WC7220B0 Module

Standalone Bluetooth 4.1/BLE (Bluetooth Smart) Module with Integrated Antenna

Description

WC7220B0 is a very low power, small form factor, single mode BLE module with completely embedded BLE 4.1 stack. It provides easy and flexible way for system designers to add Bluetooth 4.1/BLE (Bluetooth Smart) functionality to their end-products. With industry's best integration in a small form factor, this module exhibits excellent Bluetooth performance with ultra-low power consumption, making it an ideal choice for a variety of applications. WC7220B0 module is a subsystem that includes an integrated antenna, baseband, LNA, PA, crystals, filter, RF front-end and EEPROM for storing Firmware, calibration data, MAC addresses. It also includes an MCU with complete tool chain accessible to the customer for their application development reducing procurement and development cost, effort and accelerates their time-to-market.

Features

- Small footprint (QFN-32) : 8 mm x 12 mm x 1.86 mm
- Standalone single mode Bluetooth v4.1/BLE (Bluetooth Smart)
- Bluetooth v4.1 specification
- 1 Analog IO, 12 Programmable Digital IOs, and PWM
- 128KB memory: 64KB RAM and 64KB ROM
- 512Kb EEPROM for firmware, Application code and MAC addresses storage.
- Integrated chip antenna tuned for best performance
- On Board Crystals: 32.768kHz and 16MHz
- Excellent RX sensitivity up to -92.5 dBm
- Maximum transmit power up to 8 dBm
- Interfaces supported: UART, I2C
- 1.8V DC – 3.6V DC power supply operation
- Ultra-low Dormant mode power <900nA
- Compact, robust design for easy integration
- Certifications: FCC, IC, CE (In progress)
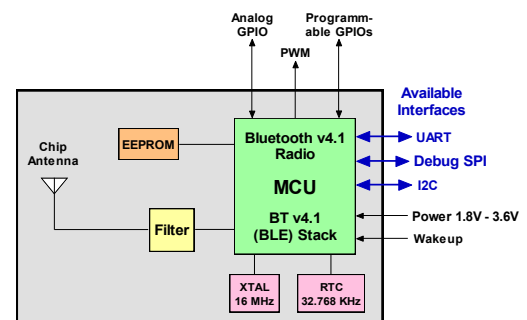- Supports full operation in extended operating temperature range (-30°C to +85°C)

Footprint (QFN-32): 8 x 12 x 1.86 mm

Applications

- IoT (Internet of Things)
- M2M (Machine-to-Machine)
- HID: keyboards, mice, touchpad, remote controls, etc.
- Sport/fitness sensors: heart-rate, run/bicycle speed, etc.
- Health sensors: blood pressure, thermometer, glucose meters, etc.
- Mobile accessories: smart watches, proximity sensors, alert tags, camera controls, etc.
- Smart home, smart energy: heating/lighting control, etc.
- Automotive aftermarket
- Medical monitoring and sensing equipment

Block Diagram

Specification

Bluetooth Version	: 4.1, Low Energy (BLE) or BT Smart
Bluetooth Data Rates	: 1Mbps: GFSK Modulation (BR)
Module Includes	: 32.768 KHz and 16 MHz crystal
Maximum Transmit Power (TX Power)	: 8 dBm
Receive Sensitivity	: -92.5 dBm
Module Physical Size	: 8 x 12 x 1.86 mm
Antenna	: Chip Antenna

Software Features

Integrated Bluetooth v4.1 stack including ATT, GATT, SMP, L2CAP, GAP, Security manager

Operating Modes:
- Normal Run Mode
- Idle Mode
- Deep Sleep Mode
- Hibernate Mode
- Dormant Mode

Auxiliary Features:
- Battery monitor
- Power management features include software shutdown and hardware wake-up
- Power-on-reset cell detects low supply voltage

Sample Applications:
- HR monitoring
- Proximity sensor
- Temperature Sensor

Firmware Upgrade:
- OTA Over the air firmware upgrade

Reset Mechanism:
- Power-on reset
- Software-configured watchdog timer

Interfaces

Peripheral Interface:		UART
		I2C
		PWM
Debug Interface:		SPI
GPIO:		Analog I/O
		Digital I/O

Electrical Data

Single Power Supply	: 1.8V DC – 3.6V DC
ESD Protection	: Charged Device Model Contact Discharge per JEDEC EIA/JESD22-C101, Call C2, 1000V (all pins)
PIO Voltage	: 1.8V and 3.3V support.

Certifications (Ongoing)

FCC, IC, CE

Part Ordering

WC7220B0-E2QT:	Extended (-30°C to +85°C), on Tray
WC7220B0-E2QR:	Extended (-30°C to +85°C), on Reel

Development Kit

WC7220B0-DVK2:	WC7220B0 Development Kit

Additional Information:

For the latest collaterals, please visit the Wi2Wi Extranet Portal at: http://www.wi2wi.com/mgr/

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