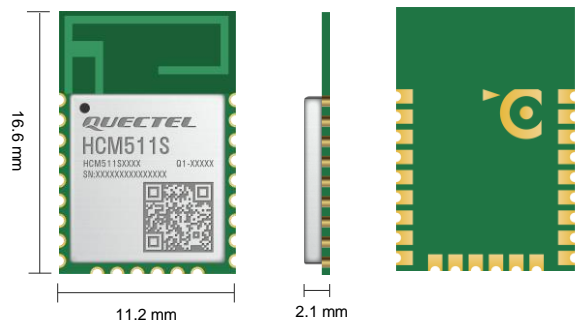


Quectel HCM511S

BLE 5.4 Module
Compact LCC Package



HCM511S is a high-performance MCU Bluetooth module launched by Quectel. It boasts an ARM Cortex-M33 processor with a frequency of up to 76.8 MHz and supports BLE 5.4. The module features built-in 32 KB RAM and 352 KB/ 512 KB flash, ensuring efficient performance.

HCM511S is in an LCC form factor with an ultra-compact size of 16.6 mm × 11.2 mm × 2.1 mm, which optimizes the size and cost for end-products and is compatible with diverse designs.

HCM511S supports Bluetooth mesh network low-power nodes, increasing network scalability and node counts with mesh topology, which is suitable for digital keys, asset tags and beacons, portable medical devices, low-power nodes for smart homes, battery-operated motion sensors, etc.



Key Features

- ✓ BLE 5.4
- ✓ 32 KB RAM, 352 KB/ 512 KB flash
- ✓ Bluetooth mesh network low-power nodes (optional)
- ✓ 18 GPIOs which can be multiplexed for various interfaces including ADC, USART, I2C, I2S, PDM, SPI and PWM
- ✓ Operating temperature range: -40 °C to +85 °C
- ✓ PCB antenna



BLE 5.4



LCC Package



Compact Size



Multiple
Interfaces



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

Quectel HCM511S

BLE 5.4		HCM511S	
Bluetooth Protocol		BLE 5.4	
Security Features		AES128/256, SHA-1, SHA-2, ECC, ECDSA, ECDH, TRNG, secure boot	
Operating Mode		BLE (Bluetooth Low Energy)	
Bluetooth Antenna		PCB antenna	
Kernel		ARM Cortex-M33 (up to 76.8 MHz)	
RAM		32 KB	
Flash		352 KB/ 512 KB	
Dimensions		16.6 mm × 11.2 mm × 2.1 mm	
Weight		Approx. 0.57 g	
Temperature Range			
Operating Temperature Range		-40 °C to +85 °C	
Storage Temperature Range		-45 °C to +95 °C	
Certifications			
Regulatory		Europe: CE America: FCC Canada: IC China: SRRC Australia/New Zealand: RCM	
Others		Bluetooth	
Interfaces			
Interfaces ^①		18 GPIOs (multiplexed for various interfaces including ADC, USART, I2C, I2S, PDM, SPI and PWM)	
Electrical Features			
Power Supply Voltage		1.71–3.8 V, Typ. 3.3 V	
RF Performance			
		Receiver Sensitivity	Transmit Power
BLE	1 Mbps	-99.5 dBm ±2 dB	≤ 6 dBm
	2 Mbps	-95.5 dBm ±2 dB	≤ 6 dBm

Ordering Code	Flash	Transmit Power	Operating Temperature Range	Antenna	Development Board (Only for Debugging)
HCM511SACMD-0P	352 KB	≤ 6 dBm	-40 °C to +85 °C	PCB antenna	HCM511SACTB-0P
HCM511SABMD-0P	512 KB	≤ 6 dBm	-40 °C to +85 °C	PCB antenna	HCM511SABTB-0P

NOTE:
①: See hardware design manual for details of the module interfaces.

Mouser Electronics

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