

BLE Module Selection Guide

| Company | Part Number/Name (hyperlink to datasheet) | Bluetooth Certification Level (4.0, 4.2, etc.) | Footprint (L x W) | Base Processor/SoC | Hostless Operation | Available User Resources | | | | | Host Connection | Sensor Interface | Supply Voltage | Power Consumption (Active mode max Tx) | Power Consumption (Sleep mode) | Max Tx Output | Rcv Sensitivity | Antenna Type | Other RF | |
|---------------------------|--|---|----------------------|-----------------------|-----------------------|--------------------------|---|----------------------|--|--|-------------------|-------------------------------------|-------------------------------------|--|---|------------------|--------------------|--|---|-----|
| | | | | | | Program Memory | RAM | GPIO | Serial I/O | Analog I/O | | | | | | | | | | |
| Cypress | CYBLE-022001-00 | 4.1 | 10 x 10 | PR0C BLE | Yes | 128KB | 16KB | 16 | SPU3/CUART/2S | CapSense, PWM, ADC, DAC, LCD Driver | | 1.9V-5.5, RF 1.7V-5.5, VDD | 15.6mA | 1.3uA | 3dBm | -87dBm | Chip | | | |
| Cypress | CYBLE-024008-00 | 4.1 | 11 x 11 | PS0C 4 BLE | Yes | 128KB | 16KB | 25 | SPU3/CUART/2S | CapSense, PWM, ADC, DAC, LCD Driver, Opamp, Comparator | | 1.9V-5.5, RF 1.7V-5.5, VDD | 15.6mA | 1.3uA | 3dBm | -87dBm | PCB | | | |
| Cypress | CYBLE-222005-00 | 4.1 | 10 x 10 | PR0C BLE | Yes | 256KB | 32KB | 16 | SPU3/CUART/2S | CapSense, PWM, ADC, DAC, LCD Driver | | 1.9V-5.5, RF 1.7V-5.5, VDD | 15.6mA | 1.3uA | 3dBm | -87dBm | Chip | | | |
| Cypress | CYBLE-022014-00 | 4.1 | 14 x 19 | PR0C BLE | Yes | 128KB | 16KB | 23 | SPU3/CUART/2S | CapSense, PWM, ADC, DAC, LCD Driver | | 1.9V-5.5, RF 1.7V-5.5, VDD | 15.6mA | 1.3uA | 3dBm | -87dBm | PCB | | | |
| Cypress | CYBLE-212004-00 | 4.1 | 14 x 19 | PR0C BLE | Yes | 256KB | 32KB | 23 | SPU3/CUART/2S | CapSense, PWM, ADC, DAC, LCD Driver | | 1.9V-5.5, RF 1.7V-5.5, VDD | 15.6mA | 1.3uA | 3dBm | -87dBm | PCB | | | |
| Cypress | CYBLE-214008-00 | 4.1 | 11 x 11 | PS0C 4 BLE | Yes | 256KB | 32KB | 25 | SPU3/CUART/2S | CapSense, PWM, ADC, DAC, LCD Driver, Opamp, Comparator | | 1.9V-5.5, RF 1.7V-5.5, VDD | 15.6mA | 1.3uA | 3dBm | -87dBm | PCB | | | |
| Cypress | CYBLE-222014-00 | 4.2 | 10 x 10 | PR0C BLE | Yes | 256KB | 32KB | 16 | SPU3/CUART/2S | CapSense, PWM, ADC, DAC, LCD Driver | | 1.9V-5.5, RF 1.7V-5.5, VDD | 15.6mA | 1.4uA | 3dBm | -87dBm | Chip | | | |
| Cypress | CYBLE-224110-00 | 4.1 | 9.5 x 15 | PS0C 4 BLE | Yes | 256KB | 32KB | 25 | SPU3/CUART/2S | CapSense, PWM, ADC, DAC, LCD Driver, Opamp, Comparator | | 2.0V-3.6, RF 1.7V-5.5, VDD | 20mA | 1.3uA | 9.5dBm | -95dBm | Chip | | | |
| Cypress | CYBLE-212000-00 | 4.2 | 14 x 19 | PR0C BLE | Yes | 256KB | 32KB | 23 | SPU3/CUART/2S | CapSense, PWM, ADC, DAC, LCD Driver | | 1.9V-5.5, RF 1.7V-5.5, VDD | 15.6mA | 1.4uA | 3dBm | -87dBm | PCB | | | |
| Cypress | CYBLE-203004-00 | 4.2 | 15 x 23 | PR0C BLE | Yes | 256KB | 32KB | 19 | SPU3/CUART/2S | CapSense, PWM, ADC, DAC, LCD Driver | | 2.0V-3.6, RF 1.7V-5.5, VDD | 27mA | 1.4uA | 7.5dBm | -93dBm | PCB/External | | | |
| Cypress | CYBLE-224110-00 | 4.2 | 9.5 x 15 | PS0C 4 BLE | Yes | 256KB | 32KB | 25 | SPU3/CUART/2S | CapSense, PWM, ADC, DAC, LCD Driver, Opamp, Comparator | | 2.0V-3.6, RF 1.7V-5.5, VDD | 20mA | 1.4uA | 9.5dBm | -95dBm | Chip | | | |
| Cypress | CYBLE-214015-00 | 4.2 | 11 x 11 | PS0C 4 BLE | Yes | 256KB | 32KB | 25 | SPU3/CUART/2S | CapSense, PWM, ADC, DAC, LCD Driver, Opamp, Comparator | | 1.9V-5.5, RF 1.7V-5.5, VDD | 15.6mA | 1.4uA | 3dBm | -87dBm | PCB | | | |
| Fairchild Corp. | BC602 | 4.2, upgradeable to 5 | 7.8x8.8x1.3mm | nRF52812 | Yes | 256KB | 64KB | 32 | 3xSPI/2C UART, 3xPWM, 12S, QDEC, I2M | 8x 12/10/12 bit ADC, analog comparator | | 1.7 to 3.6V | 7.5mA at +4 dBm | 1.0 uA | 4 dBm | -96dBm | chip | NFC | | |
| Fairchild Corp. | BM602C | 4.2 | 11x16.7x1.3mm | TC35661 | No | 256KB ROM, 256KB RAM | 224KB | 15 | SPI, UART, 3xPWM, 12C, 6x ADC | 6x ADC | UART | 1.8 to 3.6V | 6mA at 0 dBm | 0 dBm | -91dBm | chip | dual mode BT | | | |
| Fairchild Corp. | BM602C | 4.1 | 11x17.7x1.3mm | TC35676 | Yes | 256KB ROM, 256KB RAM | 224KB | 15 | SPI, UART, 3xPWM, 12C, 6x ADC | 6x ADC | UART | 1.8 to 3.6V | 6mA at 0 dBm | 0 dBm | -91dBm | PCB Trace | | | | |
| Fairchild Corp. | BM602T | 4.2 | 14x16x1.3mm | TC35678 | Yes | 384KB ROM, 256KB RAM | 150KB | 17 | SPI, UART, 3xPWM, 12C, 6x ADC | 6x ADC | | 1.7 to 3.6V | 3.6mA at 0 dBm | 0 dBm | -93dBm | PCB Trace | | | | |
| Fairchild Corp. | BT600E | 4.1 | 12x20x0.8mm | nRF51822 | Yes | 128/256KB | 16/32KB | 31 | SPI, UART, PWM, QDEC | 8x 12/10/8 bit ADC, analog comparator | | 1.8 to 3.6V | 10.5mA at +4 dBm | 4 dBm | -93dBm | u.FL | | | | |
| Fairchild Corp. | BT600E | 4.1 | 12x20x0.8mm | nRF51822 | Yes | 128/256KB | 16/32KB | 31 | SPI, UART, PWM, QDEC | 8x 12/10/8 bit ADC, analog comparator | | 1.8 to 3.6V | 10.5mA at +4 dBm | 4 dBm | -93dBm | chip | | | | |
| Fairchild Corp. | BT602 | 4.2, upgradeable to 5 | 14x16x1.3mm | nRF52812 | Yes | 256KB | 64KB | 32 | 3xSPI/2C UART, 3xPWM, 12S, I2M, Opamp | 8x 12/10/12 bit ADC, analog comparator | | 1.7 to 3.6V | 7.5mA at +4 dBm | 1.0 uA | 4 dBm | -96dBm | PCB Trace | NFC | | |
| Fairchild Corp. | BT602C | 4.2, upgradeable to 5 | 15x20.8x1.3mm | nRF52812 | Yes | 256KB | 64KB | 32 | 3xSPI/2C UART, 3xPWM, 12S, QDEC, I2M | 8x 12/10/12 bit ADC, analog comparator | | 1.7 to 3.6V | 7.5mA at +4 dBm | 1.0 uA | 4 dBm | -96dBm | PCB Trace | NFC | | |
| Fairchild Corp. | BT602C | 4.2, upgradeable to 5 | 15x20.8x1.3mm | nRF52812 | Yes | 256KB | 64KB | 32 | 3xSPI/2C UART, 3xPWM, 12S, QDEC, I2M | 8x 12/10/12 bit ADC, analog comparator | | 1.7 to 3.6V | 100mA at +20 dBm | 30 dBm | -96dBm | PCB Trace | NFC | | | |
| Fairchild Corp. | BT604E | 5 | 15x20.8x1.3mm | nRF52840 | Yes | 1MB | 256KB | 48 | 3xSPI/2C 2xUART, 4xPWM, 12S, QDEC, I2M, USB, I2C, SPI | 8x 12/10/12 bit ADC, analog comparator | | 1.7 to 5.5V | | 8 dBm | -96dBm | PCB Trace | NFC | | | |
| Laird | BLE27-020 | | 8T4.2 | 14 x 10mm | Cortex M0F | Yes | 512KB | 64B | 31 (configurable) | 31 (configurable) | 31 (configurable) | UART | UART, SPI, I2C, GPIO, ADC, I2M, PDM | 1.8 - 3.6V | 7.5mA | 0.4uA | +48dBm | -96dBm | Onboard chip or PHEX MHF for external | NFC |
| Laird | BLE14 | | 8T4.2 | 17.9 x 11.6mm | Cortex M0 | Yes | 128KB | 20KB | 15 (configurable) | 15 (configurable) | 15 (configurable) | UART | UART, GPIO, SPI, I2C, ADC, PDM | 1.8 - 3.6V | 8.4mA | 1uA | +58dBm | -96dBm | PCB Trace or External antenna pin | |
| Microchip Technology Inc. | ATBT1C000-MR1100A | 4.1 | 20x12.7 mm | ATBT1C000 | No | NA | NA | 12 | 7 | 2 | UART/2C/SPI | I2C | 1.8V - 4.3V | 3 mA | 1.2 uA | 3.5 dBm | -93 dBm | Chip | | |
| Microchip Technology Inc. | AT54MB111-MR2100A | 4.1 | 22.8x15.3 mm | AT54MB111 | Yes | 96KB | 36KB | 23 | 10 | 4 | UART/2C/SPI | I2C | 1.8V - 4.3V | 3 mA | 1.2 uA | 3.5 dBm | -93 dBm | Chip | | |
| Microchip Technology Inc. | BM70BLE15FC-0800AA | 4.2 | 22x12 mm | IS3780 | No** | NA | NA | 18 | 5 | 8 | UART/2C/SPI | I2C | 1.9V - 3.6V | 10 mA | 2 uA | 3 dBm | -90 dBm | Chip | | |
| Microchip Technology Inc. | BM70BLE15FC-0800AA | 4.2 | 11.5x9 mm | IS3781 | No** | NA | NA | 9 | 5 | 5 | UART/2C/SPI | I2C | 1.9V - 3.6V | 10 mA | 2 uA | 3 dBm | -90 dBm | Chip | | |
| Microchip Technology Inc. | BM70LV15M112 | 4.2 | 22x12 mm | IS3780 | No | NA | NA | 18 | 5 | 8 | UART/2C/SPI | I2C | 1.9V - 3.6V | 10 mA | 2 uA | 3 dBm | -90 dBm | Chip | | |
| Microchip Technology Inc. | BM70LV15M112 | 4.2 | 11.5x9 mm | IS3781 | No | NA | NA | 9 | 5 | 5 | UART/2C/SPI | I2C | 1.9V - 3.6V | 10 mA | 2 uA | 3 dBm | -90 dBm | Chip | | |
| Rigado Inc. | BMD-100 | 4.1, 4.2** | 13.6mm x 8.4mm | BlueNRG-MS | No | | | | | | SPI | 1.7V to 3.6V | 15.1mA | 1.3uA | +48dBm | -88dBm | Chip | | | |
| Rigado Inc. | BMD-200A | 4.2 | 17.0mm x 17.0mm | nRF51822 | Both* | 256KB | 16KB | 15 pins | SPI Master/Slave, I2C Master/Slave, UART | ADC (B), Comparator | SPI, UART | Temperature | 1.8V to 3.6V | 11.8mA | 600nA | +48dBm | -93dBm | Chip | Proprietary | |
| Rigado Inc. | BMD-200B | 4.2 | 17.0mm x 17.0mm | nRF51822 | Both* | 256KB | 32KB | 15 pins | SPI Master/Slave, I2C Master/Slave, UART | ADC (B), Comparator | SPI, UART | Temperature | 1.8V to 3.6V | 11.8mA | 600nA | +48dBm | -93dBm | Chip | Proprietary | |
| Rigado Inc. | BMD-300A | 4.2 (5.0 future) | 14.0mm x 9.8mm | nRF52812 | Both* | 512KB | 64KB | 32 pins | SPI Master/Slave (I), I2C Master/Slave (I), UART, I2S, PDM | ADC (B), Comparator | SPI, UART | Temperature | 1.7V to 3.6V | 7.5mA | 300nA | +48dBm | -96dBm | Trace | | |
| Rigado Inc. | BMD-301A | 4.2 (5.0 future) | 14.0mm x 9.8mm | nRF52812 | Both* | 512KB | 64KB | 32 pins | SPI Master/Slave (I), I2C Master/Slave (I), UART, I2S, PDM | ADC (B), Comparator | SPI, UART | Temperature | 1.7V to 3.6V | 7.5mA | 300nA | +48dBm | -96dBm | Ext (I,FL) | Proprietary | |
| Rigado Inc. | BMD-350A | 4.2 (5.0 future) | 8.7mm x 6.4mm | nRF52812 | Both* | 512KB | 64KB | 32 pins | SPI Master/Slave (I), I2C Master/Slave (I), UART, I2S, PDM | ADC (B), Comparator | SPI, UART | Temperature | 1.7V to 3.6V | 7.5mA | 300nA | +48dBm | -96dBm | Chip | Proprietary | |
| Rigado Inc. | BMD-7A | 4.2 | 16.2mm x 10.6mm | KW412 | Both* | 512KB | 128KB | 25 pins | SPI Master/Slave (I), I2C Master/Slave (I), UART, I2S, PDM | ADC (B), Comparator (B), DAC (I) | SPI, UART, I2C | Temperature, Touch | 0.9V to 4.2V | 6.0mA (0dBm) | 182nA | +3.5dBm | -95dBm | Trace | 802.15.4, Thread, Geoprotocol | |
| Silicon Laboratories | SiM011 | | 8T4.2 | 12.9x9.5 | EFR32BG | Both | 256B total 128B user | 32KB Total 16KB user | 25 | UART, SPI, I2C | 12 bit ADC I2M | UART with and without RTS/CTS | 1.85-3.8 | 8.2 mA (0 dBm) | 0.04uA - 2.5uA | 8dBm | -92dBm | built-in antenna | WiFi, 802.11ac, Bluetooth, BLE, ZigBee | |
| Silicon Laboratories | SiM011 | | 8T4.2 | 9.2x15.8 | EFR32BG | Both | 256B total 128B user | 32KB Total 16KB user | 14 | UART, SPI, I2C | 12 bit ADC I2M | UART with and without RTS/CTS | 1.85-3.8 | 8.2 mA (0 dBm) | 0.04uA - 2.5uA | 8dBm | -92dBm | built-in antenna | WiFi, 802.11ac, Bluetooth, BLE, ZigBee | |
| Silicon Laboratories | SiM011 | | 8T4.2 | 6.5x6.5 | EFR32BG | Both | 256B total 128B user | 32KB Total 16KB user | 32 | UART, SPI, I2C | 12 bit ADC I2M | UART with and without RTS/CTS | 1.85-3.8 | 8.2 mA (0 dBm) | 0.04uA - 2.5uA | 8dBm | -90dBm | built-in antenna or 500m RF pin | WiFi, 802.11ac, Bluetooth, BLE, ZigBee | |
| STMicroelectronics | SP701E | 4.1 | 13x11 | STM32 (external) | No | N/A | N/A | N/A | N/A | N/A | SPI | NO | 1.7 - 3.6 | 8mA | 1uA | +48dBm | -88dBm | Chip | | |
| Texas Instruments | CC1350M00A | 4.2 | 16.9x11 mm | CC2550 | Both* | | 20KB SRAM + 8KB cache + 2 KB Sensor Controller Engine RAM | 15 | 1 UART, 1 I2C, 1 I2S, 2 SPI | 8-bit analog ADC | SPI/UART | ultra-low power sensor controller | 1.8 to 3.8 V | | Sleep current with memory retention 1.2uA | +58dBm | -97dBm | on-board | 100B link budget | |
| u-blox | EMMY-W101 | 4.2 | 13.8 x 19.8 x 2.5 mm | Marvell 88W8887 | No | | | | | | SDIO, UART, PCM | | 3.0 to 3.6 VDC | 8 mA | 0.17 mA | 8 dBm conducted | -95 dBm conducted | 1 antenna pin, combined for Bluetooth and Wi-Fi, with LTE filter | WiFi, 802.11ac, Bluetooth, BLE, ZigBee | |
| u-blox | EMMY-W101 | 4.2 | 13.8 x 19.8 x 2.5 mm | Marvell 88W8887 | No | | | | | | SDIO, UART, PCM | | 3.0 to 3.6 VDC | 8 mA | 0.17 mA | 8 dBm conducted | -95 dBm conducted | 2 antenna pins, one each for Bluetooth and Wi-Fi | WiFi, 802.11ac, Bluetooth, BLE, ZigBee | |
| u-blox | EMMY-W101 | 4.2 | 13.8 x 19.8 x 2.5 mm | Marvell 88W8887 | No | | | | | | SDIO, UART, PCM | | 3.0 to 3.6 VDC | 8 mA | 0.17 mA | 8 dBm conducted | -95 dBm conducted | 1 antenna pin, combined for Bluetooth and Wi-Fi | WiFi, 802.11ac, Bluetooth, BLE, ZigBee | |
| u-blox | MNA-B111 | 4.2 | 10.0 x 10.6 x 2.2 mm | Nordic nRF52832 | Yes | 512 kb | 64 kb | 19 | 1xUART, 3xSPI | 7 | SPI UART | SPI, I2C, I2S, UART, ADC, GPIO, PDM | 1.7 to 3.6 V | 5 mA @ 0 dBm | 0.3 uA | 7 dBm EIRP | -98 dBm EIRP | Antenna pin | NFC | |
| u-blox | MNA-B112 | 4.2 | 10.0 x 14.0 x 3.8 mm | Nordic nRF52832 | Yes | 512 kb | 64 kb | 19 | 1xUART, 3xSPI | 7 | SPI UART | SPI, I2C, I2S, UART, ADC, GPIO, PDM | 1.7 to 3.6 V | 5 mA @ 0 dBm | 0.3 uA | 6 dBm EIRP | -97 dBm EIRP | Internal PIFA antenna | NFC | |
| u-blox | QDU-W200 | 4.0 | 14.8 x 22.3 x 3.2 mm | ST STM32F439 | Yes | 2 MB | 256 kB | 23 | UART, SPI | 11 | UART, RMI | SPI, I2C, UART, ADC, GPIO, CAN | 1.8 V and 3.3 V | 45 mA | 29 mA | 10 dBm EIRP | -98 dBm EIRP | U.FL connector | WiFi, 802.11n/g/n, Bluetooth, BLE, ZigBee | |
| u-blox | QDU-W201 | 4.0 | 14.8 x 22.3 x 4.7 mm | ST STM32F439 | Yes | 2 MB | 256 kB | 23 | UART, SPI | 11 | UART, RMI | SPI, I2C, UART, ADC, GPIO, CAN | 1.8 V and 3.3 V | 45 mA | 29 mA | 10 dBm EIRP | -98 dBm EIRP | Internal antenna | WiFi, 802.11n/g/n, Bluetooth, BLE, ZigBee | |

* Hostless, or used in a network processor mode with F203 (R412) or Serialization (BMD-2xx/3xx) firmware
 ** Host needed with default software. Can become hostless with SDK