YB2530+PA+LNA Wireless Module V2.0

General description

The YB2530+PA+LNA Wireless Modle is a low-power,hightly integrated 2.4GHz transcevier 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
- Programmable output power up to 20dBm
- Accurate digital RSSI/LQI support
- Suitable for systems targeting compliance with wordwide radio-frequency
- Data rate: 250kbps
- 256KB in-system programmable flash
- Two 128 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
- The PCB antenna is disabled and will never be used
- Wireless sensor networks
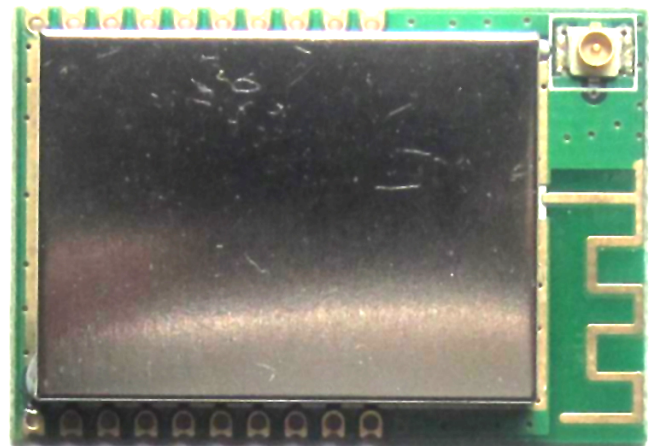
working with outside antenna

Electrical Characteristics

ITEM	TEST REQUIREMENT	REMARKS
Voltage supply	2.0－3.6V	DC
Center frequency	2405－2480MHz	Programmable
Frequency error	±50KHz	
Modulation	O-QPSK	
Output power	0-20dBm	Programmable
Receiving sensitivity	-116dBm	@250Kbps data rate
Receiving current	<32mA	
Transmitting current	160mA	Po=20dBm
Sleep consumption	0.4mA	Power Mode 1
Data rate	250kbps	
Transmit distance	1000M	At open area
Antenna	50ohm	
Store temperature	-40－125℃	
Operation temperature	-20－85℃	Base on crystal performance
Package size	23.2*34mm	

Ta = 25℃, VCC = 3.3V

Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacture.

Dimensions and Layout size

holesize=30mil y-size=44mil x-size=40mil
holesize=24mil y-size= 44mil x-size=0mil
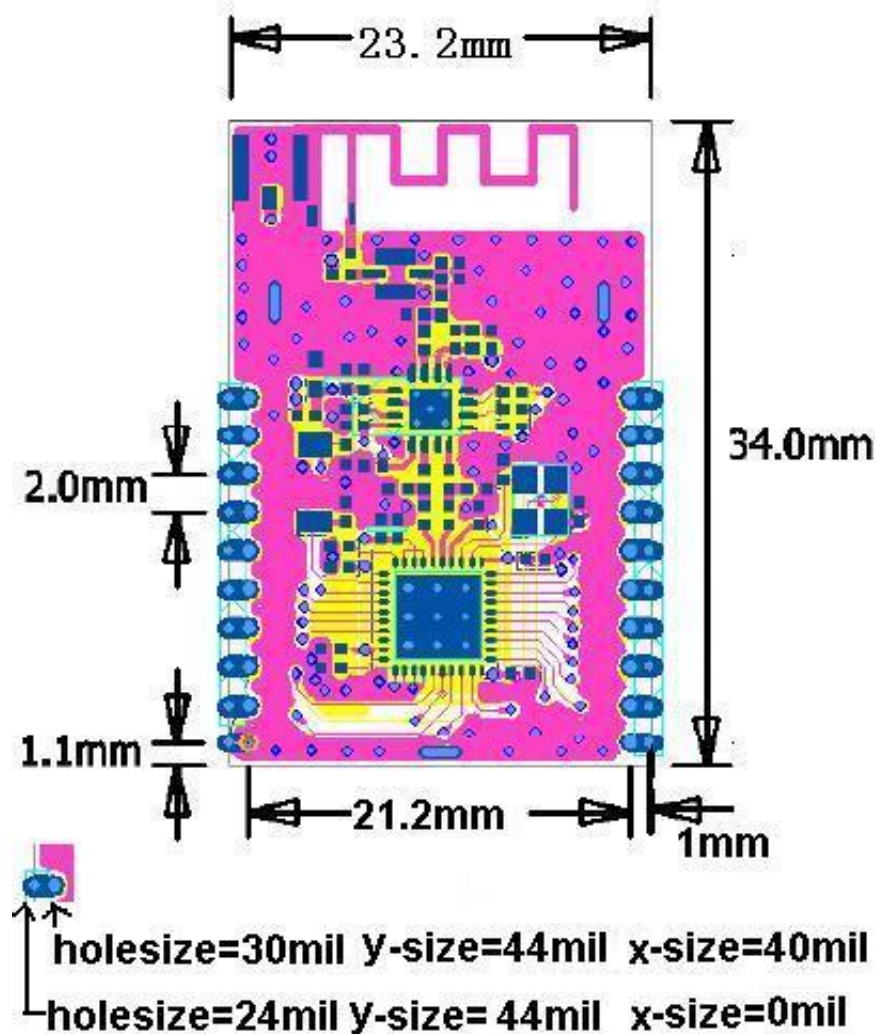
Controlling the RF PA

The two digital control pins (PAEN,LNAEN) have functional as below,

CC2530 P1.1   Connect to PAEN of the PA chip
CC2530 P1.4   Connect to LNAEN of the PA chip

- Transmit mode   PAEN logic 1, LNAEN logic 0
- Receive mode   PAEN logic 0,LNAEN logic 1
- Idle mode PAEN logic 0,LNAEN logic 0

Design References

1. Texas Instruments Low-Power RF Web site has all our latest products, application and design notes, FAQ section news and events updates, and much more. Just go to www.ti.com/lprf.
2. IEEE Std. 802.15.4-2006: Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications
http://standards.ieee.org/getieee802/download/802.15.4-2006.pdf

3. For IAR software,demo code,docments etc. over 700MB files,more than 300 members in QQ group 255430047.

Regulatory information for the OEMs and Integrators

The guidelines described within this document are provided to OEM integrators installing Amplified Zigbee module in notebook and tablet PC host platforms. Adherence to these requirements is necessary to meet the conditions of compliance with FCC rules, including RF exposure. When all antenna type and placement guidelines described herein are fulfilled the Amplified Zigbee module may be incorporated into notebook and tablet PC host platforms with no further restrictions. If any of the guidelines described herein are not satisfied it may be necessary for the OEM or integrator to perform additional testing and/or obtain additional approval. The OEM or integrator is responsible to determine the required host regulatory testing and/or obtaining the required host approvals for compliance
. Amplified Zigbee module are intended for OEMs and host integrators only.
. The Amplified Zigbee module must be operated with an access point that has been approved for the country of operation.
. Changes or modification to Amplified Zigbee module by OEMs, integrators or other third parties is not permitted. Any changes or modification to Amplified Zigbee module by OEMs, integrators or other third parties will void authorization to operate

Information to Be Supplied to the End User by the OEM or Integrator

The following regulatory and safety notices must be published in documentation supplied to the end user of the product or system incorporating the Amplified Zigbee module, in compliance with local regulations. Host system must be labeled with "Contains FCC ID: 2AHI9YB25301 ", FCC ID displayed on label.
The Amplified Zigbee module must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. Intel Corporation is not responsible for any radio or television interference caused by unauthorized modification of the devices included with the wireless adapter kit or the substitution or attachment of connecting cables and equipment other than that specified by Intel Corporation. The correction of interference caused by such unauthorized modification, substitution or attachment is the responsibility of the user. Intel Corporation and authorized resellers or distributors are not liable for any damage or violation of government regulations that may arise from the user failing to comply with these guidelines.

This device has been evaluated and shown compliant with the FCC RF Exposure limits under fixed exposure conditions (antennas are greater than 20cm from a person's body)when installed in certain specific configurations.
The host system shall have a label showing: Contains FCC ID: 2AHI9YB25301
The product used Reverse helix rubber ducky antenna.if you select other type antenna, you need nother apply.
(The gain of antenna : 3.0dBi)

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

15.105 Information to the user.

(b) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
 This equipment should be installed and operated with minimum distance 20cm between the radiator
 and your body.

Radiation Exposure Statement:

This equipment complies with FCC 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.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination.

The firmware setting is not accessible by the end user.

The final end product must be labelled in a visible area with the following:

"Contains Transmitter Module 2AHI9YB25301"