STLC2500C

Bluetooth™ EDR Single Chip

DATA BRIEF

Features

- The lowest power consumption by design and technology (see *Table 1*)
- World best EDR throughput (see *Table 1*)
- World most performing BT-WLAN coexistence support for several BT/WLAN coexistence algorithms (i.e. 2/3/4-wire PTA, in a very flexible and parametrical way to optimize voice and data quality over Bluetooth and WLAN)
- Superior voice quality
  - Pitch-Period Error Concealment (PPEC) for improved speech quality (in the vicinity of interference)
- Extended range
  - Tx output power up to 8 dBm
- Pre-calibrated RF
  - Auto calibration (VCO, filters), no RF calibration required in production
- Bluetooth™V2.0 + EDR compliant
  - Full EDR support and all BT1.2 errata
  - All EDR data rates and packet types
- Backward compatibility with legacy devices through extended V1.2 feature support
  - Adaptive Frequency Hopping (AFH)
  - Faster connections through interlaced scan
  - Extended SCO (eSCO) links
- Point-to-point, point-to-multi-point (up to 7 slaves) and scatternet capability
- Asynchronous Connection-Less (ACL) logical transport link
- Synchronous Connection Oriented (SCO) link for 2 simultaneous SCO channels at 64Kbps
- Clock support for all cellular standards: system clock input and low power clock
- ARM7TDMI CPU with 32-bit core and AMBA (AHB-APB) bus configuration
- Patch RAM capability

WFBGA48 (4.5mm x 4.5 mmx 0.8 mm)

- On-chip RAM, on-chip ROM
- Communication interfaces
  - Fast UART up to 4Mbps for HCI
  - SPI interface up to 6 Mbps for HCI
  - PCM interface for voice
  - WirelessLAN coexistence with 2, 3, 4 wires
  - 19 programmable GPIOs
  - Fast master I2C interface
- Ciphering support up to 128-bit keys
- Software support up to HCI stack
  - H4 and H5 HCI transport layer
  - HCI proprietary commands and single HCI command for patch/upgrade download
- Internal power management
- Supports 1.65V to 2.85 Volts IO systems
- Seven external components: six decoupling capacitors and one single antenna interface
- Ultra low power architecture with 3 different low power modes: sleep , deep sleep and complete power down

Description

The STLC2500C is a single chip ROM-based Bluetooth solution implemented in 0.13 µm ultra low power, ultra low leakage CMOS technology for mobile terminal applications requiring integration up to HCI level. Patch RAM is available, enabling multiple patches/upgrades. The STLC2500C offers multiple interface options. The radio has been designed specifically for single chip requirements for minimal consumption and BOM count.

Applications

- Mobile terminal platforms

Order codes

Part Number	Package	Packing
E-STLC2500C	WFBGA48	Tray
E-STLC2500CTR	WFBGA48	Tape-on-reel

Figure 1. Block diagram

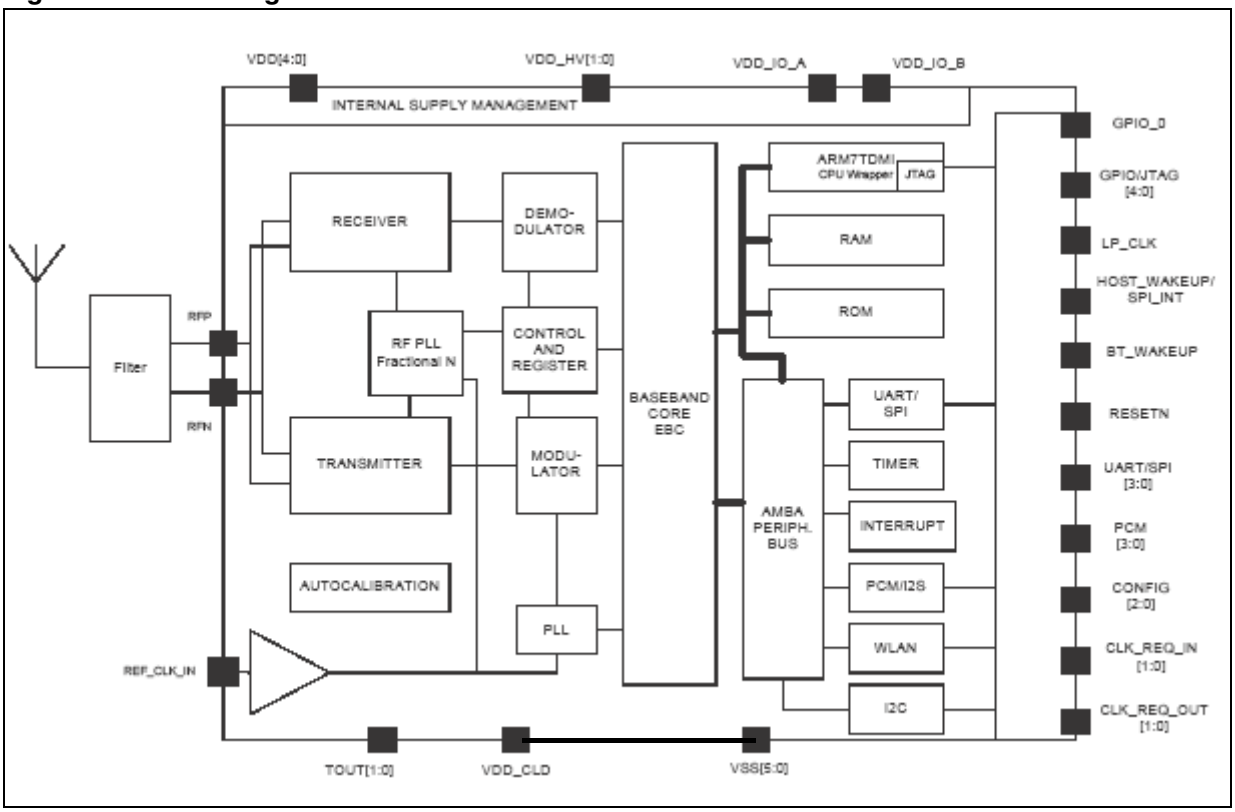

Table 1. Technical specifications

Parameter	Values
Power consumption Audio communication Data communication at maximum throughput Complete power down	 HV3: 10.9mA, 3-EV3: 6.2mA DH1: 22mA, 3-DH5: 35.4mA 1 µA
Data rate throughput at host interface in EDR mode	2.178 Mbps

Revision history

Table 2. Document revision history

Date	Revision	Changes
29-Jan-2006	1	Initial release.