

## Automotive and Industrial Qualified Wireless MCUs

# Kinetis® KW35A/36A, KW35Z/KW36Z Bluetooth®5 Wireless MCUs with Integrated CAN/CAN FD and LIN Bus

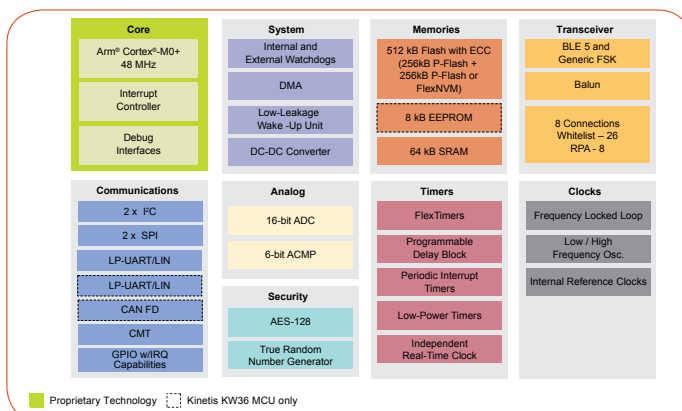
The Kinetis KW35A and KW36A MCUs feature AEC Q100-Grade 2 temperature range qualification and the latest Bluetooth technology for superior durability and performance in automotive, industrial and healthcare applications.

### OVERVIEW

Based on the Arm® Cortex®-M0+core, Kinetis KW35A/36A and KW35Z/36Z MCUs run at 48 MHz and feature on-chip flash with ECC. This new family also integrates Bluetooth® Low Energy (BLE) 5 and generic frequency-shift keying (FSK) (at 250, 500 and 1000 kbit/s). The BLE 5 implementation in this MCU family supports up to 8 concurrent secure connections for multiple authorized users.

Additionally, the KW36 MCU exclusively integrates Flex CAN FD and LIN for an easy integration into automotive in-vehicle communication networks.

### KINETIS KW35A/KW36A AND KW35Z/KW36Z WIRELESS MCU FAMILY BLOCK DIAGRAM



### TARGET APPLICATIONS

#### Automotive

- ▶ Car access
- ▶ Keyless entry
- ▶ Passive entry/passive start (PEPS) systems
- ▶ Car sharing
- ▶ Wireless on-board diagnostic functions
- ▶ Sensors
- ▶ Tire pressure measurement sensors (TPMS) systems

#### Industrial

- ▶ Building control and monitoring
- ▶ Building HVAC control
- ▶ Fire/security
- ▶ Retail pricing management
- ▶ Usage data collection

#### Healthcare

- ▶ Fitness monitoring
- ▶ Home and institutional healthcare
- ▶ Patient monitoring



## FEATURES

All MCUs in this family contain an integrated buck DC-DC converter that supports operating voltages from 2.1-4.2 V and significantly reduces the peak current in receive and transmit modes. This converter supports a wide range of operating voltages from 2.1 V to 4.2 V, and significantly reduces the peak current in receive and transmit modes. At the same time, this family delivers an excellent link budget that ensures the longest range of communication and a high immunity to interference.

With 512 KB of flash memory with ECC and 64 KB of SRAM on chip, this MCU family accurately estimates the distance and angle of a BLE signal needed to determine the location of a phone or the fob.

For automotive applications, Kinetis KW35A/36A devices are AEC-Q100 Grade 2 qualified and are provided in 6 mm x 6 mm QFN package with wettable flanks package technology that enables optical inspection of the soldering, reducing cost and increasing reliability.

## ENABLEMENT

Take advantage of the robust enablement package that includes the BLE host stack, generic FSK software protocol stacks, RTOS, development tools and IDEs. These tools are designed for use with Kinetis KW35A/36A and KW35Z/36Z MCUs and are fully integrated in the MCUXpresso software and tools.

## KINETIS KW35A/KW36A AND KW35Z/36Z MCU FAMILY FEATURES AND BENEFITS

Features	Benefits
BLE 5 with 8 concurrent connections	Supports multiple concurrent secure connections for multiple authorized users Keeps all connections alive for continuous monitoring of lock/unlock signals
6.8 mA typical Rx and 6.1 mA Tx current with DC-DC activated	Significantly reduces power consumption and extends battery life
-95 dBm typical BLE sensitivity -100 dBm typical generic FSK (at 250 kbit/s) sensitivity +3.5 dBm maximum output power	High link budget improves range and lowers cost by reducing the need for external power amplifiers Integrated balun enables smaller design and reduces system costs
Excellent selectivity and blocking	Significantly improves operation in harsh 2.4 GHz environments
48 MHz Arm® Cortex®-M0+ core Up to 512 KB flash memory with ECC; Up to 64 KB SRAM	High-performance, low-power core with adequate memory to run BLE, generic FSK protocol stacks and application
AES-128 accelerator True random number generator	Fast encryption/decryption utilizing hardware security algorithms for network commissioning and transmissions of supported protocols
Buck DC-DC converter working from 2.1 V to 4.2 V	Supports a wide range of batteries from single alkaline or coin-cell to Lithium-ion
16-bit analog-to-digital converter (ADC) 6-bit high-speed analog comparator (CMP)	Supports high-performance on-chip analog at the MCU level for sensor aggregation and other sophisticated applications
CAN/CAN FD and LIN Bus	Enables easy integration into automotive in-vehicle communication networks
7 x 7 mm LQFN48 6 x 6 mm wettable flanks QFN40	Smaller size and low component count reduces cost. The wettable flanks package technology enable optical inspection of the soldering, reducing cost and increasing reliability.

## DEVELOPMENT TOOLS

Board Name	Description
FRDM-KW36	Freedom development board for Kinetis KW35/36 MCUs with 2.4 GHz BLE and generic FSK wireless connectivity and CAN/LIN connectivity solutions
USB-KW41Z	USB dongle for sniffer operations for Kinetis wireless MCUs with 2.4 GHz BLE, and generic FSK

## PART NUMBERS

Part Number	Qualification	CAN FD	2nd UART with LIN	8kB EEPROM	Package
MKW36A512VFP4	Automotive	Y	Y	Y	6 x 6 40-pin Wettable QFN
MKW36Z512VFP4	Industrial	Y	Y	Y	
MKW35A512VFP4	Automotive	N	N	N	
MKW36A512VHT4	Automotive	Y	Y	Y	7X7 48-pin Laminate QFN
MKW36Z512VHT4	Industrial	Y	Y	Y	
MKW35Z512VHT4	Industrial	N	N	N	