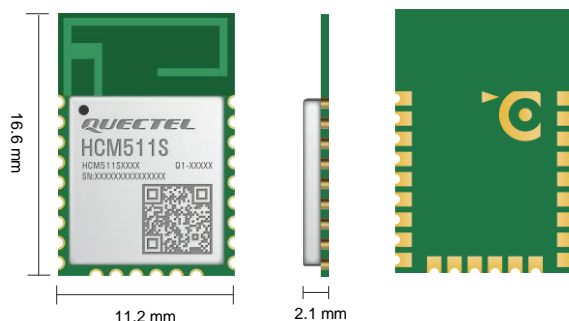


# Quectel HCM511S

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

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