MGM111 Mighty Gecko Mesh Networking Module Data Short

The Silicon Labs Mighty Gecko Module (MGM111) is a fully-integrated, pre-certified module, enabling rapid development of wireless mesh networking solutions.

Based on the Silicon Labs EFR32™ Mighty Gecko SoC, the MGM111 combines an energy-efficient, multi-protocol wireless SoC with a proven RF/antenna design and industry-leading wireless software stacks. This integration accelerates time-to-market and saves months of engineering effort and development costs.

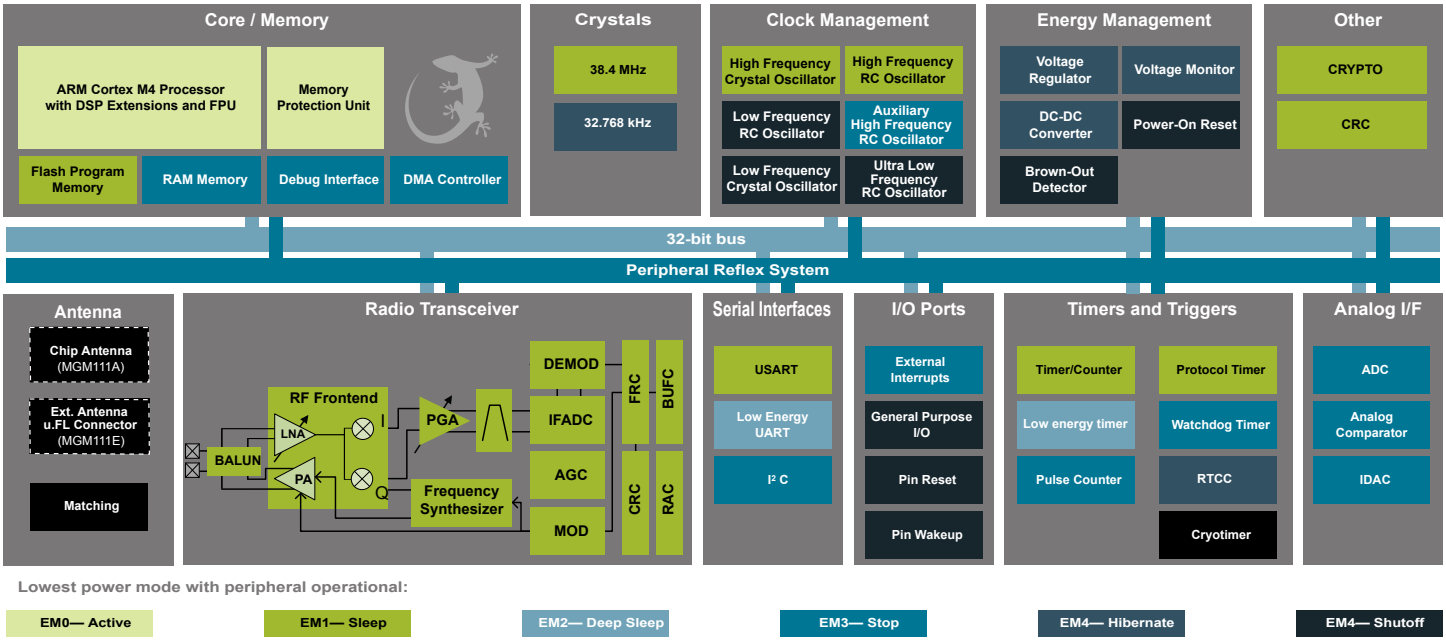
In addition, common software and development tools enable seamless migration from a module to discrete SoC-based design when the time is right.

MGM111 can be used in a wide variety of applications:

- Connected Home
- Building Automation
- Lighting
- Security and Monitoring
- Smart Grid / Metering
- Industrial Automation
- Others

KEY FEATURES

- Industry-leading mesh networking (ZigBee/Thread) software and development tools
- Antenna: internal chip and U.FL variants
- TX power: up to +10 dBm
- RX sensitivity: down to -99 dBm
- 32-bit ARM® Cortex®-M4 at 40 MHz
- Flash memory: 256 kB
- RAM: 32 kB
- Autonomous Hardware Crypto Accelerator and Random Number Generator
- Integrated DC-DC Converter



This information applies to a product under development. Its characteristics and specifications are subject to change without notice.

1. Feature List

MCU Features

- ARM Cortex®-M4 + Floating Point Unit
- Up to 40 MHz Clock Speed
- Low Active Mode Current: 63 µA/MHz
- 256 kB flash, 32 kB SRAM
- Advanced hardware cryptographic engine with support for AES-128/-256, ECC, SHA-1, SHA-256, and a Random Number Generator
- 8 Channel DMA Controller

Digital Peripherals

- 2 x USART (UART, SPI, IrDA, I^2S)
- Low Energy UART (LEUART™)
- I^2C peripheral interface (address recognition down to EM3)
- Timers: RTCC, Low Energy Timer, Pulse Counter
- 12-channel Peripheral Reflex System (PRS)
- Up to 25 GPIO with interrupts

Analog Peripherals

- ADC (12-bit, 1 Msps, 326 µA)
- Current-mode Digital to Analog Converter (IDAC)
- 2 x Analog Comparator (ACMP)

Energy Efficient Low Power Modes

- Energy Mode 2 (Deep Sleep) Current: 2.5 µA

  (Full RAM retention and RTCC running from LXFO)
- Ultra-fast wake up: 3 µS down to EM3
- Wide Supply Voltage range of 1.85 to 3.8 V

Environmental & Regulatory

- Operating Temperature: -40 to +85°C
- FCC, IC, CE, Aus/NZ, Korea certifications (pending)

Dimensions

- W x L x H: 12.9 x 15.0 x 2.2 mm

Radio Features

- 2.4 GHz with integrated balun
- Support for wireless mesh networking (ZigBee/Thread)
- Integrated PA (up to +10 dBm TX power)
- Packet Trace Interface (PTI) for non-intrusive packet trace with Simplicity Studio development tools
- Antenna interface: integrated high-performance chip antenna or u.FL variant for external antenna

ZigBee and Thread Features

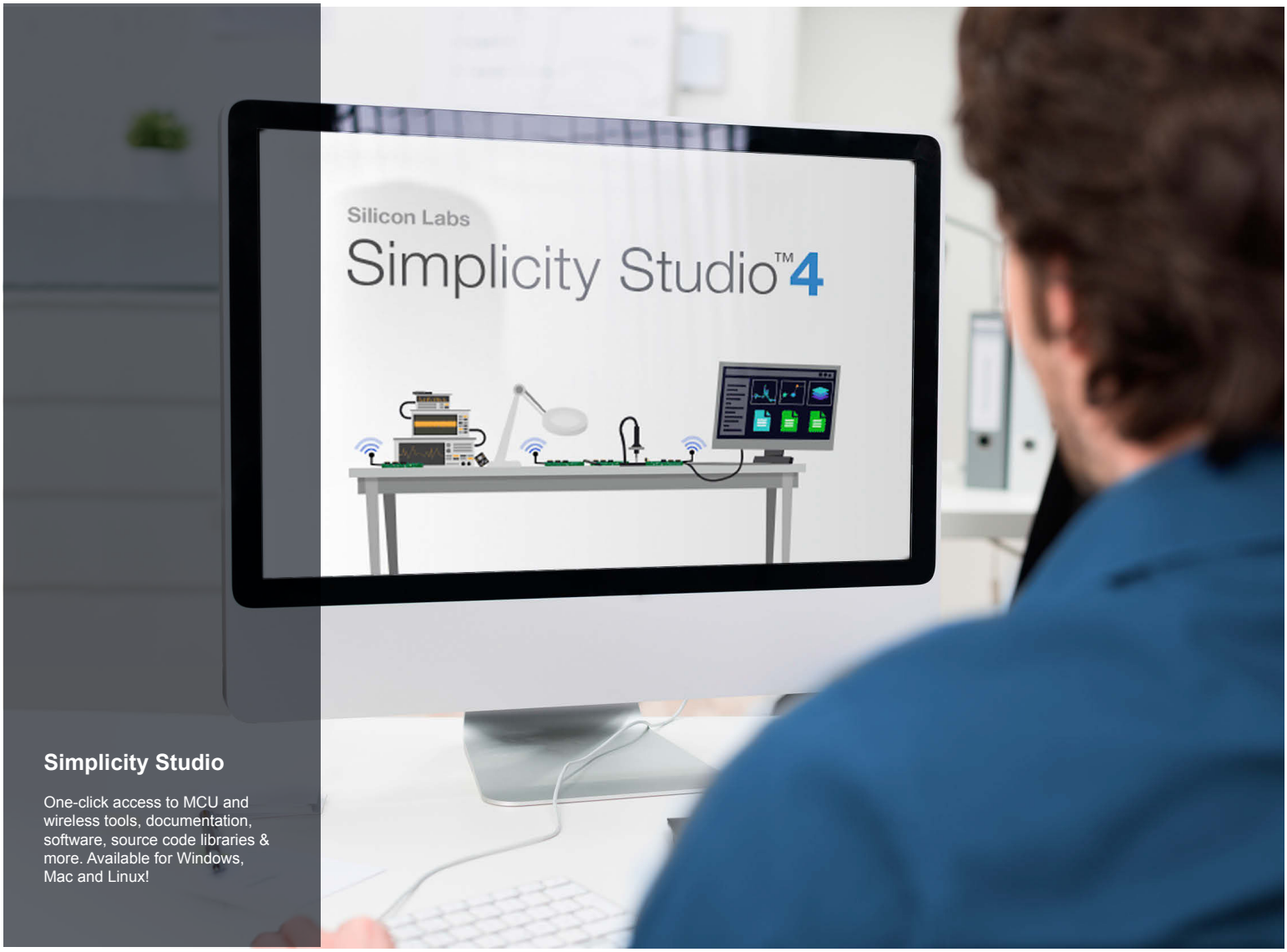
- IEEE 802.15.4
- Data Rate / Modulation: 250 kbps DSSS-OQPSK
- +10 dBm Programmable TX Power
- -99 dBm RX Sensitivity
- 9.8 mA RX current
- 8.2 mA TX current (at +0 dBm)
- Support for SoC and Network Co-Processor (NCP) architectures with SPI/UART host support
- Serial and Over-The-Air (OTA) bootloaders

2. Ordering Information

Ordering Code	Description	Max TX Power	Antenna	Packaging	Production Status
MGM111A256V1	Mighty Gecko Module	+10 dBm	Integrated chip antenna	Cut Reel (100 pcs)	Initial Production / Engineering Samples (non-certified)
MGM111A256V1R	Mighty Gecko Module	+10 dBm	Integrated chip antenna	Reel (1000 pcs)	Initial Production / Engineering Samples (non-certified)
MGM111E256V1	Mighty Gecko Module	+10 dBm	External (U.FL)	Cut Reel (100 pcs)	Initial Production / Engineering Samples (non-certified)[1]
MGM111E256V1R	Mighty Gecko Module	+10 dBm	External (U.FL)	Reel (1000 pcs)	Initial Production / Engineering Samples (non-certified)[1]
MGM111A256V2	Mighty Gecko Module	+10 dBm	Integrated chip antenna	Cut Reel (100 pcs)	Full Production (certified)[1]
MGM111A256V2R	Mighty Gecko Module	+10 dBm	Integrated chip antenna	Reel (1000 pcs)	Full Production (certified)[1]
MGM111E256V2	Mighty Gecko Module	+10 dBm	External (U.FL)	Cut Reel (100 pcs)	Full Production (certified)[1]
MGM111E256V2R	Mighty Gecko Module	+10 dBm	External (U.FL)	Reel (1000 pcs)	Full Production (certified)[1]
SLWRB4300B	MGM111A Radio Board Add-On for Mesh Networking Kit (SLWSTK6000A)	+10 dBm	Integrated chip antenna	Single unit	Initial Production / Engineering Samples (non-certified)

Note:

1. Contact sales for availability and certification timelines.
2. IAR license required for ZigBee and Thread software development.



Simplicity Studio

One-click access to MCU and wireless tools, documentation, software, source code libraries & more. Available for Windows, Mac and Linux!

IoT Portfolio
www.silabs.com/IoT

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