

BGM113 Blue Gecko *Bluetooth*[®] Smart Module Data Short



The Blue Gecko BGM113 is a Bluetooth[®] Smart Module targeted for Bluetooth Smart applications where small size, reliable RF, low-power consumption, and easy application development are key requirements. At +3 dBm TX power, BGM113 is ideal for applications requiring short and medium range Bluetooth Smart connectivity.

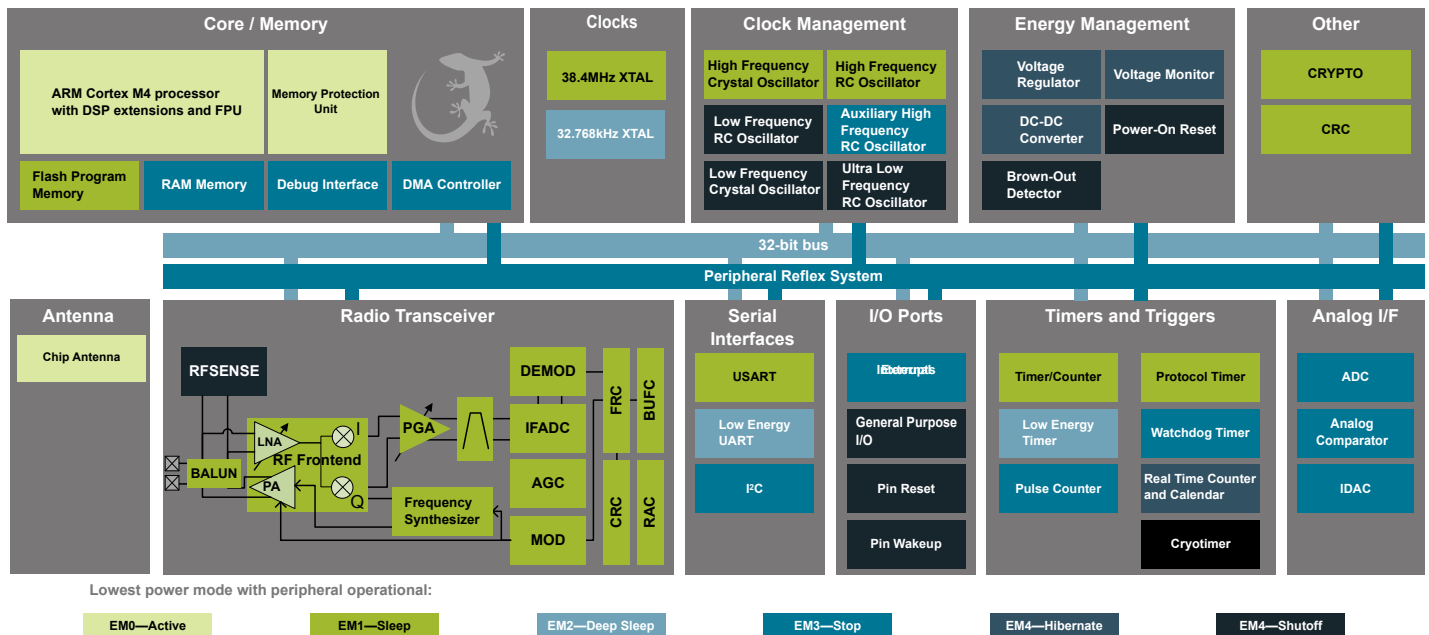
The BGM113 integrates all of the necessary elements required for a Bluetooth Smart application: Bluetooth radio, software stack, and GATT-based profiles, and it can also host end user applications, which means no external microcontroller is required in size, price or power constrained devices. The BGM113 Bluetooth Smart Module also has highly flexible hardware interfaces to connect to different peripherals or sensors.

BGM113 can be used in a wide variety of applications:

- IoT Sensors and End Devices
- Commercial and Retail
- Health and Wellness
- Industrial, Home and Building Automation
- Smart Phone, Tablet and PC Accessories

KEY FEATURES

- Bluetooth 4.1 Compliant (Bluetooth Smart)
- Software upgradable to Bluetooth 4.2
- Integrated antenna
- TX power: up to +3 dBm
- RX sensitivity: down to -93 dBm
- Range: up to 50 meters
- 32-bit ARM[®] Cortex[®]-M4 core at 38.4 MHz
- Flash memory: 256kB
- RAM: 32 kB
- Autonomous Hardware Crypto Accelerator and True Random Number Generator
- Integrated DC-DC Converter
- Onboard Bluetooth Smart stack



1. Feature List

The BGM113 highlighted features are listed below.

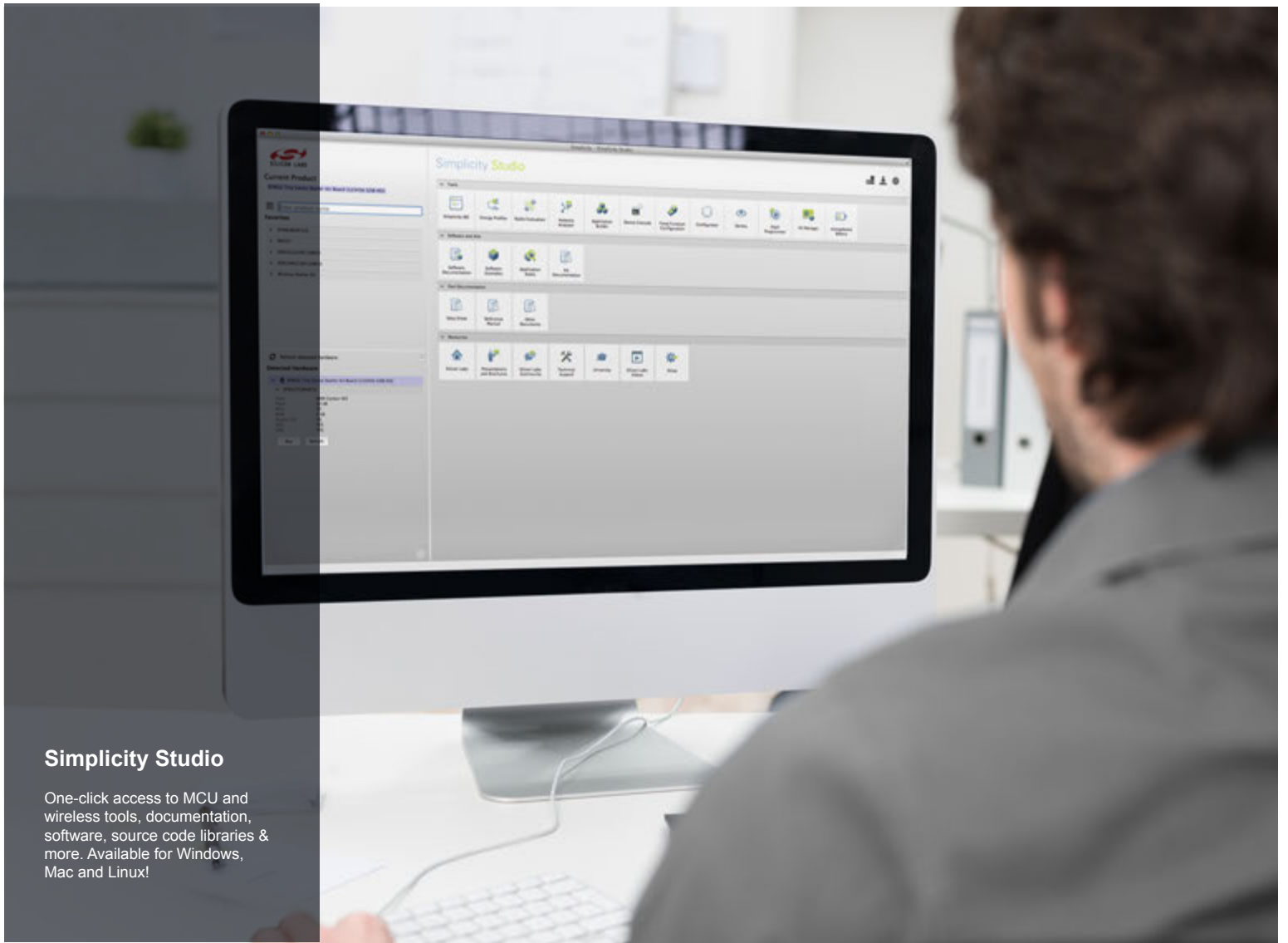
- **Low Power Wireless System-on-Chip.**
 - High Performance 32-bit 38.4 MHz ARM Cortex[®]-M4 with DSP instruction and floating-point unit for efficient signal processing
 - 256 kB flash program memory
 - 32 kB RAM data memory
 - 2.4 GHz radio operation
 - TX power up to +3 dBm
- **Low Energy Consumption**
 - 8.7 mA RX current at 2.4 GHz
 - 8.8 mA TX current @ 0 dBm output power at 2.4 GHz
 - 63 μ A/MHz in Active Mode (EM0)
 - 1.4 μ A EM2 DeepSleep current (full RAM retention and RTCC running from LFXO)
 - 1.1 μ A EM3 Stop current (State/RAM retention)
 - Wake on Radio with signal strength detection, preamble pattern detection, frame detection and timeout
- **High Receiver Performance**
 - -93 dBm sensitivity @ 1 Mbit/s GFSK (2.4GHz)
- **Supported Protocol**
 - Bluetooth[®] Smart
- **Support for Internet Security**
 - General Purpose CRC
 - Random Number Generator
 - Hardware Cryptographic Acceleration for AES 128/256, SHA-1, SHA-2 (SHA-224 and SHA-256) and ECC
- **Wide selection of MCU peripherals**
 - 12-bit 1 Msps SAR Analog to Digital Converter (ADC)
 - 2 \times Analog Comparator (ACMP)
 - Digital to Analog Current Converter (IDAC)
 - 14 pins connected to analog channels (APORT) shared between Analog Comparators, ADC, and IDAC
 - 14 General Purpose I/O pins with output state retention and asynchronous interrupts
 - 8 Channel DMA Controller
 - 12 Channel Peripheral Reflex System (PRS)
 - 2 \times 16-bit Timer/Counter
 - 3 + 4 Compare/Capture/PWM channels
 - 32-bit Real Time Counter and Calendar
 - 16-bit Low Energy Timer for waveform generation
 - 32-bit Ultra Low Energy Timer/Counter for periodic wake-up from any Energy Mode
 - 16-bit Pulse Counter with asynchronous operation
 - Watchdog Timer with dedicated RC oscillator @ 50nA
 - 2 \times Universal Synchronous/Asynchronous Receiver/Transmitter (UART/SPI/SmartCard (ISO 7816)/IrDA/I²S)
 - Low Energy UART (LEUART[™])
 - I²C interface with SMBus support and address recognition in EM3 Stop
- **Wide Operating Range**
 - 1.85 V to 3.8 V single power supply
 - Integrated DC-DC
 - -40 °C to 85 °C
- **Dimensions**
 - 9.15 x 15.73 x 1.9 mm

2. Ordering Information

Ordering Code	Protocol Stack	Frequency Band	Max TX Power (dBm)	Encryption	Flash (KB)	RAM (KB)	GPIO	Package
BGM113A256V1 ¹	Bluetooth Smart	2.4 GHz	3	Full	256	32	14	100 pcs cut reel
BGM113A256V1R ¹	Bluetooth Smart	2.4 GHz	3	Full	256	32	14	1000 pcs tape and reel
BGM113A256V2	Bluetooth Smart	2.4 GHz	3	Full	256	32	14	100 pcs cut reel
BGM113A256V2R	Bluetooth Smart	2.4 GHz	3	Full	256	32	14	1000 pcs tape and reel
SLWSTK6101B ²								

Note:

1. Initial production. This (V1) product code is updated to production version (V2) when the logos of the official CE and FCC certifications are marked into the RF shield. The only visual difference between initial production (V1) and production (V2) versions will be the certification codes printed on the RF shield. Silicon Labs reserves the right to deliver V2 (production version) for customers ordering V1.
2. Blue Gecko Bluetooth Smart Module Wireless Development Kit (WSTK) with BGM113 and BGM111 radio boards, expansion board and accessories.



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