

Bluetooth® Stereo Audio Module

Features

- Qualified for Bluetooth v5.0 specifications
- Supports HFP 1.6, HSP 1.2, A2DP 1.3, SPP 1.2 and AVRCP 1.6
- Supports Bluetooth 5.0 dual-mode (BDR/EDR/ BLE) specifications
- Stand-alone module with on-board PCB antenna and Bluetooth stack
- Supports high resolution up to 24-bit, 96 kHz audio data format
- Supports Bluetooth Low Energy data rate up to 1Mbit/s
- Supports to connect two hosts with HFP/A2DP profiles simultaneously
- Transparent UART mode for seamless serial data over UART interface
- Supports virtual UART communication between host MCU and smartphone applications by Bluetooth SPP or BLE link
- Easy to configure with Windows® GUI or directly by external MCU
- Supports firmware field upgrade
- Supports one microphone
- Compact surface mount module:
 - BTM964H: 32 x 15 x 2.5 mm
- Castellated surface mount pads for easy and reliable host PCB mounting
- RoHS compliant
- Ideal for portable battery operated devices
- Internal battery regulator circuitry

DSP Audio Processing

- Supports 64 kbps A-Law, μ -Law PCM format/ Continuous Variable Slope Delta (CVSD) modulation for SCO channel operation
- Supports 8/16 kHz noise suppression
- Supports 8/16 kHz echo cancellation
- Supports Modified Sub-Band Coding (MSBC) for wide band speech
- Built-in High Definition Clean Audio (HCA) algorithms for both narrow band and wide band speech processing
- Packet loss concealment (PLC)
- Built-in audio effect algorithms to enhance audio streaming

- Supports Serial Copy Management System (SCMS-T) content protection

FIGURE 1: BTM964H MODULE



Audio Codec

- Sub-band Coding (SBC) and optional Advanced Audio Coding (AAC) decoding
- 20-bit digital-to-analog converter (DAC) with 98 dB SNR
- 16-bit analog-to-digital converter (ADC) with 92 dB SNR
- Supports up to 24-bit, 96 kHz I²S digital audio

BTN964H

Peripherals

- Built-in lithium-ion and lithium-polymer battery charger (up to 350 mA)
- Integrated 1.8V and 3V configurable switching regulator and low-dropout (LDO) regulator
- Built-in ADC for battery monitoring and voltage sense
- Built-in ADC for charger thermal protection
- Built-in undervoltage protection (UVP)
- An AUX-In port for external audio input
- Two LED drivers
- Multiple I/O pins for control and status

RF/Analog

- Frequency spectrum: 2.402 GHz to 2.480 GHz
- Receive sensitivity: -90 dBm (2 Mbps EDR)
- Output Power
 - BTM964H Class 1: +15 dBm typical

HCI Interface

- High-speed HCI-UART interface (supports up to 921,600 bps)

MAC/Baseband Processor

- Supports Bluetooth 5.0 dual-mode (FW dependent)
 - BDR/EDR transport for audio, voice, and SPP data exchange
 - BLE transport for proprietary transparent service and Apple Notification Center Service (ANCS) data exchange

Operating Condition

- Operating voltage: 3.2V to 4.2V
- Operating temperature: -20°C to +70°C

Compliance

- Bluetooth SIG QDID: 110159 (BTM964H Class 1)
- Certified to the United States (FCC), Innovation Science and Economic Development Canada (ISED), European Economic Area (CE), Korea (KCC), Tai- wan (NCC), Japan (MIC), and China (SRRC) , and Brazil (ANATEL) radio regulations

Applications

- Soundbar and Subwoofer (FW dependent)
- Bluetooth portable speaker phone
- Multi-speaker (FW dependent)

Description

The BTM964H Stereo Audio module is a fully qualified Bluetooth 5.0 dual-mode (BDR/EDR/BLE) module for designers to add wireless audio and voice applications to their products. The BTM964H module is a Bluetooth Special Interest Group (SIG) certified module that provides a complete wireless solution with Bluetooth stack, an integrated PCB antenna, and worldwide radio certifications in a compact surface-mount package.

10.0 ORDERING INFORMATION

Table 10-1 provides the ordering information of the BTM964H module.

TABLE 10-1: BTM964H MODULE ORDERING INFORMATION

Module	Microchip IC	Description	Shield	Regulatory Certification	Part No.
BTM964H	IS2064GM	Bluetooth 5.0 Stereo Audio module, Class 1 with RF shield	Yes	FCC, ISED, CE, MIC, KCC, NCC, SRR, ANATEL	BM64SPKS1MC1

Note: The BTM964H module can be purchased through a Microchip representative. Go to Microchip web site www.microchip.com for current pricing and a list of distributors for the product