

Product Specification

CC2541F128/256 BLE Module

VTM-BLE-0001 (CC2541F256)

VTM-BLE-0002 (CC2541F128)

Revision:	Owner:	Date:	Note:
V1.0	Allen	2014/3/12	

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Bluetooth 4.0 (BLE) Module Spec.

1. General Description:

The Bluetooth Low Energy (BLE) Module utilizes TI Bluetooth low energy controller CC2541. This module is intended to provide considerably reduced power consumption and cost while maintaining a similar communication range, when compared to "Classic" Bluetooth. This characteristic is ideal for low power wireless sensing device applications such as mobile phone accessories, leisure and sports management, consumer products, health care, remote sensors control, HID devices...

This module has integrated PCB antenna and crystal, therefore the BOM cost can be reduced. It is a Bluetooth v4.0 (BLE) single mode module, and it can provide robust communications using ultra low power .

2. Application:

- Mobile Device Accessories
- Mobile wearables
- Leisure and Sports Management
- Health Care and Medical profiles
- Remote Sensors Control
- HID devices

3. Features:

- 2.4-GHz Bluetooth low energy Compliant
- Proprietary RF System-on-Chip
- In system programmable flash.
- Supports 1-Mbps, 2-Mbps Data Rates
- 12-Bit ADC With Eight Channels and Configurable Resolution
- 21 general purpose I/O
- Two Powerful USARTs With Support for Several Serial Protocols
- On board crystal and PCB Antenna
- Excellent Receiver Sensitivity.

4. Specifications:

Main Chip: CC2541F128/256

■ Standard:	Buletooth4.0 BLE
■ RF Frequency Range:	2402MHz ~ 2480MHz
■ Data Rate:	1-Mbps or 2-Mbps
■ Modulation:	MSK , GFSK
■ TX Power:	-23dBm ~ 0dBm
■ RX Sensitivity	-90dBm @ BER < 0.1%
■ Data Encryption:	128-bit AES
■ Bus Interface:	SPI , UART , I2C
■ Operating Voltage:	3V ~ 3.3V
■ Power Consumption:	TX : 18.2 mA (0 dbm) RX: 17.9 mA Power Mode 1 (4- μ s Wake-Up): 270 μ A Power Mode 2 (Sleep Timer On): 1 μ A Power Mode 3 (External Interrupts): 0.5 μ A
■ Antenna Type:	PCB Antenna

Environmental Charasteristics

■ Operating

Operating Temperature:

Relative Humidity: 5-90% (non-condensing)

■ Storage

Storage Temperature: -40 to 85 C

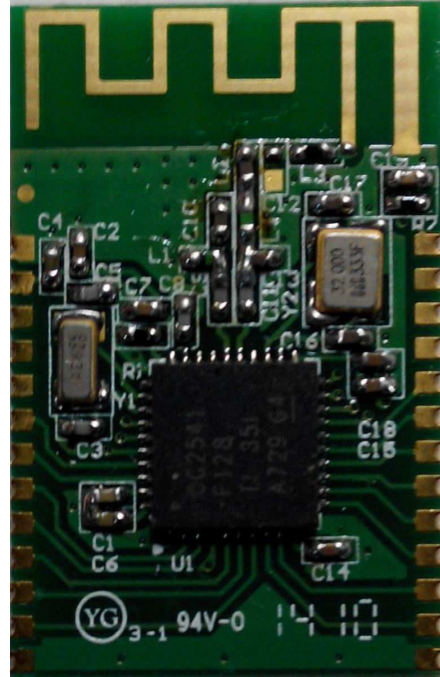
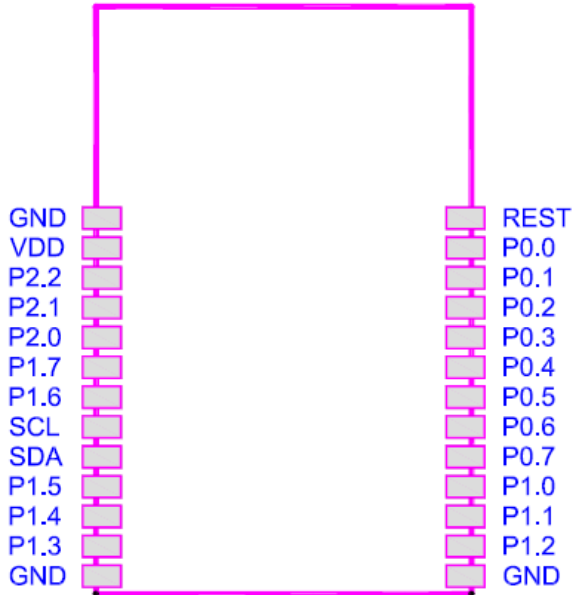
Humidity: 5-95% (non-condensing)

5. Module PIN Definition:

Pin No.	Symbol(uP)	I/O	Function Description	Notes
1	GND	P	GND	
2	VDD	I/O	Power Input 2Vdc to 3.6Vdc	
3	P2.2	I/O	GPIO	
4	P2.1	I/O	GPIO	
5	P2.0	I/O	GPIO	
6	P1.7	I/O	GPIO	
7	P1.6	I/O	GPIO	
8	SCL	I/O	USB P(cc2540)/SCL(cc2541)	
9	SDA	I/O	USB N(cc2540)/SDA(cc2541)	
10	P1.5	I/O	GPIO	
11	P1.4	I/O	GPIO	
12	P1.3	I/O	GPIO	
13	GND	P	GND	
14	RESET	I	Reset, Active Low	
15	P0.0	I/O	GPIO/AD0	
16	P0.1	I/O	GPIO/AD1	
17	P0.2	I/O	GPIO/AD2/ UART RX	
18	P0.3	I/O	GPIO/AD3/ UART TX	
19	P0.4	I/O	GPIO/AD4	
20	P0.5	I/O	GPIO/AD5	
21	P0.6	I/O	GPIO/AD6	
22	P0.7	I/O	GPIO/AD7	
23	P1.0	I/O	GPIO/Drive 20mA current	
24	P1.1	I/O	GPIO/Drive 20mA current	
25	P1.2	I/O	GPIO	
26	GND	P	GND	

6. Pin Out and Dimension:

■ Pin Out:



■ Dimension: (mm)

