



ROM-BASED NOISE AND ECHO REDUCTION MONO HEADSET IC

FEATURES

- Single-chip Bluetooth® 2.1 + EDR solution in 0.13 μm CMOS
- High-performance ARM7TDMI® processor
- On-chip ROM containing complete headset application and protocol stack based on the Broadcom® BTE-Audio Stack
- Integrated SmartAudio™ 150 speech enhancement algorithms
 - Noise suppression
 - Echo suppression
 - Wind noise suppression
 - Automatic volume control
- Integrated switching regulator
- Integrated battery charger
- Integrated high-quality mono codec
- Low-power operation
- 6 mm x 6 mm plastic FBGA RoHS lead-free package
- Pin-compatible with BCM2044
- Rich application configuration capability permitting differentiation

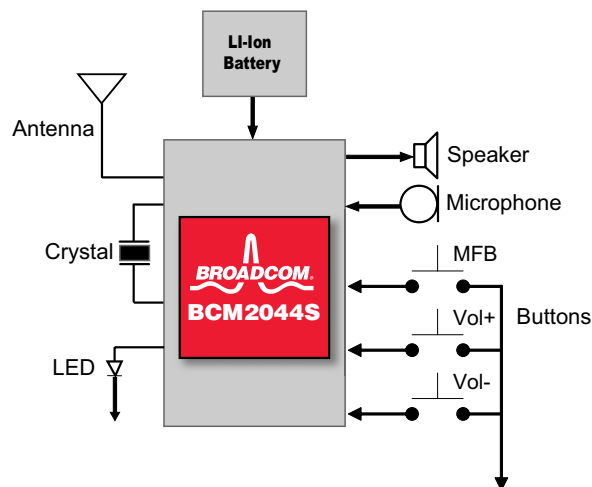
SUMMARY OF BENEFITS

- Single-chip headset in 0.13μ enabling the lowest cost mono headset solutions
- First ROM-based noise and echo reduction headset enabling revolutionary BOM reduction for high and mid range headset
- Best-in-class RF performance for longest range and ease of system integration
 - Superior receiver sensitivity
 - Integrated balun
 - Bluetooth 2.1 + EDR
- Low active and stand-by power consumption

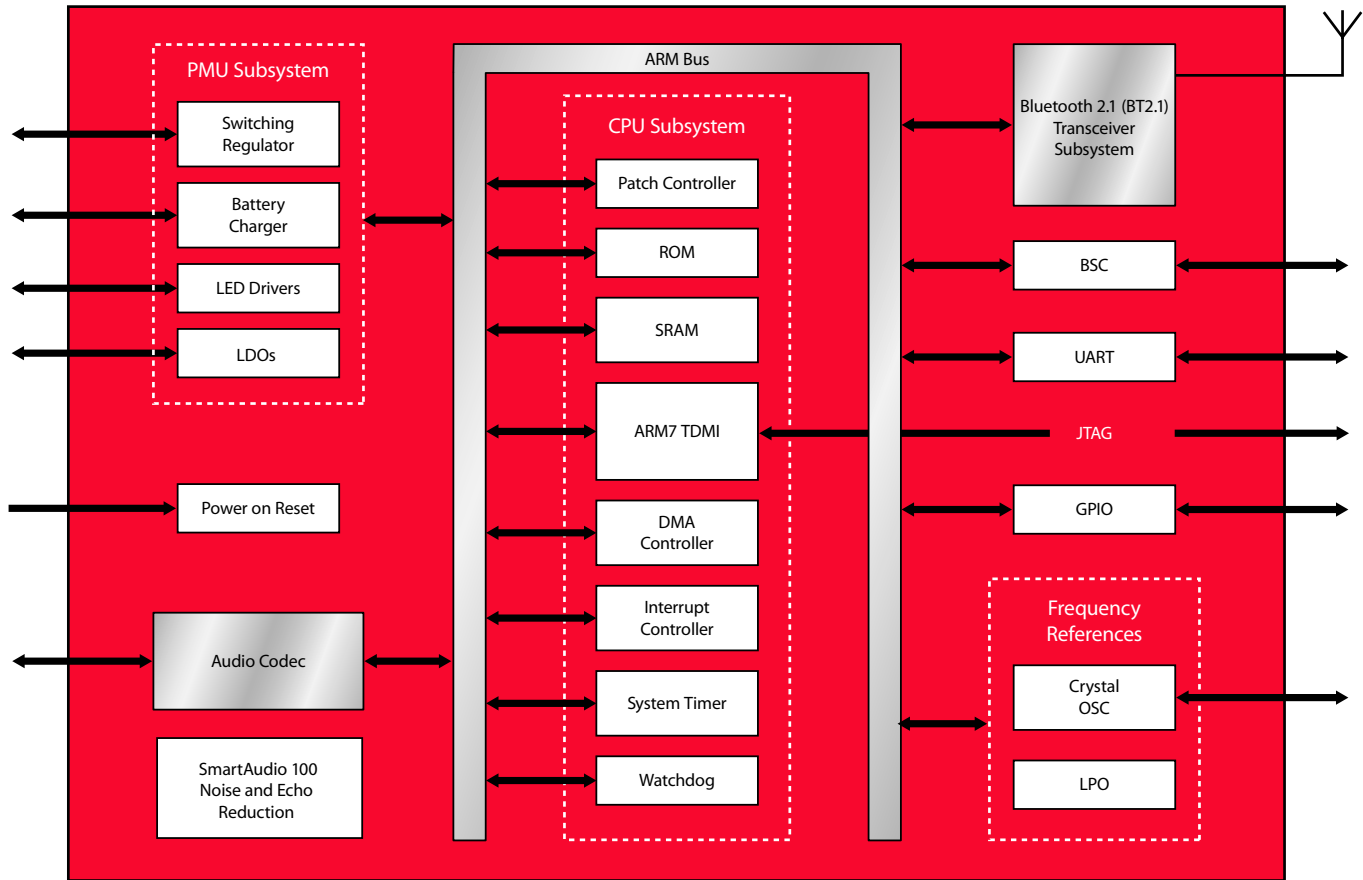
APPLICATIONS

- Mono headset connected to cellular phone
- VoIP headset connected to PC

Mono Headset Applications



OVERVIEW



BCM2044S Block Diagram

The Broadcom BCM2044S is a monolithic 0.13 μm , single-chip Bluetooth 2.1 + EDR mono headset solution with very low power consumption. This is the first headset IC in the world that implements SmartAudio noise and echo reduction algorithms in an integrated ROM; hence significantly reducing the BOM; hence significantly reducing the BOM. This ROM solution has been designed to permit the lowest possible BOM for high- and mid-range mono headsets. The ROM contains a default application built on top of the highly interoperable Broadcom BTE-Audio Stack. Sophisticated configurability has been built into the default application allowing customers to differentiate. A small patch RAM space is also provided for last minute code changes prior to production.

The BCM2044S transceiver subsystem delivers a highly integrated radio with superior receiver sensitivity. The performance of this subsystem enables greater range and more robust link performance.

The BCM2044S power management subsystem offers the highest level of integration. This subsystem includes the switching regulator, battery charger, LED drivers, and simple battery monitor. The BCM2044S also employs multiple internal LDO regulators for improving isolation, thereby maintaining high radio performance and excellent audio quality.

The audio interface subsystem integrates a very high performance audio codec operating at 8 kHz or 16 kHz resulting in superior speech quality.

The BCM2044S is packaged in 6 mm x 6 mm fine pitch BGA plastic package permitting either ultra-low cost 2-layer PCB implementations or ultra-small footprint implementations. The BCM2044S is pin for pin compatible with BCM2044 to allow single PCB design to be used across multiple tiers of headsets, reducing customer time to market and maximizing design and production investments.

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