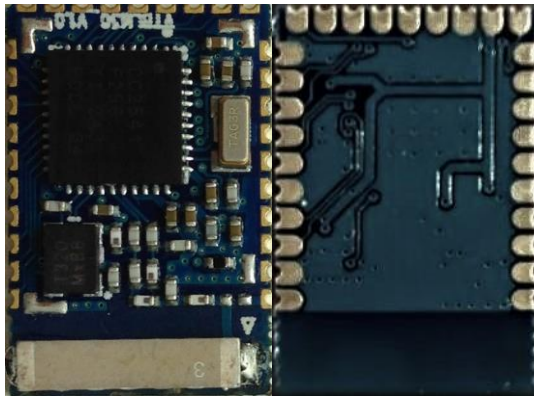


VTM01XX: Bluetooth Low Energy Module

Product Spec V1.0.1



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VTrump Tech (Shanghai) Co., Ltd

A single mode Bluetooth low energy based on Ti's CC2541 chipset - a power-optimized true system-on-chip (SoC) solution, designed for sensor and accessory device. The VTM01xx module includes RF(radio), Bluetooth 4.0 protocol stack and profile, and embedded applications with programmable flash which can be used for specific applications.

Applications

- * Health care
- * Sport and fitness
- * Security
- * Proximity
- * Smart Toy
- * Payment
- * Entertainment
- * In-door position
- * Automatic
- * Mouse, keyboard and remote control
- * iBeacon

Main Features

1. Bluetooth 4.0 Low Energy, Master and Slave mode

2. Integrated BLE protocol stack

- Power-Optimized
- GAP, GATT, L2CAP, SMP

3. RF

Output Power: -20dBm to 0dBm

Receiver level: -87dBm to -94dBm

4. Ultra-low power consumption: peak current lower than 25mA.

5. Embedded with programmable High-Performance and Low-Power 8051 Microcontroller,

In-System-Programmable Flash, and 8-KB RAM

6. Antenna

Type: Ceramic Chip Antenna

Central frequency: 2450MHz

Band width: $\pm 75\text{MHz}$

Gain: 0~2 dBi

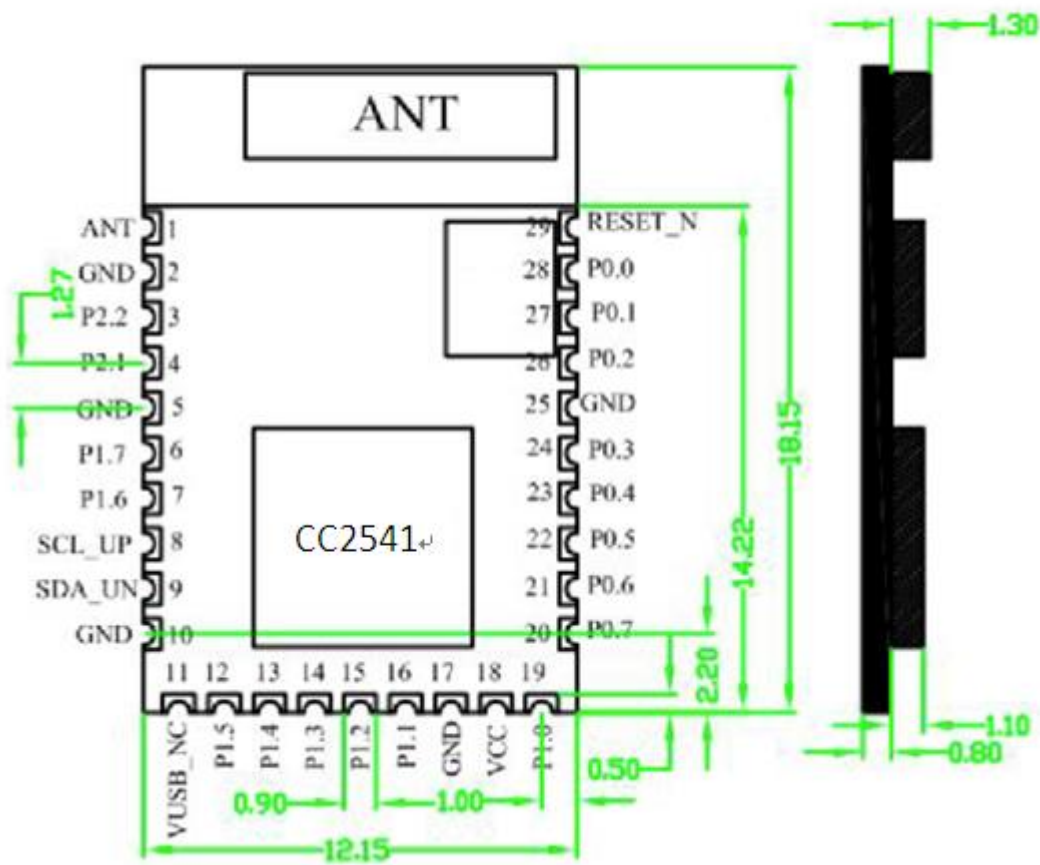
V.S.W.R: ≤ 2.0

Polarization: Linear

Impedance: 50 ohm

Module Pin Assignment

Size: (12.15mm x 18.15mm)



Pin Assignment and Feature List

Pin	PIN-NAME	PIN-TYPE	DESCRIPTION
1	ANT	ANT	Antenna
2	GND	Ground	Ground
3	P2_2	Digital I/O	Configurable I/O port
4	P2_1	Digital I/O	Configurable I/O port
5	GND	Ground	Ground
6	P1_7	Digital I/O	Configurable I/O port
7	P1_6	Digital I/O	Configurable I/O port
8	SCL	I2C clock or digital I/O	Can be used as I2C clock pin or digital I/O.
9	SDA	I2C Data or digital I/O	Can be used as I2C data pin or digital I/O.
10	GND	Ground	Ground
11	NC	Unused pins	Not connected
12	P1_5	Digital I/O	Configurable I/O port
13	P1_4	Digital I/O	Configurable I/O port
14	P1_3	Digital I/O	Configurable I/O port
15	P1_2	Digital I/O	Configurable I/O port
16	P1_1	Digital I/O	Configurable I/O port (20-mA drive

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			capability)
17	GND	Ground	Ground
18	VCC	power	2-V–3.6-V power-supply
19	P1_0	Digital I/O	Configurable I/O port (20-mA drive capability)
20	P0_7	Digital I/O	Configurable I/O port (
21	P0_6	Digital I/O	Configurable I/O port (
22	P0_05	Digital I/O	Configurable I/O port
23	P0_4	Digital I/O	Configurable I/O port
24	P0_3	Digital I/O	Configurable I/O port
25	GND	Ground	Ground
26	P0_2	Digital I/O	Configurable I/O port
27	P0_1	Digital I/O	Configurable I/O port
28	P0_0	Digital I/O	Configurable I/O port
29	RESET_N	RESET	Reset, active-low

Electrical Features

Item	Minimum	Maximum	Unit
Storage Temp	-40	85	°C
VDD Voltage	-0.3	3.9	V
Other Port Voltage	VSS-0.3	$VDD+0.3 \leq 3.9$	V

Recommendation Working Environment

Item	Minimum	Maximum	Unit
Operation Temp Range	-40	85	°C
VDD	2	3.6	V

Working Current

Item	Minimum	Standard	Maximum	Unit
TX/RX			25	mA
Power mode 1 *		270		uA
Power mode 2*		1		uA
Power mode 3 *		0.5		uA

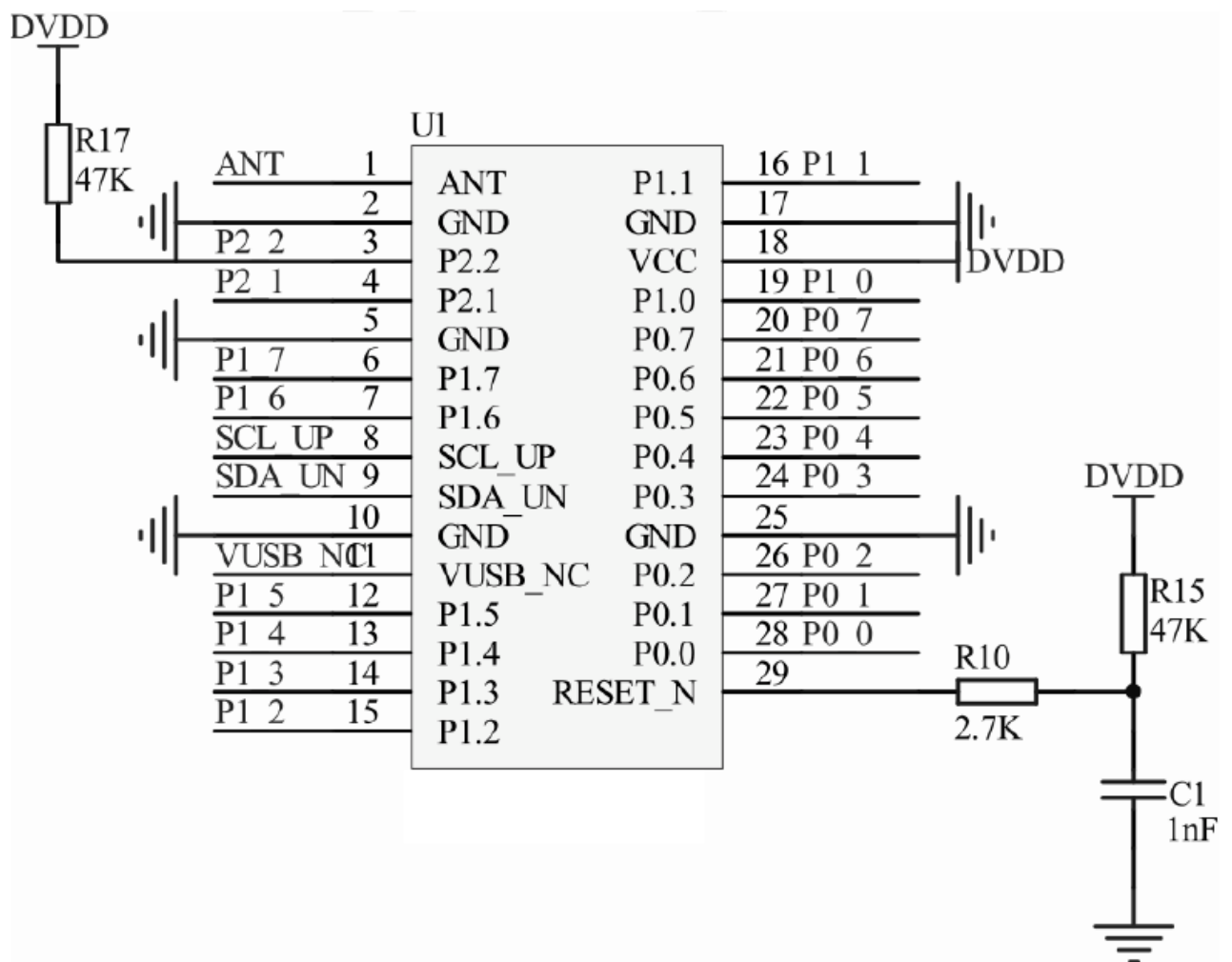
*** Please check Ti CC2541 data sheet for the power mode**

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Typical Circuit



VTM01 Module

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This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

This device is verified to comply with part 15 of the FCC Rules for use with cable television service.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

Please note that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Please note that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

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—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

Note:

Host labeling requirement: Contains FCC ID: 2ARV3VTM01

The module is a limited single module without shielding case, CIIPC or new filing shall be applied for any host equipment using this module, such as provide the shielding case for this module.