



## **AN2640R2UA-K Module Datasheet V2.0**

Beijing Jia An Electronics Technology Co., Ltd.

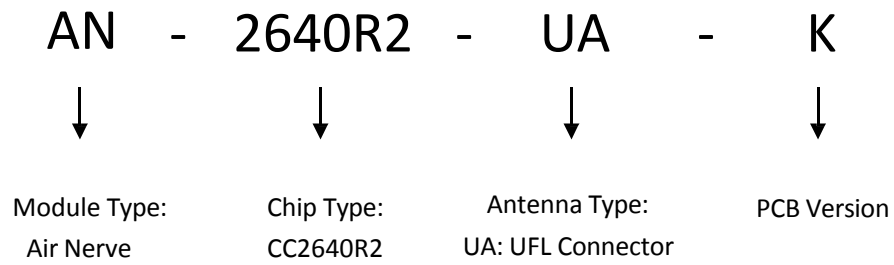
# Contents

History.....	1
Module Name Information .....	2
Features .....	3
Applications.....	4
Description .....	4
Block Diagram .....	5
Specifications .....	6
Mechanical Drawing .....	6
Terminal Description .....	7
Recommended PCB Layout for Package .....	8
Reference Schematics.....	8
Recommended Reflow Profile for Lead Free Solder.....	9
Package.....	10
Contact Details .....	11

## History

Date	Version	Description	Draft	Approval
2020-4-17	V1.0	Release		
2021-2-22	V2.0	Modify the format	Whf	Jessy

## Module Name Information



## Features

- Microcontroller
  - Powerful ARM® Cortex®-M3
  - Up to 48-MHz Clock Speed
  - 275KB of Nonvolatile Memory Including 128KB of In-System Programmable Flash
  - Up to 28KB of System SRAM, of Which 20KB is Ultra-Low Leakage SRAM
  - 8KB of SRAM for Cache or System RAM Use
  - 2-Pin cJTAG and JTAG Debugging
  - Supports Over-The-Air Upgrade (OTA)
- Ultra-Low Power Sensor Controller
  - Can Run Autonomous From the Rest of The System
  - 16-Bit Architecture
  - 2KB of Ultra-Low Leakage SRAM for Code and Data
- Efficient Code Size Architecture, Placing Drivers, TI-RTOS, and Bluetooth® Software in ROM to Make More Flash Available for the Application
- RoHS-Compliant Packages
  - 15.2×17.7×3.0 mm
- Peripherals
  - All Digital Peripheral Pins Can Be Routed to Any GPIO
  - Four General-Purpose Timer Modules (Eight 16-Bit or Four 32-Bit Timers, PWM Each)
  - 12-Bit ADC, 200-ksamples/s, 8-Channel Analog MUX
  - Continuous Time Comparator
  - Ultra-Low-Power Analog Comparator
  - Programmable Current Source
  - UART
  - 2× SSI (SPI, MICROWIRE, TI)
  - I2C
  - I2S
  - Real-Time Clock (RTC)
  - AES-128 Security Module
  - True Random Number Generator (TRNG)
  - 15 GPIOs
  - Support for Eight Capacitive-Sensing Buttons
  - Integrated Temperature Sensor
- Low Power
  - Wide Supply Voltage Range
    - Normal Operation: 1.8 to 3.8 V
    - Active-Mode RX: 8 mA
    - Active-Mode TX at +4 dBm: 11mA
    - Standby: 1µA (RTC Running and RAM/CPU Retention)
- RF Section
  - 2.4-GHz RF Transceiver Compatible With Bluetooth low energy (BLE) 4.2 and 5 Specifications
  - Excellent Receiver Sensitivity (–96dBm For BLE), Selectivity, and Blocking Performance
  - Link Budget of 102 dB for BLE

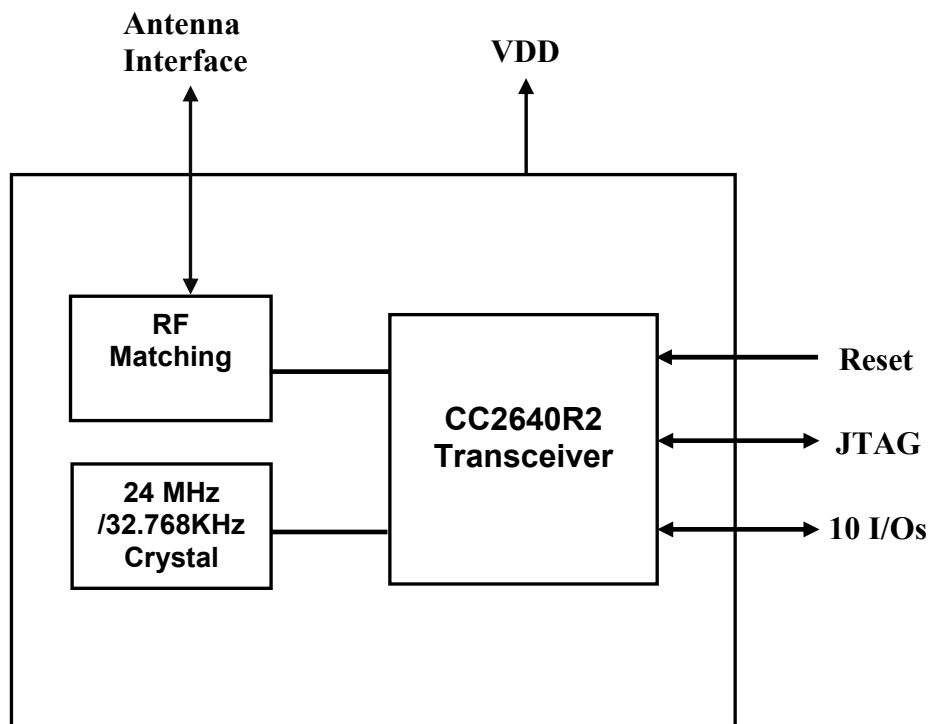
## Applications

- Home and Building Automation
  - Connected Appliances
  - Lighting
  - Locks
  - Gateways
  - Security Systems
- Industrial
  - Logistics
  - Production and Manufacturing Automation
  - Asset Tracking and Management
  - HMI and Remote Display
  - Access Control
- Retail
  - Beacons
  - Advertising
  - ESL and Price Tags
  - Point of Sales and Payment Systems
- Health and Medical
  - Thermometers
  - SpO2
  - Blood Glucose and Pressure Meters
  - Weight Scales
  - Hearing Aids
- Sports and Fitness
  - Activity Monitors and Fitness Trackers
  - Heart Rate Monitors
  - Running and Biking Sensors
  - Sports Watches
  - Gym Equipment
  - Team Sports Equipment
- HID
  - Voice Remote Controls
  - Gaming
  - Keyboards and Mice

## Description

The AN2640R2UA-K module is designed based on CC2640R2 TI Company. The CC2640R2F device is a wireless microcontroller (MCU) targeting Bluetooth® 4.2 and Bluetooth 5 low energy applications. Very low active RF and MCU current and low-power mode current consumption provide excellent battery lifetime and allow for operation on small coin cell batteries and in energy-harvesting applications.

## Block Diagram



## Specifications

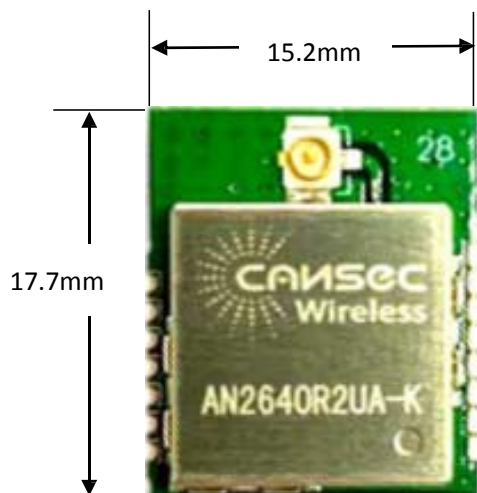
Parameter		Min	Typ	Max	Unit
Operating Voltage		1.8	3.3	3.8	V
Operating Temperature		-20	-	+70	°C
Current Consumption	Sleep Mode	-	1		uA
	Receive mode	-	8		mA
	Transmit Mode (@+4dBm)	-	11		mA
TX Power		-		4	dBm
RX Sensitivity		-	-	-96	dBm

## Mechanical Drawing

### AN2640R2UA-K:

H=3.0 mm

Tolerance: ±0.5mm



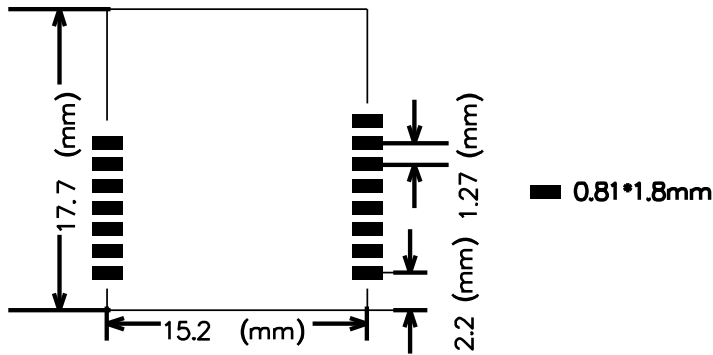


## Terminal Description

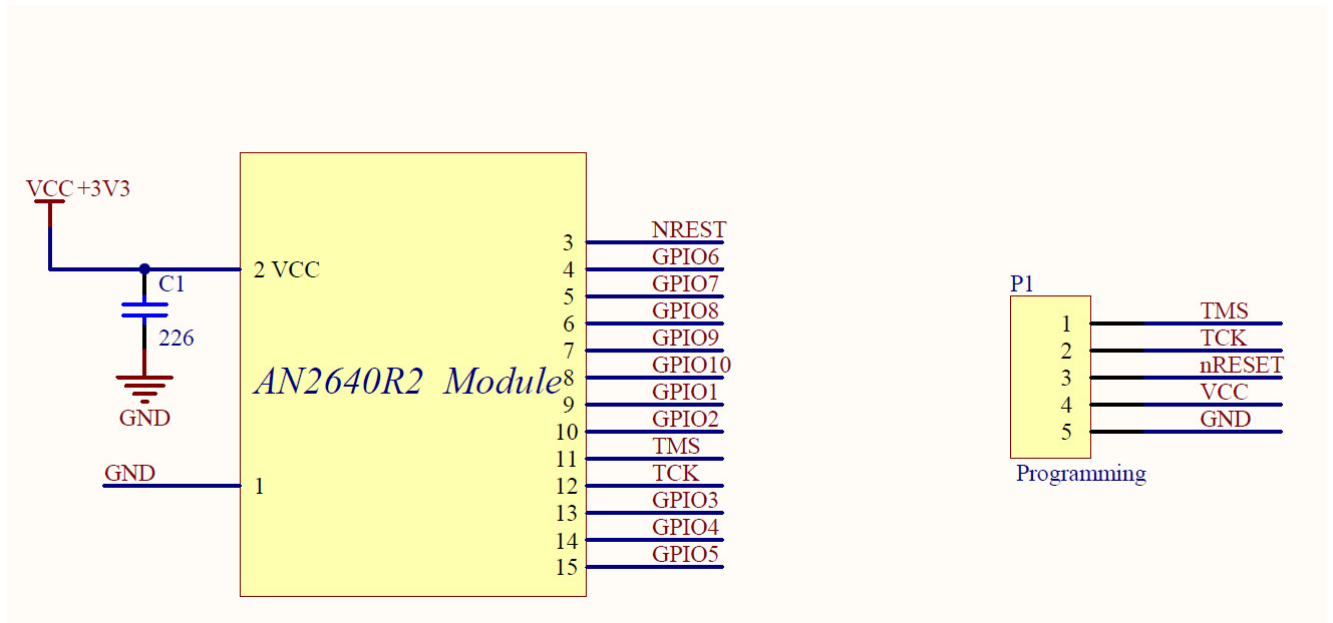


Pad Number	Name	Pin Type	Description	CC2640R2FRHB Pkg pin number
1	GND	Ground Pin	Connect to GND	
2	VCC	Power	Power supply	
3	NRT	Digital input	Reset, active-low. Internal pullup	19
4	DIO6	Digital I/O	GPIO, High drive capability, JTAG_TDI	16
5	DIO7	Digital/Analog I/O	GPIO, Sensor Controller, Analog	20
6	DIO8	Digital/Analog I/O	GPIO, Sensor Controller, Analog	21
7	DIO9	Digital/Analog I/O	GPIO, Sensor Controller, Analog	22
8	DIO10	Digital/Analog I/O	GPIO, Sensor Controller, Analog	23
9	DIO1	Digital/Analog I/O	GPIO, Sensor Controller	7
10	DIO2	Digital I/O	GPIO, Sensor Controller, high-drive capability	8
11	TMS	Digital I/O	JTAG TMS, high-drive capability	13
12	TCK	Digital I/O	JTAG TCK	14
13	DIO3	Digital I/O	GPIO, Sensor Controller, high-drive capability	9
14	DIO4	Digital I/O	GPIO, Sensor Controller, high-drive capability	10
15	DIO5	Digital I/O	GPIO, High drive capability, JTAG_TDO	15

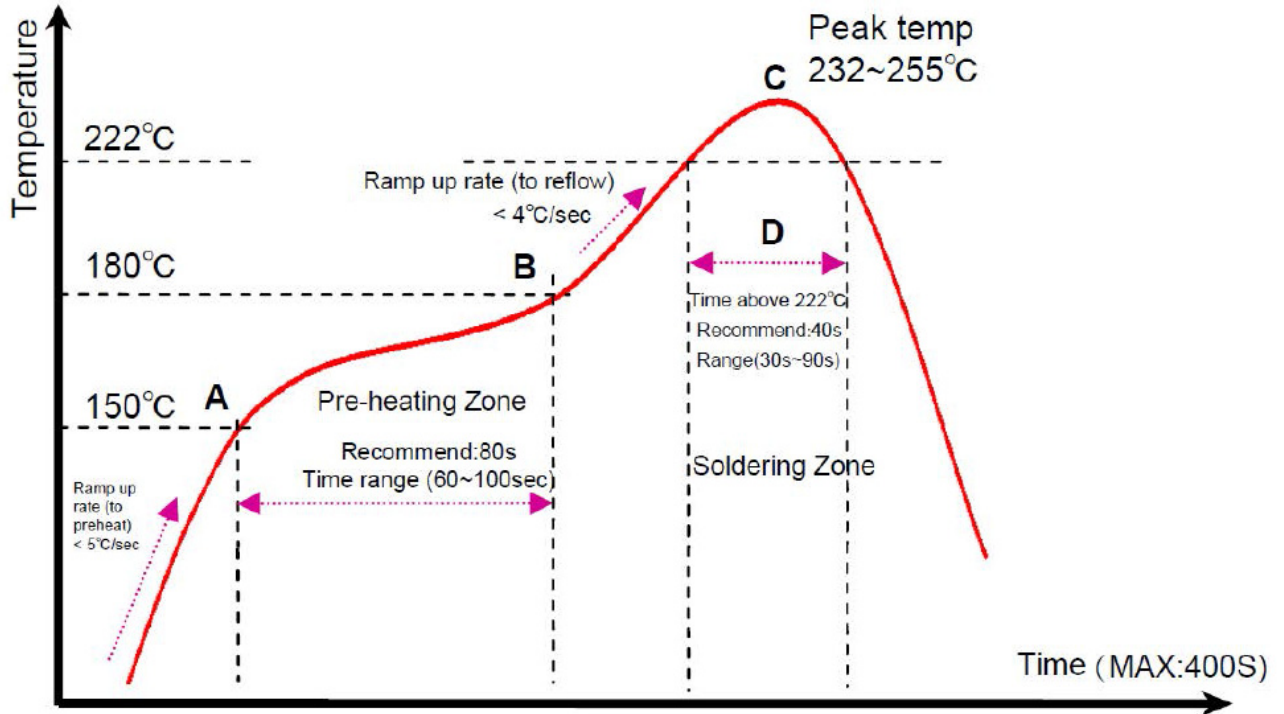
## Recommended PCB Layout for Package



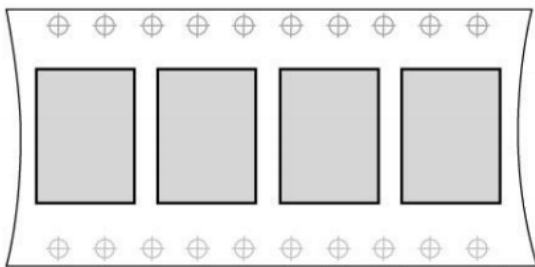
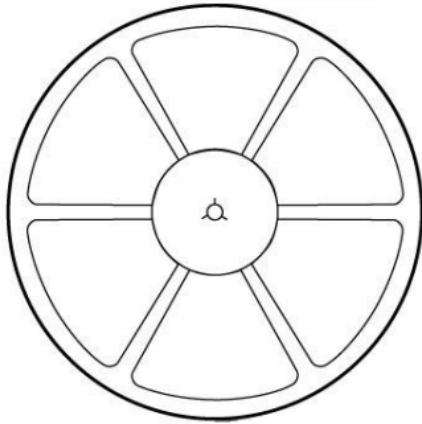
## Reference Schematics



## Recommended Reflow Profile for Lead Free Solder



## Package



- Tape and Reel
- Helical antenna version Module exception
- Note: For package, we have three package types: Reel, Tray, Simple way for choosing, depend on customer's request or quantity request

## Contact Details



CANSEC Catalog

**Tel:** +86-10-6888 9971

**Email:** [sarolyn@rf-products.com](mailto:sarolyn@rf-products.com)  
[grace@rf-products.com](mailto:grace@rf-products.com)  
[norman@rf-products.com](mailto:norman@rf-products.com)  
[jimmy@rf-products.com](mailto:jimmy@rf-products.com)

**Technical Support:** [zhaoyaxi@rf-products.com](mailto:zhaoyaxi@rf-products.com)

**Addr:** Rm.1002, Block B China Railway Venture building, No.28  
Pinguoyuan Rd., Shijingshan District, Beijing, 100041,China.

**Website:** [www.rf-products.com](http://www.rf-products.com)



CANSEC Taobao Website