

# EFM32HG MCU

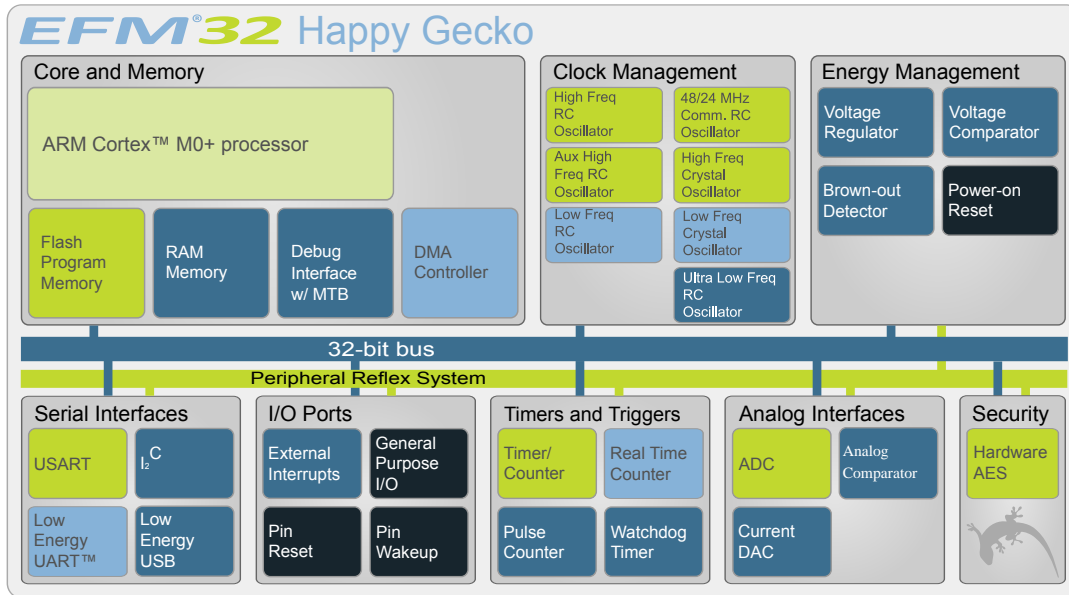
## Data Short



### EFM32HG MCU family with an ARM Cortex-M0+ CPU

The EFM32HG MCUs are the world's most energy-friendly microcontrollers. With a unique combination of the powerful 32-bit ARM Cortex-M0+, innovative low-energy techniques, short wake-up time from energy-saving modes, and a wide selection of peripherals, the EFM32HG microcontroller is well suited for any battery-operated application, as well as other systems requiring high performance and low-energy consumption. For a complete feature set and MCU description, the reader is referred to the appropriate *EFM32HG Data Sheet*.

- ARM Cortex-M0+ CPU platform
  - High Performance 32-bit processor @ up to 25 MHz
  - Wake-up Interrupt Controller
- Flexible Energy Management System
  - 20 nA @ 3 V Shutoff Mode
  - 0.5  $\mu$ A @ 3 V Stop Mode, including Power-on Reset, Brown-out Detector, RAM and CPU retention
  - 0.9  $\mu$ A @ 3 V Deep Sleep Mode, including RTC with 32.768 kHz oscillator, Power-on Reset, Brown-out Detector, RAM and CPU retention
  - 55  $\mu$ A/MHz @ 3 V Sleep Mode
  - 129  $\mu$ A/MHz @ 3 V Run Mode, with code executed from flash
- 64/32 kB Flash
- 8/8 kB RAM
- General Purpose I/O Pins
  - Configurable push-pull, open-drain, pull-up/down, input filter, drive strength
  - Configurable peripheral I/O locations
  - Asynchronous external interrupts
  - Output state retention and wake-up from Shutoff Mode
- 6 Channel DMA Controller
- 6 Channel Peripheral Reflex System (PRS) for autonomous inter-peripheral signaling
- Hardware AES with 128-bit keys in 54 cycles
- Timers/Counters
  - 3 $\times$  16-bit Timer/Counter
    - 3 $\times$ 3 Compare/Capture/PWM channels
    - Dead-Time Insertion on TIMER0
  - 1 $\times$  24-bit Real-Time Counter
  - 1 $\times$  16-bit Pulse Counter
  - Watchdog Timer with dedicated RC oscillator @ 50 nA
- Communication interfaces
  - 2 $\times$  Universal Synchronous/Asynchronous Receiver/ Transmitter
    - UART/SPI/SmartCard (ISO 7816)/IrDA/I2S
    - Triple buffered full/half-duplex operation
  - Low Energy UART
    - Autonomous operation with DMA in Deep Sleep Mode
  - I<sup>2</sup>C Interface with SMBus support
    - Address recognition in Stop Mode
  - Low Energy Universal Serial Bus (USB) Device
    - Fully USB 2.0 compliant
    - On-chip PHY and embedded 5 V to 3.3 V regulator
    - Crystal-free operation
- Ultra Low-Power Precision Analog Peripherals
  - 12-bit 1 Msamples/s Analog to Digital Converter
    - 4 single ended channels/2 differential channels
    - On-chip temperature sensor
  - Current Digital to Analog Converter
    - Capacitive sensing with up to 5 inputs
  - 1 x Analog Comparator
    - Capacitive Sensing
  - Supply Voltage Comparator
- Ultra Efficient Power-On Reset and Brown-Out Detections
- Debug Interfaces
  - 2-pin Serial Wire Debug interface
  - Micro Trace Buffer (MTB)
- Pre-Programmed USB/UART Bootloader
- Single power supply 1.98 to 3.8 V
- Temperature range -40 to 85 °C



## EFM32HG Family Selector Guide

Table 1.1. Ordering Information

Ordering Code	Flash (kB)	RAM (kB)	Max Speed (MHz)	Supply Voltage (V)	Temperature (°C)	Package
EFM32HG108F32G-A-QFN24	32	4	25	1.98 — 3.8	-40 — 85	QFN24
EFM32HG108F64G-A-QFN24	64	8	25	1.98 — 3.8	-40 — 85	QFN24
EFM32HG110F32G-A-QFN24	32	4	25	1.98 — 3.8	-40 — 85	QFN24
EFM32HG110F64G-A-QFN24	64	8	25	1.98 — 3.8	-40 — 85	QFN24
EFM32HG210F32G-A-QFN32	32	4	25	1.98 — 3.8	-40 — 85	QFN32
EFM32HG210F64G-A-QFN32	64	8	25	1.98 — 3.8	-40 — 85	QFN32
EFM32HG222F32G-A-QFP48	32	4	25	1.98 — 3.8	-40 — 85	TQFP48
EFM32HG222F64G-A-QFP48	64	8	25	1.98 — 3.8	-40 — 85	TQFP48
EFM32HG308F32G-A-QFN24	32	8	25	1.98 — 3.8	-40 — 85	QFN24
EFM32HG308F64G-A-QFN24	64	8	25	1.98 — 3.8	-40 — 85	QFN24
EFM32HG309F32G-A-QFN24	32	8	25	1.98 — 3.8	-40 — 85	QFN24
EFM32HG309F64G-A-QFN24	64	8	25	1.98 — 3.8	-40 — 85	QFN24
EFM32HG310F32G-A-QFN32	32	8	25	1.98 — 3.8	-40 — 85	QFN32
EFM32HG310F64G-A-QFN32	64	8	25	1.98 — 3.8	-40 — 85	QFN32
EFM32HG321F32G-A-QFP48	32	8	25	1.98 — 3.8	-40 — 85	TQFP48
EFM32HG321F64G-A-QFP48	64	8	25	1.98 — 3.8	-40 — 85	TQFP48
EFM32HG322F32G-A-QFP48	32	8	25	1.98 — 3.8	-40 — 85	TQFP48
EFM32HG322F64G-A-QFP48	64	8	25	1.98 — 3.8	-40 — 85	TQFP48
EFM32HG350F32G-A-CSP36	32	8	25	1.98 — 3.8	-40 — 85	CSP36
EFM32HG350F64G-A-CSP36	64	8	25	1.98 — 3.8	-40 — 85	CSP36