RF Micro Devices® Offers the SiW1722™ UltimateBlue™ Radio Modem

The SiW1722™ UltimateBlue™ radio modem is a third-generation radio modem for *Bluetooth*® wireless communications and is based on 0.18 µm CMOS technology. The highly integrated transceiver was specifically designed to meet the rigorous RF performance required for integrating *Bluetooth* technology into CDMA-based mobile phone applications.

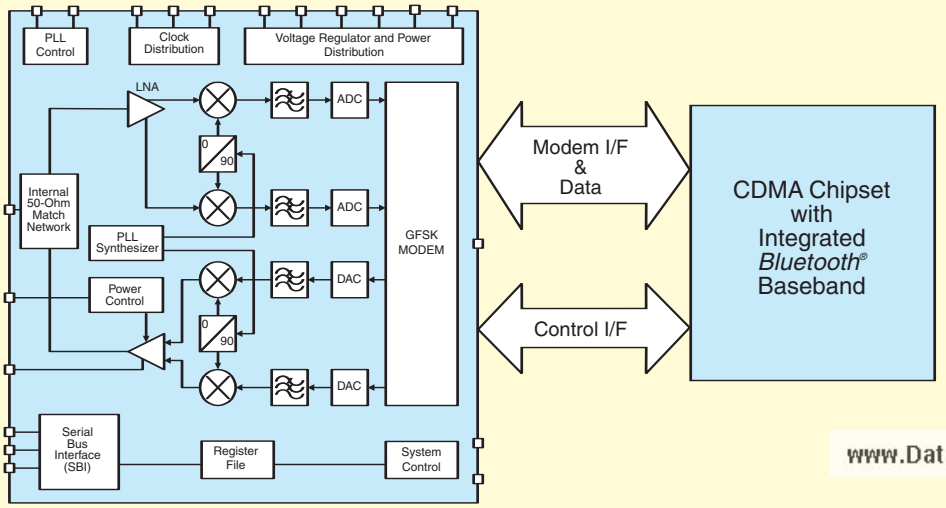
The SiW1722 radio modem combines a 2.4 GHz radio transceiver and Gaussian Frequency Shift Keying (GFSK) modem with digital control functions. The IC also incorporates analog and digital voltage regulators, a power-on-reset (POR) circuit and a reference Phase Lock Loop (PLL) to enable multiple input frequencies.

The SiW1722 radio modem uses direct conversion (zero-IF) architecture. This allows digital filtering for excellent interference rejection as compared to low IF solutions, which have lower rejection due to analog matching limitations. The receiver features high sensitivity due to a low noise RF design combined with an advanced modem design. A fast hardware AGC enables full discovery of any device within the dynamic range of the receiver, solving near-far issues. The transmitter can maintain a stable output power level up to +4 dBm for class 2 operation, which in combination with the excellent receiver performance, ensures the maximum possible range at the lowest system cost.

Features

- **On-chip 50 Ohm RF match network with no external impedance matching components**
- **Fully compliant with *Bluetooth* specification 1.2**
- **Digital interface to CDMA chipsets with an integrated *Bluetooth* baseband**
- **Supports multiple external reference clocks or crystal frequencies with on-chip reference PLL**
- **Direct-conversion architecture with no external channel filter or VCO resonator components**
- **Highly sensitive receiver with excellent interference rejection performance**
- **Hardware AGC dynamically adjusts receiver performance in changing environments**
- **Low out-of-band spurious emissions prevents interference with mobile phone frequencies**
- **Class 2 and 3 transmit output power up to +4 dBm — output power control loop for accurate power control**
- **On-chip voltage regulation simplifies voltage input requirement**
- **Low power consumption in active and standby modes**

SiW1722 Block Diagram



RADIO SPECIFICATIONS

Parameter	Min	Typ	Max	Units
Supply voltage to on-chip regulator	2.3	—	3.63	V
Operating temperature (industrial grade)	-40	—	+85	°C
Receiver sensitivity	—	-87	—	dBm
Output power, maximum	—	+2	+4	dBm
Maximum usable signal	0	—	—	dBm
Frequency operating range	2402	—	2480	MHz
C/I co-channel (0.1% BER)	—	+8	—	dB
C/I 1 MHz (0.1% BER)	—	-4	—	dB
C/I 2 MHz (0.1% BER)	—	-38	—	dB
C/I ≥ 3 MHz (0.1% BER)	—	-43	—	dB

For sales or technical support,
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