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|------------------|---|
| Manufacture Name | 瑞昱半导体股份有限公司 |
| Logo |  |
| Intro | 成立于1987年，位于台湾「硅谷」的新竹科学园区，凭借当年几位年轻工程师的热情与毅力，走过艰辛的草创时期到今日具世界领导地位的专业IC设计公司 |
| Website | https://www.realtek.com/zh/products/communications-network-ics/category/bluetooth |
| Country | 中国 |
| Brand | 瑞昱 |

- | | |
|--|--|
| Chips | |
| Core Type | |
| ARM Cortex-M4F | |
| Dimension | |
| 5x5mm,6x6mm,8x8mm | |
| UART | |
| Current | |
| Transceiver Compatible | |
| -Compatible with Bluetooth Core Specification including BR/EDR/LE-1M/LE-2M/LE-Coded (Long Range) | |
| -Fully integrated balun and synthesizer minimizes external components. | |
| -RF circuit design minimizes power-consumption while keeping excellent performance | |
| Intro | |
| Debugging | |
| DSP RAM | |
| 8KB x 22 | |
| Voice Services | |

4-way association cache controller

Crystal

no

Power fail

no

Wifi

-

AoA/AoD

Operating Frequency [Max] (MHz)

40MHz

SSI

Sensor Controller

Receiver Sensitivity

Upgrade Type

Manual

Package Type

QFN

DSP Technology

General

BLUETOOTH DUAL MODE AUDIO SOC

on chip (PLL)

no

I2S

Chip Name

RTL8763B

Flash (kB)

I2C

-

Standby

Output Power

CPU Clock Speed

40MHz

Pins

DSP Clock Speed

Features

BR / EDR / LE

crystal (optional)

no

PDM

LE Audio

- 无

Type

蓝牙低功耗, 蓝牙双模

Bluetooth Version

5.1

I2S

24-bit, 192kHz on I2S digital audio

Frequency Regulation

-Supports TX +10dBm (typ.) maximum output power for Bluetooth classic

-Supports TX +10dBm (typ.) maximum output power for Bluetooth BLE

-Supports TX +4dBm (typ.) maximum output power for Bluetooth BLE low power TPM mode

-Receive sensitivity: -94dBm (2Mbps EDR)

-Receive sensitivity: -97dBm (BLE)

-Receiver sensitivity: -106.5dBm (125K BLE long range)

-Single-end TX/RX RF port without matching component required (when TX power is below +4dBm and using PIFA type PCB antenna)

-Crystal oscillator with built-in integrated capacitor for clock offset digital tuning (0~20pF), could save 2-compensation CL cap following Realtek design guidelines

CPU Features

Pitch

on-chip RC

no

PWM

Brand

瑞昱

SRAM (kB)

Real-Time Clock

no

CPU Architecture

32-bit

Channels

External clock

no

Protocols

-

RADIO

SAADC

Country

中国

EEPROM (kB)

Crypto Accelerator

Programmable channels

Watchdog timer

no

TWI

no

Bluetooth 5 PHYs

-

SPIM

NFC Tag

SPI

Executed external SPI flash

Public Key Hardware Accelerator

Fixed channels

QDEC

-

bluetooth 5.1 support

Yes

SPIS

CMP

Overview

The RT8763B series are single-chip Bluetooth ROM audio solutions for mono (RTL8763BM) and stereo (RTL8763BF/BFR, RTL8763BS, RTL8763BA) applications. The RT8763B is composed of an ARM core and an ultra-low power DSP core with high efficiency computing power, high performance audio codec, power management unit, ADC, ultra-low current RF transceiver, and smart I/O distribution controller.

The parameter configuration tools, the EVB kits, and the MP kits, including controller hardware and software, provide a simple and flexible procedure for customers to quickly design and proceed to mass production with Realtek's new generation of audio solutions. These complete total solutions provide a fast and highly reliable development path with a very competitive R-BOM.

- Bluetooth 5 specification compatible
- Supports HFP 1.7, HSP 1.2, A2DP 1.3, AVRCP 1.6, SPP 1.2 and PBAP 1.0
- Single-end RF radio output with high performance 10dBm of transmitter power and -94dBm 2M EDR receiver sensitivity
- Supports Bluetooth classic (BDR/EDR)

- Supports Bluetooth Low Energy (BLE)
 - Generic access service
 - Device information service
 - Proprietary services for data communication
 - Apple Notification Center Service (ANCS)
- Real Wireless Stereo (RWS)
- Supports USB type-C audio
- Supports iAP2
- Realtek's latest RCV (Real Clear Voice) technology for narrowband and wideband voice connection, including wind noise reduction
- Supports high resolution audio codec up to 24bits, 192kHz audio data format
- Supports dual analog and digital MIC, AUX-IN, I2S digital audio, analog output
- Supports high speed UART, I2C, SPI and USB2.0 compatible interface
- Supports high resolution 12-bits multi-channel ADC
- Supports PWM I/O and smart LED controller
- Supports USB BC1.2 battery charging
- Smart I/O distribution scheme with MUX
- Built-in 8Mbits FLASH memory (RTL8763BF/RTL8763BFR)
- Integrated dual switch mode power regulator, linear regulators, and battery charger; charging current up to 400mA
- Built-in battery voltage monitoring and thermal protection scheme with external thermal resistor
- SBC, AAC decoder support
- Package: 5x5mm² QFN40 (RTL8763BM, RTL8763BF, RTL8763BFR), 6x6mm² QFN48 (RTL8763BS) and 8x8mm² QFN68 (RTL8763BA) with 0.4mm pitch
- Supports OTA and USB firmware upgrade
- GSM 217Hz interference block out design
- Low BOM cost
- Green (RoHS compliant and no antimony or halogenated flame retardants)
- Supports PTA (Packet Traffic Arbiter) when co-existing with Wi-Fi

DSP Audio Processing

- Enhanced Tensilica Hi-Fi-mini compatible 24-bit DSP core
- 2 single-cycle MACs: 24 x 24-bit multiplier and 56-bit accumulator
- Supports G.711 A-Law, μ Law, continuous-variable-slope-delta (CVSD) and mSBC voice codecs
- Supports 8/16 kHz 1/2-mic noise suppression and echo cancellation
- Packet Loss Concealment (PLC) for voice processing
- SBC, and AAC-LC audio codecs supported for BT audio streaming

Audio Codec

- Dual operation voltage range 2.8V and 1.8V
- Supports cap-less, single-ended, and differential mode at the DAC path
- Supports 16ohm and 32ohm speaker loading
- Stereo 24-bit digital-to-analog (DAC) with 102dBA SNR
- Stereo 24-bit analog-to-digital (ADC) with 97dBA SNR
- 5-band configurable EQ at both DAC/ADC paths
- Sampling rates of 8, 16, 32, 44.1, 48, 88.2, and 96kHz are supported.
- Built-in MIC bias generator

RAM and ROM Size

- ROM size 768KB
- MCU RAM size 16KB x 8 Data RAM + 8KB X 2 cache RAM
- DSP RAM 8KB x 22

RF

- Supports TX +10dBm (typ.) maximum output power for Bluetooth classic
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Baseband Features

- 40MHz main clock
- Supports serial flash for FW storage and parameter upgrade
- Adaptive Frequency Hopping (AFH)
- Multi-link support
- Supports Serial Copy Management System (SCMS-T) content protection

GPIO

Accelerator

Channel groups

PDM

有

Security

TWIM

Features

CAN

True Random Number Generator

USB

no

TWIS

Block Diagram

CAN FD

Monitor

SPI

no

UARTE

RAM(KB)

16KBx8 Data +8KBX2 cache

Application Note

- Mono headset
- Stereo headset
- Real Wireless Stereo (RWS) headset
- Mono speaker
- Stereo speaker

Human Machine Interface

two PDM digital MIC inputs

Quad SPI

-

NFCT

Development Board

Security Modules

Debug interface

SWD debug interface

LDO

no

USBD

Datasheet

Timers [Number, bits]

no

On-chip VBUS

no

QSPI

PWM [Number, bits]

Image

Regulated supply for external components

-

ADC [Number, bits]

Price

0.00

DAC [Number, bits]

RMB

□

Supply Voltage [Min to Max] (V)

2.8V ~ 4.35V (VBAT)

Rating

no 

Analog comp

no

Ambient Operating Temperature (Min to Max) (°C)

-20°C ~ +70°C

low-power comp

no

Cache

-

Junction Temperature (Min to Max) (°C)

Temperature sensor

no