



16 mm

38 mm

MBC-LR

The second born of the Briki MBC family, the MBC-LR, addresses to all those applications that require a device certified and optimized for very long-range, low consumption sub-GHz Low-Power Wide-Area networks. Sharing with the other members of the family the pinout and the form-factor, it features a rich set of peripherals ranging from USB-OTG to AD/DA converters, SERCOMS and more, simplifying the complexity of designing battery-powered devices. It supports LoRa communication on the 868MHz, 915MHz and 433MHz bands (software selectable), making it ideal for both the EU and the USA. The radio also supports FSK modulation, making it suitable to create proprietary protocols.

Characteristics

- ATSAML21G18B ARM® Cortex®-M0+
- ATSAMR34J18B SIP featuring a ARM® Cortex®-M0+ + Semtech SX1279
- CryptoAuth ECC608A chip

Innovative features

- From prototype to product in a simple way
- Full code control for both the chips thanks to the exposed debug interfaces
- Small form factor with a big amount of GPIOs and peripherals
- Fluid logic to surpass the classical rigid master/slave topology
- Embedded security thanks to the dedicated cryptochip
- Software-selectable flexible power modes
- Software-selectable radio band (868MHz, 915MHz or 433MHz)

READ CAREFULLY

Processors

ARM®, Cortex-M0+ CPU up to 48MHz

Memories

256KB in-system self-programmable Flash

32KB SRAM Memory

System

External Interrupt Controller (EIC), 16 external interrupts, one non-maskable interrupt

Low power

Idle, standby, battery backup and off sleep modes

SleepWalking peripherals

Static and dynamic power gating architecture

Peripherals

16-channel Direct Mem Access Controller (DMAC)

12-channel Event System

Five configurable 16-bit Timer/Counters (TC)

Two 24-bit and one 16-bit Timer/Counters for Control (TCC)

32-bit Real Time Counter (RTC) with clock/calendar function

Watchdog Timer (WDT)

CRC-32 generator, AES encryption engine and True Random Generator

One Configurable Custom Logic (CCL)

One full-speed USB (12Mbps) Device/Host

Up to six SERCOM digital interfaces like: I²C (up to 3.4MHz), SMBUS/PMBUS, SPI, LIN, UART and analog interfaces like: 12-bit, 1Msps ADC, two 12-bit 1Msps DACs, Two Analog Comparators, 3 OPAMPS, Peripheral Touch Controller with capacitive touch and proximity sensing I/O

More information [Click here](#)

Cloud authentication

for AWS IoT and Google Cloud IoT Core

Hardware Security features

Cryptographic coprocessor with secure key storage for up to 16 Keys, certificates or data

Asymmetric sign, verify, key agreement: ECDSA, ECDH, NIST standard P256 elliptic curve support

Support for symmetric algorithms: SHA-256 & HMAC hash including off-chip context save/restore, AES-128 with encrypt/decrypt, galois field multiply for GCM

Networking key management support

Turnkey PRF/HKDF calculation for TLS 1.2/1.3

Ephemeral key generation and key agreement in SRAM

Secure boot support

Implementation with ATSAMD21 Cortex-M0+

Full ECDSA code signature validation

Encryption/Authentication for messages to prevent on-board attacks

Additional features

Internal high-quality FIPS 800-90 A/B/C Random Number Generator (RNG)

Two high-endurance monotonic counters

Guaranteed unique 72-bit serial number

1MHz Standard I2C interface

<150nA Sleep current

More information [Click here](#)

Processor

ARM®, Cortex-M0+ CPU up to 48MHz

Memories

256KB in-system self-programmable Flash

32KB SRAM Memory

System

External Interrupt Controller (EIC), 15 external interrupts, one non-maskable interrupt

Low power

Idle and standby sleep modes

SleepWalking peripherals

Transceiverpower consumption: from 16mA in receiving up to 95mA in transmission (PA_BOOST)

RF/Analog Features

Integrated LoRa Technology Transceiver with Tri-band Coverage (137 MHz to 175 MHz; 410 MHz to 525 MHz; 862 MHz to 1020 MHz)

Up to 20 dBm (100 mW) Max Power (VDDANA>2.4 VDC)

High Sensitivity:

Down to -136 dBm (LoRaWAN™ protocol compliant modes); Down to -148 dBm (proprietary narrowband modes)

Up to 168 dB Maximum Link Budget

Peripherals

12-channel Direct Mem Access Controller (DMAC)

12-channel Event System

Three configurable 16-bit Timer/Counters (TC)

Three 16-bit Timer/Counters for Control (TCC)

32-bit Real Time Counter (RTC) with clock/calendar

Watchdog Timer (WDT)

CRC-32 generator

One full-speed USB (12Mbps) Device/Host

Up to five SERCOM digital interfaces like: I²C (up to 3.4MHz), SMBUS/PMBUS, SPI, LIN, UART and analog interfaces like: 12-bit, 1Msps ADC, Two Analog Comparators, Peripheral Touch Controller with capacitive touch and proximity sensing I/O

More information [Click here](#)

