# TLSR8266/TLSR8266F512/TLSR8266F128

/TLSR8266F1K

Telink BLE series SoC unlocks the full potential for Bluetooth low energy applications

Product Brief

General Description

The TLSR8266/TLSR8266F512/TLSR8266F128/TLSR8266F1K is Telink-developed BLE SoC solution which is fully standard compliant and allows easy connectivity with Bluetooth Smart Ready mobile phones, tablets, laptops. Telink BLE SoC supports BLE slave and master mode operation, including broadcast, encryption, connection updates, and channel map updates. It is RoHS-compliant and 100% lead (Pb)-free.

The TLSR8266/TLSR8266F512/TLSR8266F128/TLSR8266F1K is designed to offer high integration, ultra-low power application capabilities. It integrates strong 32-bit MCU, BLE/2.4GHz Radio, 16kB SRAM, 128/256/512kB external FLASH (TLSR8266) or 512kB internal Flash (TLSR8266F512) or 128kB internal Flash (TLSR8266F128) or 1024kB internal Flash (TLSR8266F1K), 14bit ADC with PGA, 6-channel PWM, three quadrature decoders, a hardware keyboard scanner (Keyscan), abundant GPIO interfaces, multi-stage power management module and nearly all the peripherals needed for Bluetooth Low Energy applications development.
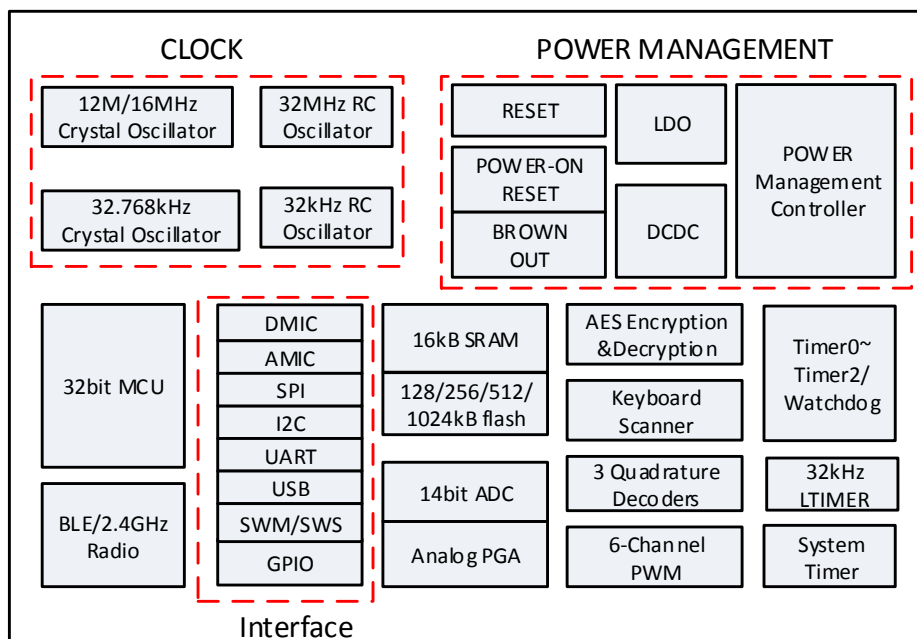
Target Applications

- Smartphone accessories
- Wireless Microphone
- Sports and fitness tracking
- PC and tablet peripherals, including Mouse / Keyboard

- Remote Control and 3D glasses
- Health monitoring
- Wearable devices

Key Features

- General features
    - 32bit high performance MCU, up to 48MHz
    - Program memory: external 128/256/512kB FLASH (TLSR8266) or internal 512kB Flash (TLSR8266F512) or internal 128kB Flash (TLSR8266F128) or internal 1024kB Flash (TLSR8266F1K)
    - Data memory: 16kB on-chip SRAM
    - 12M/16MHz&32.768kHz Crystal and 32kHz/32MHz embedded RC oscillator
    - A rich set of I/Os:
        - ✧ TLSR8266: Up to 41/37/22 GPIOs depending on package option
        - ✧ TLSR8266F512: Up to 35/20 GPIOs depending on package option
        - ✧ TLSR8266F128: Up to 12 GPIOs
        - ✧ TLSR8266F1K: Up to 20 GPIOs
        - ✧ DMIC (Digital Mic), AMIC (Analog Mic), Mono-channel Audio output
        - ✧ SPI, I2C, USB, UART with hardware flow control, Debug Interface
    - Up to 6 channels of PWM
    - Sensor: 14bit ADC with PGA, Temperature sensor
    - Three quadrature decoders
    - Embeds hardware AES
    - Compatible with USB2.0 Full speed mode
    - TLSR8266 & TLSR8266F512 operating temperature range:
        - ✧ ET versions: -40℃~+85℃
        - ✧ AT versions: -40℃~+125℃
    - TLSR8266F128 & TLSR8266F1K operating temperature range: -40℃~+85℃
    - TLSR8266 Package:
        - ✧ TLSR8266ET56/TLSR8266AT56, 56-pin QFN 7×7mm
        - ✧ TLSR8266ET48/TLSR8266AT48, 48-pin QFN 7×7mm
        - ✧ TLSR8266ET32/TLSR8266AT32, 32-pin QFN 5×5mm
    - TLSR8266F512 Package:
        - ✧ TLSR8266F512ET48/TLSR8266F512AT48, 48-pin QFN 7×7mm
        - ✧ TLSR8266F512ET32/TLSR8266F512AT32, 32-pin QFN 5×5mm
    - TLSR8266F128 Package: TLSR8266F128ET24, 24-pin QFN 4×4mm
    - TLSR8266F1K Package: TLSR8266F1KET32, 32-pin QFN 5×5mm

- RF features
    - BLE/2.4GHz RF transceiver, working in worldwide 2.4GHz ISM band
    - Bluetooth 4.2 Compliant, 1Mbps and 2.4GHz 2Mbps Boost Mode
    - Rx Sensitivity: -92dBm @ 1Mbps mode
    - Tx output power: +7dBm
    - Single-pin antenna interface
    - RSSI monitoring

- Features of power management module
    - Embedded LDO.
    - Battery monitor: Supports low battery detection.
    - Chip power supply: 1.9V~3.6V (with external flash), 2.7V~3.6V (with internal flash)
    - Multiple stage power management to minimize power consumption
        - Receiver mode current: 13mA
        - Transmitter mode current: 13mA @ 0dBm power, 19mA @ max power
        - Suspend mode current: 20uA (IO wakeup)/22uA (Timer wakeup)
        - Deep sleep mode current: 0.7uA

- TLSR8266F512/TLSR8266F128/TLSR8266F1K Flash features
    - Total 512kB (TLSR8266F512) / 128kB (TLSR8266F128) / 1024kB (TLSR8266F1K)
    - Flexible architecture: 4kB per Sector, 64kB/32kB per block
    - Up to 256 Bytes per programmable page
    - Write protect all or portions of memory
    - Sector erase (4kB), Block erase (32kB/64kB)
    - 100,000 program/erases, 20-year data retention (typical)

Development tools

A full set of development tools for the BLE SoC are provided, which include EVB, reference design and SDK for customers to perform evaluation, quick application prototyping and firmware development.

Company Profile

Telink Semiconductor provides highly integrated radio-frequency and mixed-signal System-On-Chip (SoC) solutions for a variety of communication and control application markets including consumer electronics, medical instruments, industrial control, home automation, smart energy, and etc.

For further information on the technology, product and business term, please contact Telink Semiconductor Company.

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