

SP4T UltraCMOS™ 2.6 V Switch
100 – 3000 MHz

Figure 1. Functional Diagram

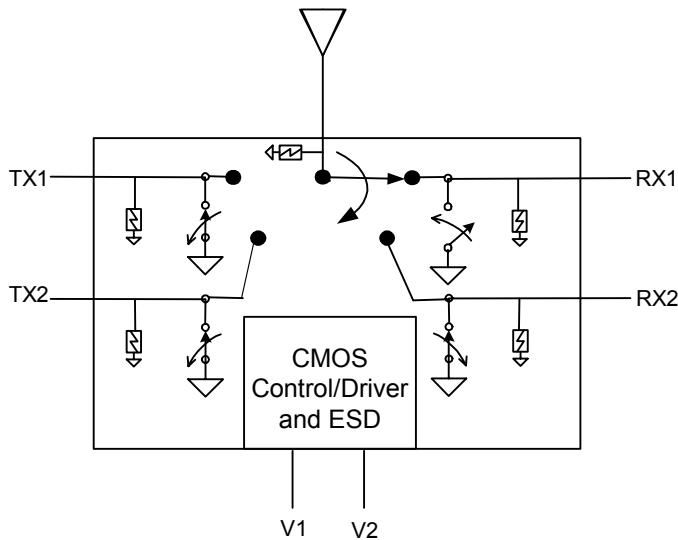
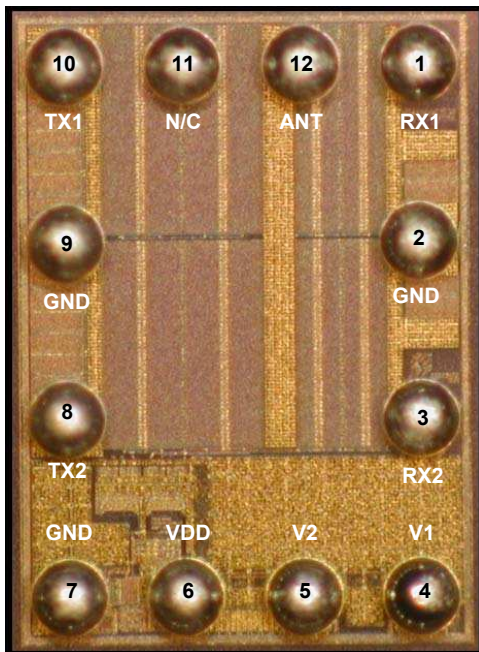


Figure 2. Die Top View



Features

- Two pin CMOS logic control inputs
- Low TX insertion loss: 0.55 dB at 900 MHz, 0.70 dB at 1900 MHz
- Isolation of 39 dB at 900 MHz, 31 dB at 1900 MHz
- Low harmonics $2f_o = -82$ dBc and $3f_o = -74$ dBc at 850/900 MHz and 35 dBm input power
- 1500 V HBM ESD tolerance
- Built in CMOS decoder/driver
- RX SAW over voltage protection circuit
- No blocking capacitors required

Product Description

The PE4261 SP4T RF UltraCMOS™ Flip Chip Switch is designed specifically to address the needs of the antenna switch module market for GSM Handsets. On-chip CMOS decode logic is used to facilitate two-pin, low voltage CMOS control inputs. High ESD tolerance of 1500 V at all ports, no blocking capacitor requirements and on-chip SAW filter over-voltage protection devices make this the ultimate in integration and ease of use.

The PE4261 is manufactured on Peregrine's UltraCMOS™ process, a patented variation of silicon-on-insulator (SOI) technology on a sapphire substrate, offering the performance of GaAs with the economy and integration of conventional CMOS.

Table 1. PE4261 Electrical Specifications: Temp = 25°C, V_{DD} = 2.6 V

Parameter	Condition	Min	Typ	Max	Unit
Operational Frequency		100		3000	MHz
Insertion Loss	ANT - TX - 850 / 900 MHz		0.55	0.65	dB
	ANT - TX - 1800 / 1900 MHz		0.7	0.8	dB
	ANT - RX - 850 / 900 MHz		0.85	1.0	dB
	ANT - RX - 1800 / 1900 MHz		1.05	1.2	dB
Isolation	TX - RX - 850 / 900 MHz (TX ON)	37	39		dB
	TX - RX - 1800 / 1900 MHz (TX ON)	29	31		dB
	TX1 - TX2 - 850 / 900 MHz (TX1 ON)	33	35		dB
	TX1 - TX2 - 1800 / 1900 MHz (TX1 ON)	26	28		dB
Return Loss	850 / 900 MHz	18	20		dB
	1800 / 1900 MHz	14	16		dB
2nd Harmonic ^{1,2}	35 dBm TX Input Power - 850 / 900 MHz		-82	-78	dBc
	33 dBm TX Input Power - 1800 / 1900 MHz		-89	-82	dBc
3rd Harmonic ^{1,2}	35 dBm TX Input Power - 850 / 900 MHz		-74	-69	dBc
	33 dBm TX Input Power - 1800 / 1900 MHz		-68	-65	dBc
Switching time	(10-90%) (90-10%) RF		2	3	µs

- Notes: 1. Measured in Pulsed Wave Mode.
2. Assumes RF input duty cycle of 50% and 4620 µs, measured per 3GPP TS 45.005

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