EFR32MG26 Wireless Gecko SoC Family Data Short

The EFR32MG26 Wireless SoCs are ideal for mesh IoT wireless connectivity using Matter, OpenThread and Zigbee.

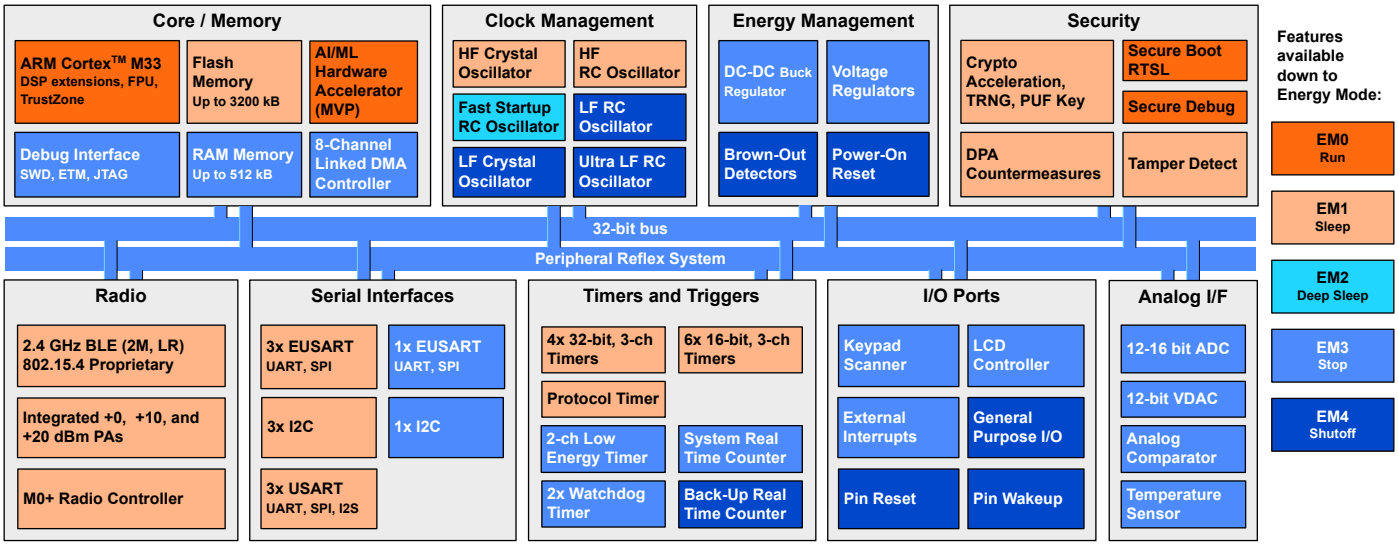
The EFR32MG26 Wireless SoC combines the best-in-class link budget with the leading combination of Flash, RAM and GPIO to provide the most robust and feature rich multi-protocol device for IoT end devices. The high performance 2.4 GHz RF, low current consumption, AI/ML hardware accelerator and Secure Vault enables IoT device makers to create smart, robust, and energy-efficient products that are secure from remote and local cyber-attacks. A Cortex®-M33 running up to 78 MHz and up to 3200 kB of Flash and 512 kB of RAM provides resources for demanding applications while leaving room for future growth.

Target applications include:

- Smart Home—Gateways and hubs, sensors, switches, door locks, smart plugs
- Lighting—LED bulbs, luminaires
- Building Automation—Gateways, sensors, switches, location services
- AI/ML—Predictive maintenance, glass break detection, wake-word detection

KEY FEATURES

- 32-bit ARM® Cortex®-M33 core with 78 MHz maximum operating frequency
- Up to 3200 kB of flash and 512 kB of RAM
- High performance radio with up to +19.5 dBm output power
- Energy efficient design with low active and sleep currents
- Secure Vault™
- AI/ML Hardware Accelerator



1. Feature List

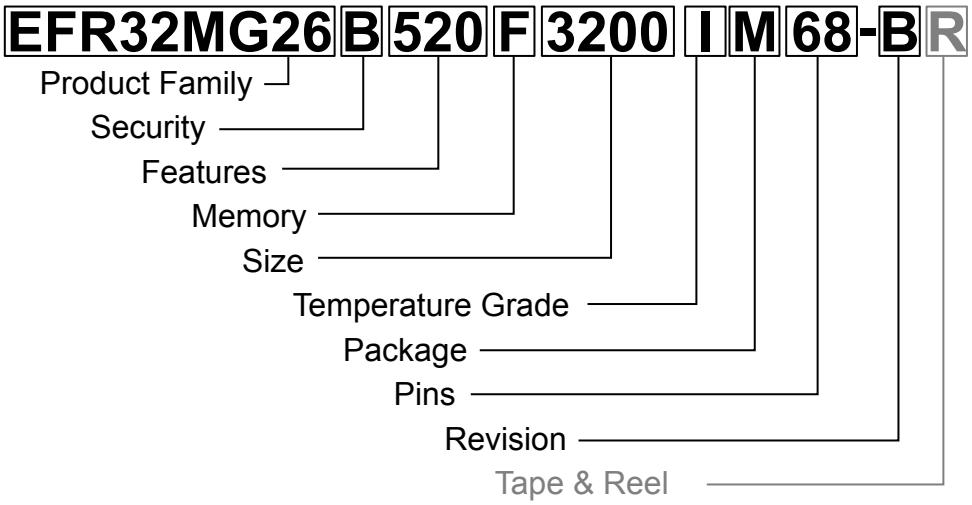
The EFR32MG26 highlighted features are listed below.

- **Low Power Wireless System-on-Chip**
  - High Performance 32-bit 78 MHz ARM Cortex®-M33 with DSP instruction and floating-point unit for efficient signal processing
  - Up to 3200 kB flash program memory
  - Up to 512 kB RAM data memory
  - 2.4 GHz radio operation
  - Matrix Vector Processor for AI/ML acceleration
- **Radio Performance**
  - -105.4 dBm sensitivity @ 250 kbps O-QPSK DSSS
  - -105.9 dBm sensitivity @ 125 kbps GFSK
  - -97.6 dBm sensitivity @ 1 Mbps GFSK
  - -95.0 dBm sensitivity @ 2 Mbps GFSK
  - TX power up to 19.5 dBm
- **Low System Energy Consumption**
  - 5.4 mA RX current (1 Mbps GFSK)
  - 6.2 mA RX current (250 kbps O-QPSK DSSS)
  - 5.9 mA TX current @ 0 dBm output power
  - 19.5 mA TX current @ 10 dBm output power
  - 152.7 mA TX current @ 19.5 dBm output power
  - 53.9 µA/MHz in Active Mode (EM0) at 39.0 MHz
  - 1.4 µA EM2 DeepSleep current (16 kB RAM retention and RTC running from LFRCO)
- **Supported Modulation Format**
  - 2 (G)FSK with fully configurable shaping
  - OQPSK DSSS
  - (G)MSK
- **Protocol Support**
  - Matter
  - OpenThread
  - Zigbee
  - Bluetooth Low Energy
  - Proprietary 2.4 GHz
  - Multiprotocol
- **Secure Vault**
  - Hardware Cryptographic Acceleration for AES128/192/256, ChaCha20-Poly1305, SHA-1, SHA-2/256/384/512, ECDSA +ECDH(P-192, P-256, P-384, P-521), Ed25519 and Curve25519, J-PAKE, PBKDF2
  - True Random Number Generator (TRNG)
  - ARM® TrustZone®
  - Secure Boot (Root of Trust Secure Loader)
  - Secure Debug Unlock
  - DPA Countermeasures
  - Secure Key Management with PUF
  - Anti-Tamper
  - Secure Attestation
  - PSA L3 certified
- **Wide selection of MCU peripherals**
  - Analog to Digital Converter (IADC)
    - 12, 16, or 20-bit output
    - Select OPNs support High Speed Mode (up to 2 Msps) and High Accuracy Mode (up to 16 bits ENOB at 3.8 ksps)
  - 2 × Analog Comparator (ACMP)
  - 2 × Digital to Analog Converter (VDAC)
  - Up to 64 General Purpose I/O pins with output state retention and asynchronous interrupts
  - 8 Channel DMA Controller (LDMA)
  - 20 Channel Peripheral Reflex System (PRS)
  - 6 × 16-bit Timer/Counter with 3 Compare/Capture/PWM channels (TIMER2/3/4/5/6/7)
  - 4 × 32-bit Timer/Counter with 3 Compare/Capture/PWM channels (TIMER0/1/8/9)
  - 2 × 32-bit Real Time Counter (SYSRTC/BURTC)
  - 24-bit Low Energy Timer for waveform generation (LETIMER)
  - 16-bit Pulse Counter with asynchronous operation (PCNT)
  - 2 × Watchdog Timer (WDOG)
  - 3 × Universal Synchronous/Asynchronous Receiver/Transmitter (USART), supporting UART/SPI/SmartCard (ISO 7816)/IrDA/I^2S
  - 4 × Enhanced Universal Synchronous/Asynchronous Receiver/Transmitter (EUSART) supporting UART/SPI/DALI/IrDA
  - 4 × I^2C interface with SMBus support
  - Low-Frequency RC Oscillator with precision mode to replace 32 kHz sleep crystal (LFRCO)
  - Keypad scanner supporting up to 6x8 matrix (KEYSCAN)
  - Integrated Low-Energy LCD Controller supporting up to 4 × 40 segments (LCD)
  - Die temperature sensor with +/-1.5 °C accuracy after single-point calibration
- **Wide Operating Range**
  - 1.71 V to 3.8 V single power supply
  - -40 °C to 125 °C
- **Packages**
  - **QFN48** 6 mm × 6 mm × 0.85 mm
  - **QFN68** 8 mm × 8 mm × 0.85 mm
  - **BGA136** 7 mm × 7 mm × 0.82 mm

2. Ordering Information

Table 2.1. Ordering Information

Ordering Code	Max TX Power	Flash (KB)	RAM (KB)	Secure Vault	IADC High-Speed / High-Accuracy	Matrix Vector Processor	Dedicated ADC Inputs	GPIO	Package / Pinout
EFR32MG26B521F3200IM68-B	19.5 dBm	3200	512	High	Yes	No	4	45	QFN68 / ADC
EFR32MG26B521F3200IM48-B	19.5 dBm	3200	512	High	Yes	No	4	28	QFN48 / ADC
EFR32MG26B520F3200IM68-B	19.5 dBm	3200	512	High	Yes	Yes	4	45	QFN68 / ADC
EFR32MG26B520F3200IM48-B	19.5 dBm	3200	512	High	Yes	Yes	4	28	QFN48 / ADC
EFR32MG26B511F3200IM68-B	10 dBm	3200	512	High	Yes	No	4	45	QFN68 / ADC
EFR32MG26B511F3200IM48-B	10 dBm	3200	512	High	Yes	No	4	28	QFN48 / ADC
EFR32MG26B511F3200IL136-B	10 dBm	3200	512	High	Yes	No	4	64	BGA136 / ADC
EFR32MG26B510F3200IM68-B	10 dBm	3200	512	High	Yes	Yes	4	45	QFN68 / ADC
EFR32MG26B510F3200IM48-B	10 dBm	3200	512	High	Yes	Yes	4	28	QFN48 / ADC
EFR32MG26B510F3200IL136-B	10 dBm	3200	512	High	Yes	Yes	4	64	BGA136 / ADC
EFR32MG26B421F3200IM68-B	19.5 dBm	3200	512	High	No	No	0	49	QFN68 / Standard
EFR32MG26B421F3200IM48-B	19.5 dBm	3200	512	High	No	No	0	32	QFN48 / Standard
EFR32MG26B420F3200IM68-B	19.5 dBm	3200	512	High	No	Yes	0	49	QFN68 / Standard
EFR32MG26B420F3200IM48-B	19.5 dBm	3200	512	High	No	Yes	0	32	QFN48 / Standard
EFR32MG26B411F3200IM68-B	10 dBm	3200	512	High	No	No	0	49	QFN68 / Standard
EFR32MG26B411F3200IM48-B	10 dBm	3200	512	High	No	No	0	32	QFN48 / Standard
EFR32MG26B410F3200IM68-B	10 dBm	3200	512	High	No	Yes	0	49	QFN68 / Standard
EFR32MG26B410F3200IM48-B	10 dBm	3200	512	High	No	Yes	0	32	QFN48 / Standard
EFR32MG26B311F3200IL136-B	10 dBm	3200	256	High	Yes	No	4	64	BGA136 / ADC
EFR32MG26B221F3200IM48-B	19.5 dBm	3200	256	High	No	No	0	32	QFN48 / Standard
EFR32MG26B221F2048IM68-B	19.5 dBm	2048	256	High	No	No	0	49	QFN68 / Standard
EFR32MG26B211F3200IM48-B	10 dBm	3200	256	High	No	No	0	32	QFN48 / Standard
EFR32MG26B211F2048IM68-B	10 dBm	2048	256	High	No	No	0	49	QFN68 / Standard



Field	Options
Product Family	• **EFR32MG26**: Wireless Gecko 26 Family
Security	• **A**: Secure Vault Mid • **B**: Secure Vault High

Features [f1][f2][f3]	• f1
	  • **1**: 128kB RAM
	  • **1**: 128kB RAM, IADC High-Speed / High-Accuracy Available
	  • **2**: 256kB RAM
	  • **3**: 256kB RAM, IADC High-Speed / High-Accuracy Available
	  • **4**: 512kB RAM
	  • **5**: 512kB RAM, IADC High-Speed / High-Accuracy Available
	• f2
	  • **1**: 10 dBm PA Transmit Power
	  • **2**: 19.5 dBm PA Transmit Power
	• f3
	  • **0**: No feature enabled

Memory	• **F**: Flash
Size	• **Memory Size** in kBytes
Temperature Grade	• **I**: -40 to +125 °C
Package	• **M**: QFN • **L**: BGA
Pins	• **Number of Package Pins**
Revision	• **A**: Revision A • **B**: Revision B
Tape & Reel	• **R**: Tape & Reel (optional)

Figure 2.1. Ordering Code Key

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