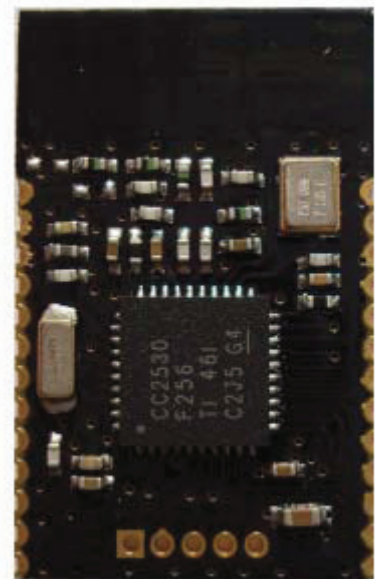


General description

The CC2530-A1 RF Module is a low-power, highly integrated 2.4-GHz transceiver that suitable for systems targeting compliance with worldwide radio-frequency. It's a true system-on-chip solution for 2.4-GHz IEEE802.15.4, ZigBee and RF4CE applications.

Features

- 2.4-GHz IEEE802.15.4 compliant RF transceiver
- Accurate digital RSSI/LQI support
- Suitable for systems targeting compliance with worldwide radio-frequency
- Data rate: 250kbps
- 256KB in-system programmable flash, customization 32-,64-,128KB
- Two 64 bytes FIFO for TX & RX buffer
- CSMA/CA hardware support
- Battery monitor and temperature sensor
- AES security coprocessor
- 8KB RAM with retention in all power mode
- 32-kHz sleep timer with capture
- Wide Supply-Voltage Range (2 V–3.6 V)



Applications

- 2.4-GHz IEEE 802.15.4 systems
- RF4CE remote control systems (64-KB flash and higher)
- AMR – Automatic Meter Reading
- Two-way RKE – Remote Keyless Entry
- Home and building automation
- Wireless alarm and security systems
- Industrial monitoring and control
- Wireless Light Dimming
- Wireless sensor networks

| ITEM | TEST REQUIREMENT | REMARKS |
|------------------|------------------|---------|
| Voltage supply | 2.0 – 3.6V | DC |
| Center frequency | 2405-2480MHz | |
| Frequency error | ±50KHz | |
| Modulation | O-QPSK | |

| | | |
|----------------------------------|---------|---------------------|
| Receiving sensitivity | -93dBm | High gain Mode |
| Receiving current | 20.2mA | High gain mode |
| Receiving current | 17.9mA | Standard mode |
| Transmitting current | 18.2mA | TX Power 0dBm |
| Sleep consumption At power mode2 | 1uA | Sleep Timer ON |
| Sleep consumption At power mode3 | 0.5uA | External interrupts |
| Transmit distance | >80M | BER<0.1% |
| Antenna | 50ohm | |
| module size | 15*24mm | |

RECOMMENDED OPERATING CONDITIONS

| | MIN | MAX | UNIT |
|---|-----|-----|------|
| Operating ambient temperature range, TA | -30 | 85 | °C |
| Operating supply voltage | 2 | 3.6 | V |

CAUTION:



ESD sensitive device. Precautions should be used when handling the device in order to prevent permanent damage.

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Pin Assignment

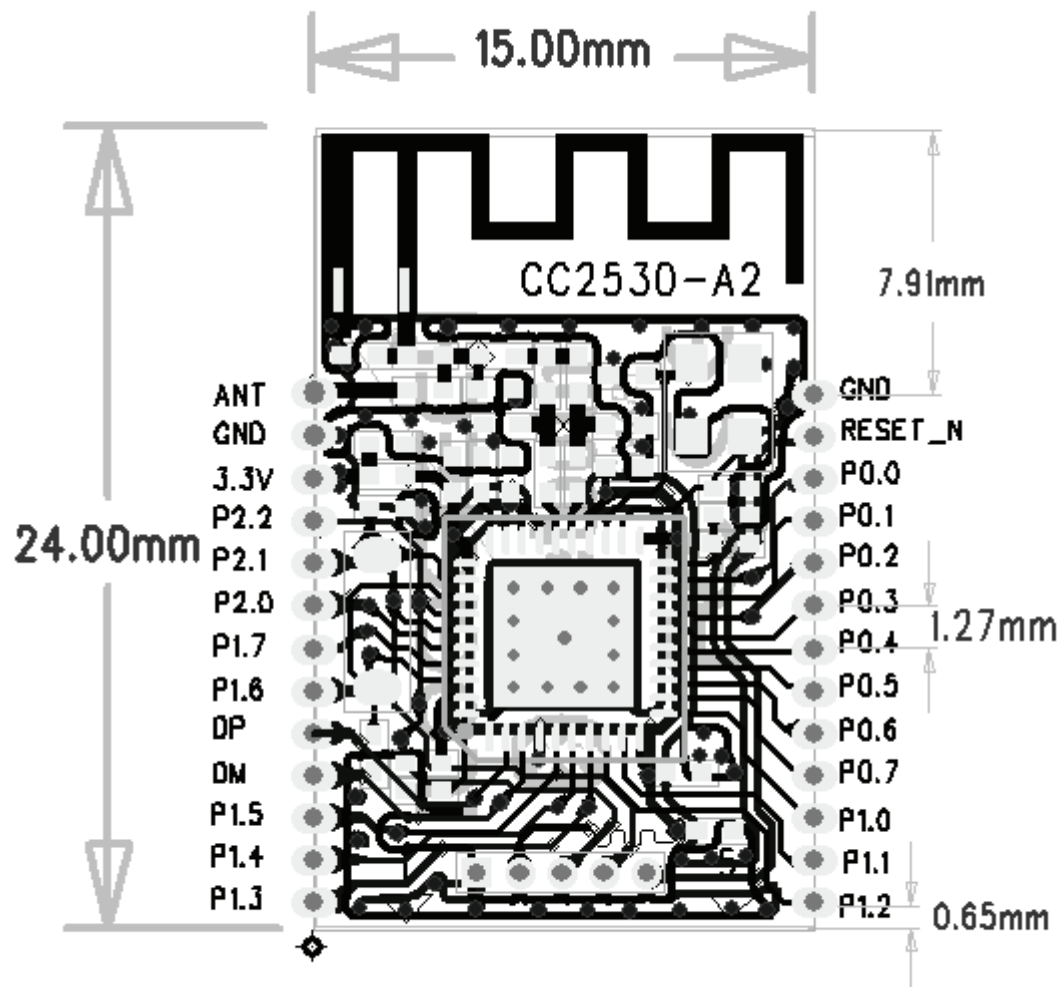
CC2530-A1 Module

| Module PIN | PIN name | IC PIN | Description |
|------------|----------|--------------|-------------------------------------|
| 1 | GND | 1, | Ground |
| 2 | RESET | 20 | N_RESET active-low |
| 3 | P0.0 | 19 | Digital I/O |
| 4 | P0.1 | 18 | Digital I/O |
| 5 | P0.2 | 17 | Digital I/O RXD |
| 6 | P0.3 | 16 | Digital I/O TXD |
| 7 | P0.4 | 15 | Digital I/O |
| 8 | P0.5 | 14 | Digital I/O |
| 9 | P0.6 | 13 | Digital I/O |
| 10 | P0.7 | 12 | Digital I/O |
| 11 | P1.0 | 11 | Digital I/O- 20-mA drive capability |
| 12 | P1.1 | 9 | Digital I/O |
| 13 | P1.2 | 8 | Digital I/O |
| 14 | P1.3 | 7 | Digital I/O |
| 15 | P1.4 | 6 | Digital I/O |
| 16 | P1.5 | 5 | Digital I/O |
| 17 | DP | 2 | Digital I/O |
| 18 | DM | 3 | Digital I/O |
| 19 | P1.6 | 5 | Digital I/O |
| 20 | P1.7 | 37 | Digital I/O |
| 21 | P2.0 | 36 | Digital I/O |
| 22 | P2.1 | 35 | Digital I/O Debug data |
| 23 | P2.2 | 34 | Digital I/O Debug clock |
| 24 | VCC | 214,24,27-31 | 2-3.6V power-supply |
| 25 | GND | 1, | Ground |
| 26 | ANT | | 50ohm/External antenna |

CC-Debugger and test boards



Outline and Size



NOTE:

Additional information on the Texas Instruments CC2530 device can be found in the company's latest datasheet release at [http:// www.ti.com/product/CC2530](http://www.ti.com/product/CC2530)

FCC Statement

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.

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.
- 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.

FCC Radiation Exposure Statement

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following:

“Contains Transmitter Module FCC ID: 2AGUT-CC2530A1Or ContainsFCC ID: 2AGUT-CC2530A1”

when the module is installed inside another device, the user manual of this device must contain below warning statements;

1. 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.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product

Any company of the host device which install this modular with limit modular approval should perform the test of radiated emission and spurious emission according to FCC part 15C : 15.247 and 15.209 requirement,Only if the test result comply with FCC part 15C : 15.247 and 15.209 requirement, then the host can be sold legally.