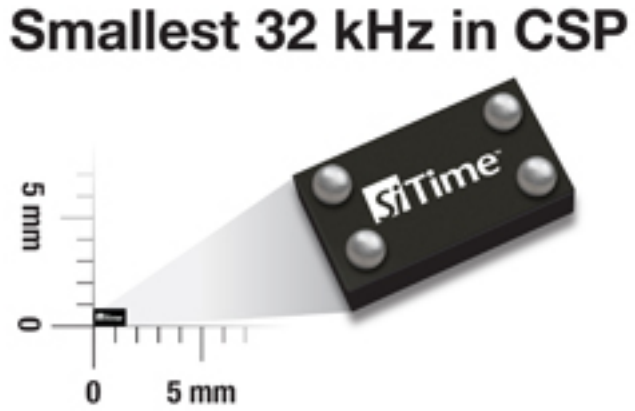
SiTime Enters Smartphone Market with MEMS Oscillator

SiTime Corporation



SiTime Corporation [1] (Sunnyvale, CA) has introduced the SiT15xx family of 32 kHz MEMS oscillators that replace legacy quartz crystal resonators. This new family is targeted at mobile applications, such as smartphones and tablets, which require small size and low power.

The SiT15xx family overcomes the limitations of quartz-based devices in several ways; SiTime's solutions offer area savings of 85 percent, cuts power by 50 percent and are 15 times more reliable, all of which enable smaller, lower power and longer lasting mobile electronics.

"SiTime's groundbreaking silicon MEMS and analog technology deliver innovative timing solutions that leapfrog decades of quartz industry development. Large infrastructure and consumer electronics companies have already adopted SiTime's solutions and are profiting from our remarkable combination of highest performance, lowest cost and best reliability," says Rajesh Vashist, CEO of SiTime.

"Now, we are bringing these exceptional benefits to the booming mobile market. Our focus, passion and execution has allowed us to get 80% share of the MEMS timing market and with the new SiT15xx family, we continue to extend our lead."

"Two years ago, SiTime introduced revolutionary MEMS timing products for infrastructure applications. Today, SiTime is introducing a unique MEMS timing device family for the large, rapidly growing, mobile market," says Jean-Christophe Eloy, CEO and founder of Yole Développement.

"The SiT15xx family of 32 kHz oscillators is yet another example of SiTime's consistent and unrelenting drive to develop the best timing products in the industry. With the industry's broadest portfolio of leadership MEMS timing products, they are poised for massive success."

The SiT153x family replaces quartz crystal resonators and operates from a 1.2 to

3.63 V regulated power supply, making them ideal for smartphones that use a coin-cell or super-cap battery backup.

The SiT154x family also replaces quartz crystal resonators and operates from a 2.7 to 4.5 V unregulated Li-Ion battery. More details on the devices are below:

- SiT1532/42 – 32.768 kHz MEMS oscillators in a 1.5 x 0.8 mm chip scale package (CSP), which is an industry first.
- SiT1533/43 – 32.768 kHz MEMS oscillators in a 2.0 x 1.2 mm package that is pin-compatible with quartz resonators.
- SiT1534/44 – programmable MEMS oscillators that support frequencies from 1 Hz to 32.768 kHz and are available in both the 1.5 x 0.8 mm CSP and the 2.0 x 1.2 mm packages.

All of these devices offer many significant benefits over quartz, as listed below:

- Smallest board area – The CSP offers area savings of up to 85% compared to the 2012 package and 70% over the smallest quartz package that is sampling today.
- More functionality in a true one-chip solution – The oscillator output replaces crystal resonators, eliminates the need for load capacitors, minimizes board area and also offers a more robust system startup in extreme temperatures.
- Excellent power savings – Supply current of only 0.75 micro-amps (typical) is 50% better than an equivalent quartz solution.
- Thinnest – 0.55 mm is ideal for smartphones
- NanoDriveTM – A unique, programmable, low swing output that minimizes power and directly interfaces to the oscillator / RTC circuit in the downstream processor or PMIC.
- Best frequency stability – ±20 PPM at room temperature and ±100 PPM over -40°C to +85°C ensures accurate time-keeping.
- Best robustness – 30 times better than quartz.
- Best reliability – 500 million hours MTBF (2 FIT), 15 times better than quartz.

In addition to smartphones and tablets, the SiT15xx family is ideal for devices that require small size and low power such as fitness monitoring and watch products, medical monitoring and wellness devices, sport camcorders, wireless keypads and mouse devices.

Devices in the 2012 packages are sampling now. Devices in the chip scale package (CSP) will begin sampling in May 2013. Pricing is available upon request.

For more information and datasheets, visit http://www.sitime.com/products/32-kHz-oscillators [2].

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