nRF52840 Bluetooth Low Energy Module with USB – MDBT50Q-1M

PRODUCT ID: 4078

If you have a custom PCB design and you'd like to add a little Bluetooth Low Energy, this module is ultra compact and easy to use. It contains a Nordic nRF52832 Cortex M4 chip that comes integrated with BLE radio, USB as well as most of the supporting circuitry and even a chip antenna. The whole thing is in a tin and comes with FCC, CE and TELEC certifications.

This chip is quite a beast, with a ton of FLASH, SRAM, peripherals and best of all ... native USB support! No need for an external USB-serial converter chip. However, given that it uses under-pads instead of castellated pads, you cannot hand-solder it, you'll need a stencil and hot air or a reflow oven.

Please note! The module comes with a *blank* chip – this is for people who are comfortable programming the chips themselves with a J-Link programmer and the Nordic SDK. We don't provide any firmware to go along with it!

This is the same module we use for the Adafruit nRF52840 Feather so if you'd like to see a possible reference design for this module, check out the PCB files here!

Of course the best way to program these chips is with the Nordic SDK. This chip also has some basic Arduino support, CircuitPython support, and is supported by MyNewt. Either way you go (SDK/CircuitPython/Arduino) you'll still need to solder this onto a PCB and load code via a SWD programmer.

TECHNICAL DETAILS

- 32-bit ARM® Cortex™ M4F CPU
- Supply: 1.7V – 5.5V
- Flexible and configurable 48 GPIO
- 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: 2Mbps, 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)

・ 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)

- Operating Temp: –40°C to +85°C
- Raytac product page

Product Dimensions: 15.5mm x 10.5mm x 2.1mm / 0.6" x 0.4" x 0.1"

Product Weight: 0.6g / 0.0oz