



SS1102C

Integrated MCU with Spread Spectrum Transceiver

Introduction

Siliconians' SS1102C is a low-cost single-chip solution for a variety of wireless digital data applications using spread spectrum and operating as FCC Part 15-compliant devices in the ISM bands.

Integrating a powerful 8-bit microcontroller, the SS1102C provides very high level of integration, low power consumption and low cost equally suitable for many embedded applications such as industrial, AMR, telemetry, computer, and consumer.

General Information

The SS1102C can be interfaced directly with a variety of data sources or devices through its multiple ports. The data is sent or received by the integrated spread spectrum modem via a simple interface with an external RF module.

Together with the baseband spread spectrum modem, the chip also includes an internal 8-bit microcontroller with ROM, RAM and all necessary peripheral functions. The CPU uses the industry-standard 80C51 instruction set.

The spread spectrum baseband modem can provide a full-duplex data link using a Time-Division-Duplex (TDD) protocol. It can also be used in a half-duplex mode with the user having total control of the protocol and framing structure. The SS1102C can achieve a sustained bit rate up to 125Kbps in half-duplex mode, sufficient for a variety of point-to-point or multipoint applications.

The SS1102C provides constant monitoring of the link quality with an indication of the relative Signal/Noise (S/N) at the baseband level and also a low-speed full-duplex signaling channel, independent of the main data channel, for communication and control between the two sides of a full-duplex link.

The SS1102C is a 3V CMOS device and contains a variety of power-saving features, including two on-chip oscillators providing for different operation modes (active, low power, power down) and very low battery drain in standby, for extremely long battery operation. It can be packaged within a small 52-pin or 100-pin surface-mounted package.



Siliconians, Inc.

4701 Patrick Henry Drive, Suite 501, Santa Clara, CA 95054

Tel: 408-748-8600 Fax: 408-748-8687

www.siliconians.com or info@siliconians.com

SS1102C Main features

System Controller Functions:

- 80C51 Compatible 8-bit CPU
- On-Chip 16 Kbytes ROM and 512 bytes RAM
- Programmable Serial Peripheral Interface (SPI)
- Multiple Timers: two Capture, Watch Dog, Time Base
- External Interrupt lines
- Power-on Reset
- Programmable I/O lines
- Active, Low Power and Power Down operating modes

Spread Spectrum Baseband Modem Functions:

- Direct Sequence Spread Spectrum
- Quaternary Baseband Modulation
- Processing Gain: 12 dB
- Data scrambler for spectral whitening and added security
- Internal dual-FIFO (30-byte deep)
- Embedded Time-Division-Duplex (TDD) controller
- MSK on-the-air Modulation
- Four Programmable 32-bit PN Sequences
- Programmable Security code
- Independent low-speed signaling channel
- Signal Quality Indicator Output (S/N)

Chip Implementation:

- Two on-chip oscillator circuits - Master clock up to 24 Mhz and low-speed 32 Khz clock for the Low-Power Mode
- Power saving features in active mode
- Low-Battery Detect
- Rail-to-rail comparator for analog data input
- Power supply: 2.7V to 5.5V
- CMOS - 52-pin or 100-pin PQFP
- Availability: 2Q98

Tools:

- Technology Evaluation: use EB101 board, available now
- Development Tools: POD for emulator (Nohau) available 3Q98



SS1102C Block Diagram

