

75Ω UltraCMOS™ Switches Replace Mechanical Relays and Pin Diodes

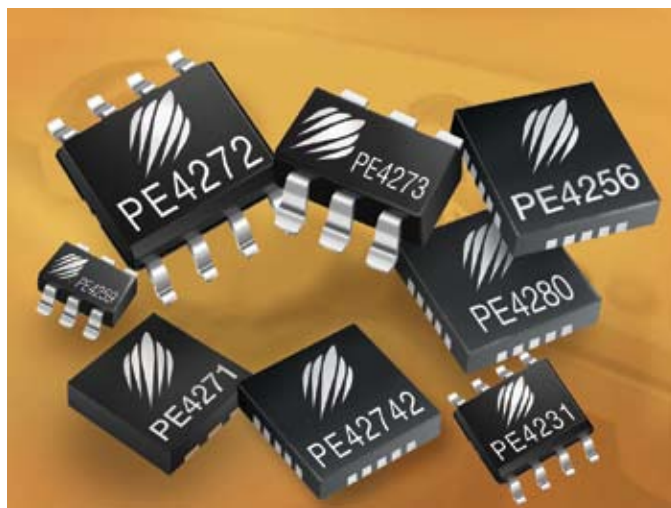
High Isolation, UltraCMOS™ Switch Portfolio Ideal for CATV, DBS, DTV Applications and More

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 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



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

APPLICATIONS

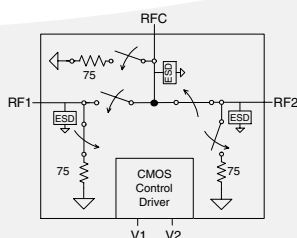
- ▶ DTV/TV/DVR
- ▶ Multi-tuner DVR/PVR
- ▶ Dual-input DTV/DVR
- ▶ Multi-tuner DTV
- ▶ Cable Set-top Box
- ▶ Game Box
- ▶ Satellite Set-top Box

TECHNICAL SUPPORT AND ORDER INFORMATION

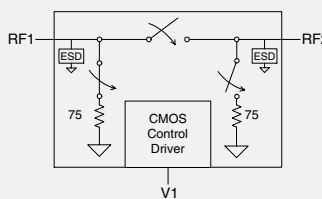
Products samples, unit pricing and volume production are available now through Peregrine and its worldwide distributors. Visit us online to find a sales office near you.

FUNCTIONAL BLOCK DIAGRAMS

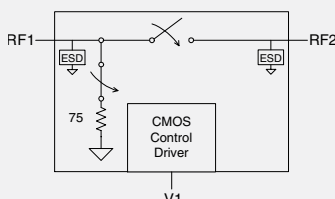
PE4256/PE42742*/PE4280



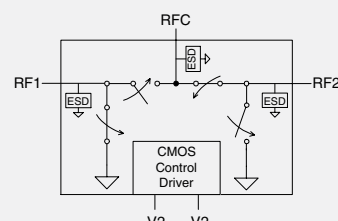
PE4270



PE4271



PE4272/PE4273**



*With Unpowered Operation

**Optional Complementary Control Mode available for the PE4273

BROADBAND RF SWITCHES - 75 Ω

Product Description	Operating Frequency (MHz)	IIP2 ² (dBm)	CTB ² (dBc)	P1dB ³ (dBm)	Insertion Loss (dB @ 1 GHz)	Isolation (dB @ 50 MHz)	Isolation (dB @ 1 GHz)	Typical Idd (μA @ 3 V)	Vdd Range (V)	Package
SPST, Absorptive: PE4270	DC-3000	80	-90	30	0.75	90	63	8	2.7-3.3	6L 3x3 DFN
SPST, Absorptive: PE4271	DC-3000	80	-90	33	0.80	85	60	8	2.7-3.3	6L 3x3 DFN
SPDT, Absorptive: PE4256	DC-3000	80	-90	31	0.90	80	65	8	2.7-3.3	20L 4x4 QFN
SPDT, Absorptive: PE4280	DC-3000	75	-85	26	1.10	72	60	8	2.7-3.3	20L 4x4 QFN
SPDT, Reflective: PE4231	DC-1300 ²	80	-90	32	0.80	75	42	29	2.7-3.3	8L MSOP
SPDT, Reflective: PE4272	DC-3000	80	-90	32	0.50	70	43	8	2.7-3.3	8L MSOP
SPDT, Reflective: PE4273	DC-3000	80	-90	32	0.50	63	34.5	8	2.7-3.3	6L SC70
SPST, Absorptive: PE4244	DC-3000 ⁴	65	-75	27	0.60 ⁵	65 ⁵	39 ⁵	0.25	2.7-3.3	8L MSOP
SPDT, Absorptive: PE4245	DC-4000 ⁴	65	-75	27	0.70 ⁵	67 ⁵	42 ⁵	0.25	2.7-3.3	6L 3x3 DFN
SPDT, Reflective: PE4239	DC-3000 ⁴	65	-75	27	0.70 ⁵	60 ⁵	32 ⁵	0.25	2.7-3.3	6L SC70
SPDT, Reflective: PE4259	DC-3000 ⁴	80	-90	33	0.35 ⁵	60 ⁵	30 ⁵	9	2.3-3.3	6L SC70
SPDT, Reflective: PE4283	DC-4000 ⁴	80	-90	32	0.65 ⁵	60 ⁵	33.5 ⁵	8	2.0-3.3	6L SC70

BROADBAND RF SWITCHES - 75 Ω - WITH UNPOWERED OPERATION

Product Description	Operating Frequency (MHz)	IIP2 ² (dBm)	CTB ² (dBc)	P1dB ² pwr/unpwr (dBm)	Insertion Loss (dB @ 1 GHz)	Isolation (dB @ 50 MHz) pwr/unpwr	Isolation (dB @ 1 GHz) pwr/unpwr	Typical Idd (μA @ 3 V)	Vdd Range (V)	Package
SPDT, Absorptive: PE42742	DC-3000	80	-90	30/24	1.00/2.20	97/95	75/75	8	2.7-3.3	20L 4x4 QFN

Note 1: Measurement is limited by test equipment

Note 2: CTB/CSO measured with 77 and 110 channels; PO=44 dBmV

Note 3: Measured at 1 GHz

Note 4: From 50 Ω product line. May require small series inductor to improve VSWR at high frequencies.

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 designs, manufactures, and markets high-performance communications RFICs. Manufactured on the Company's proprietary UltraCMOS™ mixed-signal process technology, Peregrine products are ideally suited for high-growth RF/Wireless applications such as WCDMA, EDGE and GSM digital cellular and mobile TV; broadband communications such as DTV/PCTV/DVR; and in high-reliability applications such as telecom infrastructure, industrial, automotive, military and satellite systems. Peregrine UltraCMOS devices are manufactured in world-class CMOS foundries located in Australia, Asia and Japan. The Company, headquartered in San Diego, California, maintains global sales support and a worldwide technical distribution network.



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