

## SC14CVMDECT / SC14SPNODE Module

### General description

Both SC14CVMDECT and SC14SPNODE are members of the Dialog Semiconductor SC14S cordless module family. These modules are identical in design, shape, form factor and bill of material. The modules are fully shielded applications with a 16 Mbit quad SPI flash, a 20 Mhz Chrystal, power regulation and "F" shaped embedded antenna on board.

### Features

- Standard DECT/UPCS cordless handset and base station functionality.
- The base station mode (FP) of the module support up to 6 portable parts (PP)<sup>1</sup>
- Support voice and low speed data up to 1.6 Kbit/s with in the same time-slot configuration.
- One internal Antenna and diversity functionality included.
- Small form factor.
- Program memory available for custom application software.
- Non accessible basis software ensures the module to operate according the FCC rules<sup>2</sup>.
- RF range: 1921.536 – 1928.448 MHz
- Receiver sensitivity < -93 dBm
- Transmit power (max): 20.2 dBm (105 mW)<sup>3</sup>
- Power supply voltage 2.20 - 3.45 V

### Applications

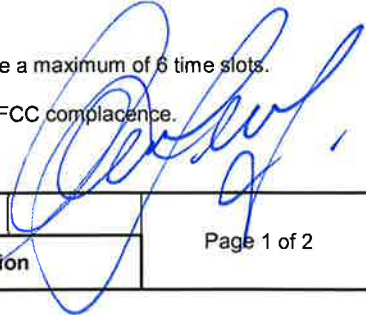
The modules are designed for hosted and embedded cordless voice and data applications in the DECT/UPCS frequency band. It's simple to use AT Commands set allows setting up of a wireless link between 2 or more nodes without detailed knowledge of the DECT/UPCS protocol. These modules are designed to be used in battery powered portable applications. They can also be used in fixed applications with an extra 2<sup>nd</sup> antenna for fast antenna diversity.

### Circuit description

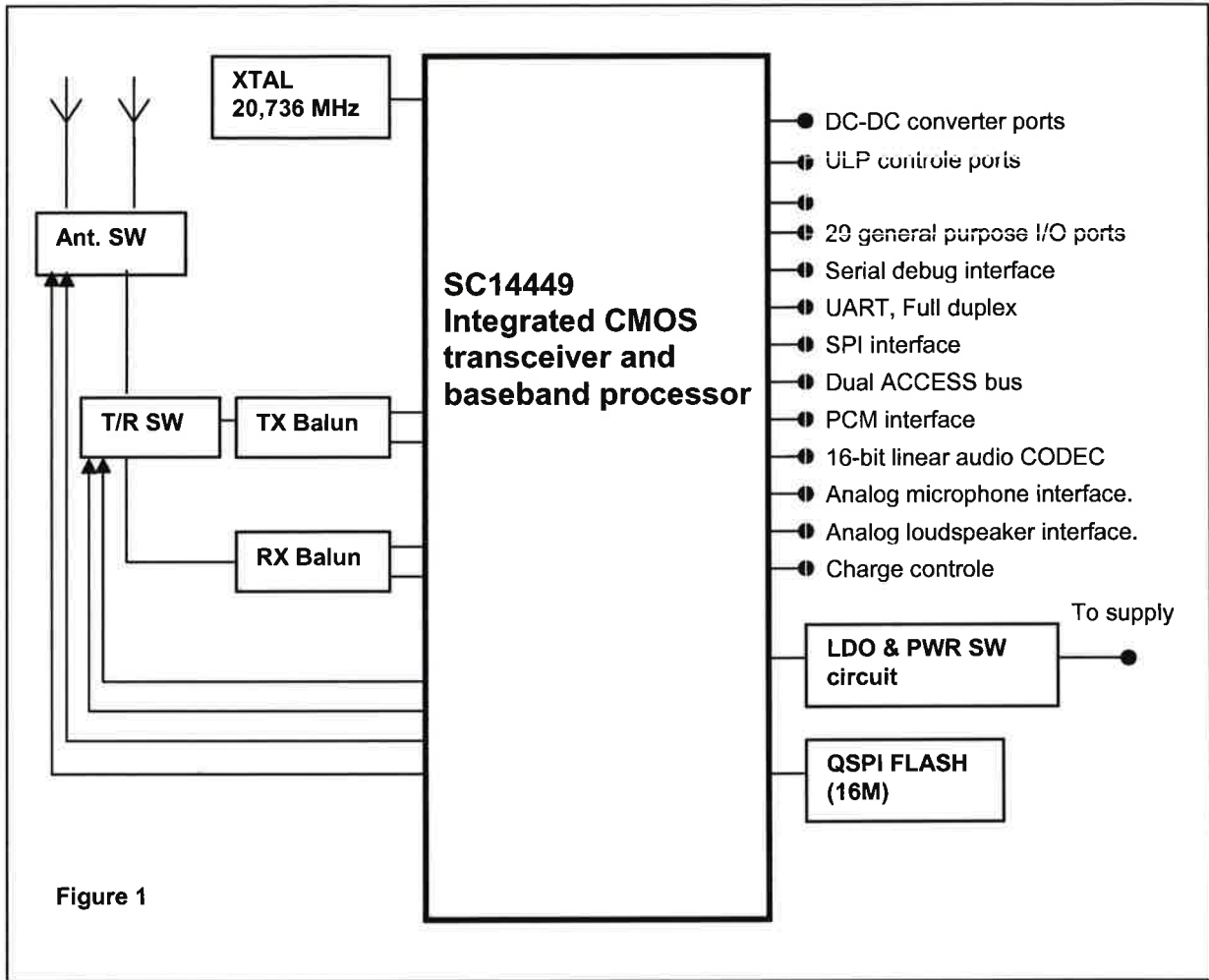
The module consists mainly of the fully integrated CMOS transceiver and baseband processor SC14449 from Dialog semiconductor intended for DECT/UPCS handsets and base stations. RF switches and other components are added to the design in order to perform the desired functionality required. Figure 1 shows the block diagram of the module.

The module also has its own power regulation on board assuring a constant power regulation. The single embedded antenna in this module makes it very suitable for portable, battery powered, applications. With applying a second external antenna, fast antenna diversity is also supported.

- 1) Because of the radio design used (blind slot configuration) the base station can only use a maximum of 6 time slots.
- 2) The physical layer configuration can't be changed by the OEM.
- 3) Transmit PWR is measured conducted in the manufacturing process in order to insure FCC complacence.

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Block Diagrams



**SC14449 integrated CMOS transceiver and baseband processor**

SC14449 is a 1.8V single chip for DECT applications containing a fully integrated radio transceiver and baseband processor. It is designed to perform the complete transmit and receive function. The device is designed to operate the frequency synthesizer in a close loop configuration both during transmit and receive mode. Logic output ports are used to control the T/R switch and antenna switch for FAD (Fast Antenna Diversity). The two equal antennas are PCB monopole antennas tuned for the actual frequency range. The Compact RISC CR 16Cplus microprocessor with a single wire debug port running from ROM controls the protocol stack and the I/O peripherals, keyboard, UART, ACCESS bus, SPI, LED drivers and RF switches. The audio path comprises a 16 bit CODEC with an analog frontend including a high efficiency 4 ohm audio amplifier (class D) and a programmable Gen2DSP supporting various telecommunication algorithms. Detailed information about the chip is available from Dialog semiconductors.