

## 75Ω UltraCMOS™ Switches Replace Mechanical Relays and Pin Diodes

High Isolation, UltraCMOS™ Switch Portfolio Ideal for CATV, DBS, DTV Applications and More

New from Peregrine Semiconductor, the world's highest performance, high-isolation broadband switches feature unprecedented isolation, linearity and excellent ESD tolerance for today's most demanding CATV and DTV applications. Developed on Peregrine's patented UltraCMOS™ silicon-on-sapphire process technology, these multi-throw switches deliver an extraordinary combination of performance, price and monolithic integration.

The new multi-throw switches are simply designed, and profoundly different. Ideal for broadband applications, these devices are engineered to exceed the most stringent performance expectations — including the strict FCC 15.115 regulations. A unique design feature allows certain devices to maintain isolation levels even in the un-powered state.

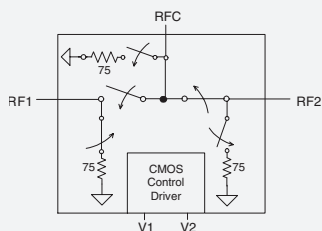
Other market-leading features include:

- ▶ **High Isolation** 80 dB @ 250 MHz and 70 dB @ 750 MHz
- ▶ **High ESD Tolerance** 1.5 kV HBM all ports
- ▶ **High IIP2** 80 dBm @ 5 MHz – 1 GHz
- ▶ **High IIP3** 55 dBm @ 5 MHz – 1 GHz
- ▶ **CTB** -90 dBc
- ▶ **Unique all-off terminated mode**

Broadband engineers can now achieve high performing, lower cost systems with lower part count and alleviated isolation concerns, making design work easier and shortening time-to-market. By integrating on-board CMOS control logic with a low voltage CMOS-compatible control interface, these innovative broadband switches can be

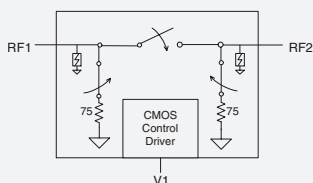
### Functional Block Diagrams

**PE4256/PE4274\*/PE4280**

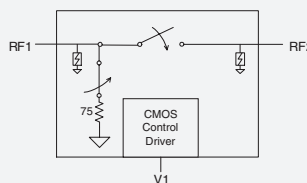


\*With Unpowered Operation

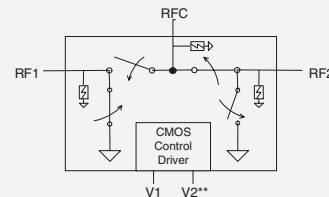
**PE4270**



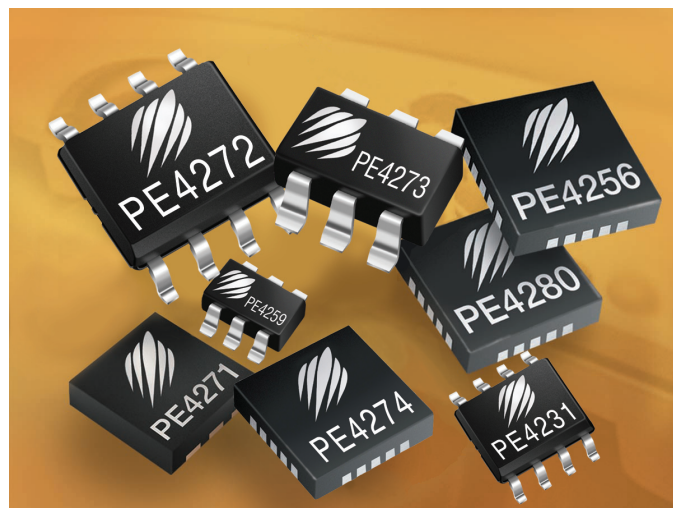
**PE4271**



**PE4272/PE4273\*\***



\*\*Optional Complementary Control Mode available for the PE4273



controlled using either a single-pin or complementary control inputs.

### APPLICATIONS

- ▶ DTV/TV/DVR
- ▶ Multi-tuner DVR/PVR
- ▶ Dual-input DTV/DVR
- ▶ Multi-tuner DTV
- ▶ Cable Set-top Box
- ▶ Game Box
- ▶ Satellite Set-top Box

### 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.

## BROADBAND RF SWITCHES - 75 Ω

Product Description	Operating Frequency (MHz)	IIP2 <sup>2</sup> (dB @ 2 GHz)	CTB <sup>3</sup> (dBc)	P1dB <sup>1</sup> (dBm)	Insertion Loss (dB @ 1 GHz)	Isolation (dB @ 50 MHz)	Isolation (dB @ 1 GHz)	Typical Idd (μA @ 3 V)	Vdd Range (V)	Package
PE4231 - Reflective SPDT	DC-1300 <sup>2</sup>	80	-90	32	0.80	75	42	29	2.7-3.3	8L MSOP
PE4232 - Absorptive SPST	DC-1300 <sup>2</sup>	80	-100	33	0.75	90	53	33	2.7-3.3	6L 3x3 DFN
PE4240 - Absorptive SPDT	DC-3000	80	-90	31	0.90	80	65	8	2.7-3.3	20L 4x4 QFN
PE4256 - Absorptive SPDT	DC-3000	80	-90	31	0.90	80	65	8	2.7-3.3	20L 4x4 QFN
PE4270 - Absorptive SPST	DC-3000	80	-90	30	0.75	90	63	8	2.7-3.3	6L 3x3 DFN
NEW PE4271 - Absorptive SPST	DC-3000	80	-90	33	0.80	85	60	8	2.7-3.3	6L 3x3 DFN
NEW PE4272 - Reflective SPDT	DC-3000	80	-90	32	0.50	70	43	8	2.7-3.3	8L MSOP
PE4273 - Reflective SPDT	DC-3000	80	-90	32	0.50	63	34.5	8	2.7-3.3	6L SC70
PE4280 - Absorptive SPDT	DC-3000	75	-85	26	1.10	72	60	8	2.7-3.3	20L 4x4 QFN
PE4239 - Reflective SPDT	DC-3000 <sup>3</sup>	65	-75	27	0.70 <sup>6</sup>	60 <sup>6</sup>	32 <sup>6</sup>	0.25	2.7-3.3	6L SC70
PE4244 - Absorptive SPST	DC-3000 <sup>3</sup>	65	-75	27	0.60 <sup>6</sup>	65 <sup>6</sup>	39 <sup>6</sup>	0.25	2.7-3.3	8L MSOP
PE4245 - Absorptive SPDT	DC-4000 <sup>3</sup>	65	-75	27	0.70 <sup>6</sup>	67 <sup>6</sup>	42 <sup>6</sup>	0.25	2.7-3.3	6L 3x3 DFN
PE4259 - Reflective SPDT	DC-3000 <sup>3</sup>	80	-90	33 <sup>2</sup>	0.35 <sup>6</sup>	60 <sup>6</sup>	30 <sup>6</sup>	9	2.3-3.3	6L SC70

## BROADBAND RF SWITCHES - 75 Ω - WITH UNPOWERED OPERATION

Product Description	Operating Frequency (MHz)	IIP2 (dB @ 2 GHz)	CTB (dBc)	P1dB pwr/unpwr (dBm)	Insertion Loss (dB @ 1 GHz)	Isolation pwr/unpwr (dB @ 50 MHz)	Isolation pwr/unpwr (dB @ 1 GHz)	Typical Idd (μA @ 3 V)	Vdd Range (V)	Package
PE4274 - Absorptive SPDT	DC-3000	90	-90	30/24	1.00/2.20	97/95	65/64	8	2.7-3.3	20L 4x4 QFN

Note 1: Measured at 1 GHz.  
Note 2: Usable to 2.5 GHz

Note 3: From 50 Ω product line. May require small series inductor to improve VSWR at high frequencies.  
Note 4: Measurement is limited by test equipment

Note 5: CTB/CSO measured with 77 and 110 channels; PO = 44 dBmV  
Note 6: Measured in a 50 Ω system

### 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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# Peregrine Semiconductor

Changing how you design RF. Forever.

SUNSTAR 商斯达实业集团是集研发、生产、工程、销售、代理经销、技术咨询、信息服务等为一体的高科技企业，是专业高科技电子产品生产厂家，是具有 10 多年历史的专业电子元器件供应商，是中国最早和最大的仓储式连锁规模经营大型综合电子零部件代理分销商之一，是一家专业代理和分销世界各大品牌 IC 芯片和电子元器件的连锁经营综合性国际公司，专业经营进口、国产名厂名牌电子元件，型号、种类齐全。在香港、北京、深圳、上海、西安、成都等全国主要电子市场设有直属分公司和产品展示展销窗口门市部专卖店及代理分销商，已在全国范围内建成强大统一的供货和代理分销网络。我们专业代理经销、开发生产电子元器件、集成电路、传感器、微波光电元器件、工控机/DOC/DOM 电子盘、专用电路、单片机开发、MCU/DSP/ARM/FPGA 软件硬件、二极管、三极管、模块等，是您可靠的一站式现货配套供应商、方案提供商、部件功能模块开发配套商。商斯达实业公司拥有庞大的资料库，有数位毕业于著名高校——有中国电子工业摇篮之称的西安电子科技大学（西军电）并长期从事国防尖端科技研究的高级工程师为您精挑细选、量身订做各种高科技电子元器件，并解决各种技术问题。

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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