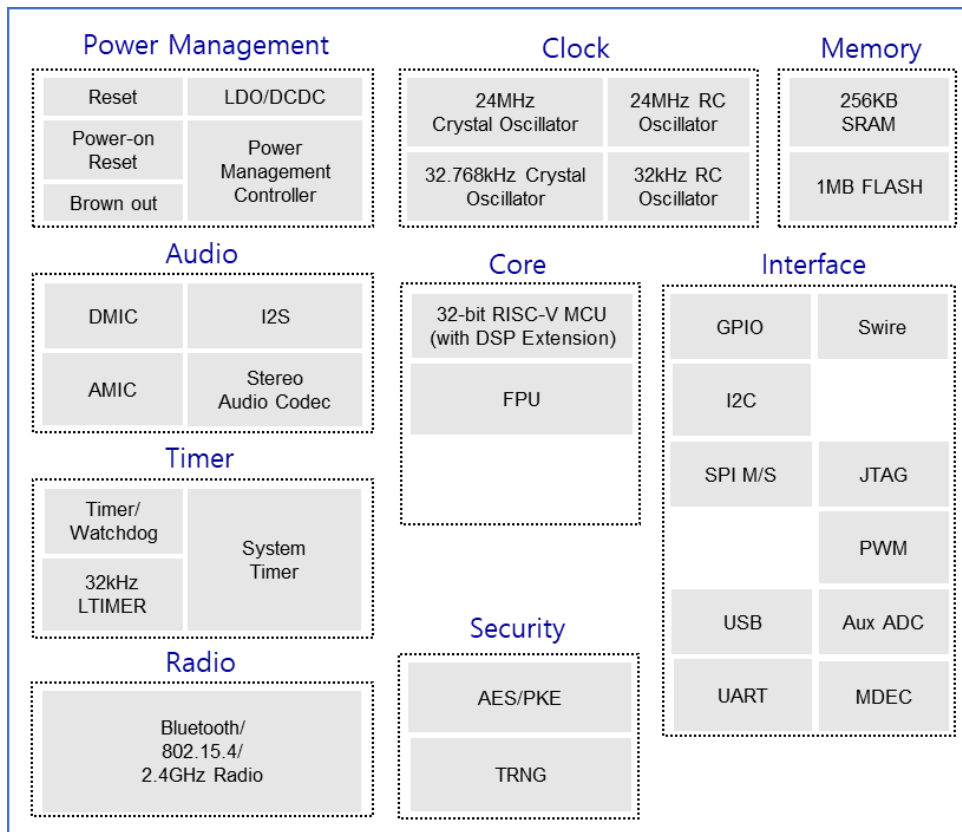


Overview

The TLSR9218 supports standards and industrial alliance specifications including Bluetooth 5.2, Bluetooth LE, indoor positioning and BLE Mesh, Zigbee 3.0, HomeKit, 6LoWPAN, Thread, Matter and 2.4 GHz proprietary standard. The TLSR9218 combines the features and functions needed for high quality wireless audio equipment into a single SoC.



Applications

- Augmented reality glasses
- Smart watches
- Smart trackers
- Wristband
- Wireless headsets
- Earbuds

Key Features

32-bit RISC-V MCU

- Max.96MHz operating frequency
- 2.59 DMIPS/MHz, 3.54 CoreMark/MHz
- DSP instruction set, floating-point unit

Memory

- Max.256KB SRAM w/ max. 64KB retention
- Program memory: 1MB Flash (TLSR9218A)
2MB Flash (TLSR9218B)

Protocols

- Bluetooth 5.2 compliant
- BLE: 1Mbps/2Mbps/AoA/AoD/Mesh
- IEEE 802.15.4: Zigbee/RF4CE/6LoWPAN/Thread
- HomeKit, 2.4GHz proprietary
- Multi-protocol concurrent mode
- HW OTA upgrade and multiple boot switch

Power Consumption (@3.3V DCDC)

- BLE: Rx 6.1mA, Tx 6.6mA @ 0 dBm
- Deep sleep: 1.1uA

RF Specification

- Rx sensitivity (dBm): -96@BLE 1Mbps, -92.5@BLE 2Mbps, -99.5@LR 125kbps, -98.5@LR 500kbps, -99.5@IEEE 802.15.4 250kbps
- Tx output power (max.): -24 ~ +10dBm@BLE,

Audio Features

- High-performance stereo audio codec: 24-bit ADC/DAC, SNR >96dB, max. sampling rate 192kHz
- Patented proprietary technology for TWS and 1+N hearable devices with synchronized playback and balanced power on all devices
- Audio codec: SBC, OPUS, LC3
- Voice codec: G.711, a-Law, u-Law, CVSD, mSBC
- Bluetooth profiles: HFP 1.7, HSP 1.2, A2DP 1.3, AVRCP 1.6, SPP 1.2, PBAP 1.0, ANCS, DIS
- Apple iAP2 protocol
- Noise suppression and echo cancellation
- Supports packet loss concealment (PLC) for voice Processing

Security

- HW AES and AES-CCM
- HW accelerator for Elliptical curve cryptography (ECC)
- Embedded TRNG

Interface

- Max.26 GPIOs
- Configurable 5-wire JTAG debug interface
- DMIC & AMIC
- I2S
- SPI, I2C, USB 2.0, Swire, UART with hardware flow control
- Max.6 channels of differential PWM
- IR transmitter with DMA
- 9-channel 14-bit auxiliary ADC
- Low-power comparator
- Packet Traffic Arbitrator (PTA) for Wi-Fi co-existence

Supply Voltage

- 1.8V ~ 4.3V

Operating Temperature

- -40°C ~ +85°C

Package

- TLSR9218A, QFN48, 6x6mm
- TLSR9218B, QFN48, 6x6mm