

BlueLink™ 6.0 single-chip Bluetooth® and FM solution



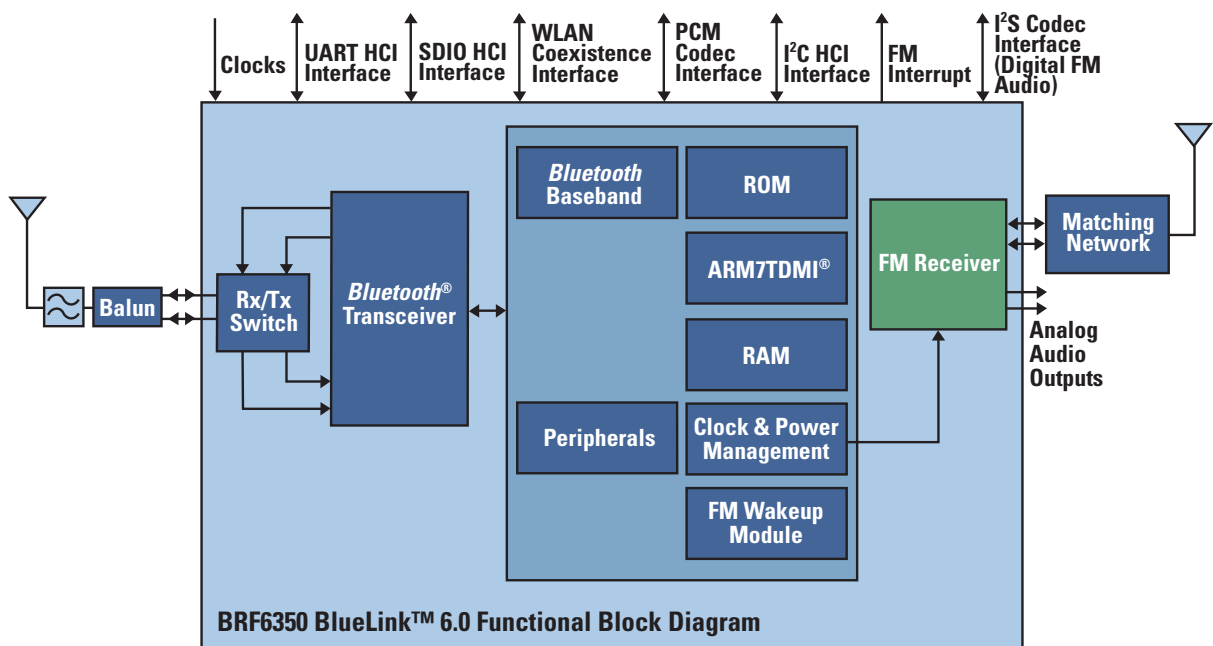
Key benefits:

- Industry's best-performing *Bluetooth* specification 2.0 + EDR and highest fidelity FM stereo and mono performance on a single chip
- Integration of *Bluetooth* and FM in the same silicon provides 25 percent solution size savings compared to discrete solution
- Proven *Bluetooth*-FM RF co-existence
- Complete software stack support for *Bluetooth* and FM, enabling ease of design and quick time-to-market
- On-chip power management adapted to cellular applications
- Incorporates TI's *Bluetooth* and WLAN co-existence hardware and software solution, providing a collaborative interface with TI's mobile WLAN chipsets
- Uses TI's DRP™ technology and is manufactured using 90-nm CMOS to deliver smallest and lowest cost *Bluetooth* and FM single-chip solution

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

Overview

Optimized for mobile terminals, the BRF6350 is the newest addition to Texas Instruments (TI's) BlueLink™ 6.0 family of products for *Bluetooth*® wireless networking. As TI's fourth generation *Bluetooth* single-chip, the BRF6350 is a digital CMOS solution that integrates a complete *Bluetooth* Specification v2.0+EDR system with an FM radio receiver on a single piece of silicon.



TI's BRF6350 is a highly integrated device, including *Bluetooth* baseband, RF transceiver, ARM7TDMI[®], memory (ROM and RAM), power management and an FM receiver. The BRF6350 utilizes TI's 90 nm manufacturing capabilities and DRP[™] technology, a revolution in RF technology offering major advantages over the existing solutions based on analog RF to reduce size, power and cost of wireless semiconductors.

General features

- Highly optimized for mobile terminals
 - Supports major cellular reference frequencies
 - Only 13 external components total for both FM and *Bluetooth* functions
 - Small PCB layout area: 45 mm²
 - McBSP compatible I/F
 - Low power consumption
- Flexibility to be easily integrated into various host system topologies:
 - The *Bluetooth* and FM interfaces could be separated from each other (e.g. separate host interface, separate digital audio)
 - The *Bluetooth* and FM interfaces could be shared (e.g. same host interface, same digital audio)
- The two functions can work simultaneously
 - FM receives/scans/sends RDS information to host, while *Bluetooth* can be in any operational mode
- Small package
 - 3.88 x 3.52 x 0.62 Wafer Scale Package (WSP)
- On-chip power management adapted to cellular applications
 - LDO support range: 1.7 V to 1.9 V
 - Direct connection to battery: 2.2 V to 5.4 V
 - Feeding from DC2DC
 - Power saving modes to minimize power consumption when *Bluetooth* and FM functions are not in use
- Temperature detection and compensation mechanism ensures minimal variation in the RF performance over the whole temperature range
- Complete reference designs with TI's TCS cellular chipsets and OMAP[™] applications processors for fast time-to-market
- Fully embedded FM receiver (including synthesizer and VOC tank)

FM features

- Supports US/Europe and Japanese FM bands
- Fully embedded RDS/RBDS demodulation
- Reliable stereo indication
- Digital receiver architecture (selectivity, image rejection, demodulation) ensuring performance robustness in extreme conditions
- Very low sensitivity level and superior interference rejection
- Frequency
 - Range: 76-108 MHz
 - Channel resolution: 50 KHz
- Supports mono/stereo modes
- Supports standard FM radio functionality
 - Autonomous scan functionality (station seek) including soft mute
 - Set frequency
 - Increase/decrease frequency by one step
 - Forward RDS data to the host
 - Receive either mono or stereo
 - Support mono/stereo blend
 - Support mute
- FM interfaces
 - Analog left/right audio outputs
 - Serial left/right digital stereo audio on I²S
 - RF_IN – Differential input to low-noise amplifier
 - I²C control bus
 - Asynchronous interrupt to the host

Bluetooth features

- Enhanced data rate: 2 Mbps and 3 Mbps
- Full *Bluetooth* Specification v2.0+EDR
- Support of SDIO 1 bit, byte basis mode
- Low power scan (page and inquiry scan < 100 μ A)
- Improved RF performance
 - Sensitivity: -85 dBm
 - TX Power: 4 dBm (typical)
- Fast UART, up to 4 Mbps for full EDR support
 - High rate H4 UART HCI
 - High rate HCI three wire UART transport layer (H5)
- Superior coexistence mechanisms
 - Collaborative interface with TI's WLAN chipsets to enable VoIPoWLAN and *Bluetooth* voice (bandwidth sharing, antenna sharing)
 - *Bluetooth* Specification v2.0 AFH

Bluetooth features (continued)

- Enhanced Codec (PCM) I/F capabilities
- TI's DRP technology provides the following benefits:
 - Support for EDR *Bluetooth* technology (DQPSK & 8PSK)
 - Integrated 2.4 GHz RF transceiver
 - All digital PLL transmitter with digitally controlled oscillator
 - Near zero IF architecture
 - TX/RX switch
 - Support for Class 1 applications
 - RF built-in-self-test (BIST)
- Automatic clock detection mechanism
- Patch trap mechanism that enables feature changes in ROM (ROM updates, improvements)

For more information

www.ti.com/bluelink_6

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