

## BRF6300: Bluetooth® Specification v2.0 + Enhanced Data Rate, single-chip solution



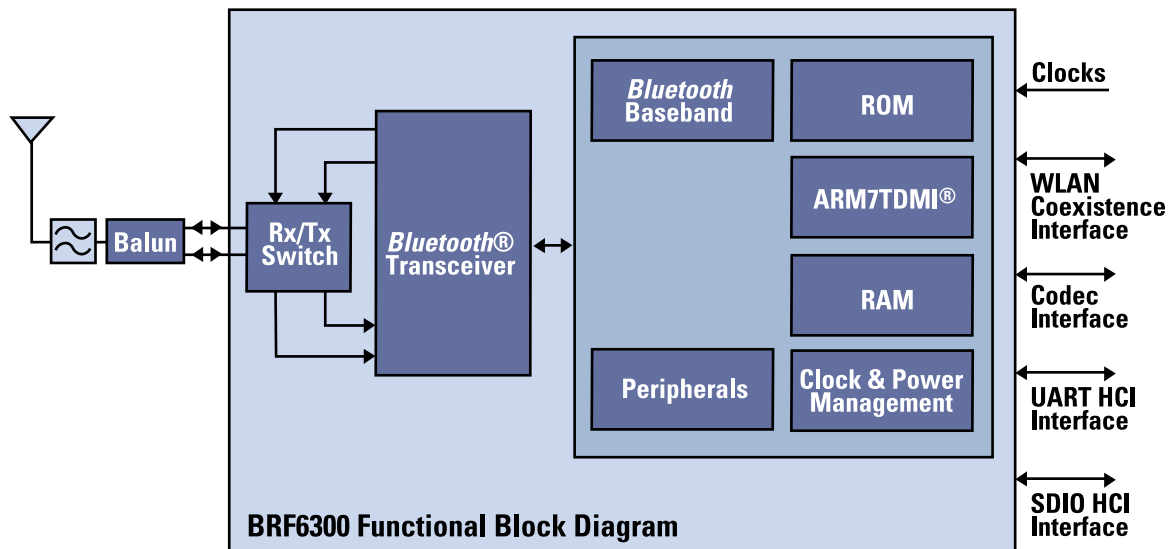
**Key benefits:**

- Best cost and performance *Bluetooth*® wireless technology solution
- Supports specifications v2.0 and Enhanced Data Rate single-chip solutions for mobile terminals
- Industry best power management including lowest power consumption, direct connection to battery (up to 5.4 V) and shut-down (6 µA) to enable market's longest talk, standby and shut-down times
- Complete solutions for faster time-to-market and integration cost savings
  - Complete set of reference designs with TI's OMAP™ processors and TCS cellular chipsets
  - WLAN coexistence solution
- Based on TI's cutting-edge 90-nm CMOS and Digital Radio Processor (DRP) technology

### P R O D U C T B U L L E T I N

#### Overview

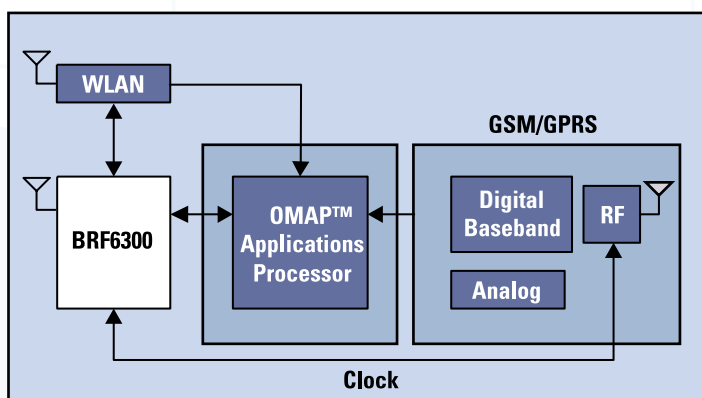
Optimized for mobile terminals, the BRF6300 from Texas Instruments (TI) is a highly integrated, digital CMOS, single-chip solution supporting *Bluetooth*® Specification v2.0. The new chip is based on TI's prior generation BRF6150, leveraging and exceeding its capabilities to provide maximum Enhanced Data Rate (EDR) support and lowest power consumption in most *Bluetooth* scenarios. The BRF6300 requires a small number of external components, offers enhanced WLAN co-existence algorithms and is software upgradeable to support future *Bluetooth* technology enhancements.



TI's BRF6300 integrates the *Bluetooth* baseband, RF transceiver, ARM7TDMI®, memory (ROM and RAM) and power management on one chip. The BRF6300 utilizes TI's digital radio processor technology (DRP) a revolution in RF technology offering major advantages over the existing solutions based on analog RF. All-digital single-chip benefits include increased scalability, lower power consumption, reduced size and ultimately lower cost.

The single-chip BRF6300 is optimized for mobile terminals delivering the RF performance and ease of integration required by manufactures. TI's advanced process and novel design enables the BRF6300 to connect directly to the battery (up to 5.4 V). This saves the cost and space of an external regulator and simplifies the interface and integration with the host by separating their power management entities.

The BRF6300 is pre-integrated in complete reference designs with TI's TCS chipsets and OMAP™ processors. The single chip combines TI's industry proven collaborative coexistence mechanism with *Bluetooth* Specification v2.0 adaptive frequency hopping (AFH) and extended Synchronous Connection Oriented (eSCO). This delivers a high quality *Bluetooth* voice link and enhanced WLAN data throughput when co-located into small mobile products such as smartphones and wireless PDAs.



**Smartphone application: BRF6300 interconnects with the OMAP™ applications processor, GSM/GPRS chipset and WLAN.**

## BRF6300 key features

- Enhanced Data Rate: 2 Mbps and 3 Mbps
- Full *Bluetooth* Specification v2.0:
  - Including eSCO, AFH and faster connection
  - Based on BRF6150 and exceeds its leading performance and features
- Support of SDIO 1 bit, byte basis mode
- Low power scan (Page and inquiry scan < 100  $\mu$ A)
- Single reference design for all power supply options (battery or external regulator)
- Improved power management:
  - Direct connection to battery: 1.7 V to 5.4 V
  - Extended LDO support range: 1.7 V to 5.4 V
  - Less external components
  - All external components' form factor  $\leq 0.4 \times 0.2$
- Improved RF performance
  - Sensitivity:  $-90$  dBm
  - Tx Power: 4 dBm (typical)
- Fast UART, up to 4 Mbps for full EDR support
- Highly optimized for mobile terminals:
  - Six external passive components
  - PCB layout area 45 mm<sup>2</sup>
  - McBSP compatible I/F
  - Supports 12-MHz to 40-MHz FCLK signal
- Superior coexistence mechanisms:
  - Collaborative interface with TI's WLAN to enable VoIPoWLAN and *Bluetooth* voice
  - Shared antenna with TI's mobile WLAN chipsets
  - *Bluetooth* Specification v1.2 AFH
- Enhanced Codec (PCM) I/F capabilities
- TI's digital radio processor technology enables:
  - Support for EDR *Bluetooth* technology (DQPSK & 8PSK)
  - RF built-in-self-test (BIST)
- 1.8 v VIO
- Pin-to-pin backwards compatible with BRF6150 1.8 v I/O
- Smaller package:
  - 4.5 x 4.5 x 0.8 ROM
  - Microstar BGA™ Ultra-Thin Package
- Complete reference designs with TI's TCS cellular chipsets and OMAP processors for fast time-to-market
- Manufactured in TI 90-nm CMOS advanced process technology

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