



## Silicon Labs Replaces Crystal Oscillators with 100 Percent Silicon Oscillator

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### High-Stability Si500 Provides Low Jitter and High Reliability for Consumer Applications

Silicon Labs leveraged its expertise designing low-jitter, frequency-flexible timing products to develop a device capable of replacing quartz-based oscillators with an all silicon solution, dramatically cutting oscillator lead times from up to twelve weeks to only two weeks. The Si500 completely eliminates the quartz resonator that must be cut and tuned for each frequency, replacing it with an ultra-low phase noise silicon oscillator manufactured using standard, high volume IC manufacturing processes capable of generating any output frequency from 0.9 to 200 MHz. The devices are factory programmed and shipped to customers six times quicker than traditional oscillators, yet offer higher performance and reliability.

Because the Si500 relies on standard CMOS manufacturing and low cost packaging, it is immune to the contamination issues that affect traditional hermetically-sealed ceramic or metal-packaged XOs during device assembly, providing superior reliability at startup and guaranteed oscillation over the lifetime of the product. By eliminating the mechanical resonator used for frequency generation, the Si500 also provides high immunity to the shock and vibration that plagues traditional crystal oscillators. The Si500 is the first silicon oscillator in the industry to support differential clock outputs (LVPECL, LVDS, HCSSL) in addition to CMOS and SSTL formats, providing customers added design flexibility and improved signal integrity. The Si500 is the industry's only oscillator supporting a dual output CMOS format mode in which a single device can produce two output clocks at the same frequency, eliminating the need for external clock buffers.

Using innovative, mixed-signal analog circuitry, the oscillator is compensated for frequency variation due to operating temperature range, initial frequency accuracy, supply voltage change and output load change. The Si500 represents breakthrough technology as the industry's first silicon oscillator that provides temperature stability on par with crystal oscillators. The product family supports frequency stability options ranging from +/-100 to +/-150 ppm, providing customers reliable operation and drop-in compatibility with quartz-based oscillators.

"Clocks and oscillators are the heartbeat of all electronics systems, and Silicon Labs is leveraging its key CMOS expertise to revolutionize this industry," said Dave Bresemann, vice president of Silicon Labs. "The Si500 brings Silicon Labs to the top of this market by providing breakthrough technology to eliminate quartz-based oscillators in consumer applications. With the introduction of the Si500 family, Silicon Laboratories provides customers the widest selection of oscillator and clock products to meet their timing needs."

Silicon Labs' offers a broad portfolio of highly-integrated, high-performance timing solutions for datacom, telecom, wireless, video, consumer and test and measurement markets. In addition to the Si500 family, Silicon Labs offers the Si5xx family of high frequency, low jitter crystal oscillators and voltage-controlled crystal oscillators as well as the Si53xx Any-Rate precision clocks, providing the industry's shortest lead times, most frequency flexible, and highest performance timing solutions. These products use optimized DSPLL® technology to shorten cycle times and deliver outstanding jitter performance while the eliminating the need for complex resonator fabrication and tuning. To simplify oscillator product selection, Silicon Labs offers a web-based utility to generate part numbers and initiate sample requests, which may be accessed by visiting [www.silabs.com/products/clocksoscillators/Pages/BuildPartNumber.aspx](http://www.silabs.com/products/clocksoscillators/Pages/BuildPartNumber.aspx).

### Pricing and Availability

The Si500 is available in either a 4- or 6-pad, 3.2 x 4.0 mm dual flat no-lead (DFN) package, priced from \$0.95 to \$2.24 in 10,000 piece quantities depending on frequency. The Si500 is sampling now and will be in volume production 4Q08. To configure a part and purchase samples, please visit [www.silabs.com/xopartnumber](http://www.silabs.com/xopartnumber).

### Silicon Laboratories Inc.

Silicon Laboratories 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 highly integrated, easy-to-use products offers customers significant advantages in performance, size and power consumption. These patented solutions serve a broad set of markets and applications including consumer, communications, computing, industrial and automotive.

Headquartered in Austin, TX, Silicon Labs is a global enterprise with operations, sales and design activities worldwide. The company is committed to contributing to our customers' success by recruiting the highest quality talent to create industry-changing innovations. For more information about Silicon Labs, please visit [www.silabs.com](http://www.silabs.com).

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