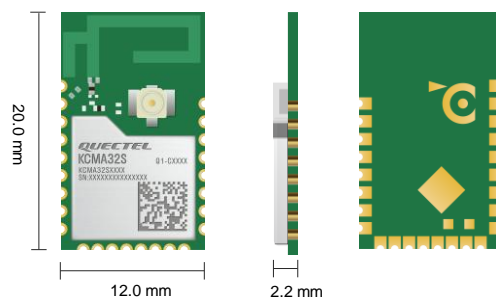


Quectel KCMA32S

Zigbee 3.0 + BLE 5.3 Module Compact LCC + LGA Package



KCMA32S is a high-performance MCU Zigbee and BLE module launched by Quectel. It boasts a ARM Cortex-M33 processor with a frequency of up to 80 MHz, and supports Zigbee 3.0, BLE 5.3 and BLE mesh. The module features built-in 96 KB SRAM* and 1024 KB flash*, ensuring efficient performance.

KCMA32S is in a LCC + LGA form factor with an ultra-compact size of 20.0 mm × 12.0 mm × 2.2 mm, which optimizes the size and cost for end-products and is compatible with diverse designs.

KCMA32S supports up to 20 GPIOs which can be multiplexed for various interfaces including I2C, UART, SPI, I2S in Gecko SDK solution and features an superior sensitivity of -104 dBm and transmit power of up to +20 dBm, which provide flexibility and versatility for a range of applications.

KCMA32S supports Zigbee/BLE mesh networking, increasing network scalability and node counts with mesh topology, which is suitable for devices that enables many-to-many communications, smart lighting, smart buildings and home smart wireless networks. And the module offers an enhanced security option, Secure Vault, featuring a higher level of IoT security.



Key Features

- ✓ Zigbee 3.0, BLE 5.3, multi-protocol coexistence
- ✓ 96 KB SRAM* and 1024 KB flash* (optional)
- ✓ Zigbee/BLE mesh networking
- ✓ 20 GPIOs which can be multiplexed for various interfaces including I2C, UART, SPI, I2S functions in Gecko SDK solution
- ✓ Operating temperature range: -40 °C to +85 °C
- ✓ PCB antenna/RF coaxial connector*/pin antenna interface^① (optional)



Zigbee 3.0



BLE 5.3



LCC + LGA Form Factor



Multiple Interfaces



Operating Temperature Range: -40 °C to +85 °C



Compact Size

Quectel KCMA32S

Zigbee 3.0 + BLE 5.3		KCMA32S	
Zigbee Protocol	Zigbee 3.0 (IEEE 802.15.4)		
Bluetooth Protocol	BLE 5.3		
Encryption Mode	AES128/256, SHA-1, SHA-2 (up to 256 bits), ECC (up to 256 bits), ECDSA (up to 256 bits), ECDH, J-Pak, TRNG, secure boot		
Operating Mode	Zigbee, BLE 5.3, BLE mesh, multi-protocol coexistence		
Antenna (Optional)	× 1 (PCB antenna/RF coaxial connector*/pin antenna interface ^①)		
Kernel	ARM Cortex-M33 (up to 80 MHz)		
SRAM* (Optional)	96 KB		
Flash* (Optional)	1024 KB		
Dimensions	20.0 mm × 12.0 mm × 2.2 mm		
Temperature Range			
Operating Temperature Range	-40 °C to +85 °C		
Storage Temperature Range	-45 °C to +95 °C		
Certifications			
Regulatory ^②	Europe: CE America: FCC Canada: IC China: SRRC Australia/New Zealand: RCM		
Interfaces			
Interfaces ^②	I2C/ UART/ SPI/ I2S, etc.		
Electrical Features			
Power Supply Voltage	1.71–3.8 V, Typ. 3.3 V		
RF Performance			
		Receiver Sensitivity	Transmit Power
Zigbee 3.0	250 kbps	-103.5 dBm ±2 dB	≤ 20 dBm
	1 Mbps	-97.1 dBm ±2 dB	≤ 20 dBm
	2 Mbps	-94.0 dBm ±2 dB	≤ 20 dBm
BLE	BLE (125 kbps)	-105.0 dBm ±2 dB	≤ 20 dBm
	BLE (500 kbps)	-100.5 dBm ±2 dB	≤ 20 dBm

Ordering Code	Flash	SRAM	Transmit Power	Operating Temperature Range	Antenna	Development Board (Only for Debugging)
KCMA32SAAMD-0P	768 KB	64 KB	≤ 20 dBm	-40 °C to +85 °C	PCB antenna	KCMA32SAATB-0P
KCMA32SABMD-1X*	768 KB	64 KB	≤ 20 dBm	-40 °C to +85 °C	RF coaxial connector	KCMA32SABTB-1X*
KCMA32SABMD-0P*	1024 KB	96 KB	≤ 20 dBm	-40 °C to +85 °C	PCB antenna	KCMA32SABTB-0P*
KCMA32SABMD-1X*	1024 KB	96 KB	≤ 20 dBm	-40 °C to +85 °C	RF coaxial connector	KCMA32SABTB-1X*

NOTE:

- ①: Under planning.
- ②: See hardware design manual for details of the module interfaces.
- *: Under development.