

Mobile Wireless Switches June 2011

High-performance UltraCMOS™ Mobile Wireless Switches HaRP™ Technology Advances UltraCMOS™ Handset Switches

Peregrine's high-performance cellular handset switches offer a different approach to solving the toughest high-power, multi-throw switching challenges and are the first and only CMOS-based devices that can be connected directly to the GSM handset antenna. New HaRP™ technology enhancements allow for 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:

- ▶ **IIP3** +70 dBm
- IMD3 -112 dBm
- ► Exceptional harmonic performance: 2fo = -90 dBc and 3fo = -83 dBc
- ► Space-saving SP7T Flip Chip: PE42674
- ▶ Ultra-small SP9T: PE42692 = 1.3 mm x 1.2 mm

UNPARALLELED LINEARITY IN GENERAL-PURPOSE COMMUNICATIONS SWITCHES

Peregrine's new PE42641 is the first general-purpose switch to integrate HaRP technology. In applications where exceptionally high ESD protection is required, such as antenna tuning, this switch is rated industry best with 4.0 kV HBM ESD protection on the antenna. Packaged in an Ultra-compact, RoHS-compliant 3x3x0.75mm QFN, this new RF switch is at the forefront of technological innovation.



- Symmetric, High-Power SP4T all ports WEDGE/CDMA-Compliant
- Exceptional ESD 4.0 kV HBM on the antenna
- ► Low harmonics:

2fo = -86 dBc and 3fo = -81 dBc at +35 dBm

- ▶ IMD3 -110 dBm at WCDMA Band I
- ▶ IIP3 +68 dBm

TECHNICAL SUPPORT AND ORDER INFORMATION

Products samples, unit pricing and volume production are available now through Peregrine and its worldwide distributors. Visit us online to find a sales office near you.

TRX

TRX3

TX1

TX2

FUNCTIONAL BLOCK DIAGRAMS PE42632/PE42660 PE42672/PE42674 PE42695 PE42612/PE42641* TX1 RX1 RX1 RX1 TX1 ESD ESD TX2 ESD RX2 RX2 ESD ESD Ē ESD CMOS ESD RX3 TX3 RX3 ESD ESD ESD ESD v1 v2 RX4 Å ntrol Driv and ESD ESD ESD ţ. 1 ESD Š. | V2

*PE42641 provides four symmetric TX ports

MOBILE WIRELESS SWITCHES - 50 Ω

		2nd Harmonic		3rd Harmonic							
Function	Part Number ¹	35 dBm TX Input 850/900 MHz	33 dBm TX Input 1800/1900 MHz	35 dBm TX Input 850/900 MHz	33 dBm TX Input 1800/1900 MHz	Insertion Loss (dB @ 1 GHz)	lsolation (dB @ 1 GHz)	IMD3 (dBm)	Typical Idd (µ A @ 2.75 V)	Vdd Range (V)	Package
SP4T - 2Tx/2Rx	*PE42612 ²	-82	-89	-74	-68	0.55	39	-	11 ³	2.4-2.95	Flip Chip
SP6T - 2Tx/4Rx	*PE42632 ²	-87	-86	-78	-76	0.65	38	-	13	2.5-2.8	Flip Chip
SP6T - 6Tx	*PE42662 ²	-75	-73	-75	-73	0.50	38	-111	120	2.4-3.0	Flip Chip
SP7T - 3Tx/4Rx	*PE42674 ²	-85	-84	-79	-76	0.65	39	-112	13	2.5-3.2	Flip Chip
SP9T - 2Tx/3TRx/4Rx	*PE42692 ²	-75	-73	-75	-73	0.60	43	-111	100	2.4-3.0	Flip Chip
SP9T - 2Tx/3TRx/4Rx	*PE42694 ²	-75	-73	-75	-73	0.60	43	-111	100	2.4-3.0	Flip Chip
SP6T - 2Tx/4Rx	*PE42660	-85	-84	-83	-82	0.55	48	-	13	2.65-2.85	DIE
SP7T - 2Tx/2TRx/3Rx	*PE42671 ²	-83	-82	-77.5	-78	0.65	46	-111	13	2.65-2.85	DIE
SP7T - 3Tx/4Rx	*PE42672 ²	-85	-84	-79	-77	0.60	44	-109	13	2.65-2.85	DIE
SP4T - 4TX	PE42641 ²	-86	-87	-81	-80	0.45	35	-110	13	2.65-2.85	16L 3x3 QFN

Note 1: Operating Frequency 100-3000 MHz Note 2: 1.8 V-compliant logic (VIH / VIL = 1.4 / 0.4 V) Note 3: Measured at 2.6 V Note 4: Measured at 3.1 V *Contact factory for pricing and availability.

About Peregrine Semiconductor

Peregrine Semiconductor is a fabless 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.



The Americas Peregrine Semiconductor Corporation 9380 Carroll Park Drive San Diego, CA, USA 92121 Phone: 858-731-9400 Fax: 858-731-9499

Europe

Bâtiment Maine 13-15 rue des Quatre Vents F-92380 Garches, France Phone: +33-1-4741-9173 Fax : +33-1-4741-9173

High-Reliability Products Americas

San Diego, CA, USA Phone: 858-731-9475 Fax: 848-731-9499

Europe/Asia-Pacific

Parc Cezanne 1 380 Avenue Archimède Parc de la Duranne 13857 Aix-En-Provence Cedex 3, France Phone: +33-4-4239-3361 Fax: +33-4-4269-7227

China

Room 1211, Building 3 Lane 58, East XinJian Road Shanghai, 201100, P.R. China Tel: +86-21-5836-8276 Fax: +86-21-3467-2933

UltraCMOS technology combines the

fundamental benefits of standard CMOS,

the most widely used semiconductor

process technology, with a synthetic

Korea

#B-2607, Kolon Tripolis, 210 Geumgok-dong, Bundang-gu, Seongnam-si Gyeonggi-do, 463-943 South Korea Phone: +82-31-728-3939 Fax: +82-31-728-3940

Taiwan

Taipei, Taiwan 11281 Phone: +886-9-5281-6198 Fax: +886-2-2822-5867

Japan

Peregrine Semiconductor, K.K. 601 Yaesu Kyodo Bldg 2-5-9 Yaesu, Chuo-ku Tokyo Japan 104-0028 Phone: +81-3-3527-9841 Fax: +81-3-3527-9848 sapphire substrate that enables significant improvements in performance for RF applications. We 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. 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.

© 2011 Peregrine Semiconductor Corporation. All rights reserved. The Peregrine Semiconductor name, logo and UTSi are registered trademarks and UltraCMOS, HaRP, MultiSwitch and DuNE are trademarks of Peregrine Semiconductor Corp. All other trademarks are the property of their respective owners. DS#73/0028-04

www.psemi.com



Changing How RF is Designed. Forever.™