

PE430x Monolithic RF UltraCMOS™ Digital Step Attenuators

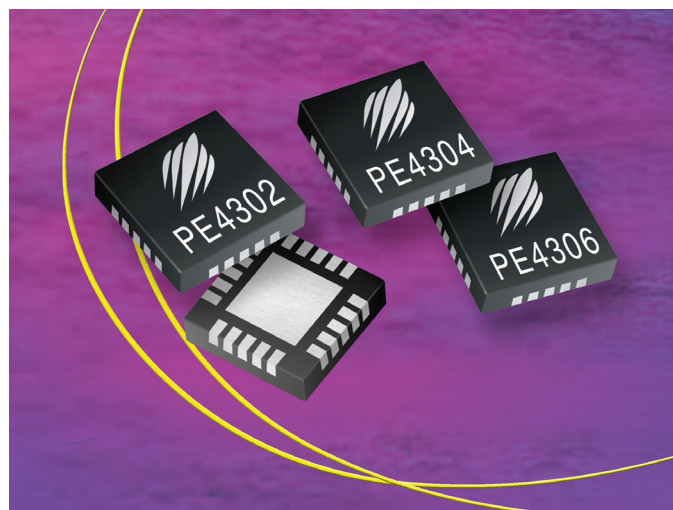
IP3 >50 dBm maintained from 1 MHz to 2.5 GHz

The PE430x family of Digital Step Attenuators (DSAs) features unprecedented levels of broadband linearity, attenuation accuracy and programming flexibility which provide exquisite design solutions for today's prolific RF applications. Peregrine's first commercial DSA product line has raised the bar on DSA performance. Manufactured on the Company's proprietary UltraCMOS™ silicon-on-sapphire process technology, the products draw from many years of high-performance RF CMOS and mixed-signal IC experience.

Specific capabilities brought to bear on the new DSA products from Peregrine Semiconductor include:

- ▶ Industry-leading attenuation accuracy
- ▶ High ESD tolerance
- ▶ Single +3.0 volt supply
- ▶ High linearity to near DC
- ▶ Serial and parallel interface logic
- ▶ Industry leading insertion loss of 1.5 dB
- ▶ Preset power-up attenuation states, a function afforded due to the monolithic CMOS fabrication process
- ▶ The PE430x DSAs are available in 20-lead QFN packages

The **PE4302** and **PE4304** devices are 50 and 75 ohm, 6-bit DSAs with a 0.5 dB LSB. The **PE4305** and **PE4306** devices are 50 ohm, 5-bit DSAs with 0.5 or 1.0 dB LSB. The **PE4307** and **PE4308** devices are 75 ohm, 5-bit DSAs with 0.5 or 1.0 LSB.



The extraordinary performance of the new Peregrine DSAs, including high accuracy and IP3 down to 100 KHz, makes them ideal for new designs. Return Loss (RL) for the PE4302 is better than 15 dB through 2.2 GHz, making it 5 to 6 dB better than its competitors and uniquely compatible with termination sensitive components. Compared to GaAs solutions, they offer higher IP3, accuracy, better temperature stability, lower distortion, ESD Protection, no blocking caps and lower power consumption. These aspects combine for optimal performance and cost-effectiveness.

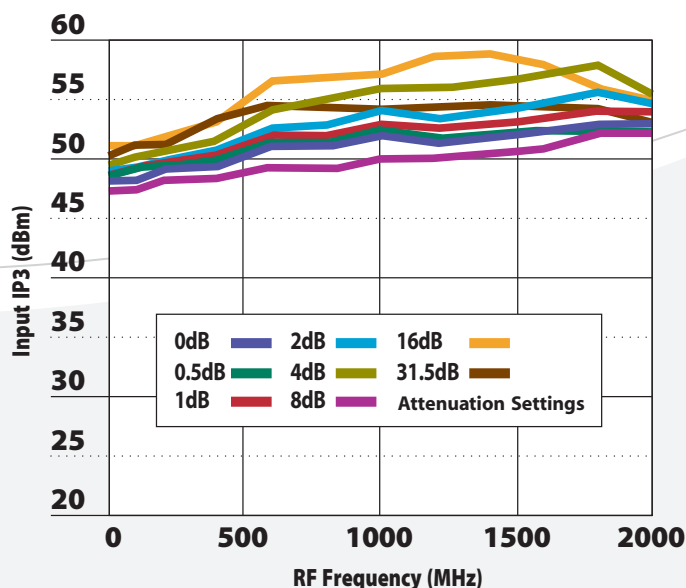
APPLICATIONS

The devices are ideal for many RF applications such as:

- ▶ Cellular base stations
- ▶ Fixed frequency transceivers
- ▶ Repeaters
- ▶ Power amplifier distortion canceling loops
- ▶ CATV headend and distribution systems
- ▶ High performance military radio
- ▶ See our *Wireless Design & Development* article posted at www.psemi.com

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.



RF DIGITAL STEP ATTENUATORS (MONOLITHIC) - 50 Ω

Product Description	Attenuation (dB)	Programming Mode	Operating Freq. (MHz)	Insertion Loss (dB)	Input IP3 (dBm)	Attenuation Accuracy (1 GHz)	Switching Speed (μs)	Package
PE4302 - 6-bit, 50 Ω	31.5 range / 0.5 steps	Parallel, Serial, Direct	DC - 4000	1.5	52	(0.10+3% of setting)	1	20L 4x4 QFN
PE4305 - 5-bit, 50 Ω	15.5 range / 0.5 steps	Parallel, Serial, Direct	DC - 4000	1.5	52	(0.25+3% of setting)	1	20L 4x4 QFN
PE4306 - 5-bit, 50 Ω	31 range / 1.0 steps	Parallel, Serial, Direct	DC - 4000	1.5	52	(0.30+3% of setting)	1	20L 4x4 QFN

BROADBAND DIGITAL STEP ATTENUATORS (MONOLITHIC) - 75 Ω

Product Description	Attenuation (dB)	Programming Mode	Operating Freq. (MHz)	Insertion Loss (dB @ 2 GHz)	Input IP3 (dBm)	Attenuation Accuracy (1 GHz)	Switching Speed (μs)	Package
PE4304 - 6-bit, 75 Ω	31.5 range / 0.5 steps	Parallel, Serial, Direct	DC - 2000	1.4	52	(0.15+4% of setting)	1	20L 4x4 QFN
PE4307 - 5-bit, 75 Ω	15.5 range / 0.5 steps	Parallel, Serial, Direct	DC - 2000	1.4	52	(0.15+4% of setting)	1	20L 4x4 QFN
PE4308 - 5-bit, 75 Ω	31 range / 1.0 steps	Parallel, Serial, Direct	DC - 2000	1.4	52	(0.20+4% of setting)	1	20L 4x4 QFN

About UltraCMOS™ Technology

UltraCMOS™ mixed-signal process technology is a patented variation of silicon-on-insulator (SOI) technology. It is the first commercially qualified use of Ultra-Thin-Silicon (UTSi®) on sapphire substrates with high yields and competitive costs. Since sapphire is a near perfect insulator, UltraCMOS products can integrate high-quality passive devices directly into the IC, combining high-performance RF, mixed-signal, passive elements, nonvolatile memory and digital functions in a single device. UltraCMOS products are fabricated in standard high-volume CMOS facilities, achieving the economy, scalability and integration of CMOS, while enabling significant performance advantages over competing mixed-signal processes such as GaAs, SiGe BiCMOS and bulk silicon CMOS in applications where RF performance, low power and integration are paramount.

About Peregrine Semiconductor

Peregrine Semiconductor Corporation designs, manufactures, and markets high-performance RF ICs ideally suited for mobile wireless and wireless infrastructure; broadband communications; space; defense and avionics applications. Manufactured on the Company's proprietary UltraCMOS™ mixed-signal process technology, Peregrine products offer unprecedented levels of monolithic integration, and 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. The Company, headquartered in San Diego, California, maintains global sales support operations and a worldwide technical distribution network.



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微波光电部专业代理经销高频、微波、光纤、光电元器件、组件、部件、模块、整机；电磁兼容元器件、材料、设备；微波 CAD、EDA 软件、开发测试仿真工具；微波、光纤仪器仪表。欢迎国外高科技微波、光纤厂商将优秀产品介绍到中国、共同开拓市场。长期大量现货专业批发高频、微波、卫星、光纤、电视、CATV 器件：晶振、VCO、连接器、PIN 开关、变容二极管、开关二极管、低噪晶体管、功率电阻及电容、放大器、功率管、MMIC、混频器、耦合器、功分器、振荡器、合成器、衰减器、滤波器、隔离器、环行器、移相器、调制解调器；光电子器件和组件：红外发射管、红外接收管、光电开关、光敏管、发光二极管和发光二极管组件、半导体激光二极管和激光器组件、光电探测器和光接收组件、光发射接收模块、光纤激光器和光放大器、光调制器、光开关、DWDM 用光发射和接收器件、用户接入系统光收发器件与模块、光纤连接器、光纤跳线/尾纤、光衰减器、光纤适配器、光隔离器、光耦合器、光环行器、光复用器/转换器；无线收发芯片和模组、蓝牙芯片和模组。

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