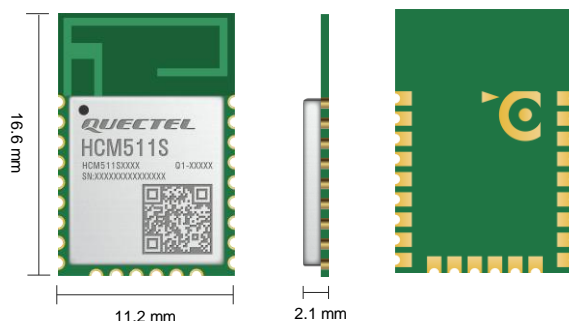


Quectel HCM511S

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 (optional), 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 (optional)
- ✓ Bluetooth mesh network low-power nodes (optional)
- ✓ Supports 1 USART, 1 SWD and 14 GPIO interfaces by default and also supports various interfaces including EUART, I2C, ADC and PDM in the case of multiplexing
- ✓ Operating temperature range: -40 °C to +85 °C
- ✓ PCB antenna



BLE 5.4



LCC Form Factor



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 (optional)				
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 Japan: TELEC Brazil: Anatel* South Korea: KC* Taiwan, China: NCC* South Africa: ICASA* UAE: TDRA* Uruguay: URSEC* Argentina: ENACOM*				
Others	Bluetooth				
Interfaces					
Interfaces ^①	USART, SWD, EUART, I2C, ADC, PDM, etc.				
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	
	S = 2 ^②	-102 dBm ±2 dB		≤ 6 dBm	
	S = 8 ^②	-106 dBm ±2 dB		≤ 6 dBm	
Ordering Code					
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.
- ②: Only supported by module model with built-in 512 KB flash.
- *: Ongoing.