

## Operational Description

XI-625 Wireless LAN Mini PCI card, utilizing the ISL3874A integrated Baseband Processor and Medium Access Controller, is optimized for smaller form factors and embedded WLAN applications. It uses PRISM 2.5 solution incorporating sophisticated state-of-the-art silicon germanium (SiGe) and submicro CMOS technology to create a highly integrated, feature-rich WLAN silicon solutions for products operating in the 2.4GHz Industrial Scientific and Medical (ISM) band at the IEEE 802.11b-compliant high-data-rate speed of 11 Megabits-per-second (Mbps).

### **Key Components:**

#### **ISL3984 (2.4GHz Power Amplifier and Detector):**

The ISL3984 is a 2.4GHz monolithic SiGe Power Amplifier designed to operate in the ISM band. It delivers 18dBm (Typ) output power for the typical DSSS signal. The ISL3984 is housed in a 16 lead MLFP package.

#### **ISL3685 (2.4GHz RF/IF Converter and Synthesizer):**

The ISL3685 is a monolithic SiGe half duplex RF/IF transceiver designed to operate in the 2.4GHz ISM band. The receive chain features a low noise, gain selectable amplifier (LNA) followed by a down-converter mixer. An up-converter mixer and a high performance preamplifier compose the transmit chain. The remaining circuitry comprises a high frequency Phase Locked Loop (PLL) synthesizer with a three wire programmable interface for local oscillator applications. The ISL3685 is housed in a 44 lead MLFP package.

#### **HFA3783 (I/Q Modulator/Demodulator and Synthesizer):**

The HFA3783 is a highly integrated and fully differential SiGe baseband converter for half duplex wireless applications. It features all the necessary blocks for quadrature modulation and demodulation of "I" and "Q" baseband signals. The device operates at low LO levels from an external VCO with a PLL reference signal up to 50MHz. The HFA3783 is housed in a thin 48 lead LQFP package.

#### **ISL3874A (Wireless LAN Integrated Medium Access Controller with Baseband Processor with PCI):**

The Intersil ISL3874A Wireless LAN Integrated Medium Access Controller with Integrated Baseband Processor is part of PRISM 2.4GHz radio chip set. It has on-board A/Ds and D/A for analog I and Q inputs and outputs, for which the HFA3783 IF QMODEM is recommended. Differential phase shift keying modulation schemes DBPSK and DQPSK, with data scrambling capability, and available along with Complementary Code Keying to provide a variety of data rates. Both Receive and Transmit AGC functions with 7-bit AGC control obtain maximum performance in the analog portions of the transceiver.

#### **ISL3183 (748MHz VCO)**

The VCO source is used for IF to BB conversion.

**MDR741F & MDR742F (RF Band Pass Filter):**

They are used to reject the spurious out of the pass band.

**AS179-92 (RF Switch):**

There are two pieces in XI-625. One is used to switch the transmit and receive chains, the other is for antenna switch.

- Modulation duty cycles: 33%

- PIFA Metal Antenna

- For Spread Spectrum devices, please provide the following information:

- Bit Rate: 1, 2, 5.5, 11 Mbps

- Chipping Rate: 11 Mbps

- Data Rate: 11 Mbps

- Spreading Rate: 11 Mbps