



AN2340SA/UA-B Module Datasheet V1.3

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History

Date	Version	Description	Draft	Approval
2022-11-14	V1.0	Trial	ZYX	Jessy
2024-5-21	V1.1	New products have been added	FangAo	Jessy
2024-11-21	V1.2	Improve parameter specifications	ZYX	Jessy
2025-7-15	V1.3	Update Contact Details	Keystone	Jessy

Features

Wireless microcontroller

- Powerful 48-MHz Arm® Cortex®-M0+ processor
- 512 KB of in-system programmable flash
- 12 KB of ROM for bootloader and drivers
- 36 KB of ultra-low leakage SRAM. Retained in standby mode
- 2.4 GHz RF transceiver compatible with Bluetooth® 5.3 Low Energy and IEEE802.15.4 PHY and MAC
- Supports over-the-air upgrade (OTA)

Low power consumption

- MCU consumption:
 - 2.6 mA active mode, CoreMark®
 - 56 μ A/MHz running CoreMark®
 - 700 nA standby mode, RTC, 36 KB RAM
 - 150 nA shutdown mode, wake-up on pin
- Radio Consumption:

– 6.0 mA RX

– 12 mA TX at +8 dBm

Wireless protocol support

- Bluetooth® 5.3 Low Energy
- Zigbee®
- SimpleLink™ TI 15.4-stack
- Proprietary systems

High-performance radio

- -102 dBm for Bluetooth® Low Energy 125 Kb/s
- -96 dBm for Bluetooth® Low Energy 1 Mb/s
- Output power up to +8 dBm with temperature compensation

Operating range

- On-chip buck DC/DC converter
- 1.8-V to 3.8-V single supply voltage
- -20 to +70° C

Applications

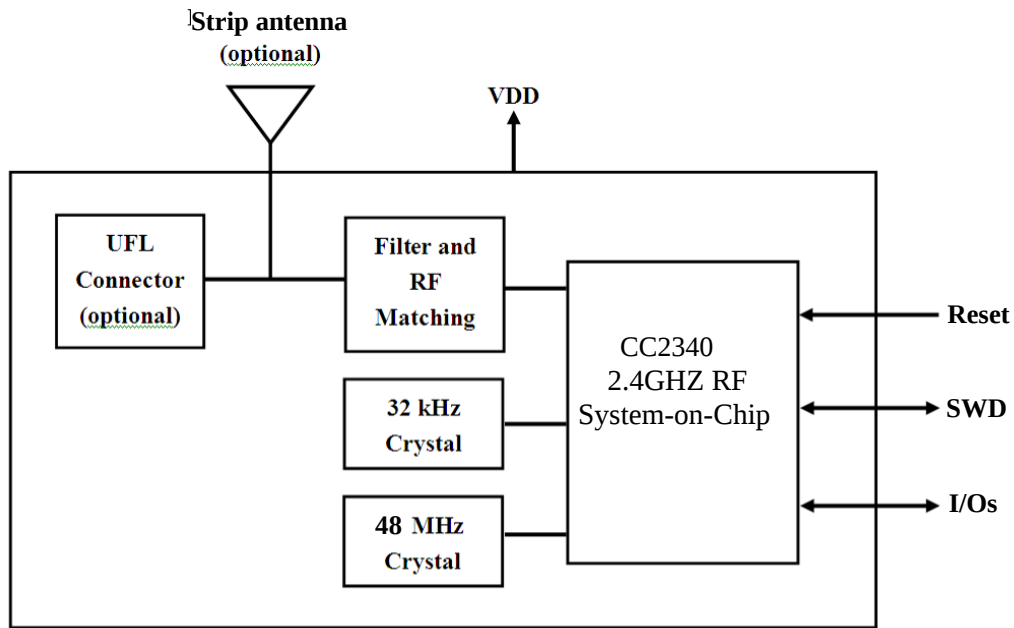
- **Medical**
 - Home healthcare
 - Patient monitoring & diagnostics
 - Personal care & Fitness
- **Building automation**
 - Building security systems
 - HVAC
 - Fire safety systems
 - Video surveillance
- **Lighting**
 - LED luminaire
 - Lighting Control
- **Factory automation and control**
- **Retail automation & payment – Electronic point of sale**
- **Communication equipment**
 - Wired networking – wireless LAN or Wi-Fi access points, edge router
- **Personal Electronics**
 - Connected peripherals
 - Gaming and electronic and robotic toys
 - Wearables (non-medical) and smart trackers

Description

The AN2340 module is designed based on CC2340 of TI. The SimpleLink™ CC2340R5 device is a 2.4 GHz wireless microcontroller (MCU) targeting Bluetooth® 5.3 Low Energy, Zigbee®, IEEE 802.15.4, and Proprietary 2.4 GHz applications. The device is optimized for low-power wireless communication with on-chip dual image Over the Air Download (OAD) support in Building automation (wireless sensors, lighting control, beacons), asset tracking, medical, retail EPOS (electronic point of sale), ESL (electronic shelf label), and Personal electronics (toys, HID, stylus pens) markets. The highlighted features of this device include:

- Support for Bluetooth® 5 features: LE Coded PHYs (Long Range), LE 2-Mbit PHY (High Speed), Advertising Extensions, Multiple Advertisement Sets, CSA#2, Direction Finding, as well as backwards compatibility and support for key features from the Bluetooth® 4.2 and earlier Low Energy specifications.
- Fully-qualified Bluetooth® 5.3 software protocol stack included with the SimpleLink™ CC23xx Software Development Kit (SDK).
- Support for Bluetooth® mesh (low power nodes).
- Zigbee® protocol stack support in the SimpleLink™ CC23x0Rx Software Development Kit (SDK).
- Ultra-low standby current of 0.7 µA with RTC operational and full RAM retention that enables significant battery life extension especially for applications with longer sleep intervals.
- Very low average radio currents for duty-cycled BLE use-cases. Average radio current ~6µA when operating in a Bluetooth® Low Energy connection with TX output power = 0dBm and 1s connection interval.
- Excellent radio sensitivity and robustness (selectivity and blocking) performance for Bluetooth® Low Energy (-102 dBm for 125-Kbps LE Coded PHY, with integrated BALUN).

Block Diagram



Module Name Information

AN	-	2340	-	UA	-	B
↓		↓		↓		↓
Module Type:		Chip Type:		Antenna Type:		PCB Version
Air Nerve		CC2340R		SA: Strip antenna		
		52E0RGE		UA: UFL Connector		
		R				

Specifications

VCC=3.3V

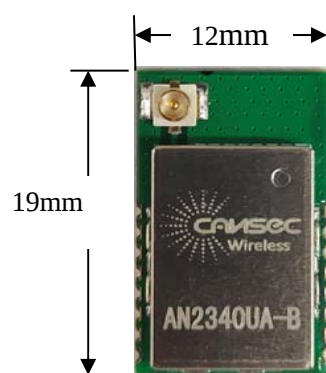
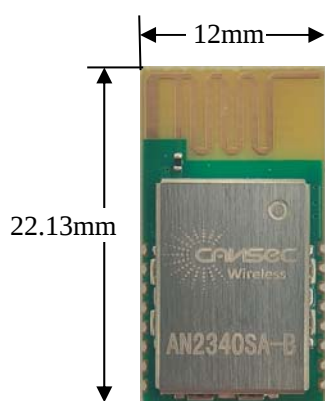
Parameter		Min	Typ	Max	Unit
Operating Voltage		1.8	3.3	3.8	V
Operating Temperature		-20	-	+70	°C
Current Consumption	Sleep Mode	-	0.7	-	uA
	Receive Mode	-	6	-	mA
	Radio transmit current	-	12	-	mA
TX Power		-		8	dBm
RX Sensitivity		-	-102	-	dBm
Distance			140		m

Mechanical Drawing

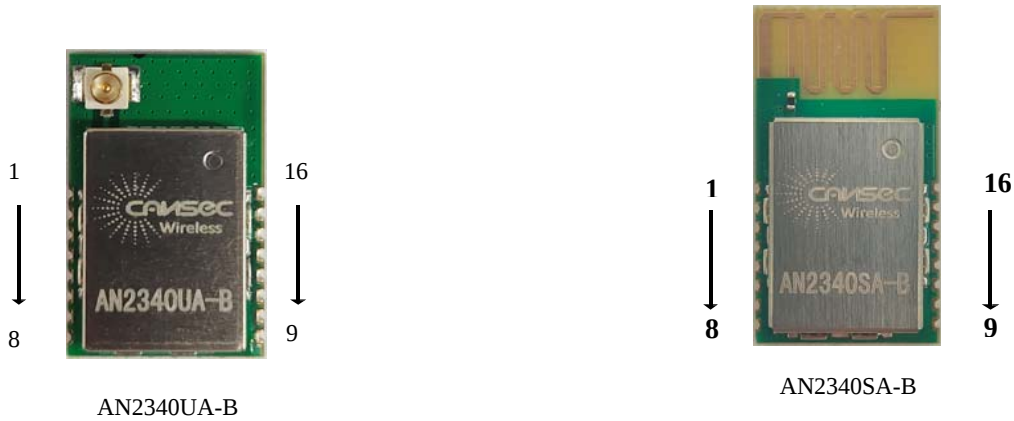
AN2340SA/UA-B:

Unit: mm
Tolerance: ± 0.2

H=3.2mm



Terminal Description

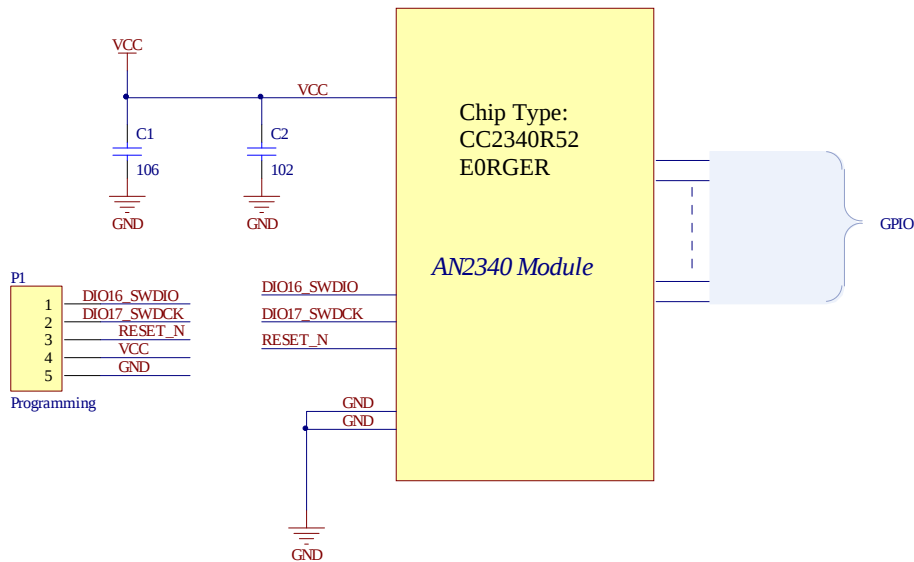


Pin NO.	Name	Pin Type	Description
1	DIO16_SWD IO	Digital	GPIO, SWD interface: mode select or SWDIO, high-drive capability
2	DIO17_SWD CK	Digital	GPIO, SWD interface: clock, high-drive capability
3	DIO20_A11	Digital or Analog	GPIO, analog capability
4	DIO21_A10	Digital or Analog	GPIO, analog capability
5	DIO24_A7	Digital or Analog	GPIO, Analog capability, high-drive capability
6	RESET_N	Digital input	Reset, active-low, Internal pullup
7	DIO6_A1	Digital or Analog	GPIO, analog capability
8	GND	Ground Pin	Connect to GND
9	GND	Ground Pin	Connect to GND
10	DIO_13	Digital	GPIO
11	DIO_12	Digital	GPIO, high-drive capability
12	DIO_11	Digital	GPIO
13	DIO_8	Digital	GPIO
14	GND	Ground Pin	Connect to GND
15	GND	Ground Pin	Connect to GND
16	VDD	Power	1.8V to 3.8V main chip supply

Note: The MCU IOC can map a number of peripheral modules such as GPIO, SSI (SPI), UART, I2C, and I2S to any of the available I/Os. The peripherals AUX and SWD are limited to specific I/O pins. More information please reference **Ti.com**.

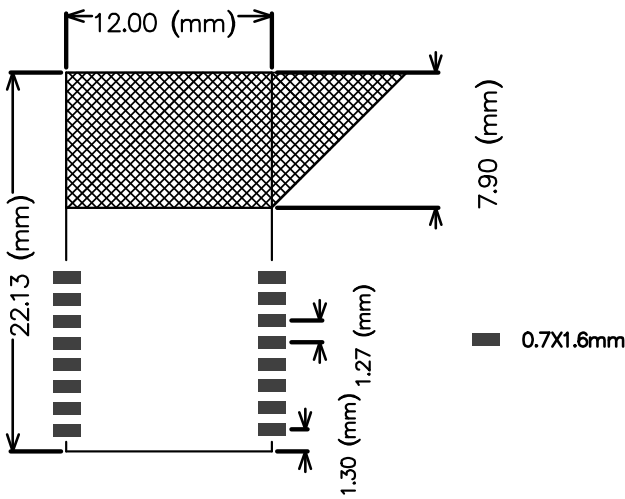
Reference Schematics

VCC Wide Supply Voltage Range:1.8 to 3.8V

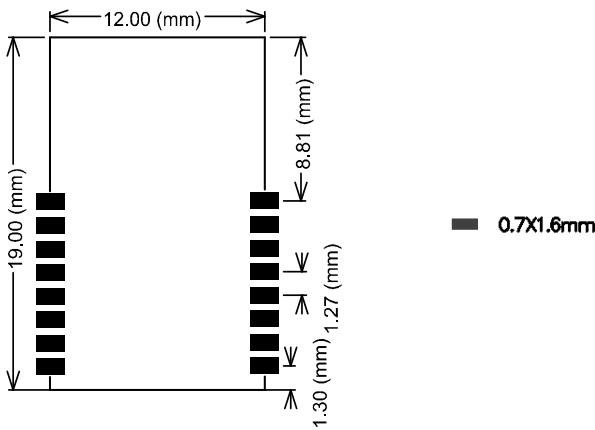


Recommended PCB Layout for Package

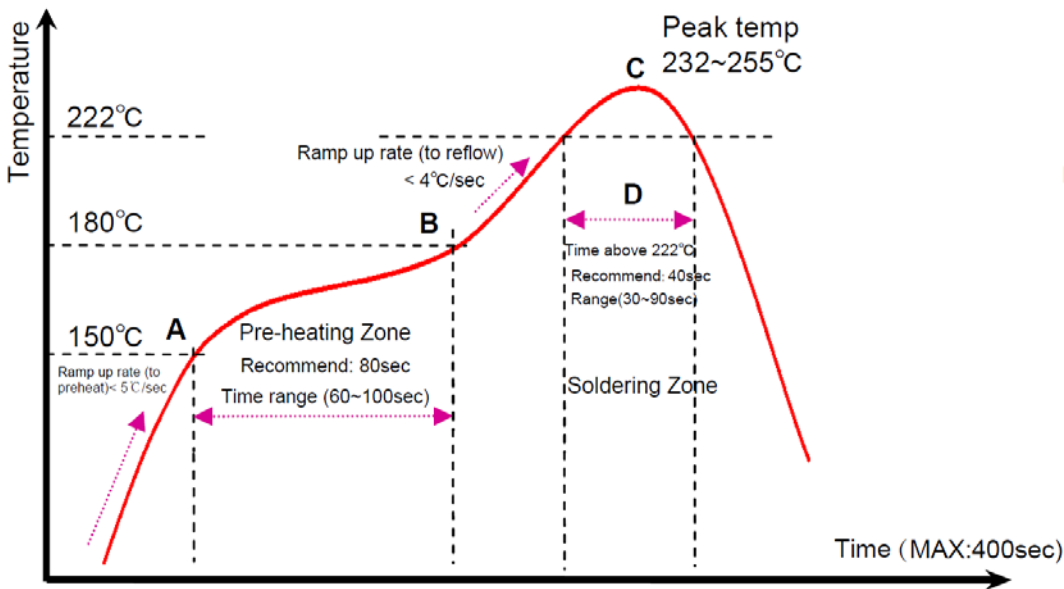
AN2340SA-B



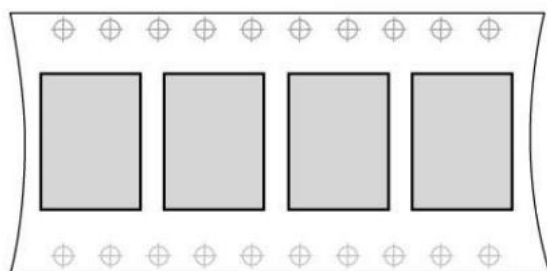
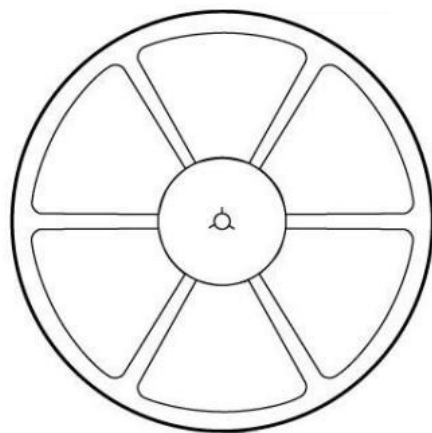
AN2340UA-B



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



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