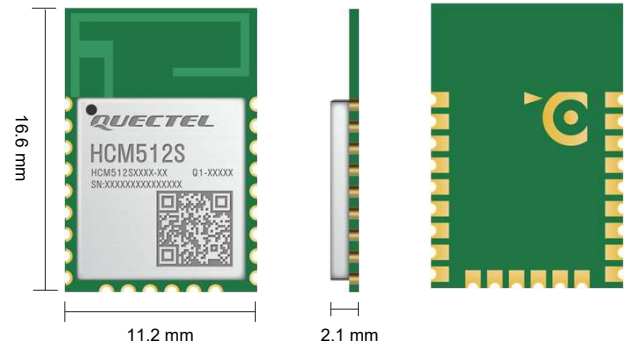


Quectel HCM512S

BLE 5.4 Module Compact LCC Package



HCM512S 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 64 KB RAM and 768 KB flash, ensuring efficient performance.

HCM512S 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.

HCM512S is suitable for digital keys, asset tags and beacons, portable medical devices, battery-operated motion sensors, etc.



Key Features

- ✓ BLE 5.4
- ✓ 64 KB RAM, 768 KB flash
- ✓ 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 HCM512S

BLE 5.4		HCM512S			
Bluetooth Protocol	BLE 5.4				
Encryption Mode	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	64 KB				
Flash	768 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 (Planning)	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	-98 dBm ± 2 dB		≤ 9 dBm	
	2 Mbps	-95 dBm ± 2 dB		≤ 9 dBm	
	BLE (S = 2)	-101.5 dBm ± 2 dB		≤ 9 dBm	
	BLE (S = 8)	-106 dBm ± 2 dB		≤ 9 dBm	
Ordering Code					
Ordering Code	Flash	Transmit Power	Operating Temperature Range	Antenna	Development Board (Only for Debugging)
HCM512SAAMD-0P	768 KB	≤ 9 dBm	-40 °C to +85 °C	PCB antenna	HCM512SAATB-0P

NOTE:

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