS WIRE](#))--[Silicon Labs](#) (NASDAQ: SLAB), a leader in high-performance, analog-intensive, mixed-signal ICs, today introduced highly integrated, feature-rich 8-bit microcontrollers (MCUs) optimized for cost-sensitive motor control applications. The new C8051F85x/6x MCUs combine best-in-class analog and communications peripherals, flash sizes ranging from 2 kB to 8 kB, high performance, small-footprint packaging and cost-effective pricing, making them ideal for brushless dc motor control applications used in remote-control helicopters and cars, PC and electric fans, electric tools and small appliances. The F85/6x MCUs are a good fit for other consumer and industrial applications such as power supplies, battery chargers, set-top boxes, projectors, lighting equipment and optical transceiver modules. These AEC-Q100-qualified MCUs can also be used in automotive body electronics applications such as window lifts and power seats.

Today’s embedded developers seek economical mixed-signal MCU solutions that provide high levels of integration and processing performance for analog-intensive and computationally demanding applications such as motor control. Designed to meet the performance requirements of motor control, the F85x/6x MCUs feature a high-speed 8051 core that is 50 percent faster than the closest in-class competitors. This high performance enables finer pulse-width modulation (PWM), enhanced motor control efficiency and the ability to execute more complex algorithms for a broad range of motor speeds. The F85x/6x MCUs also support three independent high-resolution PWM channels with a built-in overcurrent protection/fault detection capability specifically targeting motor control and power supply applications.

The F85x/6x MCUs take functional density to the next level by integrating advanced analog and digital peripherals into a small package. The MCUs include a 12-bit multi-channel analog-to-digital converter (ADC), two analog comparators with programmable hysteresis and response time, and a precise internal voltage reference. The MCUs also feature an integrated precision 24.5 MHz low-power oscillator and a low-frequency 80 kHz oscillator, eliminating the need for an external clock or crystal. An on-chip temperature sensor simplifies system calibration without having to add a discrete sensor. Multiple communications peripherals (I²C, SPI and UART) also give developers the flexibility to choose their peripherals based on application requirements. This combination of on-chip features enables developers to minimize external components, resulting in lower system cost compared to competing MCUs.

Like all Silicon Labs 8-bit MCUs, the F85x/6x family features a patented crossbar architecture that enables developers to customize peripherals and pinout placement based on their application needs and layout constraints without worrying about pin conflicts. This innovative crossbar architecture simplifies PCB routing, minimizes PCB layers, and ultimately reduces design time and system cost through optimal use of pins.

“With pricing starting at \$0.30 in high volumes, Silicon Labs’ new F85x/6x MCUs offer the industry’s most cost-effective, highly integrated and feature-rich 8-bit solution for analog-intensive embedded applications such as motor control,” said Diwakar Vishakhadatta, vice president and general manager of 8-bit MCU products at Silicon Labs. “We are also pleased to announce that Silicon Labs’ 8-bit customers can now receive complimentary Keil development tools – the industry’s best 8-bit toolset available in terms of code density and accuracy.”

New Complimentary Keil Development Tools

Silicon Labs is now offering complimentary Keil development tools for its entire portfolio of 8-bit MCUs and wireless MCUs including the new F85x/6x family. The PK51 Professional Developer’s Kit for Silicon Labs’ 8-bit MCUs supports new devices with extended memory and instruction sets. Available without time or code size limits, the unrestricted Keil toolkit includes a wide range of build tools, such as assemblers, C compilers, code linker/locators and object converters, for use with Silicon Labs’ 8-bit MCU products and Microcontroller Studio. Silicon Labs’ 8-bit MCU customers can download the Keil tools at no charge by visiting www.silabs.com/8bit-software.

As embedded applications continue to increase in complexity and development schedules grow tighter, reducing development time is a key consideration in MCU selection. To help make the designer’s job easier, Silicon Labs offers two cost-effective development kits for the F85x/6x MCU family. The C8051F850-B-DK development kit provides everything designers need to

evaluate hardware and develop code including the C8051F850 target board, USB debug adaptor/programmer, power supply, cables, quick-start guide and complimentary downloadable software tools. The ToolStick850-B-SK starter kit enables designers to develop and debug application firmware directly on a target F85x/6x MCU using the Silicon Labs IDE.

Pricing and Availability

Samples and production quantities of Silicon Labs' C8051F85x/6x MCUs are available now in a 3 mm x 3 mm 20-pin QFN package and also in 24-pin QSOP and 16-pin SOIC packages. Pricing for the F85x/6x MCUs in 10,000-unit quantities begins at \$0.40 (USD). The C8051F850-B-DK development kit and ToolStick850-B-SK starter kit are priced at \$64.00 and \$9.90 respectively (USD MSRP).

For additional F85x/6x MCU product information, to order samples and to download complimentary Keil development tools, please visit www.silabs.com/8bit-mcu.

Silicon Labs

Silicon Labs is an industry leader in the innovation of high-performance, analog-intensive, mixed-signal ICs. Developed by a world-class engineering team with unsurpassed expertise in mixed-signal design, Silicon Labs' diverse portfolio of patented semiconductor solutions offers customers significant advantages in performance, size and power consumption. For more information about Silicon Labs, please visit www.silabs.com.

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