

# RF Micro Devices® Bluetooth® System-on-Chip (SoC) With Enhanced Data Rate



The highly integrated SiW4000 Bluetooth® system-on-chip (SoC) solution combines a 2.4GHz transceiver, a GFSK/DQPSK/8DPSK modem with a complete baseband, CPU and protocol stack software up to the HCI interface in ROM. Enhanced Data Rate support delivers up to three times faster data throughput than Bluetooth V1.2 devices.

Ideally suited for mobile phones, the SiW4000 is fabricated using a 0.13 micron CMOS process, lowering power consumption, reducing size and lowering the total bill-of-materials (BOM) cost.

## Low Current Consumption

The SiW4000 solution takes advantage of the inherent power efficiencies of 0.13 micron CMOS process technology. Other power management features include a shutdown mode reducing current consumption even when connected directly to a battery. The SiW4000 consumes up to three times less power than previous generations of RFMD Bluetooth chips.

## Increased Data Throughput

The SiW4000 features Enhanced Data Rate, providing data transfer rates of 2 and 3Mbps, which are double and triple the data speeds of current Bluetooth V1.2 solutions. This higher data throughput enables more efficient bandwidth utilization, which not only lowers power but also broadens the applications for Bluetooth technology.

The SiW4000 is fully backward compatible with Bluetooth V1.1 and V1.2 devices.

## Excellent RF Performance

The direct conversion architecture of the SiW4000 enhances RF performance by reducing spurious emissions and providing superior RF blocking characteristics. The powerful, full-featured ARM7TDMI® processor-based baseband delivers all the mandatory and optional features in Bluetooth V1.2, including adaptive frequency hopping for coexistence with 802.11 and extended SCO (eSCO) for better audio performance.



## Reduced Size

Based on 0.13 micron CMOS process technology, the SiW4000 features a footprint up to 40 percent smaller than competitive products on the market. The reduced die size of the SiW4000 and the need for very few external passives make the footprint ideally suited for direct printed circuit board (PCB) assembly.

## Lower Bill of Materials (BOM)

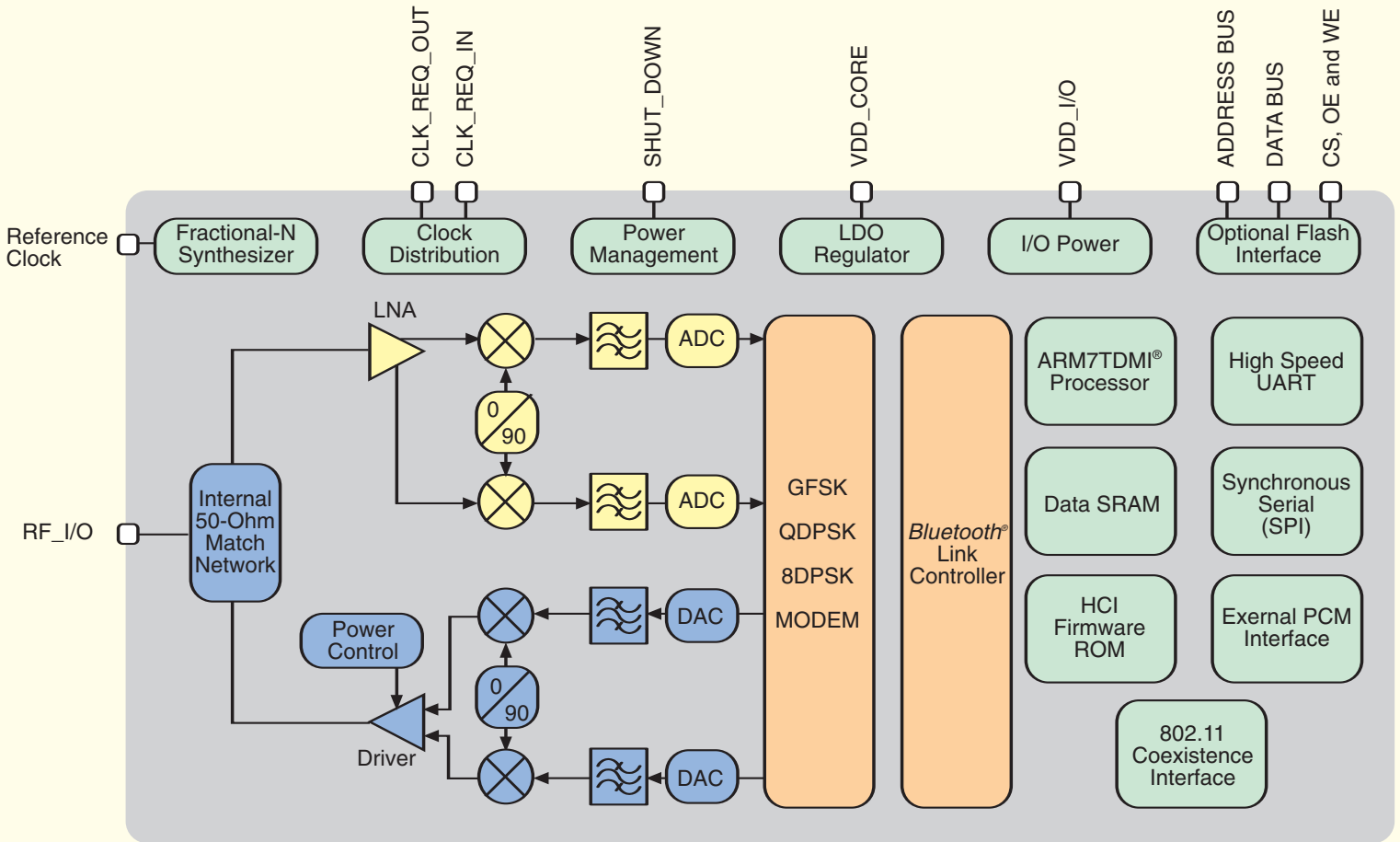
The SiW4000 was designed to lower a customer's total system bill-of-materials costs. Requiring only six capacitors, one inductor and a band pass filter externally in a typical mobile phone application, the SiW4000 reduces the number of components a customer needs to buy and insert on their PCB. Additionally, the SiW4000's internal 50 Ohm RF matching circuits and higher performance margins mean that no tuning is required in development or production. Customers not only save on total component costs, but also save during the design and manufacturing process.

## Features:

- 0.13 micron CMOS process technology
- 2 and 3 Mbps data transfer rates
- Designed for mobile phones
- All mandatory and optional Bluetooth V1.2 features
- Low BOM (6 capacitors, 1 inductor, 1 band pass filter)
- On-chip 50 Ohm matching network for reduced component count
- Fractional-N synthesizer with fast settling
- Adaptive Frequency Hopping (AFH) for coexistence with 802.11
- Extended SCO for better audio performance
- ARM7TDMI® processor core
- Stacked FLASH version available for OEM development work
- Fully backward compatible with Bluetooth® V1.1 and V1.2 devices
- 4.5mm x 4.5mm die size; easy-to-use BGA package

# SiW4000 Block Diagram

www.DataSheet4U.com



For sales or technical support,  
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