



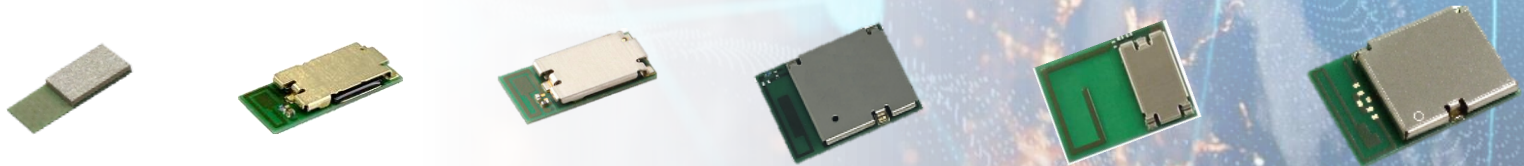
# CONTiNECT

Wireless Solution

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# Wireless Solution Bluetooth® low energy Module Overview

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## Bluetooth<sup>®</sup> low energy Module

### nRF53 Series

**nRF5340**  
**E\*5340 Series**

### nRF52 Series

**nRF52840**  
**E\*2840 Series**

**nRF52833**  
**E\*2833 Series**

**nRF52832**  
**E\*2832 Series**

**nRF52820**  
**E\*2820 Series**

**nRF52811**  
**E\*2811 Series**

**nRF52810**  
**E\*2810 Series**

### Application Embedded

**nRF52840**  
**E\*2840 Series**

**nRF52820**  
**E\*2820 Series**

## nRF53 Bluetooth<sup>®</sup> low energy Module

### nRF5340 E\*5340 Series

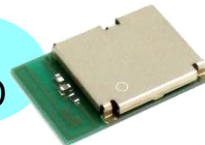
#### EB5340 BA1

APP core RAM 512kB  
NET core RAM 64kB

SoftDevice  
None

Full-  
GPIO

Full-  
GPIO



Embedded antenna  
Int. 32kHz X'tal  
Int. LC for DC/DC  
10.0 x 15.4 x 2.0mm

#### EJ5340 BA1

APP core RAM 512kB  
NET core RAM 64kB

SoftDevice  
None

Small-  
GPIO33

Small-  
GPIO33



Embedded antenna  
Ext. 32kHz X'tal  
DC/DC not supported  
5.1 x 11.3 x 1.3mm

## nRF52 Bluetooth® low energy Module

### nRF52840 E\*2840 Series

**EB2840  
AA2**

**ED2840  
AA2**

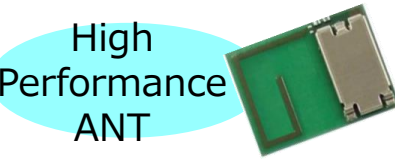
**EJ2840  
AA2**

RAM 256kB   RAM 256kB   RAM 256kB  
SoftDevice S140   SoftDevice S140   SoftDevice S140

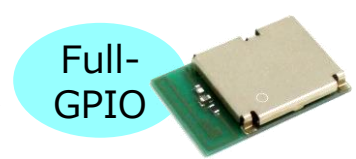
Full-GPIO

High Performance ANT

Small



Embedded antenna  
Ext. 32kHz X'tal  
DC/DC not supported  
9.6 x 12.9 x 1.3mm



Embedded antenna  
Int. 32kHz X'tal  
Int. LC for DC/DC  
10.0 x 15.4 x 2.0mm

### nRF52833 E\*2833 Series

**EB2833  
AA2**

**ED2833  
AA2**

**EJ2833  
AA2**

RAM 128kB   RAM 128kB   RAM 128kB  
SoftDevice S140   SoftDevice S140   SoftDevice S140

Full-GPIO

High Performance ANT

Small



Embedded antenna  
Int. 32kHz X'tal  
Int. LC for DC/DC  
9.6 x 12.9 x 2.0mm

### nRF52832 E\*2832 Series

**EC2832  
AA2**

**EJ2832  
AA2**

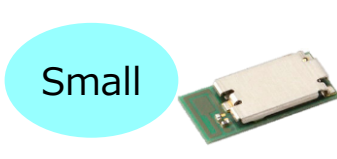
**ES2832  
AA2**

RAM 64kB   RAM 64kB   RAM 64kB  
SoftDevice S132   SoftDevice S132   SoftDevice S132

Full-GPIO-2

Small

Ultra-small \*1

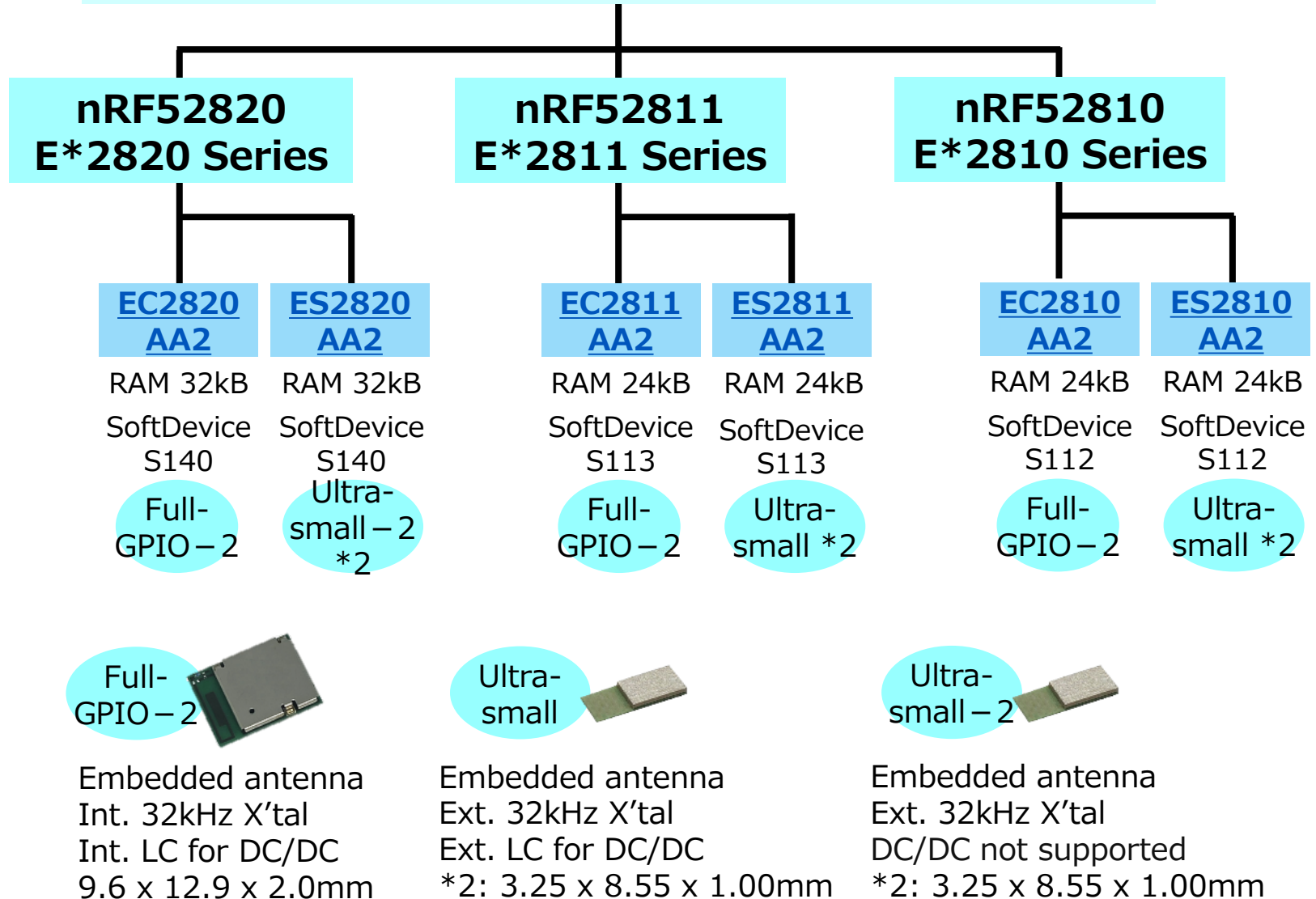


Embedded antenna  
Ext. 32kHz X'tal  
Ext. LC for DC/DC  
5.1 x 11.3 x 1.3mm

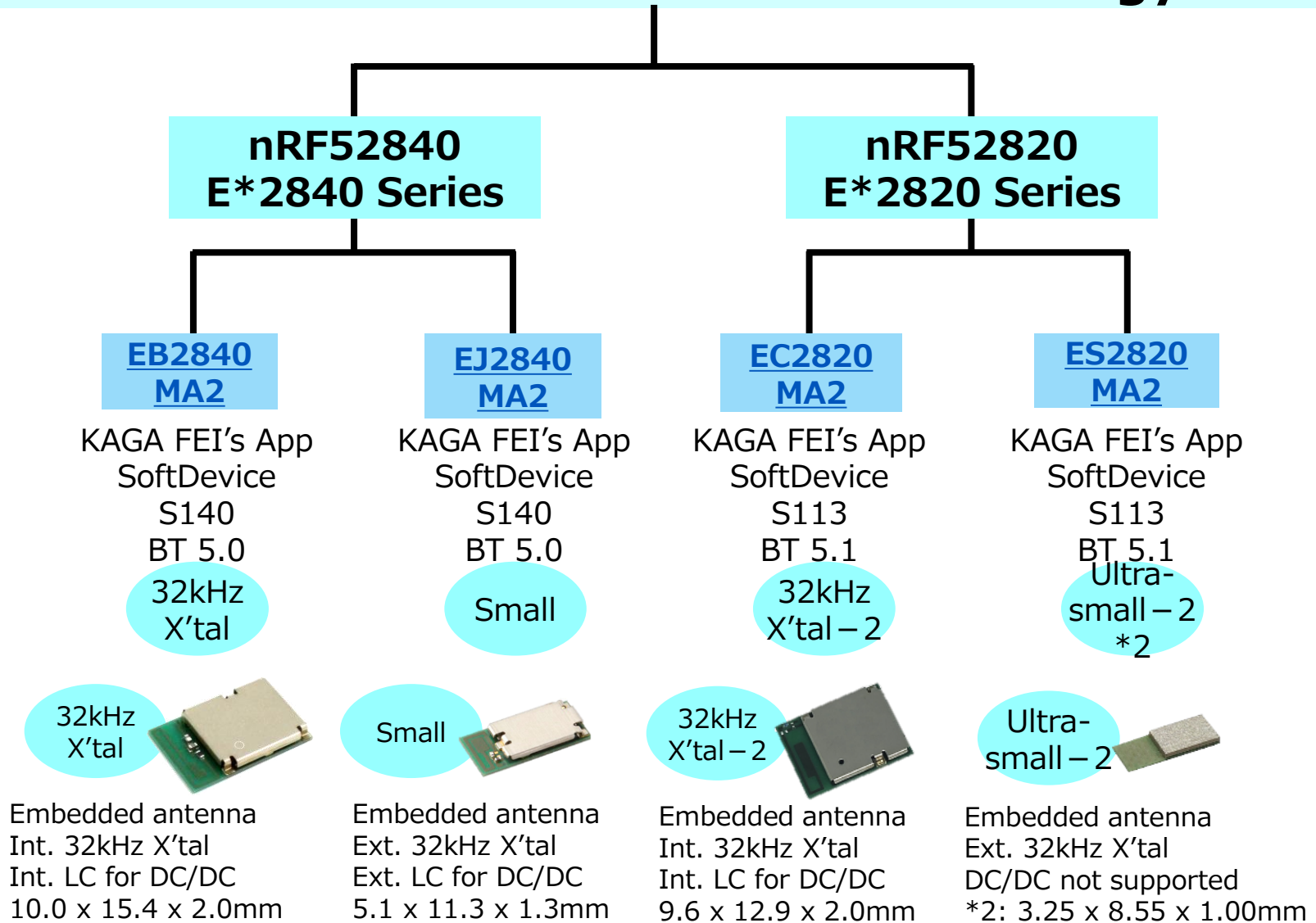


Embedded antenna  
Ext. 32kHz X'tal  
Ext. LC for DC/DC  
\*1: 3.25 x 8.55 x 0.85mm

## nRF52 Bluetooth® low energy Module



## Application Embedded Bluetooth<sup>®</sup> low energy Module



EB5340BA1	<a href="https://www.kagafei.com/jp/eng/wireless_modules/bluetooth/EB5340BA1.html">https://www.kagafei.com/jp/eng/wireless_modules/bluetooth/EB5340BA1.html</a>
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- The documents for the evaluation board and evaluation kit are also available on the above page.
- The Japanese documents are available on the following page.

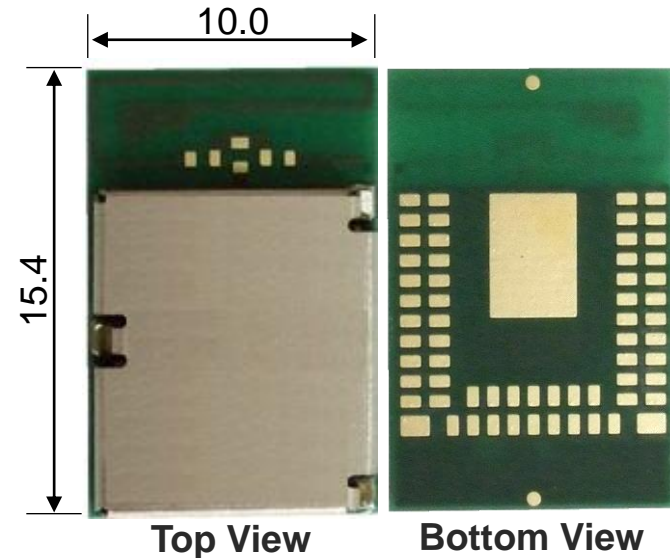
[https://www.kagafei.com/jp/wireless\\_modules/bluetooth/](https://www.kagafei.com/jp/wireless_modules/bluetooth/)

# EB5340BA1

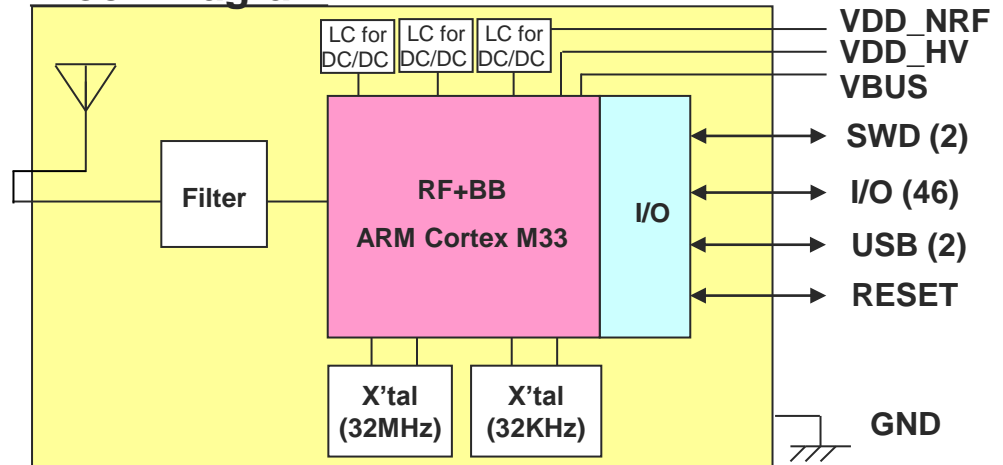
## Features

- Frequency: 2402 to 2480 MHz with +3dBm Output power
- Single power supply: 1.7 – 5.5V
- Single Mode **Bluetooth 5.4 / 802.15.4 (e.g. Matter, Thread, Zigbee)**
- Bluetooth 5.4 **2M / 1M / 500k / 125kbps / AoA / AoD**
- Chip: **nRF5340** (Nordic)
- Integrated System / **Sleep Clock, 3 x LC for DC/DC**
- Integrated high performance PCB antenna
- ARM® Cortex M33** for Application core / **1MB Flash & 512kB RAM**
- ARM® Cortex M33** for Network core / **256kB Flash & 64kB RAM**
- ARM® TrustZone® Cryptocell 312 cryptographic accelerator**
- Interface: **USB, NFC-A, SPI, UART, I2C, I2S, PDM** and 12bit ADC
- Outline: **10.0 x 15.4 x 2.0** mm MAX
- Operating Temperature range: **-40 to 105 deg-C**
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

## Outline



## Block Diagram



## Applications

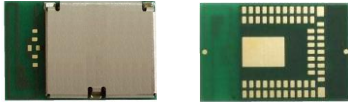
- Advanced wearables
  - Advanced personal fitness devices
  - Wearables with wireless payment
  - Connected health
  - Virtual/Augmented reality applications
- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
- Interactive entertainment devices

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## EB5340BA1 (Module)

### ■ Module samples



Tape



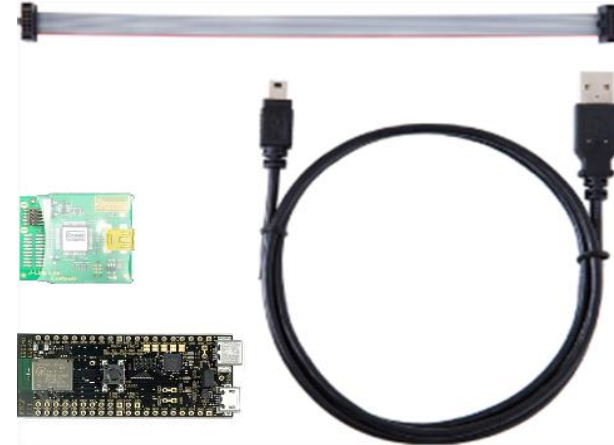
## EB5340BA1-EVB

### ■ Evaluation board



## EB5340BA1-EVK

### ■ Evaluation kit



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J-Link LITE  
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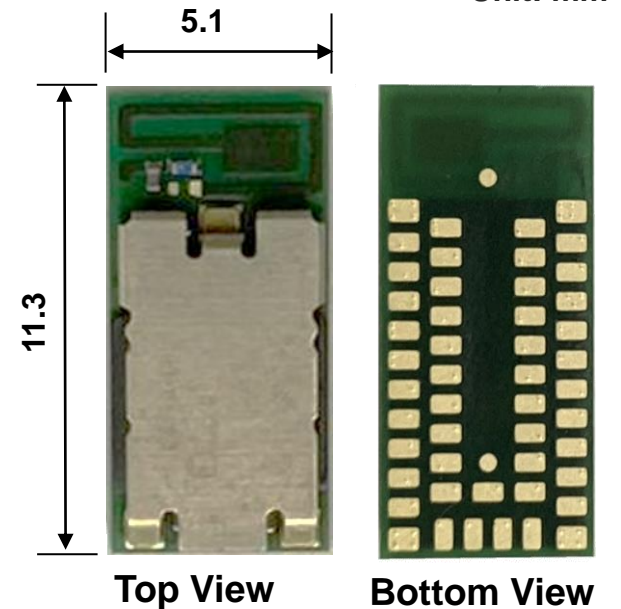


# EJ5340BA1

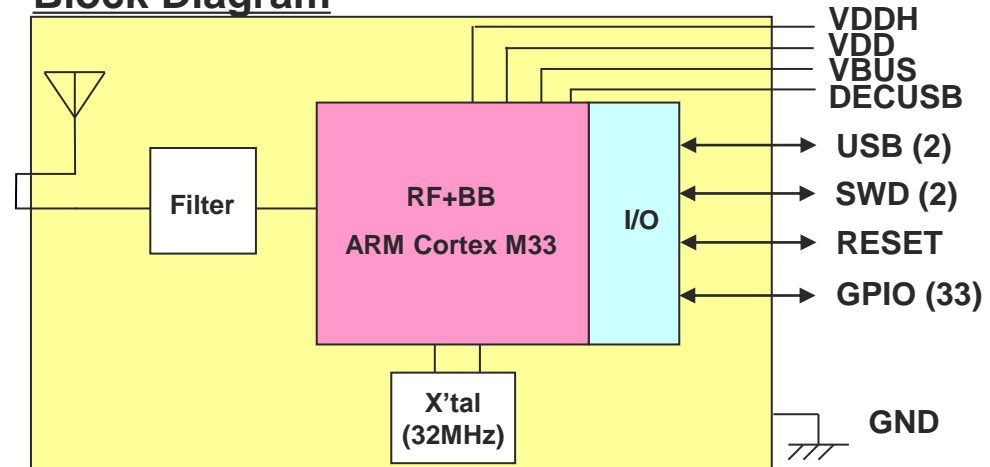
## Features

- Frequency: 2402 to 2480 MHz with +3dBm Output power
- Single power supply: 1.7 – 5.5V
- Single Mode **Bluetooth 5.4 / 802.15.4 (e.g. Matter, Thread, Zigbee)**
- Bluetooth 5.4 **2M / 1M / 500k / 125kbps / AoA / AoD**
- Chip: **nRF5340** (Nordic)
- Integrated System Clock
- Integrated high performance PCB antenna
- ARM® Cortex M33** for Application core / **1MB Flash & 512kB RAM**
- ARM® Cortex M33** for Network core / **256kB Flash & 64kB RAM**
- ARM® TrustZone® Cryptocell 312 cryptographic accelerator**
- Interface: **USB, NFC-A, SPI, UART, I2C, I2S, PDM** and 12bit ADC
- Outline: **5.1 x 11.3 x 1.3 mm MAX**
- Operating Temperature range: **-40 to 105 deg-C**
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

## Outline



## Block Diagram



## Applications

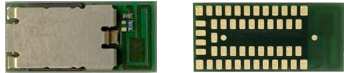
- Advanced wearables
  - Advanced personal fitness devices
  - Wearables with wireless payment
  - Connected health
  - Virtual/Augmented reality applications
- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
- Interactive entertainment devices

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## EJ5340BA1 (Module)

### ■ Module samples

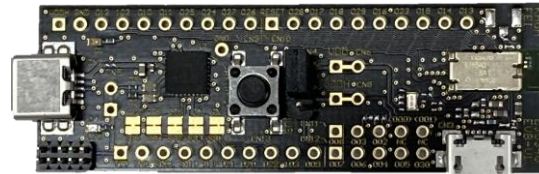


Tape



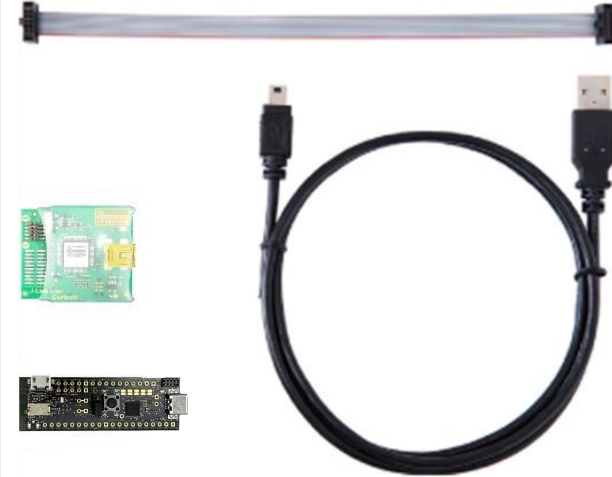
## EJ5340BA1-EVB

### ■ Evaluation board



## EJ5340BA1-EVK

### ■ Evaluation kit



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J-Link LITE  
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# EB2840AA2

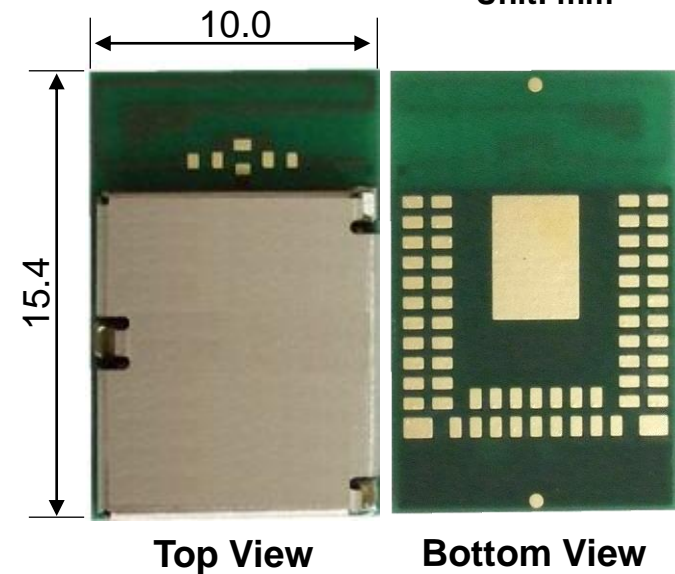
## Features

- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode Bluetooth 5.0 / **802.15.4** (e.g. Thread, Zigbee)
- Bluetooth 5.0 **2M / 1M / 500k / 125kbps**
- Chip: **nRF52840** (Nordic)
- Integrated System / **Sleep Clock, 2 x LC for DC/DC**
- Integrated high performance PCB antenna
- ARM® Cortex M4F** 32bit processor and **1MB Flash & 256kB RAM**
- ARM® TrustZone® Cryptocell 310** cryptographic accelerator
- Interface: **USB, NFC-A, SPI, UART, I2C, I2S, PDM** and 12bit ADC
- Outline: **10.0 x 15.4 x 2.0** mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

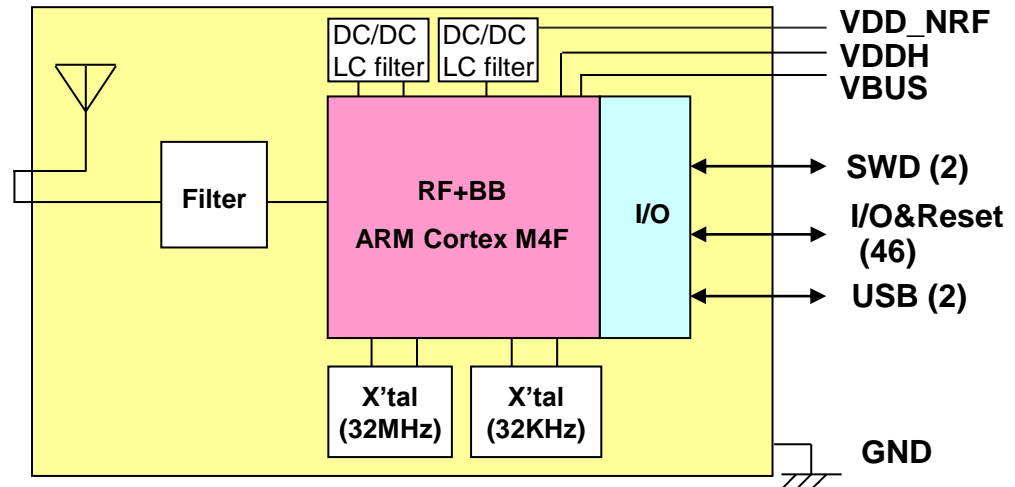
## Applications

- Advanced wearables
  - Connected watches
  - Advanced personal fitness devices
  - Wearables with wireless payment
  - Connected health
  - Virtual/Augmented reality applications
- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
- Interactive entertainment devices

## Outline



## Block Diagram

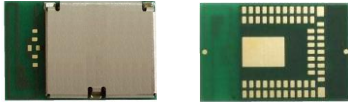


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## EB2840AA2 (Module)

### ■ Module samples

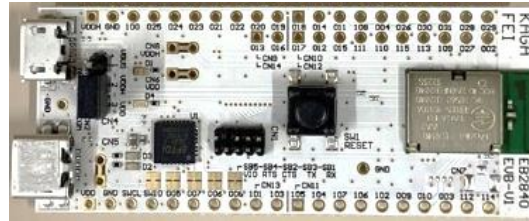


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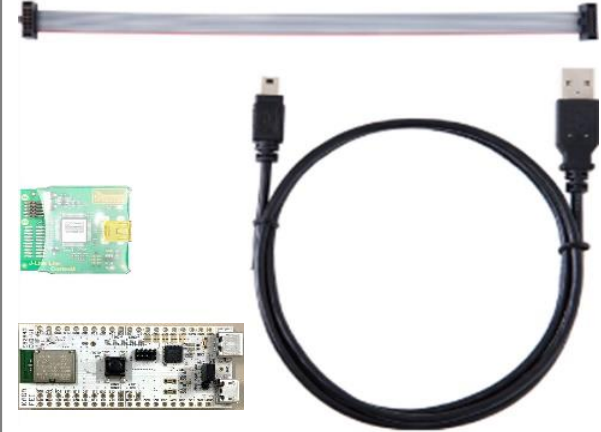
## EB2840AA2-EVB

### ■ Evaluation board



## EB2840AA2-EVK

### ■ Evaluation kit



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# ED2840AA2

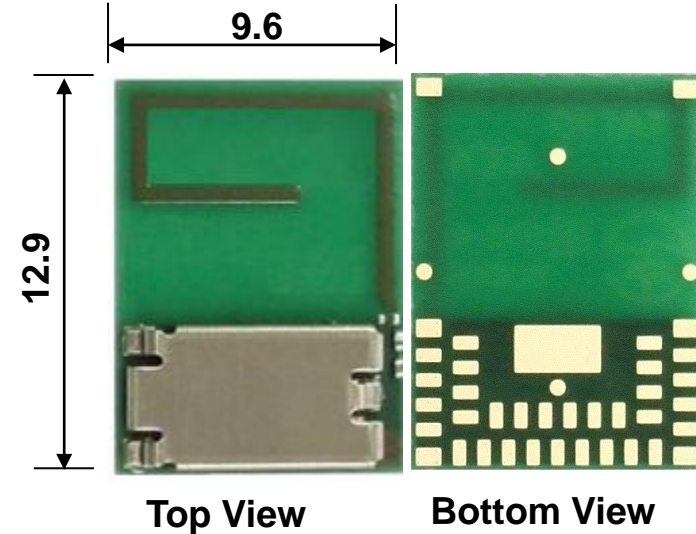
## Features

- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode Bluetooth 5.0 / **802.15.4** (e.g. Thread, Zigbee)
- Bluetooth 5.0 **2M / 1M / 500k / 125kbps**
- Chip: **nRF52840** (Nordic)
- Integrated System Clock
- Integrated high performance PCB antenna**
- ARM® Cortex M4F** 32bit processor and **1MB Flash & 256kB RAM**
- ARM® TrustZone® Cryptocell 310** cryptographic accelerator
- Interface: **USB, NFC-A**, SPI, UART, I2C, I2S, PDM and 12bit ADC
- Outline: **9.6 x 12.9 x 1.3** mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

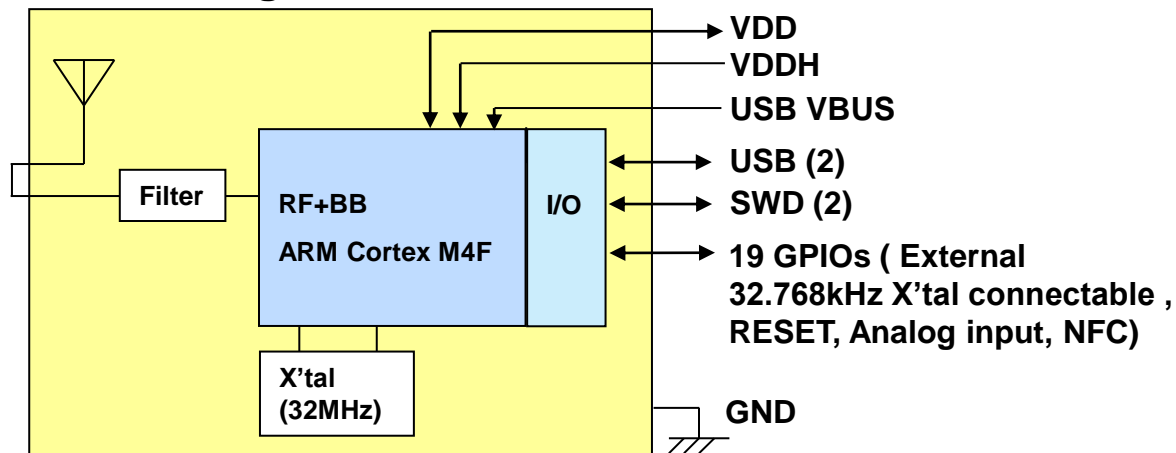
## Applications

- Beacon
- Home security
- Asset tracking
- Agricultural monitoring
- Warehouse management
- Smart factory
- Smart dairy farming
- Handy terminal
- Outdoor application

## Outline



## Block Diagram

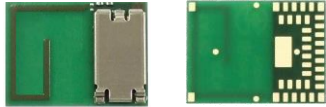


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## ED2840AA2 (Module)

### ■ Module samples

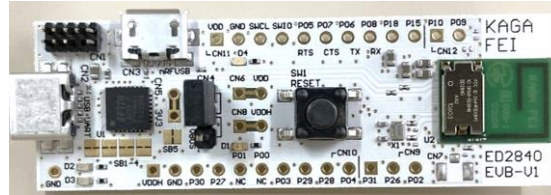


Tape



## ED2840AA2-EVB

### ■ Evaluation board



## ED2840AA2-EVK

### ■ Evaluation kit



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# EJ2840AA2

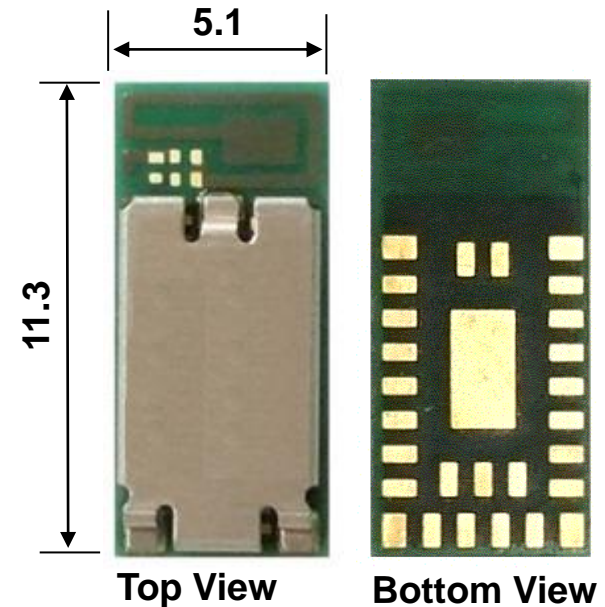
## Features

- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 3.6V
- Single Mode Bluetooth 5.0 / **802.15.4** (e.g. **Thread, Zigbee**)
- Bluetooth 5.0 **2M / 1M / 500k / 125kbps**
- Chip: **nRF52840** (Nordic)
- Integrated System Clock
- Integrated high performance PCB antenna
- ARM® Cortex M4F 32bit processor and 1MB Flash & 256kB RAM**
- ARM® TrustZone® Cryptocell 310 cryptographic accelerator**
- Interface: **NFC-A**, SPI, UART, I2C, I2S, PDM and 12bit ADC
- Outline: **5.1 x 11.3 x 1.3** mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

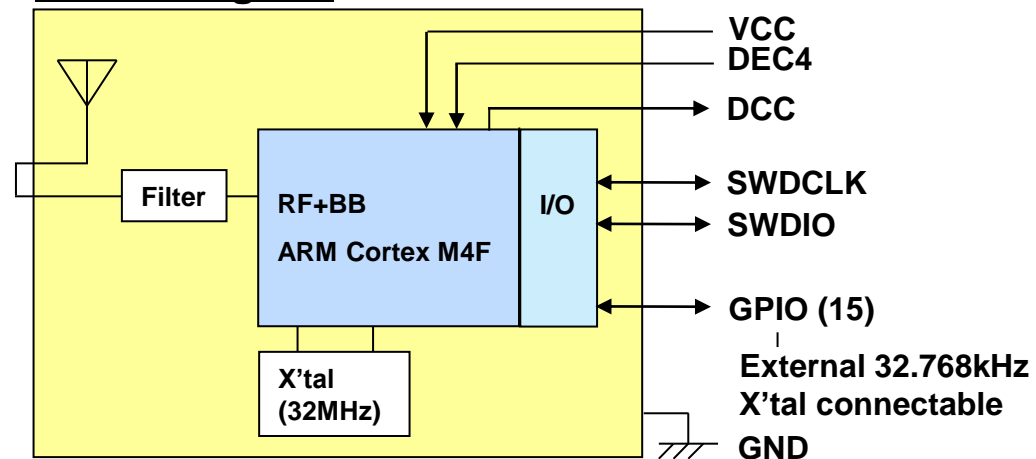
## Applications

- Advanced wearables
  - Connected watches
  - Advanced personal fitness devices
  - Wearables with wireless payment
  - Connected health
  - Virtual/Augmented reality applications
- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
- Interactive entertainment devices

## Outline



## Block Diagram

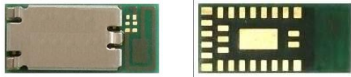


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## EJ2840AA2 (Module)

### ■ Module samples



Tape



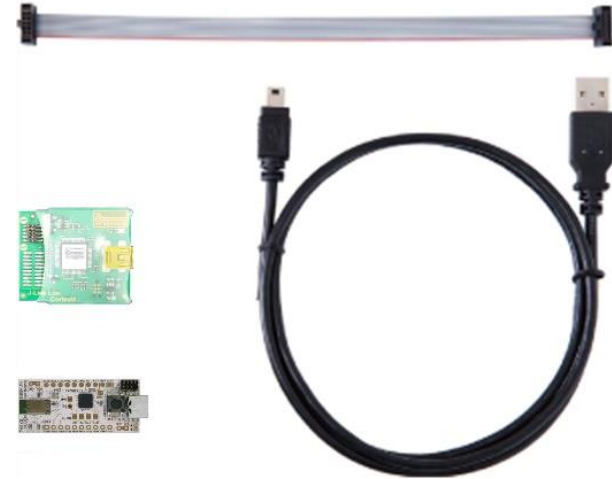
## EJ2840AA2-EVB

### ■ Evaluation board



## EJ2840AA2-EVK

### ■ Evaluation kit



**SEGGER  
J-Link LITE  
Attached**



# EB2833AA2

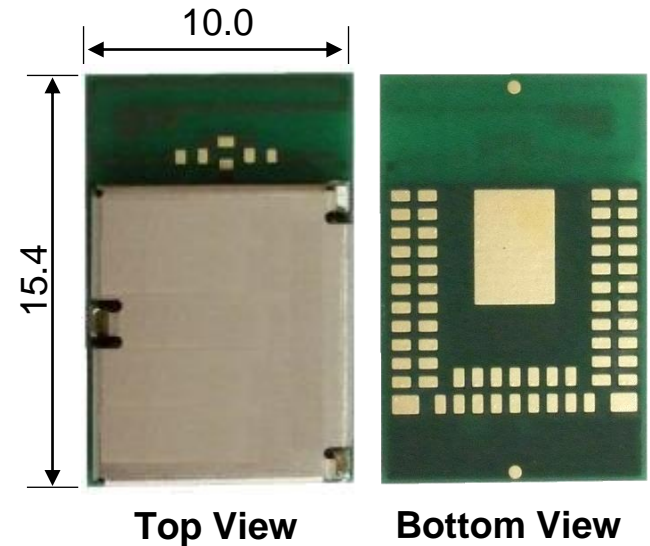
## Features

- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode **Bluetooth 5.2 / 802.15.4** (e.g. Thread, Zigbee)
- Bluetooth 5.2 **2M / 1M / 500k / 125kbps / AoA / AoD**
- Chip: **nRF52833** (Nordic)
- Integrated System / **Sleep Clock, LC for DC/DC**
- Integrated high performance PCB antenna
- ARM® Cortex M4F** 32bit processor
- 512KB Flash** and **128kB RAM**
- Interface: **USB, NFC-A, SPI, UART, I2C, I2S, PDM** and 12bit ADC
- Outline: **10.0 x 15.4 x 2.0** mm MAX
- Operating Temperature range: **-40 to 105 deg-C**
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

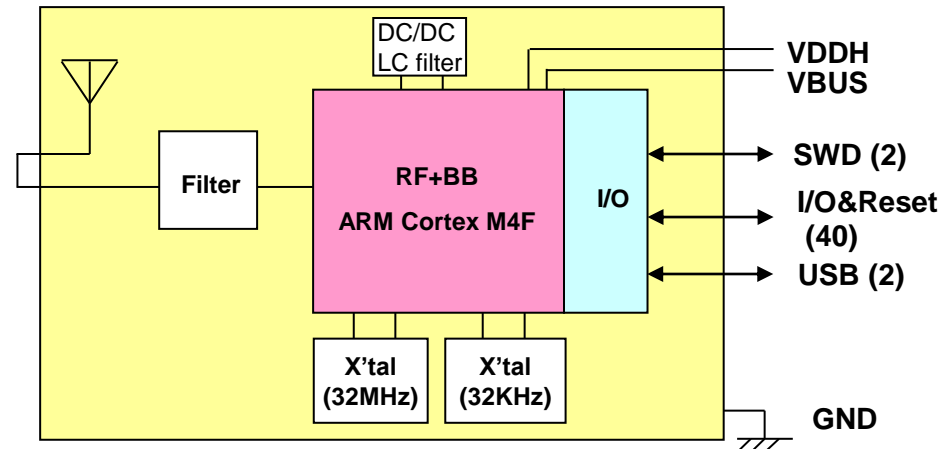
## Applications

- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
  - LED lighting
- Advanced wearables
  - Smart watch
  - Health/Fitness sensor and monitor devices
  - Wireless payment enabled devices
- Interactive entertainment devices
- Advanced computer peripherals

## Outline



## Block Diagram



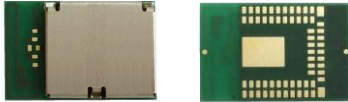
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# Sample, Evaluation Board / Kit

## EB2833AA2 (Module)

### ■ Module samples



Tape



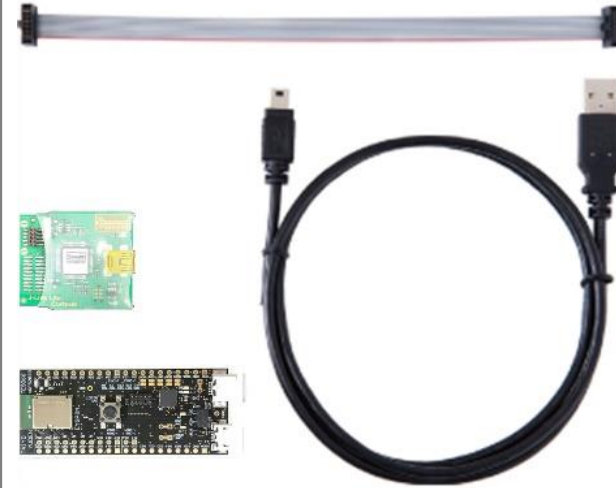
## EB2833AA2-EVB

### ■ Evaluation board



## EB2833AA2-EVK

### ■ Evaluation kit



**SEGGER  
J-Link LITE  
Attached**



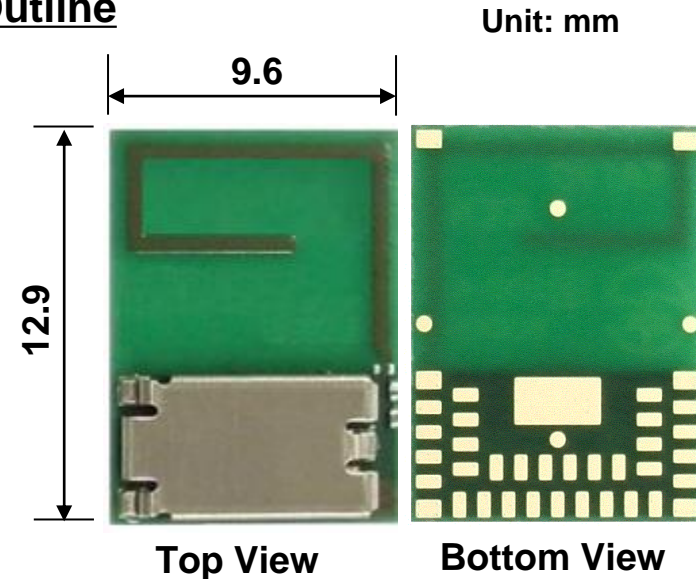
## Features

- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode **Bluetooth 5.3 / 802.15.4** (e.g. Thread, Zigbee)
- Bluetooth 5.3 **2M / 1M / 500k / 125kbps / AoA / AoD**
- Chip: **nRF52833** (Nordic)
- Integrated System Clock
- Integrated high performance PCB antenna**
- ARM® Cortex M4F** 32bit processor
- 512KB Flash** and **128kB RAM**
- Interface: **USB, NFC-A**, SPI, UART, I2C, I2S, PDM and 12bit ADC
- Outline: **9.6 x 12.9 x 1.3** mm MAX
- Operating Temperature range: **-40 to 105 deg-C**
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

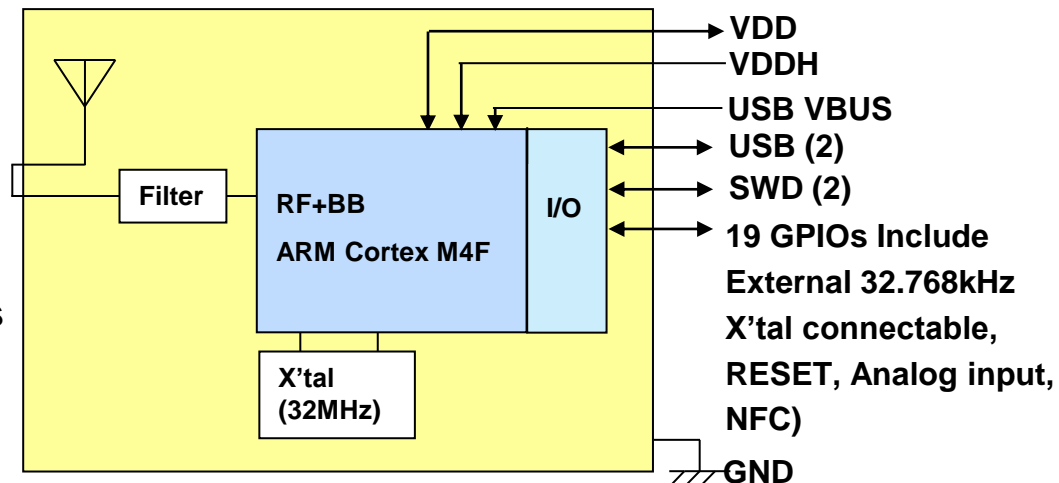
## Applications

- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
  - LED lighting
- Advanced wearables
  - Smart watch
  - Health/Fitness sensor and monitor devices
  - Wireless payment enabled devices
- Interactive entertainment devices
- Advanced computer peripherals

## Outline



## Block Diagram

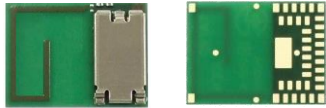


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## ED2833AA2 (Module)

### ■ Module samples



Tape



## ED2833AA2-EVB

### ■ Evaluation board



## ED2833AA2-EVK

### ■ Evaluation kit



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J-Link LITE  
Attached**



# EJ2833AA2

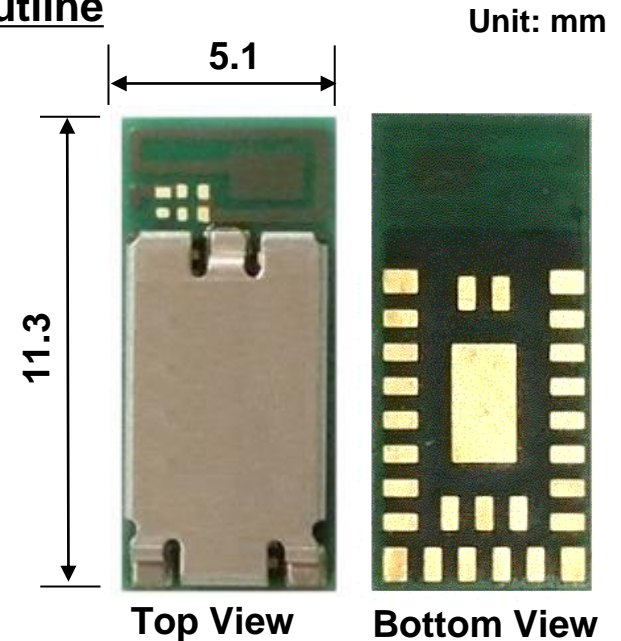
## Features

- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 3.6V
- Single Mode **Bluetooth 5.3 / 802.15.4** (e.g. Thread, Zigbee)
- Bluetooth 5.3 **2M / 1M / 500k / 125kbps / AoA / AoD**
- Chip: **nRF52833** (Nordic)
- Integrated System Clock
- Integrated high performance PCB antenna
- ARM® Cortex M4F** 32bit processor
- 512KB Flash** and **128kB RAM**
- Interface: **NFC-A**, SPI, UART, I2C, I2S, PDM and 12bit ADC
- Outline: **5.1 x 11.3 x 1.3** mm MAX
- Operating Temperature range: **-40 to 105 deg-C**
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

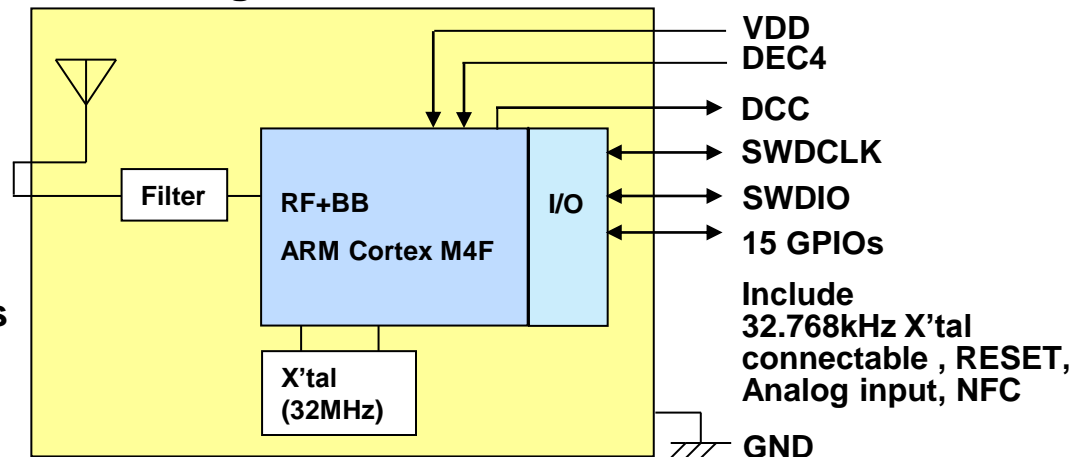
## Applications

- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
  - LED lighting
- Advanced wearables
  - Smart watch
  - Health/Fitness sensor and monitor devices
  - Wireless payment enabled devices
- Interactive entertainment devices
- Advanced computer peripherals

## Outline



## Block Diagram

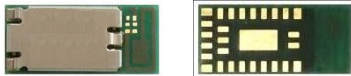


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## EJ2833AA2 (Module)

### ■ Module samples



Tape



## EJ2833AA2-EVB

### ■ Evaluation board



## EJ2833AA2-EVK

### ■ Evaluation kit



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# EC2832AA2

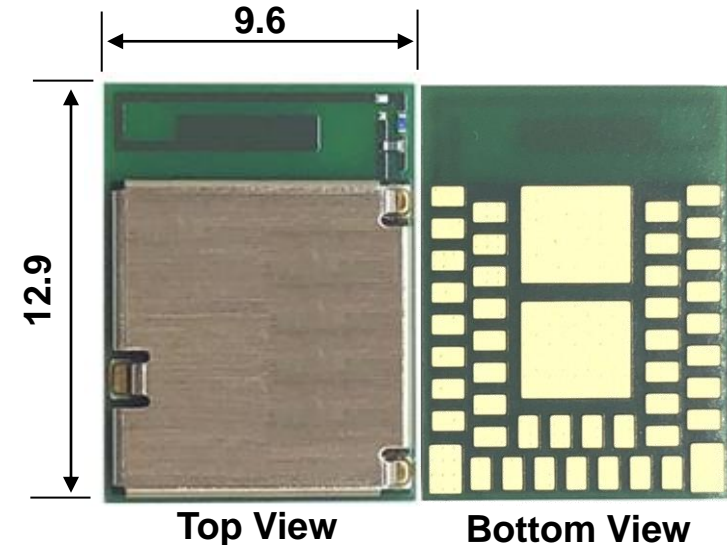
## Features

- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7 – 3.6V
- Single Mode Bluetooth low energy (ANT™ Available)
- Bluetooth 5.0 low energy **2Mbps** mode
- Chip: **nRF52832** (Nordic)
- Integrated System / **Sleep Clock, LC for DC/DC**
- Integrated high performance PCB antenna
- ARM Cortex M4F** 32bit processor
- 512kB Flash** and **64kB RAM**
- Interface: **NFC-A**, SPI, UART, I2C, I2S, PDM and 12bit ADC
- Outline: **9.6 x 12.9 x 2.0** mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, ISED qualified
- Complies with standards required by RED (2014/53/EU)
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

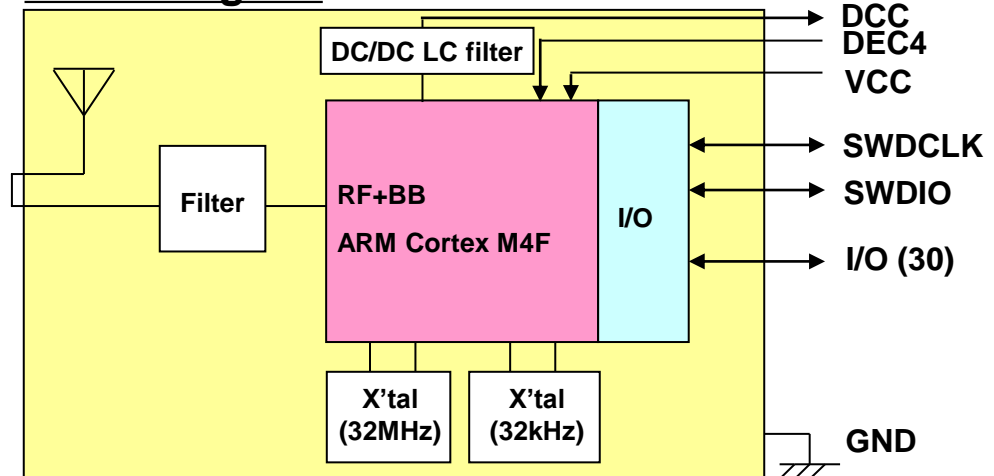
## Applications

- Cycle computer
- Heart rate monitor
- Blood pressure monitor
- Blood glucose meter
- Weighing machine
- Thermometer
- Mobile accessories
- Sports and fitness sensors
- Remote controllers / Toys

## Outline



## Block Diagram

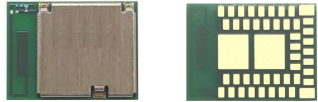


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## EC2832AA2 (Module)

### ■ Module samples



Tape



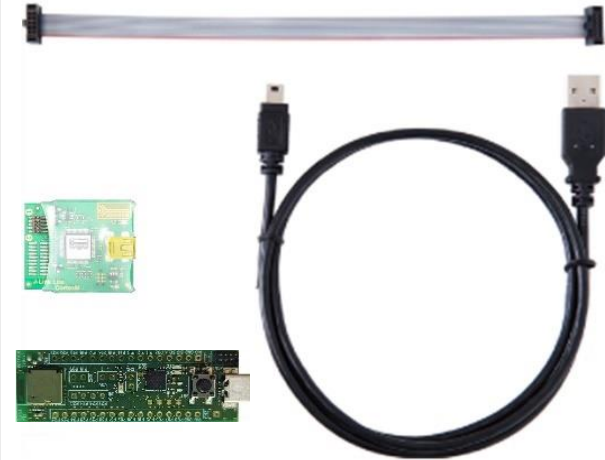
## EC2832AA2-EVB

### ■ Evaluation board



## EC2832AA2-EVK

### ■ Evaluation kit



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J-Link LITE  
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# EJ2832AA2

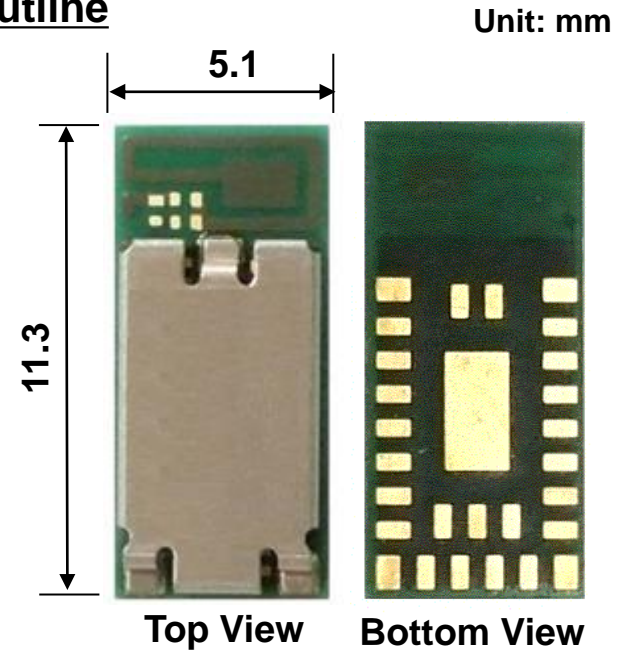
## Features

- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7 – 3.6V
- Single Mode Bluetooth low energy (ANT™ Available)
- Bluetooth 5.0 low energy **2Mbps** mode
- Chip: **nRF52832** (Nordic)
- Integrated System Clock
- Integrated high performance PCB antenna
- ARM Cortex M4F** 32bit processor
- 512kB Flash** and **64kB RAM**
- Interface: **NFC-A**, SPI, UART, I2C, I2S, PDM and 12bit ADC
- Outline: **5.1 x 11.3 x 1.3** mm MAX
- Operating Temperature range: -40 to 85 deg-C
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- Complies with standards required by RED (2014/53/EU)
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

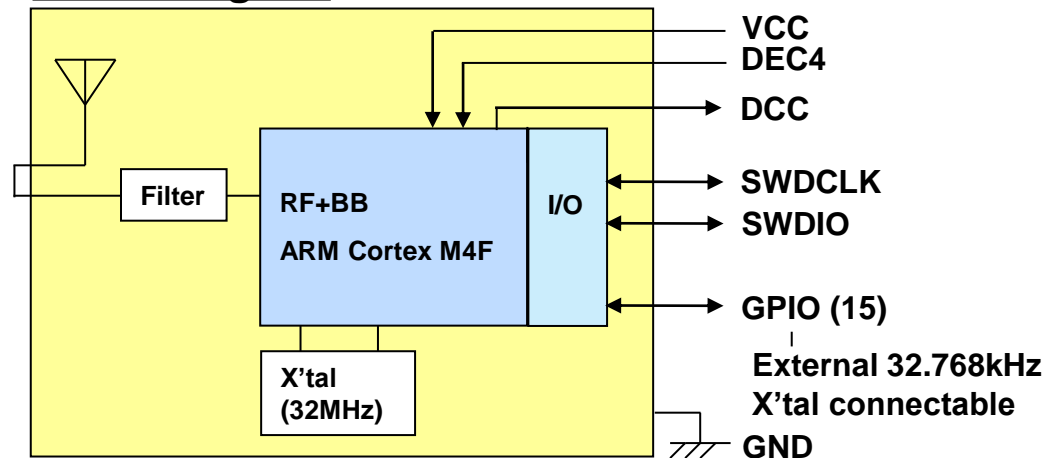
## Applications

- Cycle computer
- Heart rate monitor
- Blood pressure monitor
- Blood glucose meter
- Weighing machine
- Thermometer
- Mobile accessories
- Sports and fitness sensors
- Remote controllers / Toys

## Outline



## Block Diagram

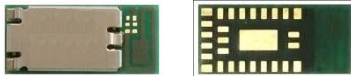


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## EJ2832AA2 (Module)

### ■ Module samples



Tape



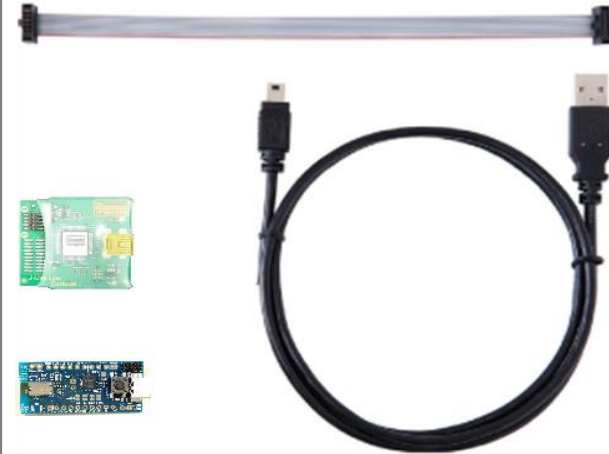
## EJ2832AA2-EVB

### ■ Evaluation board



## EJ2832AA2-EVK

### ■ Evaluation kit



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# ES2832AA2

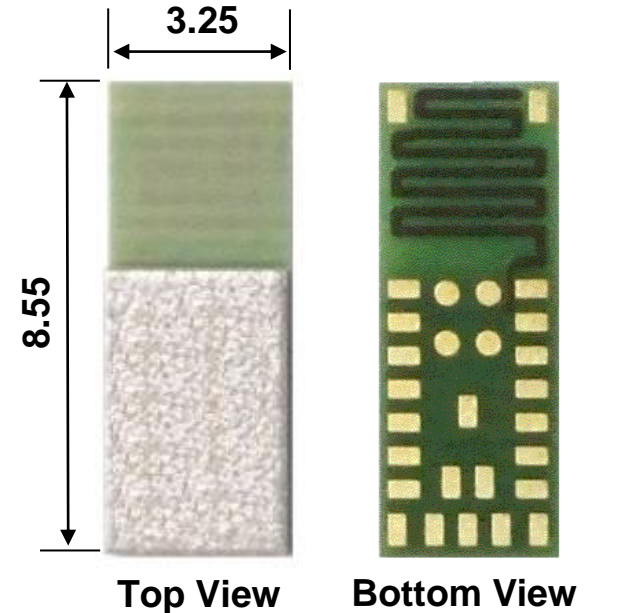
## Features

- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7 – 3.6V
- Single Mode Bluetooth low energy (ANT™ Available)
- Bluetooth 5.0 low energy **2Mbps** mode
- Chip: **nRF52832** (Nordic)
- Integrated System Clock
- Integrated high performance PCB antenna
- ARM Cortex M4F** 32bit processor
- 512kB Flash** and **64kB RAM**
- Interface: **NFC-A**, SPI, UART, I2C, I2S, PDM and 12bit ADC
- Outline: **3.25 x 8.55 x 0.85** mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, ISED qualified
- Complies with standards required by RED (2014/53/EU)
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

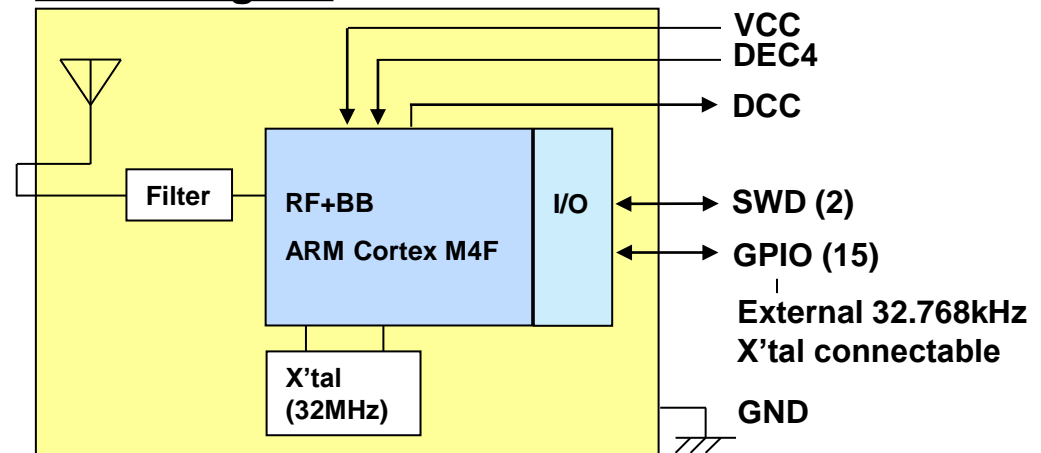
## Applications

- Smart wristband
- Smart glasses
- Remote control ring
- Smart pen
- Heart rate monitor
- pressure monitor
- Blood glucose meter
- Thermometer
- Mobile accessories

## Outline



## Block Diagram

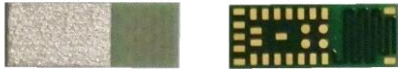


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## ES2832AA2 (Module)

### ■ Module samples

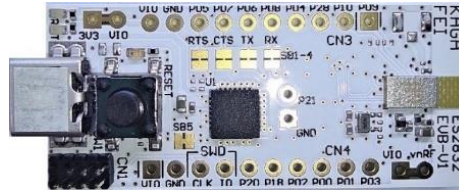


Tape



## ES2832AA2-EVB

### ■ Evaluation board



## ES2832AA2-EVK

### ■ Evaluation kit



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# EC2820AA2

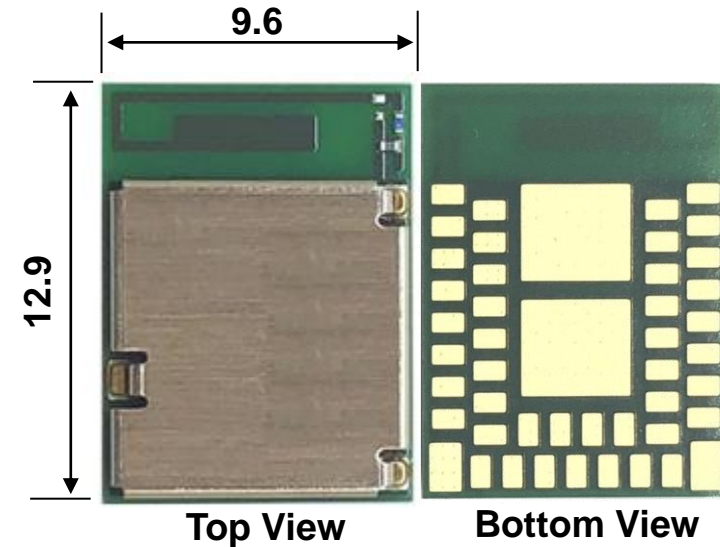
## Features

- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode **Bluetooth 5.3 / 802.15.4 (e.g Thread, Zigbee)**
- Bluetooth 5.3 **2M / 1M / 500k / 125kbps / AoA / AoD**
- Chip: **nRF52820** (Nordic)
- Integrated System / **Sleep Clock, LC for DC/DC**
- Integrated high performance PCB antenna
- ARM® Cortex M4** 32bit processor
- 256kB Flash** and **32kB RAM**
- Interface: **USB**, SPI, UART and I2C.
- Outline: **9.6 x 12.9 x 2.0 mm MAX**
- Operating Temperature range: **-40 to 105 deg-C**
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

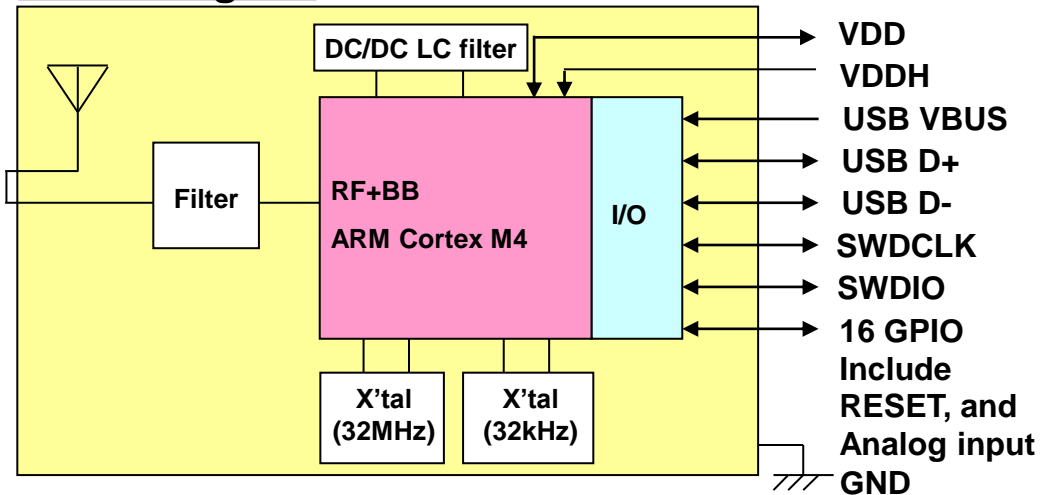
## Applications

- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
  - LED lighting
- Advanced wearables
  - Smart watch
  - Health/Fitness sensor and monitor devices
  - Wireless payment enabled devices
- Interactive entertainment devices
- Advanced computer peripherals

## Outline



## Block Diagram

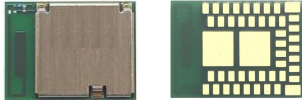


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## EC2820AA2 (Module)

### ■ Module samples



Tape



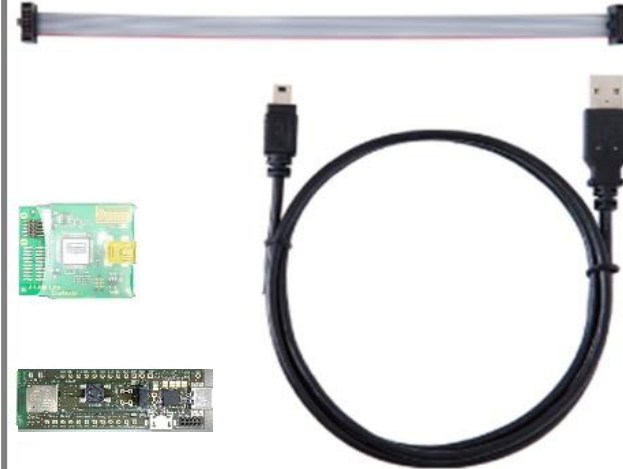
## EC2820AA2-EVB

### ■ Evaluation board



## EC2820AA2-EVK

### ■ Evaluation kit



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# ES2820AA2

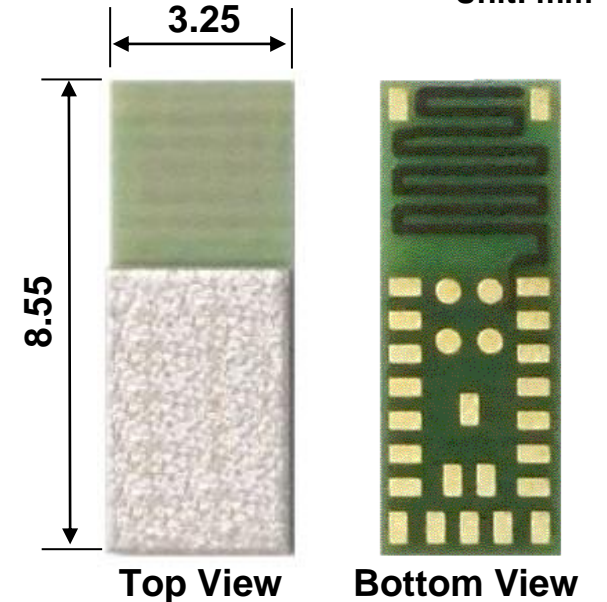
## Features

- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode **Bluetooth 5.3 / 802.15.4 (e.g Thread, Zigbee)**
- Bluetooth 5.3 **2M / 1M / 500k / 125kbps / AoA / AoD**
- Chip: **nRF52820** (Nordic)
- Integrated System Clock
- Integrated high performance PCB antenna
- ARM® Cortex M4** 32bit processor
- 256kB Flash** and **32kB RAM**
- Interface: **USB**, SPI, UART and I2C.
- Outline: **3.25 x 8.55 x 1.00** mm MAX
- Operating Temperature range: **-40 to 105 deg-C**
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

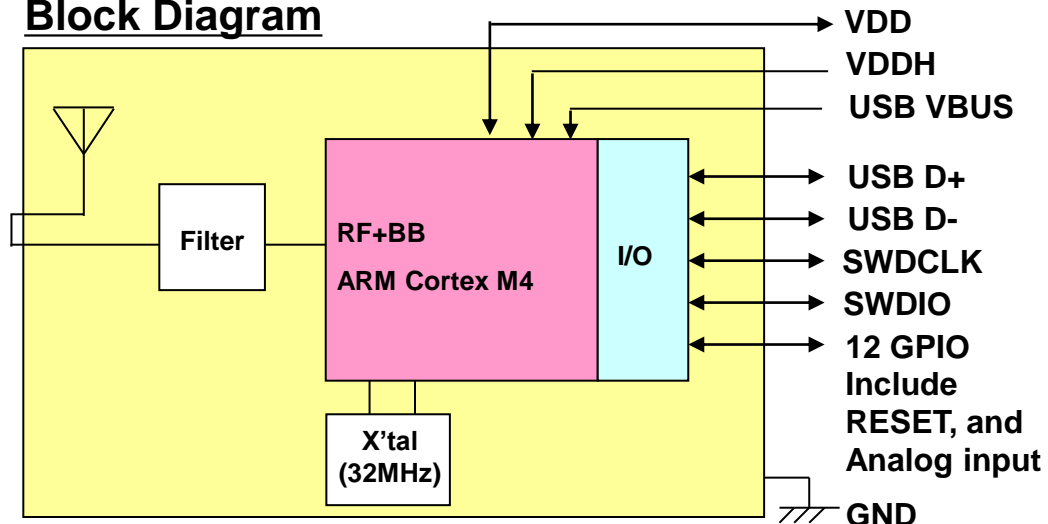
## Applications

- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
  - LED lighting
- Advanced wearables
  - Smart watch
  - Health/Fitness sensor and monitor devices
  - Wireless payment enabled devices
- Interactive entertainment devices
- Advanced computer peripherals

## Outline



## Block Diagram

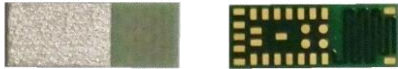


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## ES2820AA2 (Module)

### ■ Module samples



Tape



## ES2820AA2-EVB

### ■ Evaluation board



## ES2820AA2-EVK

### ■ Evaluation kit



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# EC2811AA2

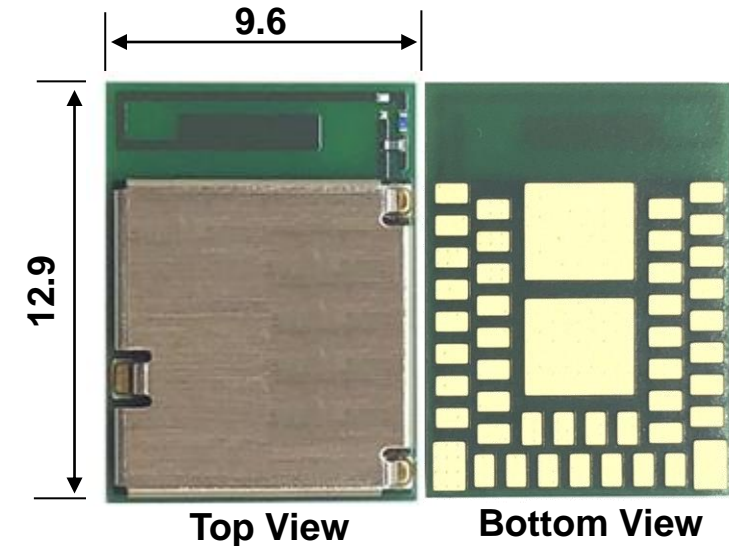
## Features

- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7 – 3.6V
- Single Mode **Bluetooth 5.2 / 802.15.4 (e.g Thread, Zigbee)**
- Bluetooth 5.2 **2M / 1M / 500k / 125kbps / AoA / AoD**
- Chip: **nRF52811** (Nordic)
- Integrated System / **Sleep Clock, LC for DC/DC**
- Integrated high performance PCB antenna
- ARM Cortex M4** 32bit processor
- 192kB Flash** and **24kB RAM**
- Interface: SPI, UART, I2C, PDM and 12bit ADC
- Outline: **9.6 x 12.9 x 2.0** mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

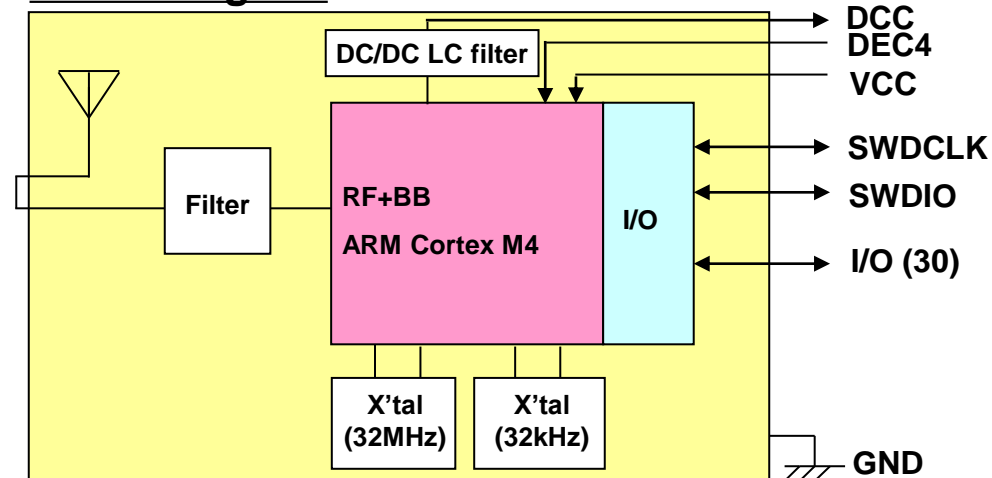
## Applications

- Beacon
- Heart rate monitor
- Blood pressure monitor
- Blood glucose meter
- Weighing machine
- Thermometer
- Mobile accessories
- Sports and fitness sensors
- Remote controllers / Toys

## Outline



## Block Diagram

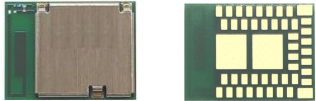


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## EC2811AA2 (Module)

### ■ Module samples



Tape



## EC2811AA2-EVB

### ■ Evaluation board



## EC2811AA2-EVK

### ■ Evaluation kit



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# ES2811AA2

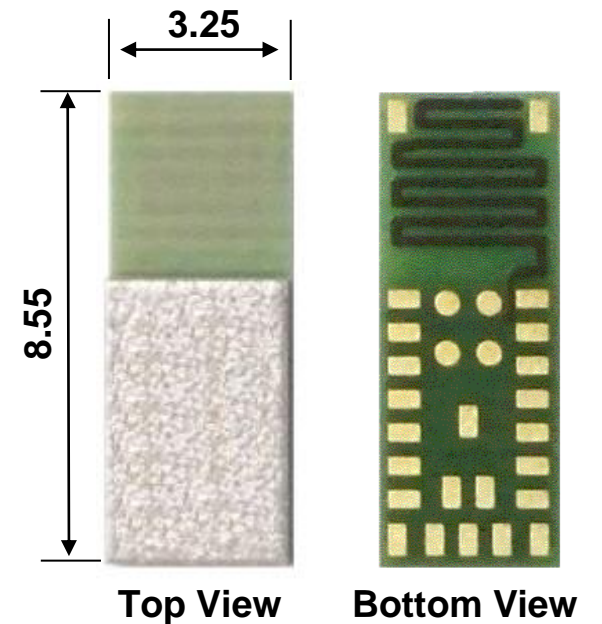
## Features

- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7 – 3.6V
- Single Mode **Bluetooth 5.2 / 802.15.4 (e.g Thread, Zigbee)**
- Bluetooth 5.2 **2M / 1M / 500k / 125kbps / AoA / AoD**
- Chip: **nRF52811** (Nordic)
- Integrated System Clock
- Integrated high performance PCB antenna
- ARM Cortex M4** 32bit processor
- 192kB Flash** and **24kB RAM**
- Interface: SPI, UART, I2C, PDM and 12bit ADC
- Outline: **3.25 x 8.55 x 1.00** mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

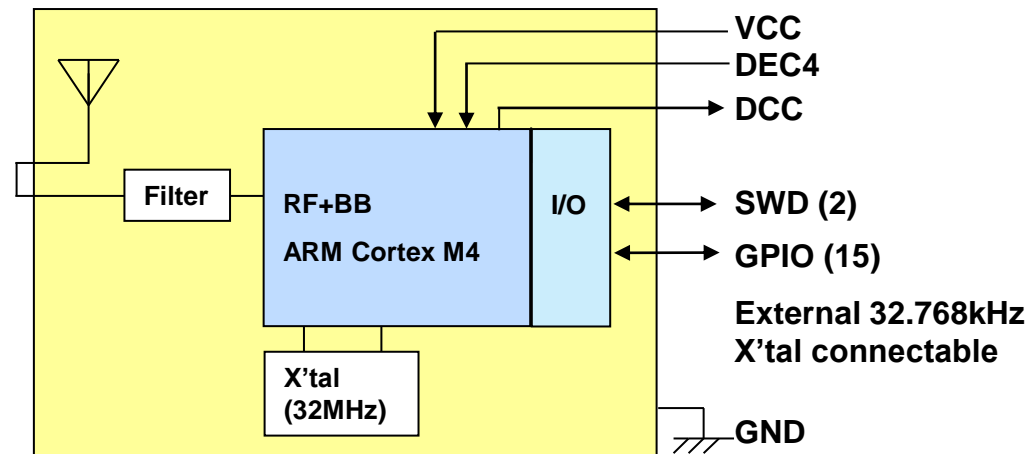
## Applications

- Smart wristband
- Smart glasses
- Remote control ring
- Smart pen
- Heart rate monitor
- pressure monitor
- Blood glucose meter
- Thermometer
- Mobile accessories

## Outline



## Block Diagram



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## ES2811AA2 (Module)

### ■ Module samples

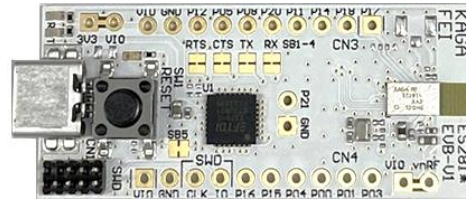


Tape



## ES2811AA2-EVB

### ■ Evaluation board



## ES2811AA2-EVK

### ■ Evaluation kit



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# EC2810AA2

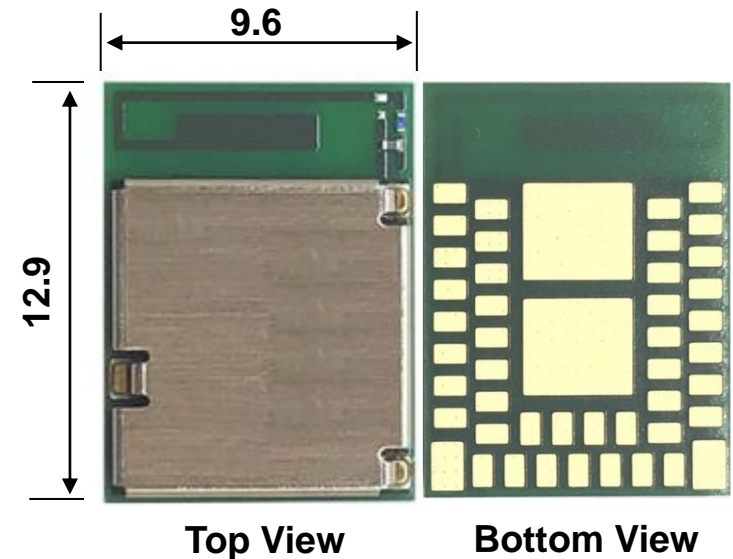
## Features

- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7 – 3.6V
- Single Mode Bluetooth low energy (ANT™ Available)
- Bluetooth 5.0 low energy **2Mbps** mode
- Chip: **nRF52810** (Nordic)
- Integrated System / **Sleep Clock, LC for DC/DC**
- Integrated high performance PCB antenna
- ARM Cortex M4** 32bit processor
- 192kB Flash** and **24kB RAM**
- Interface: SPI, UART, I2C, PDM and 12bit ADC
- Outline: **9.6 x 12.9 x 2.0** mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

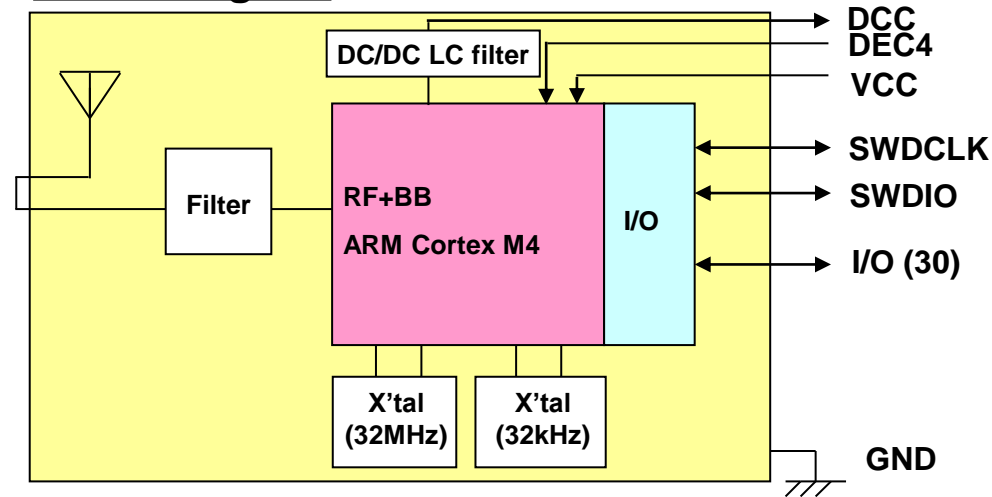
## Applications

- Beacon
- Heart rate monitor
- Blood pressure monitor
- Blood glucose meter
- Weighing machine
- Thermometer
- Mobile accessories
- Sports and fitness sensors
- Remote controllers / Toys

## Outline



## Block Diagram

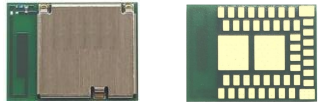


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## EC2810AA2 (Module)

### ■ Module samples



Tape



## EC2810AA2-EVB

### ■ Evaluation board



## EC2810AA2-EVK

### ■ Evaluation kit



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J-Link LITE  
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# ES2810AA2

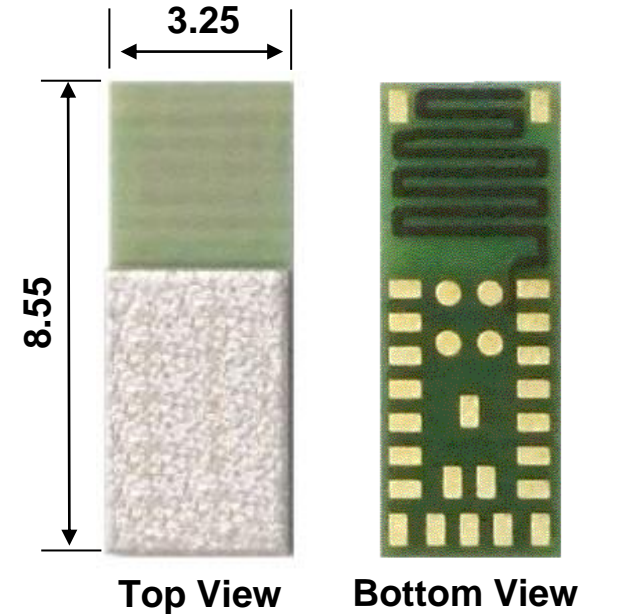
## Features

- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7 – 3.6V
- Single Mode Bluetooth low energy (ANT™ Available)
- Bluetooth 5.0 low energy **2Mbps** mode
- Chip: **nRF52810** (Nordic)
- Integrated System Clock
- Integrated high performance PCB antenna
- ARM Cortex M4** 32bit processor
- 192kB Flash** and **24kB RAM**
- Interface: SPI, UART, I2C, PDM and 12bit ADC
- Outline: **3.25** x **8.55** x **1.00** mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

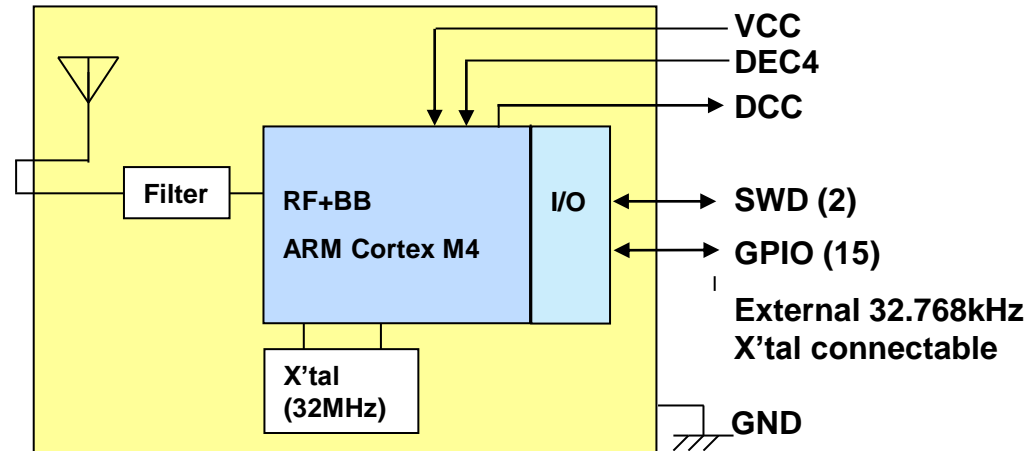
## Applications

- Smart wristband
- Smart glasses
- Remote control ring
- Smart pen
- Heart rate monitor
- pressure monitor
- Blood glucose meter
- Thermometer
- Mobile accessories

## Outline



## Block Diagram

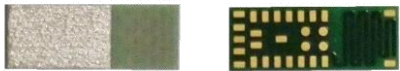


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## ES2810AA2 (Module)

### ■ Module samples

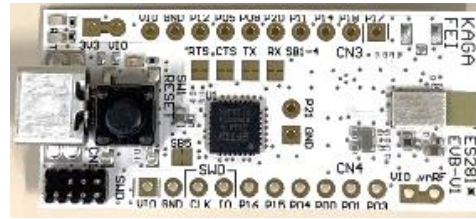


Tape



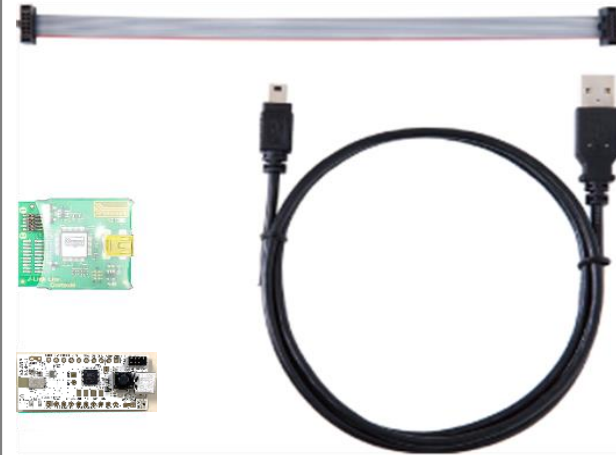
## ES2810AA2-EVB

### ■ Evaluation board



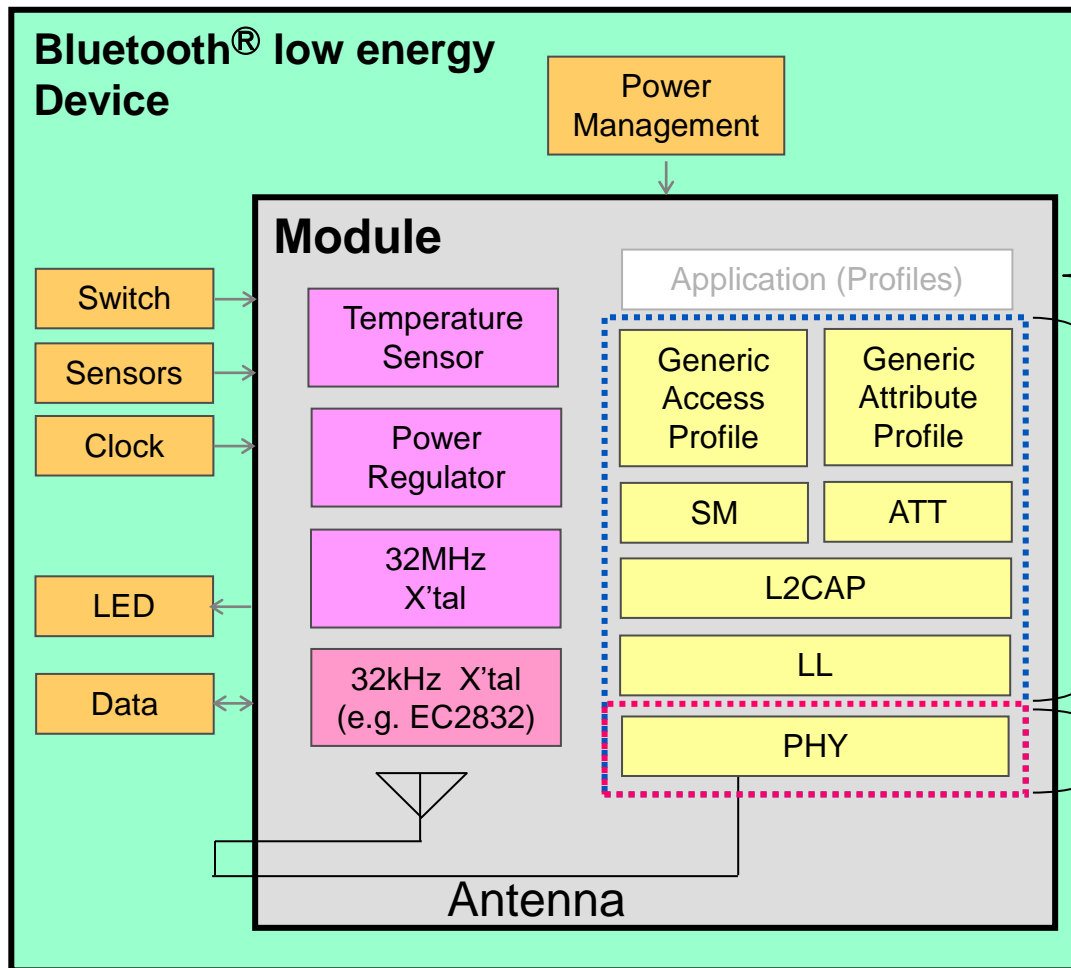
## ES2810AA2-EVK

### ■ Evaluation kit



**SEGGER  
J-Link LITE  
Attached**





- Alert Notification **Nordic SDK**
- Blood Pressure
- Cycling Speed and Cadence
- Glucose
- HID Mouse
- Heart Rate
- Phone Alert Status
- Proximity
- Running Speed and Cadence
- Time

**Softdevice**

**module**

- SM:** Security Manager
- ATT:** Attribute Protocol
- L2CAP:** Logical Link Control and Adaptation Protocol
- LL:** Link Layer
- PHY:** Physical Layer

## Basic Module

When using nRF connect SDK with the nRF52 series and the nRF53 series, the software configuration will be different from the explanation on this sheet.

# EB2840MA2

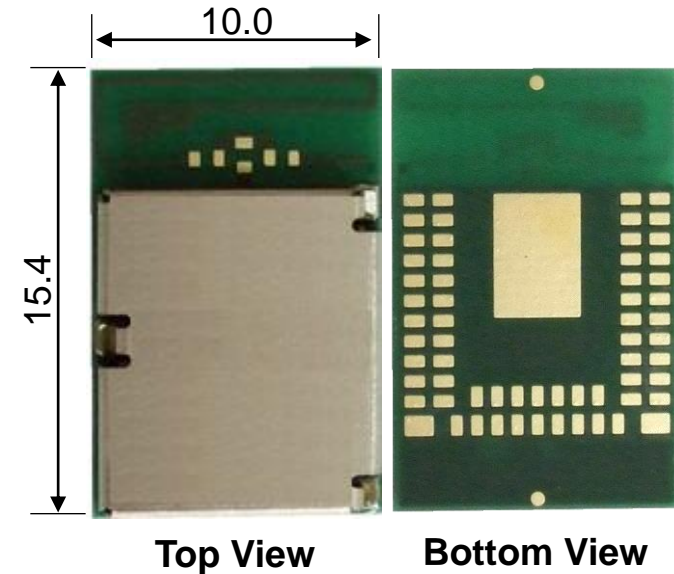
## Features

- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode **Bluetooth 5.0 (Central / Peripheral)**
- Bluetooth 5.0 **2M / 1M / 125kbps**
- Chip: **nRF52840** (Nordic)
- Integrated System / **Sleep Clock, 2 x LC for DC/DC**
- Integrated high performance PCB antenna
- ARM® Cortex M4F 32bit processor and 1MB Flash & 256kB RAM
- Application Embedded**
- Interface: UART, SPI, USB and ADC
- Outline: **10.0 x 15.4 x 2.0** mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

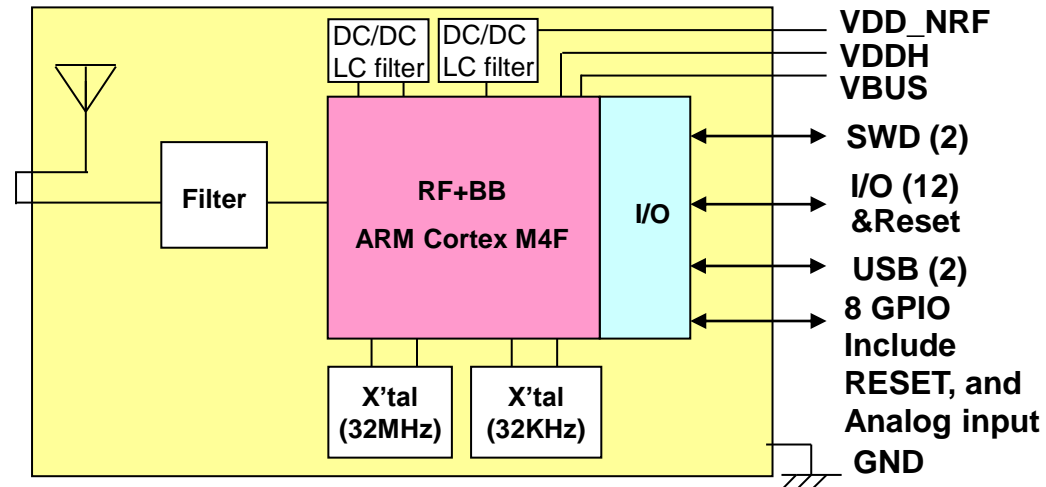
## Applications

- Advanced wearables
  - Connected watches
  - Advanced personal fitness devices
  - Wearables with wireless payment
  - Connected health
  - Virtual/Augmented reality applications
- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
- Interactive entertainment devices

## Outline



## Block Diagram

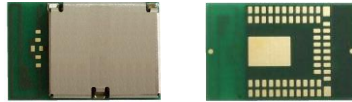


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## EB2840MA2 (Module)

### ■ Module samples

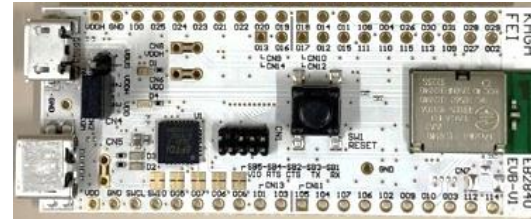


Tape



## EB2840MA2-EVB

### ■ Evaluation board



# EJ2840MA2

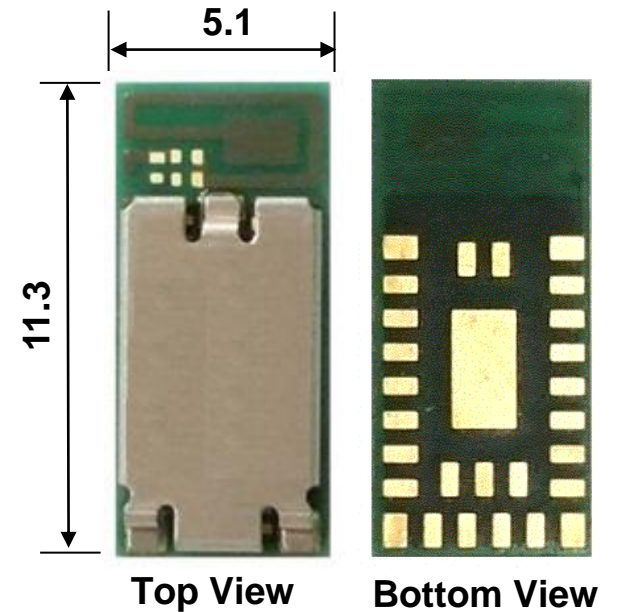
## Features

- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 3.6V
- Single Mode **Bluetooth 5.0 (Central / Peripheral)**
- Bluetooth 5.0 **2M / 1M / 125kbps**
- Chip: **nRF52840** (Nordic)
- Integrated System Clock
- Integrated high performance PCB antenna
- ARM® Cortex M4F 32bit processor and 1MB Flash & 256kB RAM
- Application Embedded**
- Interface: UART
- Outline: **5.1 x 11.3 x 1.3** mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

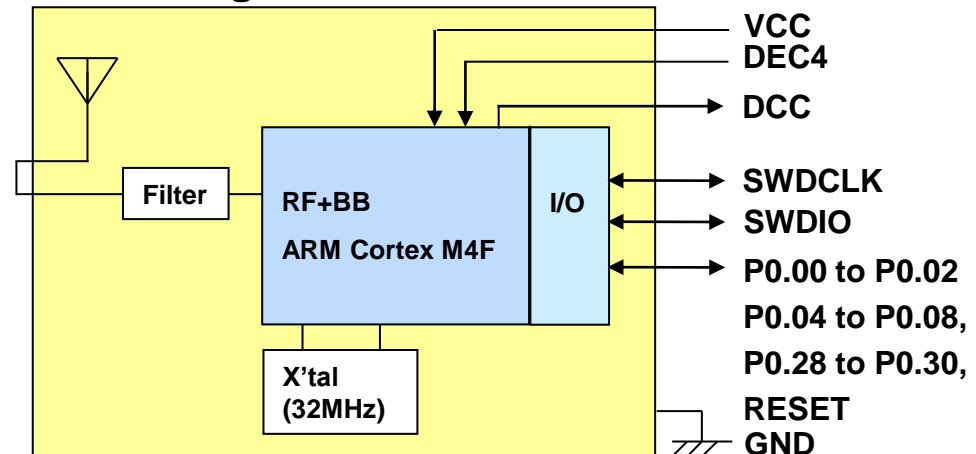
## Applications

- Advanced wearables
  - Connected watches
  - Advanced personal fitness devices
  - Wearables with wireless payment
  - Connected health
  - Virtual/Augmented reality applications
- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
- Interactive entertainment devices

## Outline



## Block Diagram

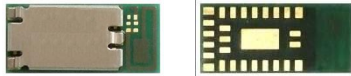


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## EJ2840MA2 (Module)

### ■ Module samples



Tape



## EJ2840MA2-EVB

### ■ Evaluation board



# EC2820MA2

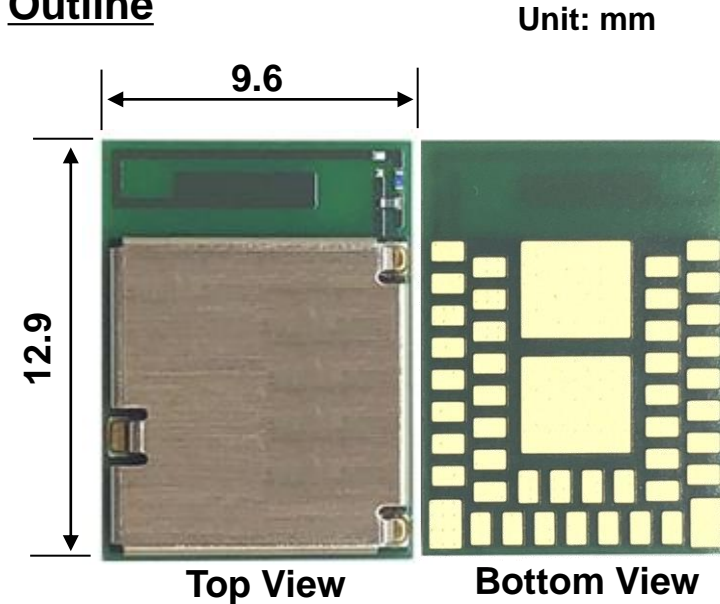
## Features

- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode **Bluetooth 5.1 / (Peripheral)**
- Bluetooth 5.1 **2M / 1M**
- Chip: **nRF52820** (Nordic)
- Integrated System / **Sleep Clock, LC for DC/DC**
- Integrated high performance PCB antenna
- ARM® Cortex M4** 32bit processor, **256kB Flash** and **32kB RAM**
- Application Embedded**
- Interface: UART
- Outline: **9.6 x 12.9 x 2.0** mm MAX
- Operating Temperature range: **-40 to 105 deg-C**
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

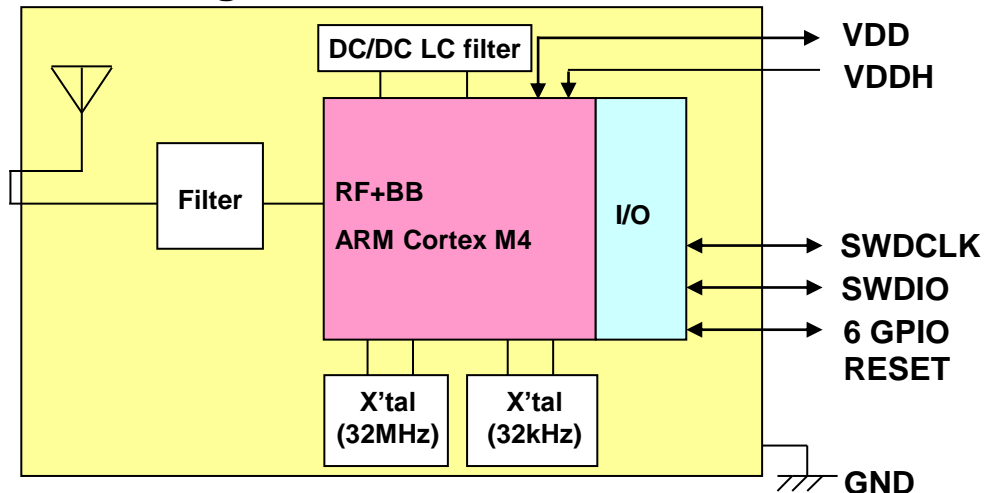
## Applications

- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
  - LED lighting
- Advanced wearables
  - Smart watch
  - Health/Fitness sensor and monitor devices
  - Wireless payment enabled devices
- Interactive entertainment devices
- Advanced computer peripherals

## Outline



## Block Diagram



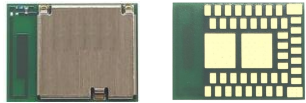
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# Sample, Evaluation Board / Kit

## EC2820MA2 (Module)

### ■ Module samples



Tape



## EC2820MA2-EVB

### ■ Evaluation board



# ES2820MA2

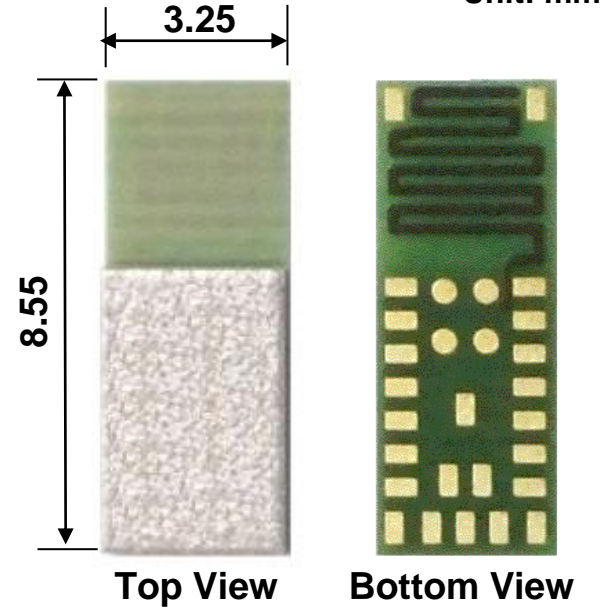
## Features

- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode **Bluetooth 5.1 / (Peripheral)**
- Bluetooth 5.1 **2M / 1M**
- Chip: **nRF52820** (Nordic)
- Integrated System Clock
- Integrated high performance PCB antenna
- ARM® Cortex M4** 32bit processor, **256kB Flash** and **32kB RAM**
- Application Embedded**
- Interface: UART
- Outline: **3.25 x 8.55 x 1.00** mm MAX
- Operating Temperature range: **-40 to 105 deg-C**
- Bluetooth and Japan, FCC, ISED qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

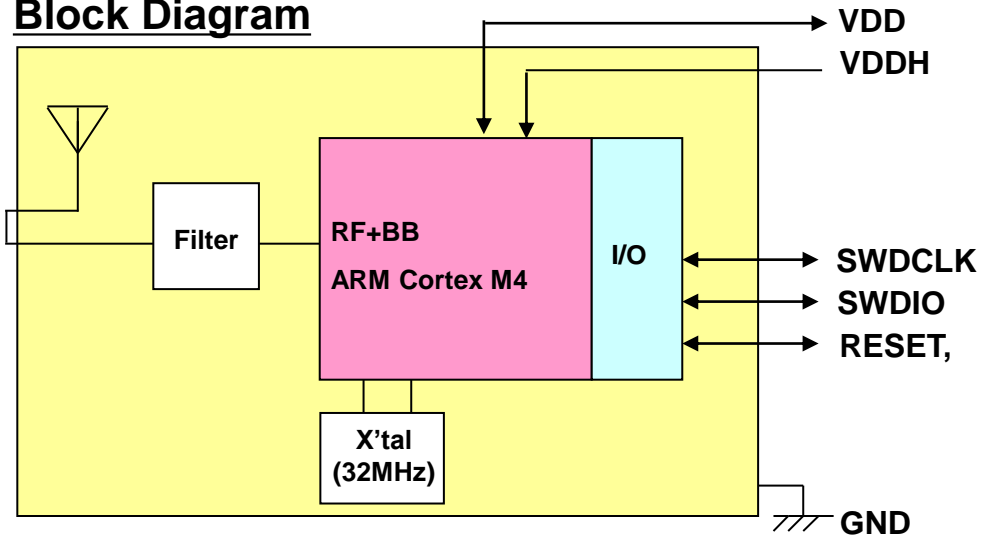
## Applications

- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
  - LED lighting
- Advanced wearables
  - Smart watch
  - Health/Fitness sensor and monitor devices
  - Wireless payment enabled devices
- Interactive entertainment devices
- Advanced computer peripherals

## Outline



## Block Diagram



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## ES2820MA2 (Module)

### ■ Module samples



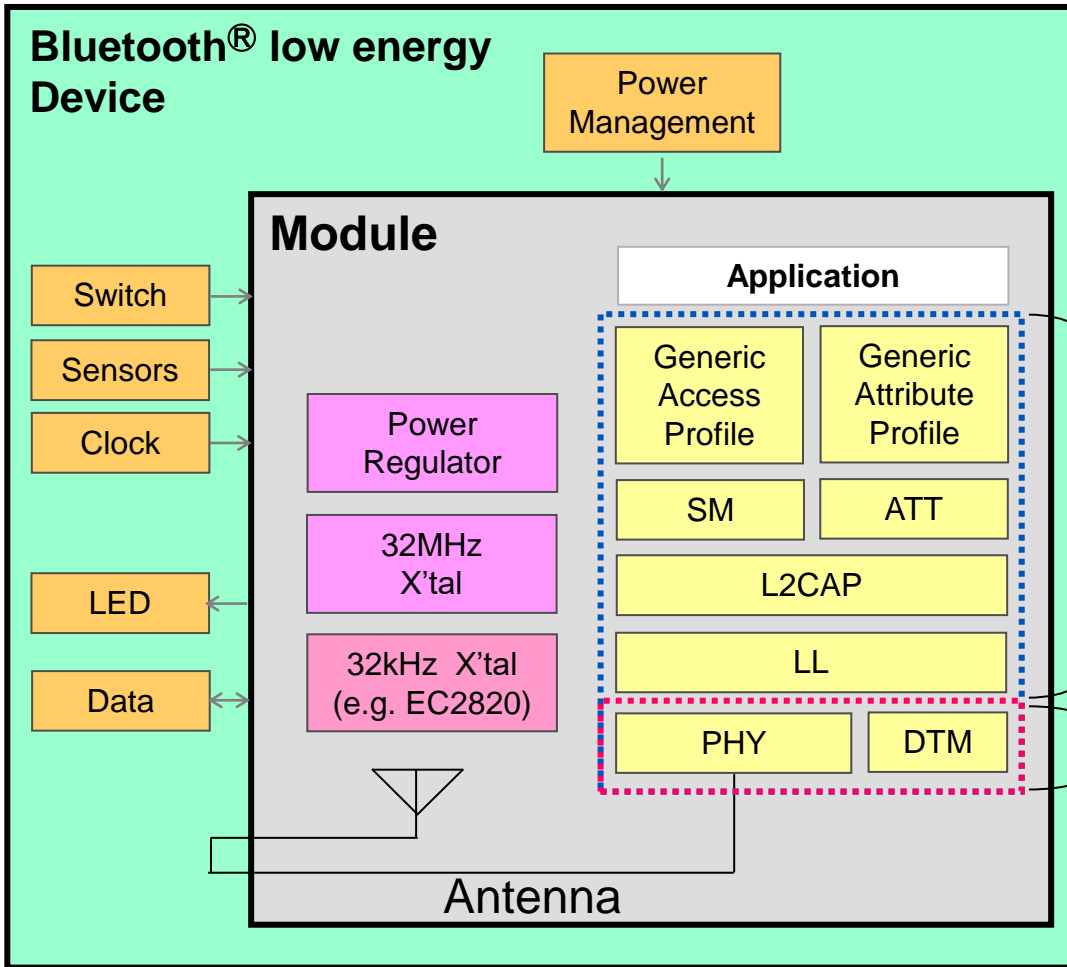
Tape



## ES2820MA2-EVB

### ■ Evaluation board





## Connection option

**MA** module for  
**Module – Module**  
**Module – Smart phone**

Softdevice

module

**SM:** Security Manager

**ATT:** Attribute Protocol

**L2CAP:** Logical Link Control and Adaptation Protocol

**LL:** Link Layer

**PHY:** Physical Layer

**DTM:** Direct Test Mode

## Application Embedded Module

# Bluetooth® low energy standard module



Type	Part No.	Size(mm) (LxWxH)	Bluetooth Version	ANT™ Support	I/F	RAM (kB)	Certifi- cation	Tempera- ture
nRF53 Basic (Software Support : Nordic)	EB5340BA1	10.0x15.4x2.0	V5.4	✓	USB, UART, SPI, I2C, I2S, PDM, NFC-A	App. 512 Net. 64	Japan FCC ISED (CE)※1	-40~+105 deg-C
	EJ5340BA1	5.1x11.3x1.3	V5.4			App. 512 Net. 64		

※1 ETSI EN 300 328 conducted test report available

Type	Part No.	Size(mm) (LxWxH)	Bluetooth Version	ANT™ Support	I/F	RAM (kB)	Certifi- cation	Tempera- ture
nRF52 Basic (Software Support : Nordic)	EB2840AA2	10.0x15.4x2.0	V5.0	✓	USB※2 UART SPI I2C I2S PDM NFC-A	256	Japan FCC ISED (CE)※1	-40~+85 deg-C
	ED2840AA2	9.6x12.9x1.3	V5.0			256		
	EJ2840AA2	5.1x11.3x1.3	V5.0			256		
	EB2833AA2	10.0x15.4x2.0	V5.2			128	-40~+105 deg-C	
	ED2833AA2	9.6x12.9x1.3	V5.3			128		
	EJ2833AA2	5.1x11.3x1.3	V5.3			128		
	EC2832AA2	9.6x12.9x2.0	V5.0			64		
	EJ2832AA2	5.1x11.3x1.3	V5.0			64		
	ES2832AA2	3.25x8.55x0.85	V5.0			64		-40~+85 deg-C

※1 ETSI EN 300 328 conducted test report available

※2 Supported by EB2840AA2 / ED2840AA2 / EB2833AA2 / ED2833AA2

# Bluetooth® low energy standard module

Type	Part No.	Size(mm) (LxWxH)	Bluetooth Version	ANT™ Support	I/F	RAM (kB)	Certifi- cation	Tempera- ture
nRF52 Basic (Software Support : Nordic)	EC2820AA2	9.6x12.9x2.0	V5.3	✓	USB※2 UART SPI I2C PDM※3	32	Japan FCC ISED (CE)※1	-40~+105 deg-C
	ES2820AA2	3.25x8.55x1.00	V5.3			32		
	EC2811AA2	9.6x12.9x2.0	V5.2			24		-40~+85 deg-C
	ES2811AA2	3.25x8.55x1.00	V5.2			24		
	EC2810AA2	9.6x12.9x2.0	V5.0			24		
	ES2810AA2	3.25x8.55x1.00	V5.0			24		

※1 ETSI EN 300 328 conducted test report available

※2 Supported by EC2820AA2 / ES2820AA2

※3 Supported by EC2811AA2 / ES2811AA2 / EC2810AA2 / ES2810AA2

Type	Part No.	Size(mm) (LxWxH)	Bluetooth Version	ANT™ Support	I/F	RAM (kB)	Certifi- cation	Tempera- ture
Application Embedded - Module (Software Support : KAGA FEI)	EB2840MA2	10.0x15.4x2.0	V5.0		UART, SPI,USB	N/A	Japan FCC ISED (CE)※1	-40~+85 deg-C
	EJ2840MA2	5.1x11.3x1.3			UART			
	EC2820MA2	9.6x12.9x2.0	V5.1		UART			-40~+105 deg-C
	ES2820MA2	3.25x8.55x1.00						

※1 ETSI EN 300 328 conducted test report available



**KAGA FEI**