

Peregrine semiconductor and Soitec announce new bonded silicon-on-sapphire substrate for RFIC manufacturing

Medical Design Technology

Peregrine Semiconductor Corporation, a leading provider of high-performance radio-frequency (RF) integrated circuits (ICs), and Soitec (Euronext Paris), the world's leading supplier of silicon-on-insulator (SOI) wafers and advanced solutions for the electronics and energy industries, today announced the joint development and ramp in production of a new, bonded silicon-on-sapphire (SOS) substrate which has been qualified for use in manufacturing Peregrine's next-generation STeP5 UltraCMOS™ RF IC semiconductors. This announcement marks an achievement for both companies in the evolution of bonded SOS wafers. Soitec's core direct wafer-bonding technologies and state-of-the art industrial know-how combined with Peregrine's legacy SOS process development and IC design expertise enabled the rapid development of a tuned substrate that delivers leading-edge RF performance required by the ever-advancing mobile wireless and industrial markets.

The new substrate is a bonded monocrystalline SOS substrate jointly engineered by the two companies. Soitec's process expertise and direct wafer-bonding technologies were utilized to transfer and bond a high-quality, monocrystalline thin silicon layer onto a sapphire substrate. The resulting bonded silicon layer offers impressive improvements in transistor mobility and silicon quality beyond conventional SOS wafers which utilize an epitaxially grown silicon layer. The new substrate provides Peregrine an ideal design landscape for enhancements in RFIC performance, functionality, and form factor, enabling IC size reduction and performance increase by as much as 30 percent. It also enables Peregrine to continue its long-term strategy toward highly integrated RF Front-End (RF FE) IC solutions in a substrate technology that matches the yield and scalability qualities of bulk silicon technologies.

*"Soitec's impressive substrate expertise and industrial capabilities enabled us to meet our vision for next-generation UltraCMOS processing," said **Mark Miscione**, vice-president, RF Technology Solutions for Peregrine Semiconductor. "This achievement has provided the opportunity to exploit even greater RF performance in our products. We look forward to continuing our collaboration and exploring new opportunities together with Soitec," he added.*

*"We are very pleased that our collaboration with Peregrine has delivered a new SOS substrate. In just two years we were able to move from the feasibility phase to a mature product ready for industrialisation and production ramp," says **Bernard Aspar**, General Manager of Soitec's Tracit business unit. "This is an excellent example of how our core technologies can extend to new applications and markets, where there is always a need for more functionality at the substrate level."*

About Peregrine Semiconductor

Peregrine Semiconductor is a leading provider of high-performance RFICs. Our solutions leverage our proprietary UltraCMOS™ technology, which enables the design, manufacture, and integration of multiple RF, mixed-signal, and digital functions on a single chip. Our products deliver what we believe is an industry leading combination of performance and monolithic integration, and target a broad range of applications in the aerospace and defense, broadband, industrial, mobile wireless device, test and measurement equipment, and wireless infrastructure markets. UltraCMOS technology combines the fundamental benefits of standard CMOS, the most widely used semiconductor process technology, with a synthetic sapphire substrate that enables significant improvements in performance for RF applications. We own fundamental intellectual property in UltraCMOS technology consisting of numerous U.S. and international patents and trade secrets covering manufacturing processes, basic circuit elements, RF circuit designs, and design know-how. We also have engineered design advancements, including our patented HaRP™ technology which significantly improves harmonic and linearity performance, and our patent-pending DuNE™ technology, a circuit design technique that we have used to develop our advanced digitally tunable capacitor (DTC) products. We leverage our extensive RF design expertise and systems knowledge to develop RFIC solutions that meet the stringent performance, integration, and reliability requirements of the rapidly evolving wireless markets. These measurable power and size savings offer advantages for both manufacturers and consumers, including longer battery life, smaller batteries, lower power consumption and bills, less electronic waste...and a greener RF solution. We offer a broad portfolio of more than 120 high performance RFICs including switches, digital attenuators, frequency synthesizers, mixers, and prescalers, and are developing power amplifiers, DTCs, and DC-DC converters. Our products are sold worldwide through our direct sales and field applications engineering staff and our network of independent sales representatives and distribution partners to more than 1,200 module manufacturers, OEMs, contract manufacturers, and other customers. In addition to the sale of our products, we have established a technology licensing program to accelerate the adoption and deployment of UltraCMOS technology. Additional information is available on the Company website at www.psemi.com.

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About the Soitec Group

The Soitec Group is the world's leading innovator and provider of the engineered substrate solutions that serve as the foundation for today's most advanced microelectronic products. The group leverages its proprietary Smart Cut™ technology to engineer new substrate solutions, such as silicon-on-insulator (SOI) wafers, which became the first high-volume application for this proprietary technology. Since then, SOI has emerged as the material platform of the future, enabling the production of higher performing, faster chips that consume less power. Today, Soitec produces more than 80 percent of the world's SOI wafers. Headquartered in Bernin, France, with two high-volume fabs on-site, Soitec has offices throughout the United States, Japan and Taiwan, and a new production site in Singapore. Three other divisions, Picogiga International, Tracit Technologies and Concentrix Solar, complete the Soitec Group. Picogiga delivers advanced substrates solutions, including III-V epiwafers and gallium nitride (GaN) wafers, to the compound material world for the manufacture of high-frequency electronics and other optoelectronic devices. Tracit, on the other hand, provides thin-film layer transfer technologies used to manufacture advanced substrates for power ICs and Microsystems, as well as generic circuit transfer technology, Smart Stacking for applications such as image sensors and 3D-integration. In December 2009, Soitec acquired 80% of Concentrix Solar, the leading provider of concentrated photovoltaic (CPV) solar systems for the industrial production of energy. With this acquisition, Soitec is entering the fast-growing solar industry; capturing value through the system level. Shares of the Soitec Group are listed on Euronext Paris. For more information, visit www.soitec.com.

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