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Peregrine Semiconductor Achieves Major Breakthrough for 3G Cellphones

Advances in UltraCMOS™ technology enable RF Switches to break WCDMA roadblock

San Diego, California, October 3, 2005 -- Peregrine Semiconductor Corporation, a supplier of the industry's most advanced RF CMOS and mixed-signal communications ICs, today unveiled the next generation of its world-class UltraCMOS™ process technology at the European Microwave Conference in Paris, France. Peregrine's revolutionary HaRP™ technology enhancements enable dramatic improvements in harmonic results, linearity and overall RF performance -- specifications required by the 3GPP standards body for GSM/WCDMA applications, and today unmatched in the industry. In particular, long-awaited triumphs in Intermodulation Distortion (IMD) are now available to multi-band front-end module and handset manufacturers alike. The first devices to be released on the HaRP-enhanced UltraCMOS process are the PE42672 SP7T and the PE42660 SP6T RF Switches for quad-band GSM and GSM/WCDMA handset applications. These platforms currently enjoy more than 70% of the world handset market share. Peregrine's newest switches provide for an ever-increasing number of RF paths to connect to the antenna through a single CMOS device.

PE42672 is the world's first monolithic SP7T switch with on-board CMOS decoder. This highly integrated solution simplifies and lowers the cost of RF designs by reducing overall part count by as many as 6 devices and 13 wire bonds. Both devices shatter RF performance levels of competitive solutions by offering exceptional linearity (PE42672: 2fo -85 dBc and 3fo -79 dBc; PE42660: 2fo -88 dBc and 3fo -85 dBc); IP3 better than +70 dBm; world-class 1.5 KV ESD tolerance; 2.75 V operating voltage and ultra-low power consumption. The PE42660 switch is drop-in compatible with the PE4263 GSM handset switch released last fall, and is now shipping in volume to the world's leading ASM manufacturers for 2005 designs.

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“The HaRP technology invention is the most significant event in our Company’s 10-year history,” stated Jim Cable, CEO and president of Peregrine. “It enables unrestrained roadmaps for future mobile wireless designs and vaults the UltraCMOS™ process to a leading RF technology. The first products resulting from this invention are the world’s most linear, high-power RF switches, and are ideal for 3G applications. Our customer roster now includes the largest names in the mobile wireless industry; market leaders that are partnering with Peregrine to ensure the transition to UltraCMOS is seamless,” he added.

The PE42672 and PE42660 also deliver the following performance (respectively): TX-RX Isolation of 44 dB / 48 dB at 900 MHz and 38 dB / 40 dB at 1900 MHz; P1dB compression point of +41 dBm; and 0.5 dB of insertion loss at 900 MHz. On-chip CMOS decode logic facilitates both 1.8 V and 2.75 V three-pin CMOS control inputs, while no blocking capacitors and on-chip SAW filter over-voltage protection devices ensure ease-of-integration.

The PE42672 is priced at \$0.70 ea. (25K units) and the PE42660 is priced at \$0.60 ea. (10K units). Orders are being taken for the devices which are available in die form and sampling to select customers directly from Peregrine.

The Road Toward RF Integration for Mobile Wireless Applications

Since the mid-1990s, integration, standardization and modularization have provided the GSM handset industry a roadmap of reduced size, increased performance and reduced cost. Competing solutions revealed strengths in the different process technologies: GaAs and pin diodes emerged dominant in the front-end module. However, the advent of the WCDMA platform introduced complexities that have stumped module and IC manufacturers alike. Competing for the same slots are various options based on multiple technologies – forced together and promoted as “integrated,” these solutions introduce “stacked margin” costs and invite second sourcing dilemmas. Further, technical issues surrounding Intermodulation Distortion (IMD) and the antenna switching function leave handset manufacturers continuing their search for an elegant result that meets 3GPP specifications. That search has ended. Peregrine’s UltraCMOS process provides for monolithic integration, and its

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portfolio of multi-throw antenna switches not only delivers the RF performance of the incumbent technologies, but also enables long-term roadmaps for the design of multi-band, multi-platform mobile communications. As technical advancements such as Peregrine's HaRP enhancements are made, lower component costs and greater integration of the front-end will occur.

About UltraCMOS™ Technology and the HaRP™ Invention

UltraCMOS™ mixed-signal process technology is a patented variation of silicon-on-insulator (SOI) technology on a sapphire substrate providing with high yields and competitive costs. This technology delivers significant performance advantages over competing processes such as GaAs, SiGe BiCMOS and bulk silicon CMOS in applications where RF performance, low power and integration are paramount. The HaRP technology inventions are patented process and design advancements which dramatically improve harmonic results, linearity and overall RF performance. [Learn more.](#)

About Peregrine Semiconductor

Peregrine Semiconductor Corporation designs, manufactures, and markets high-performance communications ICs for the wireless infrastructure and mobile wireless; broadband communications; space, defense and avionics markets. Manufactured on the Company's proprietary UltraCMOS™ mixed-signal process technology, Peregrine products are uniquely poised to meet the needs of a global RF design community in high-growth applications such as WCDMA and GSM digital cellular, broadband, DTV, DVR and rad-hard space and defense programs. Peregrine 0.25µm and 0.5µm UltraCMOS devices are manufactured in its 6" CMOS facility located in Sydney, Australia and in Hachioji, Japan through an alliance with OKI Electric Industry Co., Ltd. The Company, headquartered in San Diego, California, maintains global sales support operations and a worldwide technical distribution network. Additional information is available on the web at psemi.com. Contact Peregrine's worldwide distribution partner, Richardson Electronics for sales information at www.rell.com or 1-800-737-6937.

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