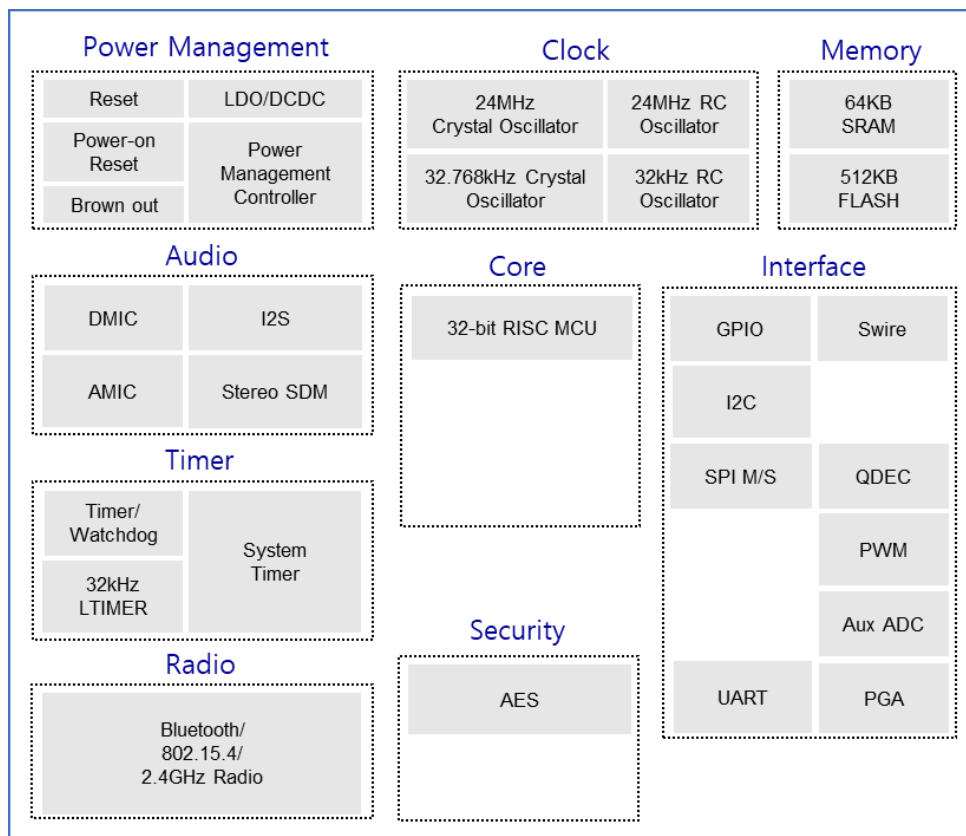


Overview

The TX-M2541 is Bluetooth LE + IEEE802.15.4 multi-standard wireless solution with internal Flash and audio support, which combines the features and functions needed for all 2.4GHz IoT standards into a module. The TX-M2541 combines the radio frequency (RF), digital processing, protocols stack software and profiles for multiple standards into a module. The module supports standards and industrial alliance specifications including Bluetooth Low Energy (up to Bluetooth 5), BLE Mesh, 6LoWPAN, Zigbee, RF4CE, HomeKit, ANT and 2.4GHz proprietary standard.



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

Memory

- 64KB SRAM w/ max. 32KB retention
- Program memory: 512KB/1MB Flash

Protocols

- Bluetooth 5.0 compliant
- BLE: 1Mbps/2Mbps/AoA/AoD/Mesh
- IEEE 802.15.4: Zigbee/RF4CE/6LoWPAN/Thread
- HomeKit, ANT, 2.4GHz proprietary
- Multi-protocol concurrent mode
- HW OTA upgrade and multiple boot switch

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

Antenna

- PCB pattern antenna

Certification

- KC, CE

Supply Voltage

- 1.8V ~ 3.6V

Operating Temperature

- -40°C ~ +85°C

Package Dimension (unit: mm)

- 12 x 14 mm

