

FEATURES

All MCUs in this family contain an integrated buck DC-DC converter that supports operating voltages from 2.1-3.6 V and helps to reduce significantly the peak current in receive and transmit modes to extend the useful life of a battery. At the same time, this family delivers an excellent link budget that helps ensure the longest range of communication and a high immunity to interference.

This family has up to 512 kB flash memory with ECC and 64 kB SRAM allowing plenty of space for protocol stacks, application profiles and custom user firmware. In addition, the radio can provide the necessary information in order to accurately estimate the distance (ranging) of a remote Bluetooth LE device to determine its position. For automotive applications, KW39A/38A/37A devices are AEC-Q100 Grade 2 qualified and are provided in 7 mm x 7 mm 48HVQFN packages with “wetable” flank package technology enabling optical inspection of soldering, helping to reduce cost and increase reliability.

ENABLEMENT

Take advantage of the complete enablement package that includes the fully certified Bluetooth LE 5.0 host and controller stacks, Bluetooth LE application profiles in source, generic FSK software protocol, RTOS, development tools and IDEs. These tools are designed for use with KW39/38/37 MCUs and are fully integrated in the MCUXpresso software and tools suite.

KW39/38/37 WIRELESS MCU FAMILY FEATURES AND BENEFITS

Features	Benefits
Bluetooth® LE 5 long range, advertising extensions and high speed with 8 simultaneous connections	<ul style="list-style-type: none"> Supports simultaneous secure connections in any master/slave combination Keeps all connections alive for continuous monitoring
-105 dBm typical Bluetooth® LE sensitivity in 125 kbit/s -98 dBm typical Bluetooth LE sensitivity in 1 Mbit/s -101 dBm typical generic FSK (at 250 kbit/s) sensitivity +5 dBm maximum output power	<ul style="list-style-type: none"> 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
Ultra-low average currents for typical Bluetooth LE configurations	<ul style="list-style-type: none"> Extended battery life and opportunity for battery optimizations and energy harvesting
Excellent selectivity and blocking	<ul style="list-style-type: none"> Significantly improves operation in harsh 2.4 GHz environments
48 MHz Arm® Cortex®-M0+ core Up to 512 kB flash memory with ECC 64 kB SRAM	<ul style="list-style-type: none"> High-performance, low-power core with adequate memory to run Bluetooth LE, generic FSK protocol stacks and application
AES-128 accelerator True random number generator	<ul style="list-style-type: none"> 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 3.6 V	<ul style="list-style-type: none"> Supports a wide range of batteries from coin-cell to Lithium-ion
16-bit analog-to-digital converter (ADC) 6-bit high-speed analog comparator (CMP)	<ul style="list-style-type: none"> Supports high-performance on-chip analog at the MCU level for sensor aggregation and other sophisticated applications
CAN/CAN FD and LIN Bus	<ul style="list-style-type: none"> Enables easy integration into automotive in-vehicle and industrial networks
7 x 7 mm “wetable” flanks 48HVQFN	<ul style="list-style-type: none"> Smaller size and low component count reduces cost. The wettable flanks package technology enables optical inspection of the soldering, reducing cost and increasing reliability.

PART NUMBERS

Device	CAN FD	2 nd UART with LIN	8 KB EEPROM	Qualification Grade	Package
MKW37A512VFT4	N	N	N	AEC-Q100 Grade 2	7 x 7 48-pib HVQFN “Wetable”
MKW37Z512VFT4				Industrial	
MKW38A512VFT4	Y	Y	Y	AEC-Q100 Grade 2	
MKW38Z512VFT4				Industrial	
MKW39A512VFT4	N	N	Y	AEC-Q100 Grade 2	

DEVELOPMENT TOOLS

Board Name	Description
FRDM-KW38	Freedom development board for KW39/38/37 MCUs with 2.4 GHz Bluetooth® LE and generic FSK wireless connectivity and CAN/LIN connectivity solutions
USB-KW38	USB dongle for sniffer operations for KW39/38/37 wireless MCUs with 2.4 GHz Bluetooth LE and generic FSK

www.nxp.com/Wireless/KW38

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