THE DATASHEET OF

ZGM230SA27HGN2R

ZGM230S Z-Wave SiP Module Data Short

The ZGM230S is a system-in-package (SiP) module for Z-Wave connectivity and networking built for the performance, security, and energy demands of the Smart Home.

Based on the EFR32ZG23 SoC, it delivers robust RF performance, long-range, industry-leading security features, low-current consumption, a rich set of MCU peripherals, ample memory, and a wide operating temperature range, all in a 6.5 x 6.5 mm package.

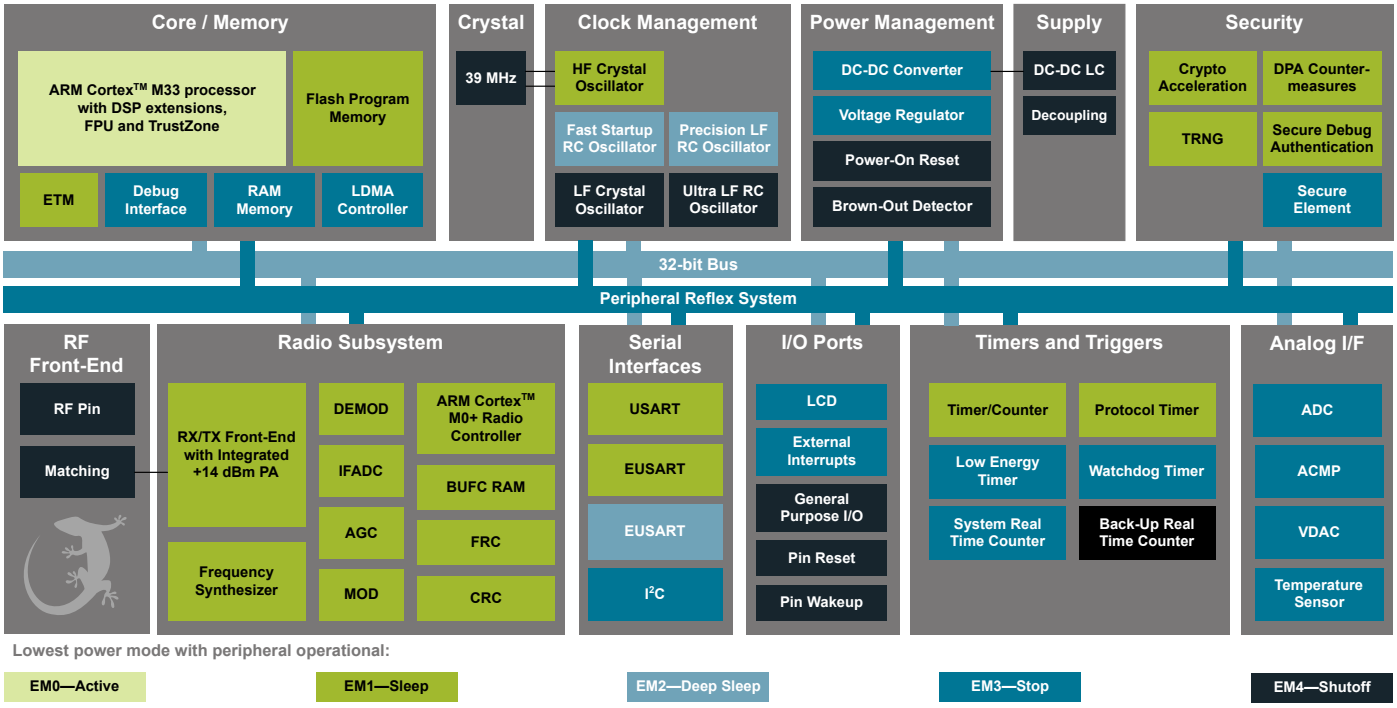
The ZGM230S is a complete solution supported by powerful and fully-upgradeable software, advanced development and debugging tools, and documentation that will simplify and minimize the development cycle, certification process, and deployment of your end-product, helping to accelerate its time-to-market significantly.

The ZGM230S is targeted for a broad range of applications, including:

- Smart Home
- Security
- Lighting
- Building Automation

KEY FEATURES

- Z-Wave connectivity
- RF pin for external antenna
- +14 dBm TX power
- -110.9 dBm RX sensitivity @100 kbps
- 32-bit ARM Cortex-M33 core at 39 MHz
- 512/64 kB of Flash/RAM memory
- Advanced security features
- Rich set of MCU peripherals
- Integrated DC-DC converter
- Up to 34 GPIO pins
- -40 to 85 °C
- 6.5 mm x 6.5 mm



1. Features

- **Supported Protocols**
  - Z-Wave
  - Z-Wave Long Range
- **Wireless System-on-Chip**
  - Sub GHz radio
  - TX power up to +14 dBm
  - 32-bit ARM Cortex®-M33 with DSP instruction and floating-point unit for efficient signal processing
  - 512 kB flash program memory
  - 64 kB RAM data memory
  - Embedded Trace Macrocell (ETM) for advanced debugging
- **Receiver Performance**
  - -110 dBm sensitivity at 9.6 kbps FSK, 868 MHz
  - -110 dBm sensitivity at 40 kbps FSK, 868 MHz
  - -108.8 dBm sensitivity at 100 kbps GFSK, 868 MHz
  - -109.4 dBm sensitivity at 9.6 kbps FSK, 915 MHz
  - -109.7 dBm sensitivity at 40 kbps FSK, 915 MHz
  - -108.3 dBm sensitivity at 100 kbps GFSK, 915 MHz
  - -110.9 dBm sensitivity at 100 kbps O-QPSK, 915 MHz
- **Current Consumption**
  - 4.8 mA RX current at 9.6 kbps FSK, 868 MHz
  - 4.8 mA RX current at 100 kbps GFSK, 868 MHz
  - 4.8 mA RX current at 9.6 kbps FSK, 915 MHz
  - 4.8 mA RX current at 100 kbps GFSK, 915 MHz
  - 5.1 mA RX current at 100 kbps O-QPSK, 915 MHz
  - 10.7 mA TX current at 0 dBm, 915 MHz
  - 20.8 mA TX current at +10 dBm, 915 MHz
  - 30.0 mA TX current at +14 dBm, 915 MHz
  - 42 µA/MHz in Active Mode (EM0) at 39.0 MHz
  - 0.16 µA Shutoff Mode current (EM4)
- **Operating Range**
  - 1.8 to 3.6 V
  - -40 to +85°C
- **Dimensions**
  - 6.5 mm x 6.5 mm
- **Security**
  - 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
- **MCU Peripherals**
  - 12-bit 1 Msps or 16-bit 76.9 ksps SAR Analog to Digital Converter (ADC)
  - 2 × Analog Comparator (ACMP)
  - 2 × Digital to Analog Converter (VDAC)
  - Low-Energy Sensor Interface (LESENSE)
  - Up to 34 General Purpose I/O pins with output state retention and asynchronous interrupts
  - 8 Channel DMA Controller
  - 12 Channel Peripheral Reflex System (PRS)
  - 4 × 16-bit Timer/Counter with 3 Compare/Capture/PWM channels
  - 1 × 32-bit Timer/Counter with 3 Compare/Capture/PWM channels
  - 32-bit Real Time Counter
  - 24-bit Low Energy Timer for waveform generation
  - 2 × Watchdog Timer
  - 2× Enhanced Universal Synchronous/Asynchronous Receiver/Transmitter (EUSART)
  - 1× Universal Synchronous/Asynchronous Receiver/Transmitter (UART/SPI/SmartCard (ISO 7816)/IrDA/I^2S)
  - 2 × I^2C interface with SMBus support
  - Integrated Low-Energy LCD Controller supporting up to 80 segments
  - Die temperature sensor

2. Ordering Information

Table 2.1. ZGM230S Ordering Part Numbers

Ordering Code	Protocol Stack	TX Power	Freq Band	Antenna	Flash (kB)	RAM (kB)	Security	Temp Range	Carrier
ZGM230SA27HGN2	• Z-Wave • Z-Wave Long Range	+14 dBm	Sub GHz	RF pin	512	64	Vault-Mid	-40 to 85 °C	Tray
ZGM230SB27HGN2	• Z-Wave • Z-Wave Long Range	+14 dBm	Sub GHz	RF pin	512	64	Vault-High	-40 to 85 °C	Tray

ZGM230S modules are not pre-programmed with a bootloader.

ZGM230S devices may be referred to by their product family name (ZGM230S) or full ordering code throughout this document.

The **ZWAVE-PK0800A Z-Wave 800 Series Pro Kit** is available for ZGM230S evaluation and development, as well as **ZGM230-RB4205B** radio boards.

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