

## MDBT50Q-U1M nRF52840 Based BLE Module

SKU 113990584

MDBT50Q-U1M is a BT 5.0 stack (Bluetooth low energy or BLE) module designed based on the **Nordic nRF52840 SoC** solution, which incorporates: **GPIO, SPI, UART, I2C, I2S, PMD, PWM, ADC, NFC and USB interfaces** for connecting peripherals and sensors.



### Note

Seeed fusion offers PCB/ PCBA manufacturing service for customized products based on MDBT50Q-U1M nRF52840 Based BLE Module with an online instant quote and fast delivery. Furthermore, business users can enjoy a free prototype and engineer support as well.

### Tip

You can also check our blog [Introducing nRF52832 and nRF52840 Product Family](#) to learn more about nRF52 Series SoC family

### Features

- Complete BT5 & BT4.2 low energy solution with integrated chip antenna
- Compact size with 10.5 x 15.5 x 2.2 mm
- BT5 End Product qualified.
- Supports Bluetooth 5, IEEE 802.15.4 and 2.4Ghz RF & ANT upon customer's preference.
- Pre-Certified Module: **FCC/IC/CE/Telec/KC/SRRC/NCC certified.**
- Highly flexible multiprotocol SoC ideally suited for Bluetooth® Low Energy and 2.4GHz ultra-low-power wireless applications.

### Specifications

ARM Cortex –M4 32-bit processor with FPU, 64 MHz

Memory: 1MB flash / 256KB RAM

Operating Temp: -40°C to +85°C

### **HW accelerated security**

- ARM TrustZone Cryptocell 310 cryptographic accelerator
- 128-bit AES / ECB / CCM / AAR co-processor (on-the-fly packet encryption)

### **Bluetooth 5, IEEE 802.15.4, 2.4 GHz transceiver**

- -95dBm sensitivity in 1Mbps Bluetooth low energy (BLE) mode
- -103dBm sensitivity in 125Kbps BLE mode (long-range)
- +8 dBm TX power (down to -20 dBm in 4 dB steps)
- On-air compatible with nRF52, nRF51, nRF24L and nRF24AP Series
- Programmable output power from +8dBm to -20dB
- RSSI (1dB resolution)
- Supported data rates:
  - Bluetooth 5: 2 Mbps, 1 Mbps, 500 kbps, 125 kbps
  - IEEE 802.15.4-2006: 250 kbps
  - Proprietary 2.4 GHz: 2 Mbps, 1 Mbps

### **Advanced on-chip interfaces**

- USB 2.0 full speed (12Mbps) controller
- QSPI 32MHz interface
- High speed 32MHz SPI
- Type 2 near field communication (NFC-A) tag with wake-on field
- Programmable peripheral interconnect (PPI)
- 48 general-purpose I/O pins
- EasyDMA automated data transfer without CPU processing on peripherals
- 12 bit, 200ksps ADC – 8 configurable channels with programmable gain
- 4 x 4 channel pulse width modulator (PWM)units with EasyDMA
- Audio peripherals: I2S, digital microphone interface (PDM)
- 5 X 32-bit timers with counter mode
- Up to 4 x SPI masters / 3 x SPI slaves with EasyDMA
- Up to 2 x I2C compatible 2-wire masters / slaves
- 2 x UART(CTS/RTS) with EasyDMA
- Quadrature decoder (QDEC)
- 3 x 24-bit real-time counters (RTC)

### **Flexible power management**

- Supply voltage range 1.7V to 5.5V
- On-chip DC/DC and LDO regulators with automated low current modes
- Regulated supply for external components from 1.8V to 3.3V
- Automated peripheral power management
- Fast wake-up using 64MHz internal oscillator.
- 4uA at 3V in OFF mode, no RAM retention
- 1.5uA at 3V in ON mode, no RAM retention, wake on RTC

## Nordic SoftDevice ready and with support for concurrent multi-protocol

### Application

#### IoT Networks

- Smart home (such as door locks, lighting) sensors and controllers
- Smart city sensor networks
- Industrial IoT sensors and controllers
- Connected white goods

#### Personal Area Networks

- Health/fitness sensor and monitor device
- Medical device

#### Interactive entertainment devices

- Advanced remote controls
- Gaming controller

#### Advanced wearables

- Connected watches
- Advanced personal fitness devices
- Wearables with wireless secure payment
- Connected Health
- Virtual/Augmented Reality applications

#### High performance HID Controllers

#### Mesh Network

### ECCN/HTS

HSCODE	8517709000
USHSCODE	8517180050
UPC	841454121671
EUHSCODE	8517180000
COO	Taiwan China

EU DoC	1
RoHS	1