K32W041AM/A: High Performance, Secure and Low-Power MCU for Zigbee®, Thread™ and Bluetooth® LE 5.0 with High Tx Power Option

K32W041AM-A

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The K32W0x portfolio is designed to power the next generation of ultra-low-current multiprotocol wireless IoT devices with support for Matter, IEEE 802.15.4 mesh network protocols Zigbee and Thread and Bluetooth Low Energy 5.0. The K32W041AM/A are compatible with the K32W061/41.

The K32W041AM and K32W041A family members support longer range and expanded memory optimized to facilitate home and building automation, smart lighting, smart locks, gateways, and routers.
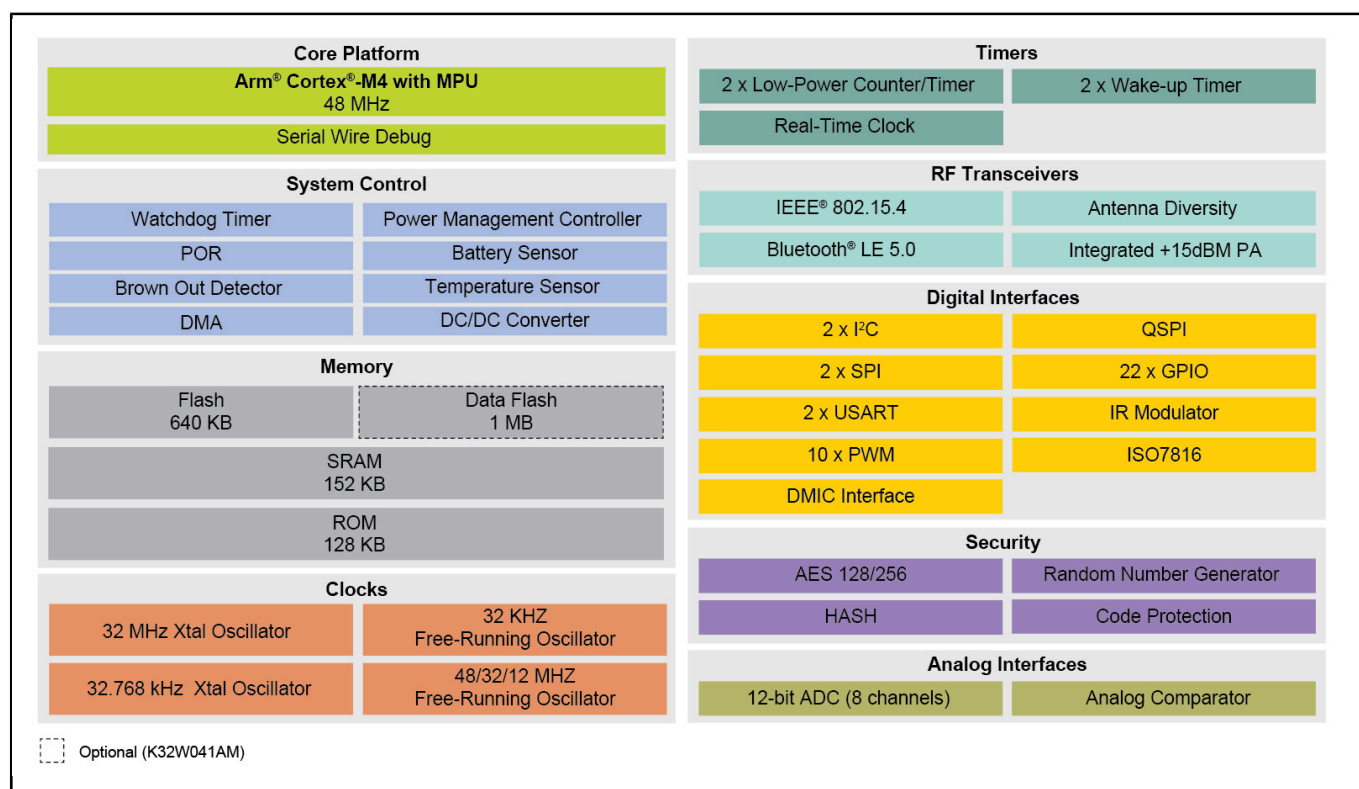
The K32W041A/K32W041AM includes a 2.4 GHz Bluetooth Low Energy 5 (supporting eight simultaneous connections) compliant transceiver, a 2.4 GHz IEEE 802.15.4 compliant transceiver and a comprehensive mix of analog and digital peripherals. With 640 KB embedded Flash, 152 KB RAM memory, additional 1 MB data Flash with the K32W041AM, and support for Over-the-Air (OTA) updates, the K32W0x family provides scalability to address a variety of memory requirements. In addition, the K32W041AM/A extends the wireless radio output power to +15dBm.

These devices include a 10-channel PWM, two timers, one RTC/alarm timer, a Windowed Watchdog Timer (WWDT), two USARTs, two SPI interfaces, two I²C interfaces, a DMIC subsystem including a dual-channel PDM microphone interface with voice activity detector, one 12-bit ADC, temperature sensor and a comparator. The Arm Cortex-M4 is a 32-bit core operating at u to 48MHz that offers system enhancements such as low power consumption, enhanced debug features, and a high-level support of the block integration.

Devices across the K32W0x, JN18x and QN90x0 families are supported with common software stacks: Zigbee, OpenThread and Bluetooth LE.

For additional information and sample availability, contact your local Sales Office.

K32W041AM/A Block Diagram Block Diagram

Core Platform		Timers	
Arm® Cortex®-M4 with MPU 48 MHz		2 x Low-Power Counter/Timer	2 x Wake-up Timer
Serial Wire Debug		Real-Time Clock	

System Control		RF Transceivers	
Watchdog Timer	Power Management Controller	IEEE® 802.15.4	Antenna Diversity
POR	Battery Sensor	Bluetooth® LE 5.0	Integrated +15dBM PA
Brown Out Detector	Temperature Sensor		
DMA	DC/DC Converter		

Digital Interfaces	
2 x I²C	QSPI
2 x SPI	22 x GPIO
2 x USART	IR Modulator
10 x PWM	ISO7816
DMIC Interface	

Memory	
Flash 640 KB	Data Flash 1 MB
SRAM 152 KB	
ROM 128 KB	

Security	
AES 128/256	Random Number Generator
HASH	Code Protection

Clocks		Analog Interfaces	
32 MHz Xtal Oscillator	32 KHZ Free-Running Oscillator	12-bit ADC (8 channels)	Analog Comparator
32.768 kHz Xtal Oscillator	48/32/12 MHZ Free-Running Oscillator		

Optional (K32W041AM)

View additional information for K32W041AM/A: High Performance, Secure and Low-Power MCU for Zigbee®, Thread™ and Bluetooth® LE 5.0 with High Tx Power Option.

Note: The information on this document is subject to change without notice.