TECHNICAL DESCRIPTION

The SEG-SST-I uses a **Device Set** that provides a highly integrated solution for 900MHz Digital Spread-Spectrum (DSS) Digital Cordless Telephone(DCT) and a Direct-Conversion Transceiver Module.

The Device Set performs all protocol, data formatting, spread spectrum, audio processing and peripheral functions for spread-spectrum DCT in conformance with United States FCC regulation Part 15.247. The device set is self-configurable for use in handset or base station.

The Device Set consists of 2 devices :
1) An **ASIC**, into which are integrated a DSS **Baseband Modem**, an **Audio Modem**, and a **Controller**; 2) A linear **Audio Codec**.

The **Baseband Modem** provides all modulation, encoding, spreading, scrambling, TDD control, AGC, AFC, decoding, and timing required for a DSS system.

The **Audio Modem** consists of a 32 kbps ADPCM engine. The engine interfaces to Codec unit. Built-in DTMF, ring tone with audio path control complete the interface for audio support functions.

The **Controller** performs all control and monitoring functions required for a spread-spectrum telephone. Interfaces are provided for all peripheral functions required for a complete spread-spectrum telephone, such as keypad, LED, LCD and EEPROM. System performance is further enhanced by control functions for a secure serial link between handset and base station, and by power management algorithms. The power management, along with the system's operating voltage of 2.7V, provides >7-day standby and approximately 4 hours of talk time on 3-cell battery operation.

The **Audio Codec** is used to convert analog signals from the PSTN and microphone to and from digital voice samples for the audio modem. It has built-in electret microphone interfaces and independent audio channels for line and speaker interfaces.

The Direct-Conversion Transceiver Module is a complete transmitter and receiver that provides all of the necessary baseband-to-RF and RF-to-

baseband signal conversion functions for 902-928 MHz digital communications. Compact form factor and low voltage requirement (3.0-5.0 V), plus lightweight, coated plastic shields make the 900MHz ideal for portable, battery-powered wireless products.

The spread spectrum DCT is optimized for time division duplex (TDD) operation. The architecture is comprised of a quadrature down-converter with variable gain amplifier for receive, a binary phase shift keyed (BPSK) modulator and power amplifier for transmit, and a phase-locked loop (PLL) frequency synthesizer for local oscillator (LO) generation.

The baseband interface provides a clean connection to the baseband modem and controller for receive and transmit data and control. The power management controls enter via the baseband interface. The RF interface is configured for matching at the antenna port. The single-supply power interface is designed for direct battery connection.

No radio tuning, other than matching the customer-selected antenna, is required.