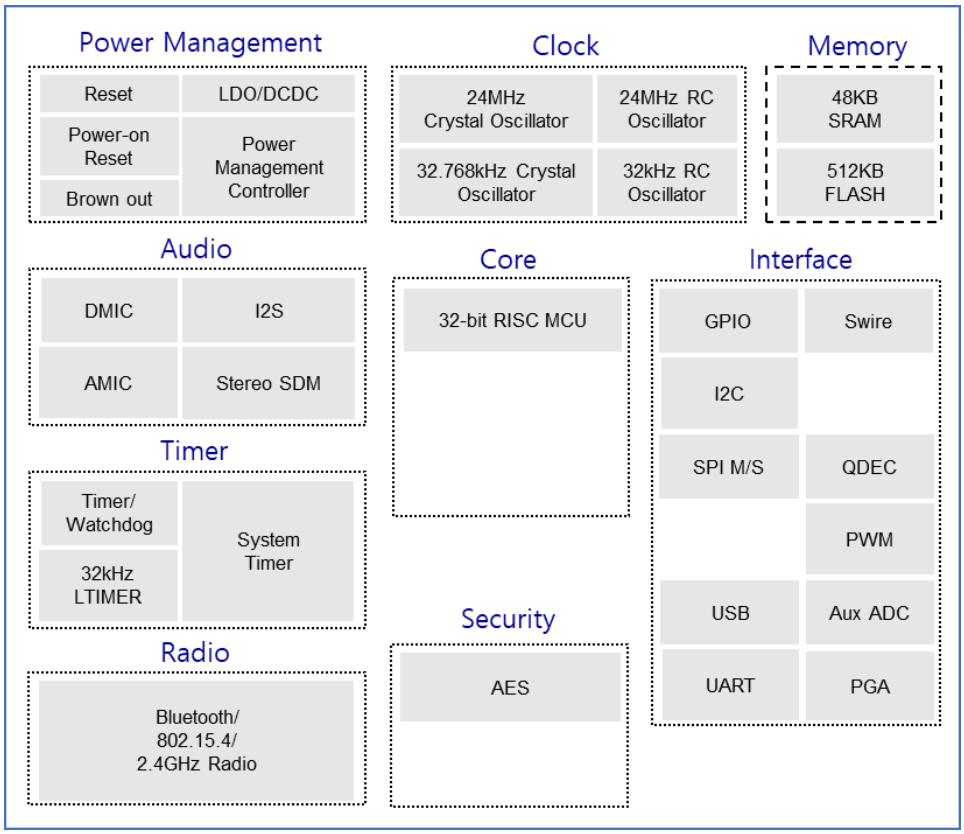
TLSR8253 Product Brief

Overview

The TLSR8253 is Bluetooth LE + IEEE802.15.4 multi-standard wireless SoC solution with internal Flash and audio support. The TLSR8253 combines the radio frequency (RF), digital processing, protocols stack software and profiles for Bluetooth Low Energy (up to Bluetooth 5), BLE Mesh, RF4CE and 2.4GHz proprietary standard into a single SoC.



Applications

- Wearable devices
- Smartphone and tablet accessories
- RF remote control
- Sports and fitness tracking
- Wireless toys
- Smart lighting, smart home devices
- Building automation
- Smart grid
- Intelligent logistics/ Transportation/city
- Consumer Electronics
- Health care
- Industrial control

Key Features

32-bit RISC MCU

- Max.48MHz operating frequency
- Better power-balanced performance than ARM M0

Protocols

- Bluetooth 5.0 compliant
- BLE: 1Mbps/2Mbps/AoA/AoD/Mesh
- IEEE 802.15.4: RF4CE
- 2.4GHz proprietary
- Multi-protocol concurrent mode
- HW OTA upgrade and multiple boot switch

Memory

- 48KB SRAM w/ max. 32KB retention
- Program memory: 512KB Flash

Power Consumption (@3.3V DCDC)

- BLE: Rx 5.3mA, Tx 4.8mA @ 0 dBm
- Deep sleep: 0.4uA

RF Specification

- Rx sensitivity (dBm): -96@BLE 1Mbps, -93@BLE 2Mbps, -101@LR 125kbps, -99@LR 500kbps, -99.5@IEEE 802.15.4 250kbps
- Tx output power (max.): +10dBm@BLE,

Security

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

Interface

- Max.32/17 GPIOs
- DMIC
- A MIC
- I2S
- Stereo audio output
- SPI, I2C, USB 2.0, Swire, UART with hardware flow control and 7816 protocol support
- Max.6 channels of differential PWM
- IR transmitter with DMA
- 6-channel 14-bit auxiliary ADC with 4-channel differential input PGA
- One quadrature decoder
- Temperature sensor
- Low-power comparator

Supply Voltage

- 1.8V ~ 3.6V

Operating Temperature

- -40℃ ~ +85℃

Package

- TLSR8253, QFN48, 7x7mm
  QFN32, 5x5mm