

# WGM110 Wi-Fi<sup>®</sup> Module Data Short



The Wizard Gecko WGM110 is an all-inclusive Wi-Fi<sup>®</sup> Module targeted for applications where good RF performance, low-power consumption, and easy application development, together with fast time to market, are key requirements. WGM110 has excellent RF performance and can provide long range with robust wireless connectivity.

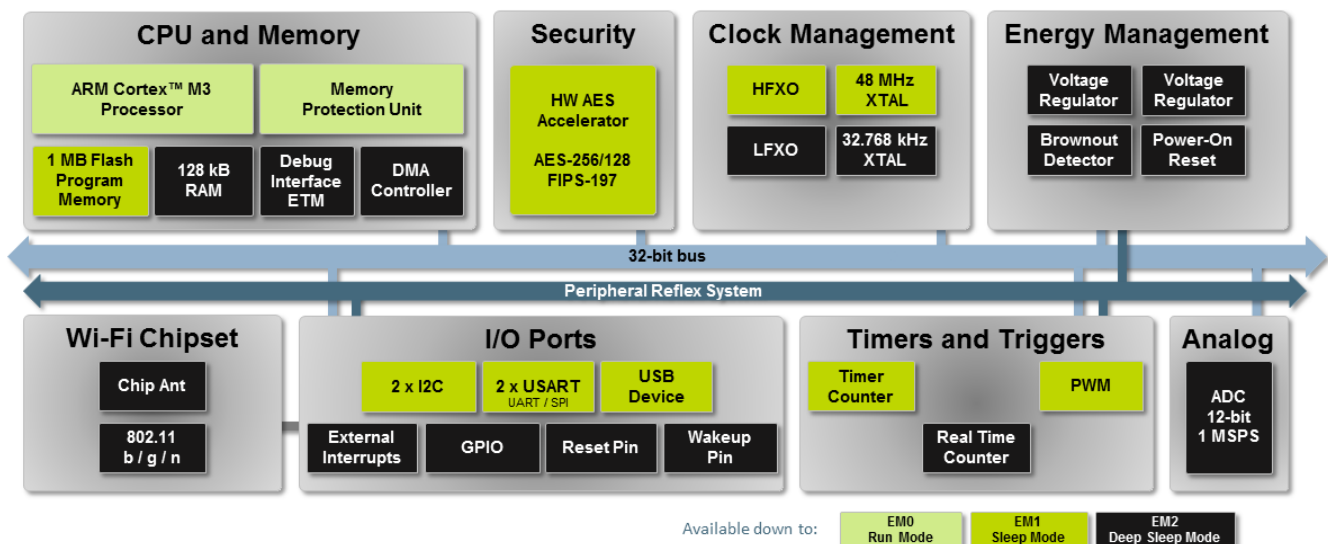
The WGM110 Module integrates all of the necessary elements required for an IoT Wi-Fi application, including an 802.11b/g/n radio, integrated antenna, certifications, a microcontroller, Wi-Fi and IP stacks, an HTTP server, and multiple protocols, such as TCP and UDP. WGM110 can act as a Wi-Fi client or be used as a Wi-Fi access point, making the provisioning of the device as easy as surfing on the web. WGM110 can host BGScript end user applications, which means applications can be designed without relying on an external microcontroller. Alternatively, the Wi-Fi Module can run in Network Co-Processor (NCP) mode, leaving the complexity of TCP/IP networking to the Module so that the customer's own host controller can be fully dedicated to processing the customer application tasks. The WGM110 Module also has highly flexible hardware interfaces which allows connection to different peripherals and sensors.

In addition to the Wi-Fi Module itself, Silicon Labs offers support to guide and help developers in using WGM110 to build IoT applications, enabling a quick time to market.

## KEY POINTS

- 802.11b/g/n compliant
- TX power: +16 dBm
- RX sensitivity: -98 dBm
- Range: 450 m
- CPU core: 32-bit ARM<sup>®</sup> Cortex-M3
- Flash memory: 1 MB
- RAM: 128 kB
- Modular certification (pending)
  - FCC
  - IC
  - Japan
  - Korea
- CE compliant (pending)
- Can host applications
- Small size: 21.0 x 14.4 x 2.0 mm

## WGM110 Module Block Diagram



## 1. Key Features

The key features of the WGM110 Module are listed below.

### Radio Features

- Integrated antenna
- TX Power: +16 dBm
- RX Sensitivity: -98 dBm
- Range: 450 m

### Wi-Fi Features

- 802.11: b/g/n
- Bit rate: 72.2 Mbps
- 802.11 Security: WPA2/WPA Personal, WPA2/WPA Enterprise and WEP
- STA (Station Mode)
- SoftAP (Soft Access Point Mode): up to 5 clients
- WPS: 1.0 (push-button)

### IP Stack

- IP version: IPv4
- TCP: client/server
- UDP: client/server
- TCP sockets: 20+
- DHCP: client/server
- ARP
- DNS: client/server
- mDNS
- DNS-SD
- HTTP: server
- TLS/SSL: client

### Software APIs

- BGAPI™ serial protocol API over UART/SPI/USB for modem usage
- BGLIB™ host API which implements BGAPI serial protocol
- BGScript™ scripting language for standalone usage

### Software Development Tools

- Free SDK

### MCU Features

- ARM® Cortex-M3
- 48 MHz
- 128 kB RAM
- 1 MB Flash

### Hardware Interfaces

- Host interface: UART/SPI/USB
- Peripheral interfaces
  - 2 x USART (UART/SPI)
  - 1 x USB (2.0 Full speed)
  - 2 x I2C peripheral interfaces
- Up to 32 x GPIO with interrupts
- 8-channel 12-bit ADC
- 2 x TIMER (3 PWM's each)
- Real-time counter

### Electrical Characteristics

- Supply voltage: 2.7 V to 4.8 V for the radio block
- Supply voltage: 1.98 V to 3.8 V for the processor block

### Power consumption

- 261 mA TX current at +16 dBm
- 81 mA RX current
- 2.2 mA associated idle consumption
- 22 µA deep sleep current

### Environmental specifications

- Temperature range: -40°C to +85°C

### Modular certification (pending)

- FCC
- IC
- Japan
- South-Korea

### CE Compliant (pending)

### Dimensions

- W x L x H: 21.0 mm x 14.4 mm x 2.0 mm

## 2. Ordering Information

This section contains cut reel (100 pcs) and full reel (500 pcs) ordering information for WGM110 Module.

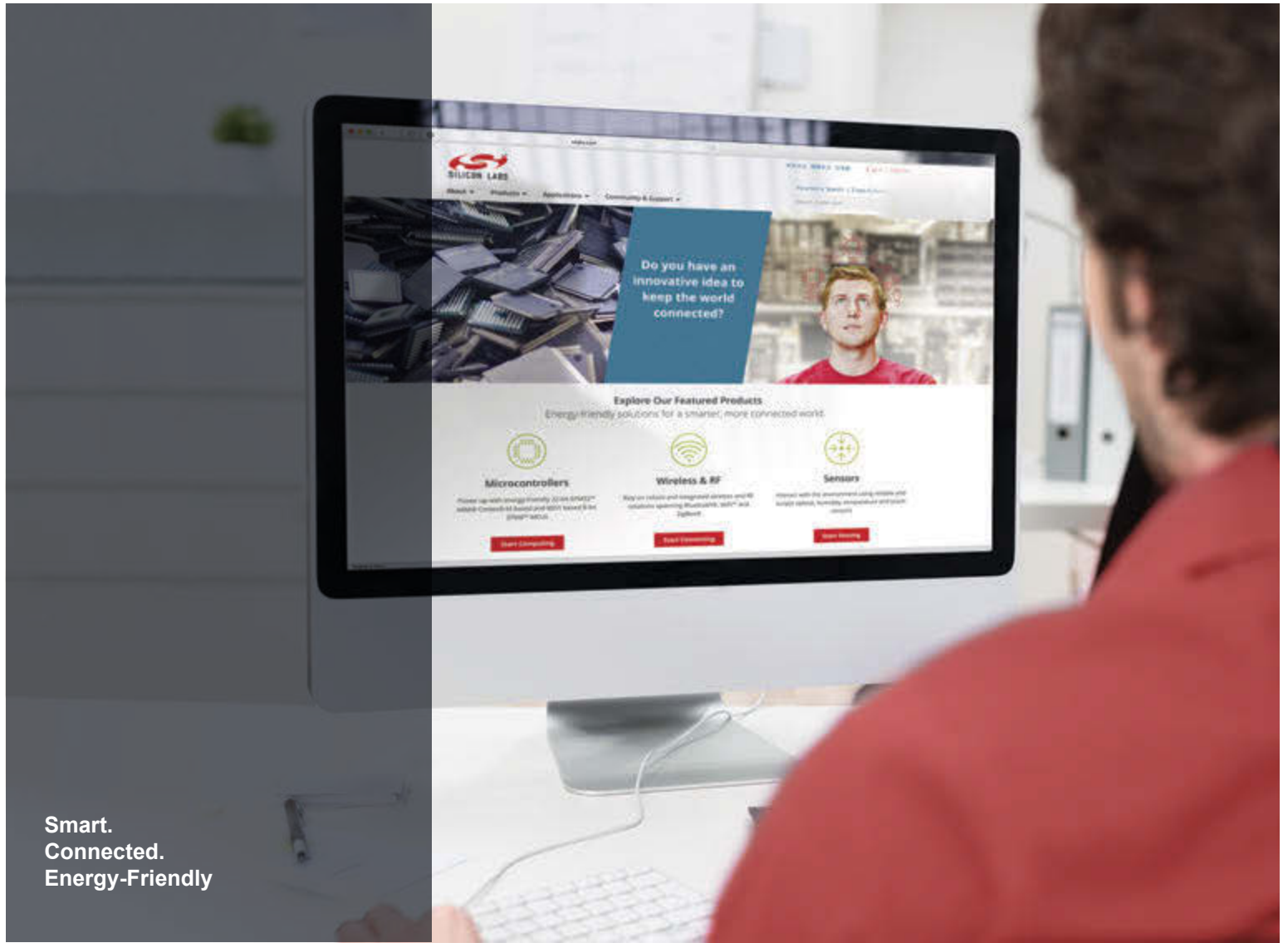
WGM110A1MV1 (orderable part number) is the product code for pre-production version (non-certified) of the module. This product code is updated to production version (V2) when the official CE and FCC certifications logos are marked into Module's metallic RF shield. The production version code, including the certification markings, is: WGM110A1MV2 and WGM110A1MV2R. The only difference of these modules are the certification markings on the shield.

**Note:** The only visual difference between pre-production and production Module versions will be the certification codes printed on the RF shield.

Silicon Labs reserves the right to deliver WGM110A1MV2 or WGM110A1MV2R (production version) for customers ordering WGM110A1MV1 (pre-production version).

**Table 2.1. WGM110 Ordering Information**

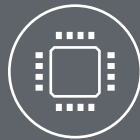
Part Number	Description	Features
WGM110A1MV1	WGM110 Wi-Fi Module with internal chip antenna Cut reel	Packaging: 100 pcs cut reel <b>Status:</b> Pre-production samples
WGM110A1MV2	WGM110 Wi-Fi Module with internal chip antenna Cut reel	Packaging: 100 pcs cut reel <b>Status:</b> Production version
WGM110A1MV2R	WGM110 Wi-Fi Module with internal chip antenna Full reel	Packaging: 500 pcs tape and reel <b>Status:</b> Production version
SLWSTK6120A	Wi-Fi Module Wireless Starter Kit	WGM110 Wi-Fi Module Radio Board WSTK Main Board Expansion Board (buttons, leds, accelerometer, joystick) Accessories



Smart.  
Connected.  
Energy-Friendly



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Silicon Laboratories Inc.  
400 West Cesar Chavez  
Austin, TX 78701  
USA

<http://www.silabs.com>