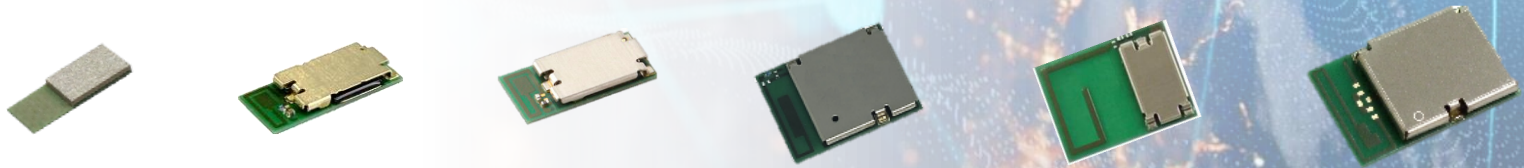




CONTiNECT

Wireless Solution

Wireless Solution Bluetooth® low energy Module Overview



Bluetooth® 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

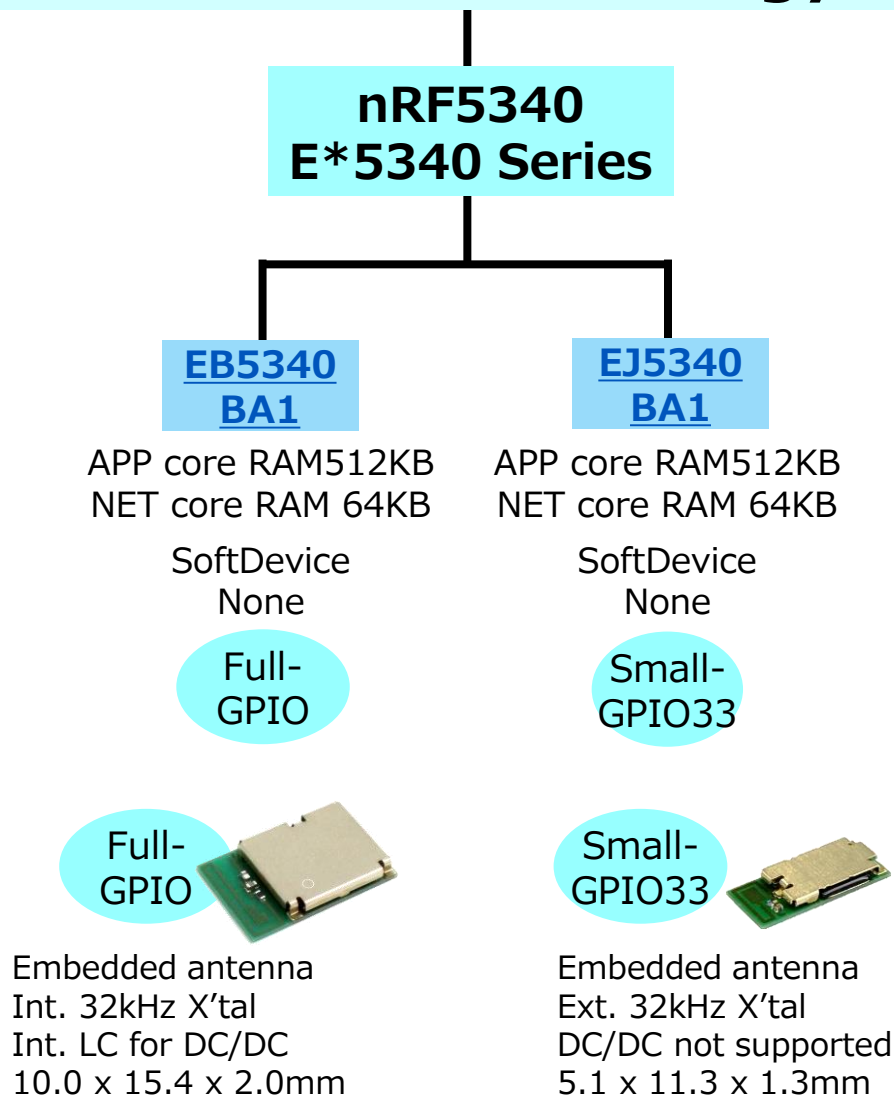
nRF52805
E*2805 Series

Application Embedded

nRF52840
E*2840 Series

nRF52820
E*2820 Series

nRF53 Bluetooth® low energy Module



nRF52 Bluetooth® low energy Module

nRF52840 E*2840 Series

EB2840
AA2

RAM256KB
SoftDevice
S140

Full-
GPIO

ED2840
AA2

RAM256KB
SoftDevice
S140

High
Performance
ANT

EJ2840
AA2

RAM256KB
SoftDevice
S140

Small

nRF52833 E*2833 Series

EB2833
AA2

RAM128KB
SoftDevice
S140

Full-
GPIO

ED2833
AA2

RAM128KB
SoftDevice
S140

High
Performance
ANT

EJ2833
AA2

RAM128KB
SoftDevice
S140

Small

nRF52832 E*2832 Series

EC2832
AA2

RAM 64KB
SoftDevice
S132

Full-
GPIO – 2

EJ2832
AA2

RAM 64KB
SoftDevice
S132

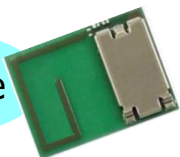
Small

ES2832
AA2

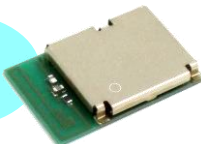
RAM 64KB
SoftDevice
S132

Ultra-
small
*1

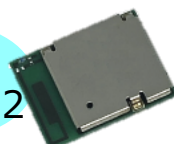
High
Performance
ANT



Full-
GPIO



Full-
GPIO – 2



Small



Ultra-
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

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

Embedded antenna
Ext. 32kHz X'tal
Ext. L 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

nRF52820 E*2820 Series

EC2820
AA2

RAM 32KB
SoftDevice
S140

Full-
GPIO-2

ES2820
AA2

RAM 32KB
SoftDevice
S140

Ultra-
small-3
*2

nRF52811 E*2811 Series

EC2811
AA2

RAM 24KB
SoftDevice
S113

Full-
GPIO-2

ES2811
AA2

RAM 24KB
SoftDevice
S113

Ultra-
small-2
*2

nRF52810 E*2810 Series

EC2810
AA2

RAM 24KB
SoftDevice
S112

Full-
GPIO-2

ES2810
AA2

RAM 24KB
SoftDevice
S112

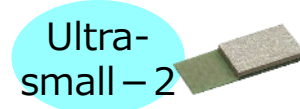
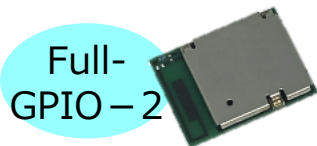
Ultra-
small-2
*2

nRF52805 E*2805 Series

ES2805
AA2

RAM 24KB
SoftDevice
S113

Ultra-
small
*2



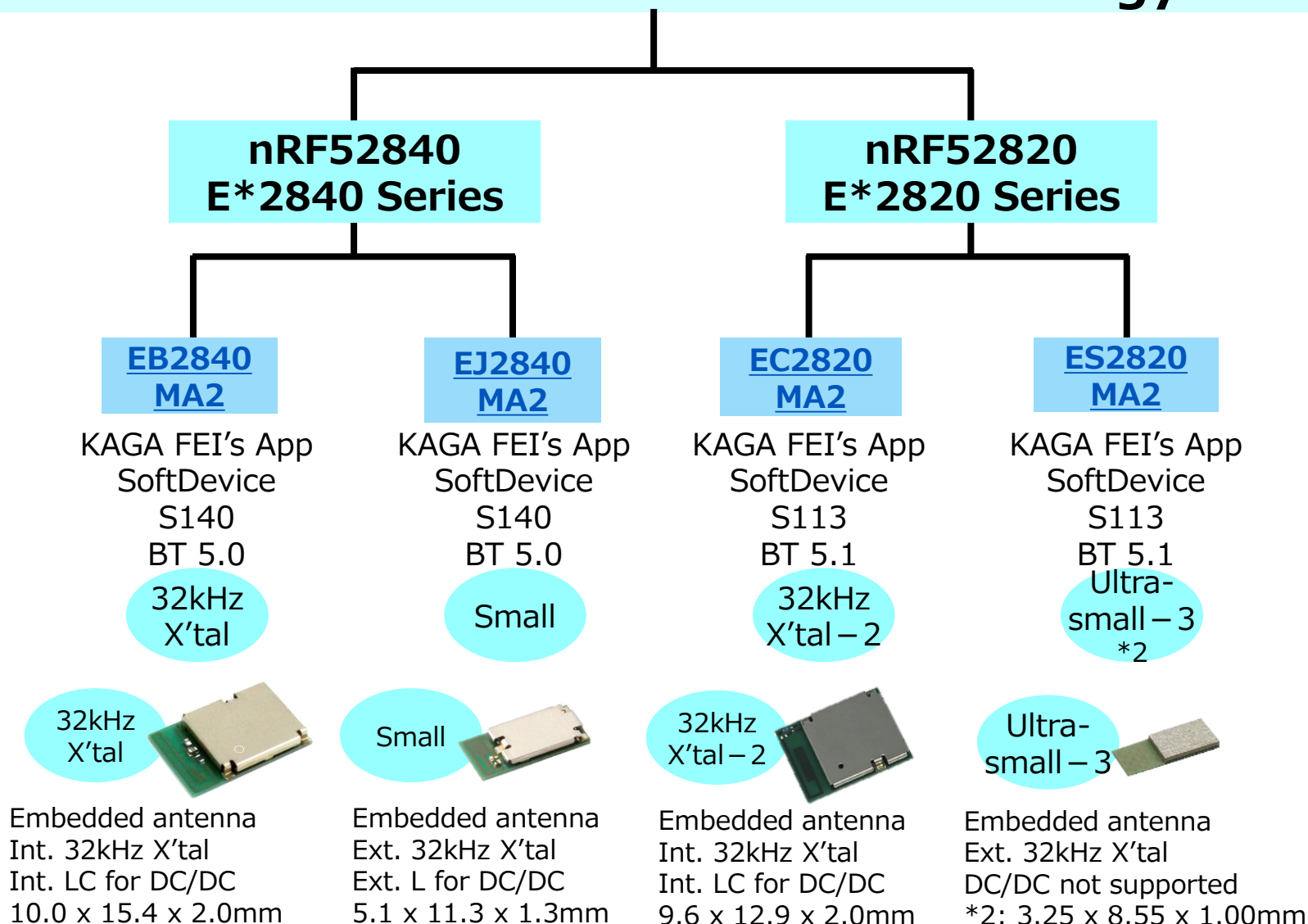
Embedded antenna
Int. 32kHz X'tal
Int. LC for DC/DC
9.6 x 12.9 x 2.0mm

Embedded antenna
Ext. 32kHz X'tal
Ext. LC for DC/DC
*2: 3.25 x 8.55 x 1.00mm

Embedded antenna
Ext. 32kHz X'tal
Ext. L for DC/DC
*2: 3.25 x 8.55 x 1.00mm

Embedded antenna
Ext. 32kHz X'tal
DC/DC not supported
*2: 3.25 x 8.55 x 1.00mm

Application Embedded Bluetooth® low energy Module



Latest Documents for Module

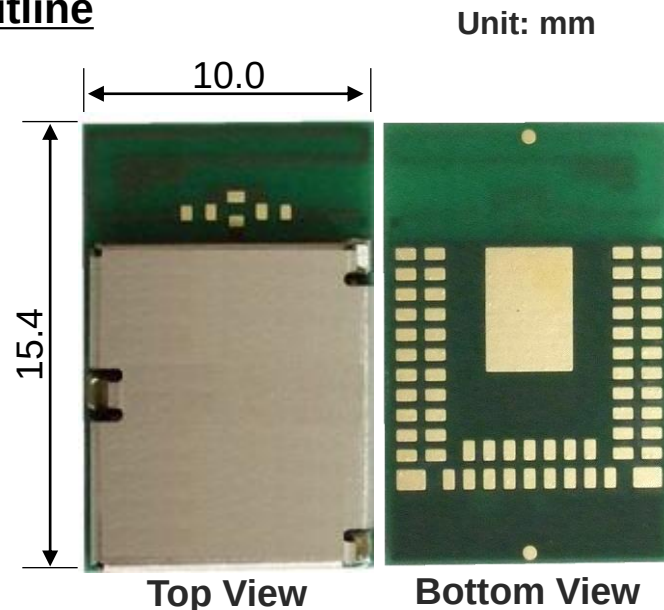
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EB2840AA2	https://www.kagafei.com/jp/eng/products/wireless-modules/bluetooth/EB2840AA2.html
ED2840AA2	https://www.kagafei.com/jp/eng/products/wireless-modules/bluetooth/ED2840AA2.html
EJ2840AA2	https://www.kagafei.com/jp/eng/products/wireless-modules/bluetooth/EJ2840AA2.html
EB2833AA2	https://www.kagafei.com/jp/eng/products/wireless-modules/bluetooth/EB2833AA2.html
ED2833AA2	https://www.kagafei.com/jp/eng/products/wireless-modules/bluetooth/ED2833AA2.html
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ES2832AA2	https://www.kagafei.com/jp/eng/products/wireless-modules/bluetooth/ES2832AA2.html
EC2820AA2	https://www.kagafei.com/jp/eng/products/wireless-modules/bluetooth/EC2820AA2.html
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EC2811AA2	https://www.kagafei.com/jp/eng/products/wireless-modules/bluetooth/EC2811AA2.html
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ES2810AA2	https://www.kagafei.com/jp/eng/products/wireless-modules/bluetooth/ES2810AA2.html
ES2805AA2	https://www.kagafei.com/jp/eng/products/wireless-modules/bluetooth/ES2805AA2.html
EB2840MA2	https://www.kagafei.com/jp/eng/products/wireless-modules/bluetooth/EB2840MA2.html
EJ2840MA2	https://www.kagafei.com/jp/eng/products/wireless-modules/bluetooth/EJ2840MA2.html
EC2820MA2	https://www.kagafei.com/jp/eng/products/wireless-modules/bluetooth/EC2820MA2.html
ES2820MA2	https://www.kagafei.com/jp/eng/products/wireless-modules/bluetooth/ES2820MA2.html

- 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/products/wireless-modules/bluetooth/>

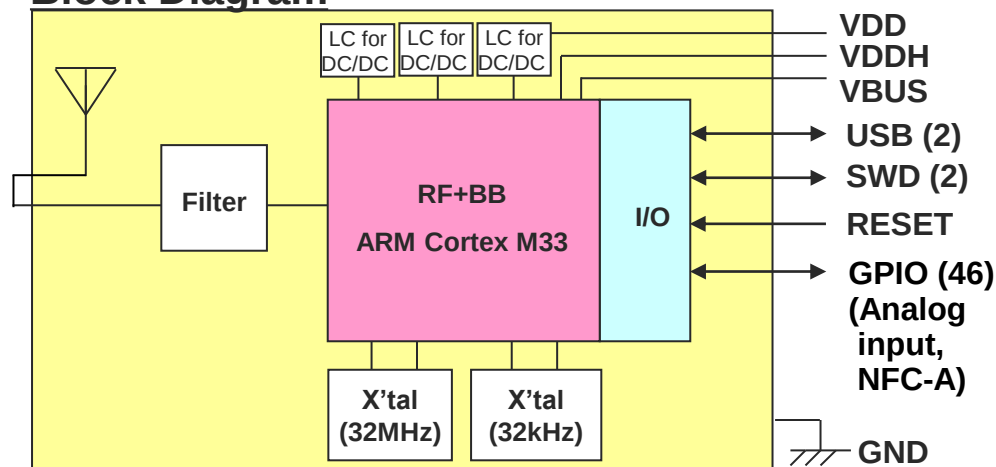
Features

- 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

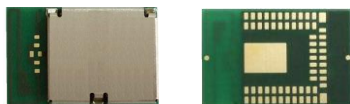
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Sample, Evaluation Board / Kit

EB5340BA1 (Module)

■ Module samples



Tape



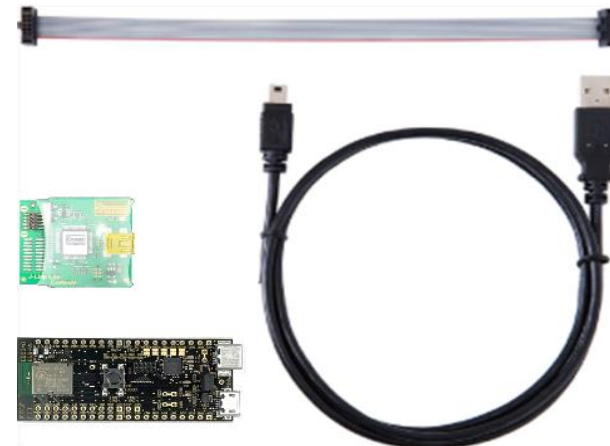
EB5340BA1-EVB

■ Evaluation board



EB5340BA1-EVK

■ Evaluation kit



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J-Link LITE
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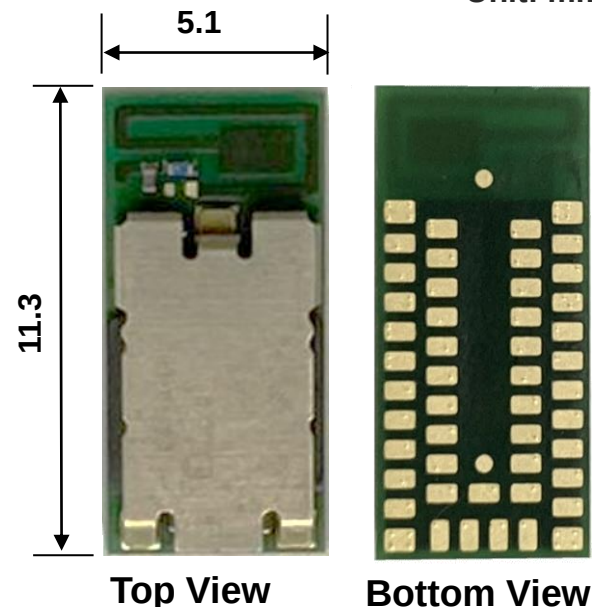


EJ5340BA1

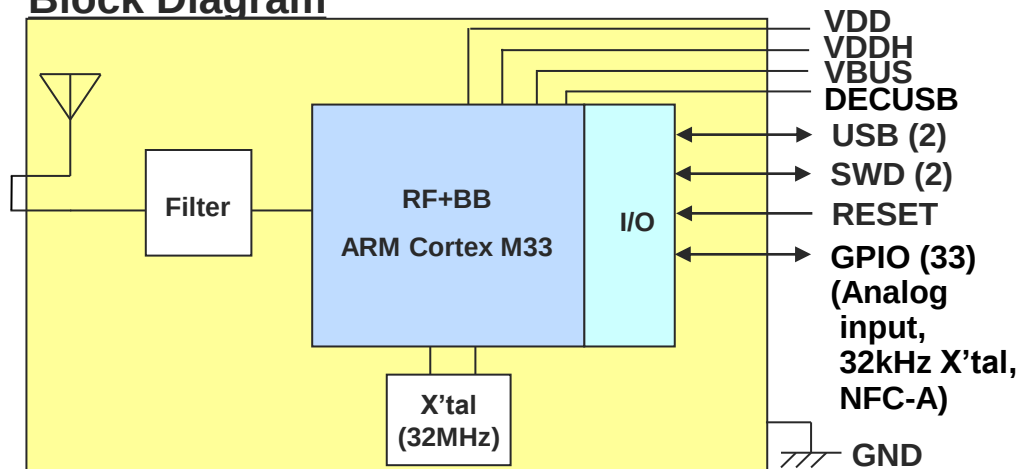
Features

- 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

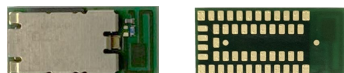
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Sample, Evaluation Board / Kit

EJ5340BA1 (Module)

■ Module samples

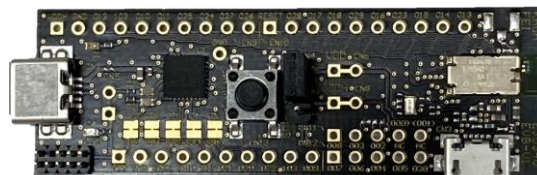


Tape



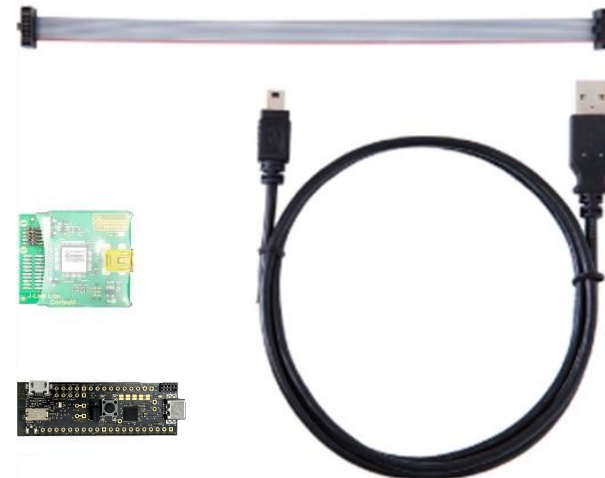
EJ5340BA1-EVB

■ Evaluation board



EJ5340BA1-EVK

■ Evaluation kit



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J-Link LITE
Attached**



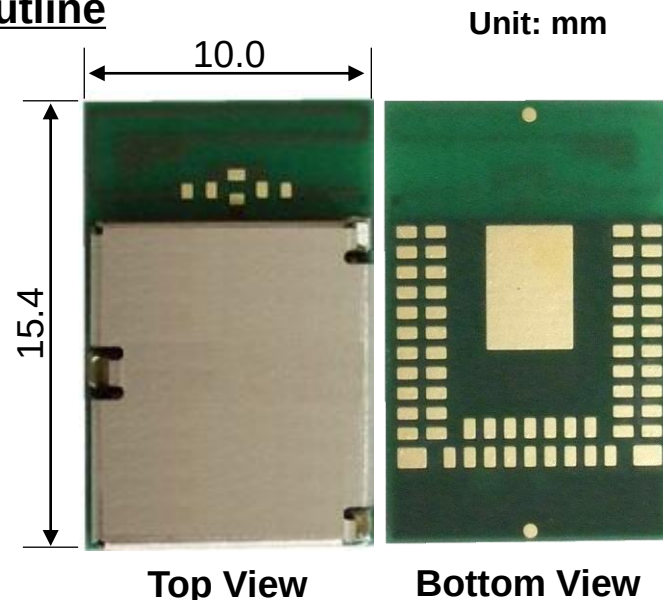
Features

- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode Bluetooth 5.0 / **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

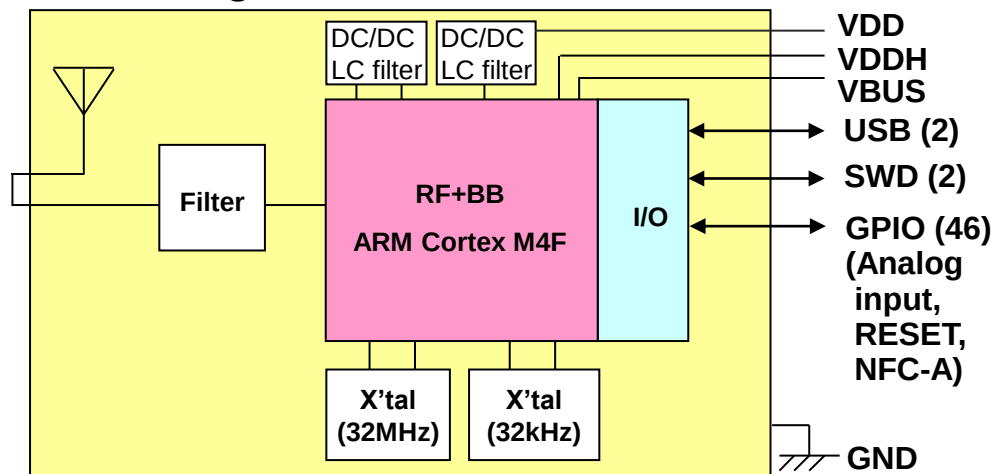
Applications

- 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



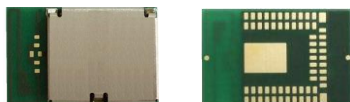
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Sample, Evaluation Board / Kit

EB2840AA2 (Module)

■ Module samples

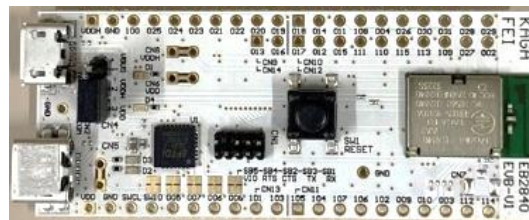


Tape



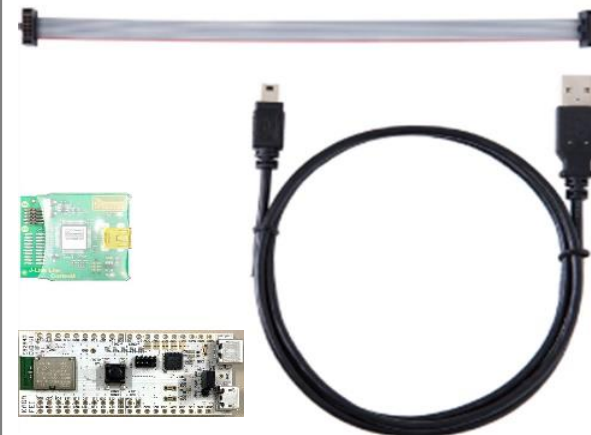
EB2840AA2-EVB

■ Evaluation board



EB2840AA2-EVK

■ Evaluation kit



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J-Link LITE
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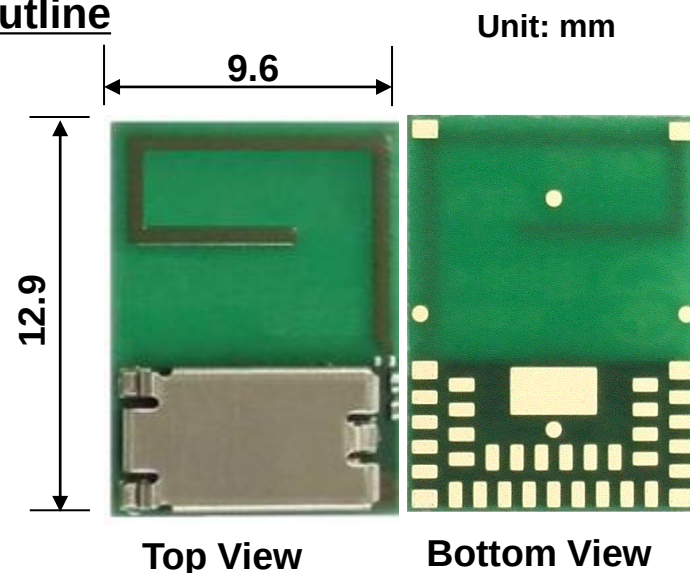
Features

- 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

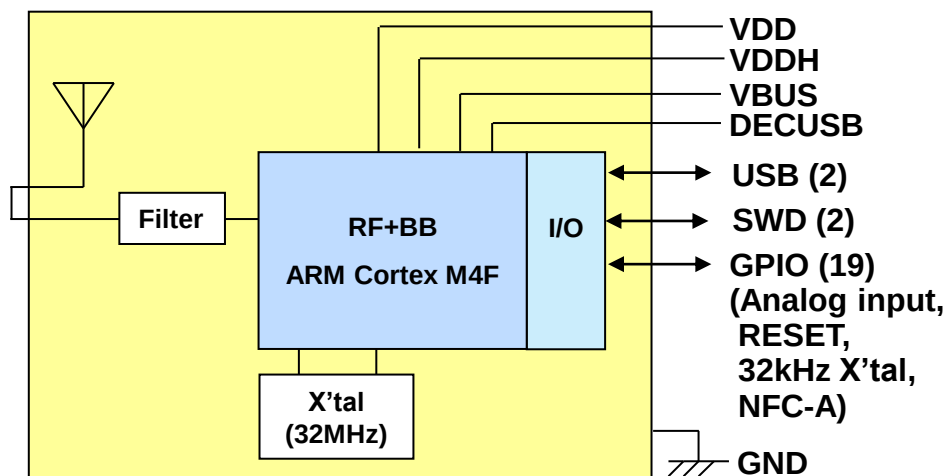
Applications

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

Outline



Block Diagram



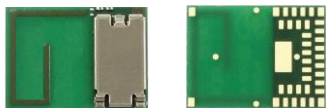
All specifications are subject to change without notice.

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Sample, Evaluation Board / Kit

ED2840AA2 (Module)

■ Module samples



Tape



ED2840AA2-**EV**B

■ Evaluation board



ED2840AA2-**EV**K

■ Evaluation kit



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J-Link LITE
Attached**



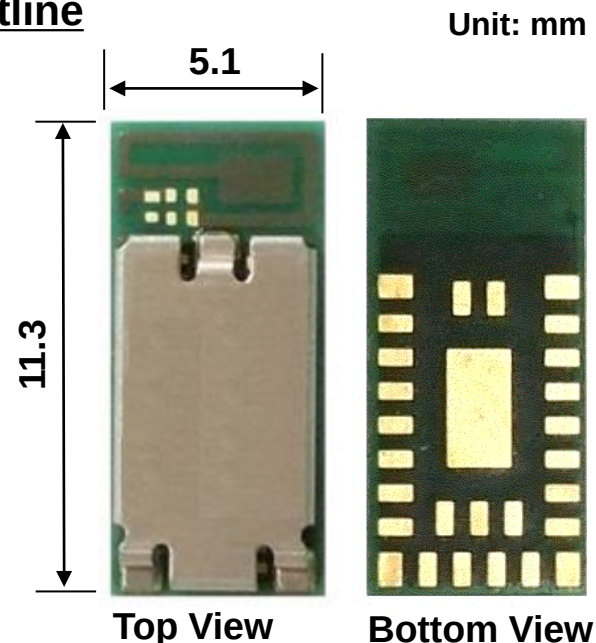
Features

- 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

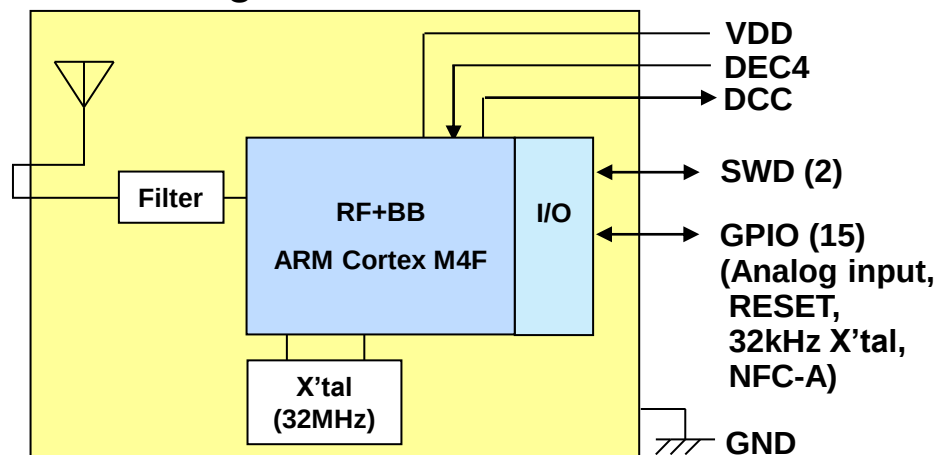
Applications

- 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



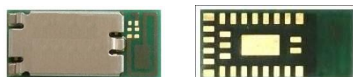
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Sample, Evaluation Board / Kit

EJ2840AA2 (Module)

■ Module samples

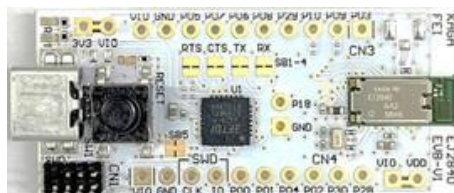


Tape



EJ2840AA2-EVB

■ Evaluation board



EJ2840AA2-EVK

■ Evaluation kit



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J-Link LITE
Attached**



Features

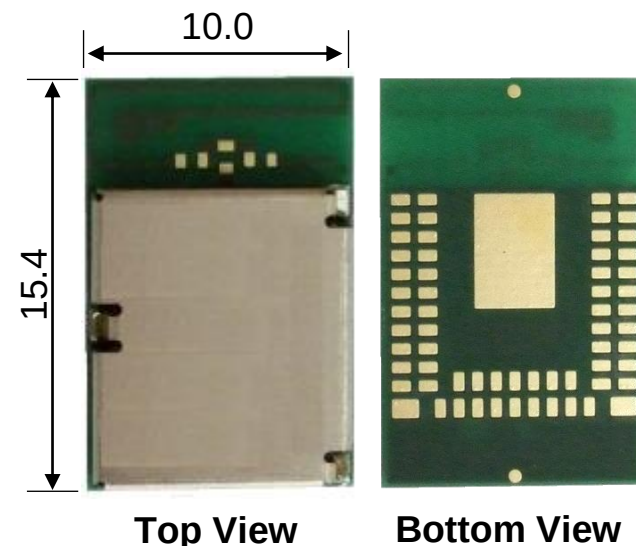
- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode **Bluetooth 5.2 / 802.15.4** (e.g. Thread, Zigbee)
- Bluetooth 5.2 **2M / 1M / 500k / 125kbps / AoA / AoD**
- Chip: **nRF52833** (Nordic)
- Integrated System / **Sleep Clock, LC for DC/DC**
- Integrated 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

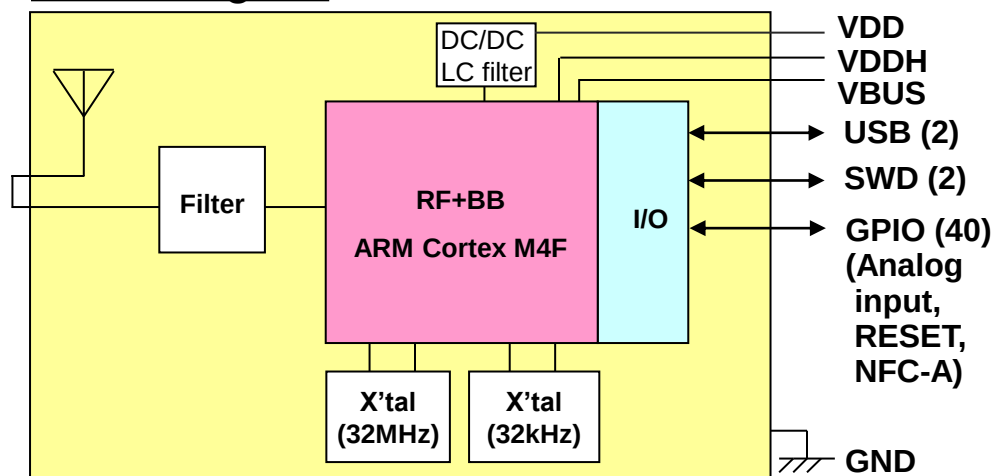
- Internet of Things
 - Smart home sensors and controllers
 - Industrial IoT sensors and controllers
 - LED lighting
- Advanced wearables
 - Smart watch
 - Health/Fitness sensor and monitor devices
 - Wireless payment enabled devices
- Interactive entertainment devices
- Advanced computer peripherals

Outline

Unit: mm



Block Diagram



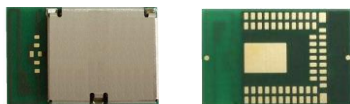
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Sample, Evaluation Board / Kit

EB2833AA2 (Module)

■ Module samples



Tape



EB2833AA2-EVB

■ Evaluation board



EB2833AA2-EVK

■ Evaluation kit



SEGGER
J-Link LITE
Attached



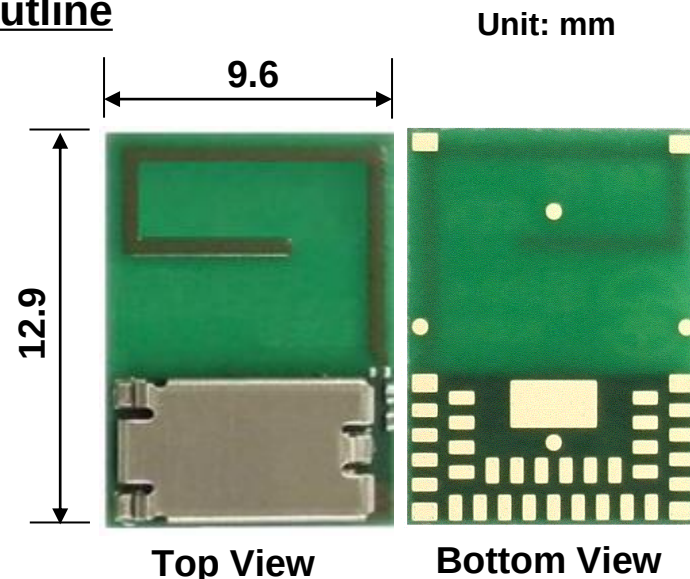
Features

- 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

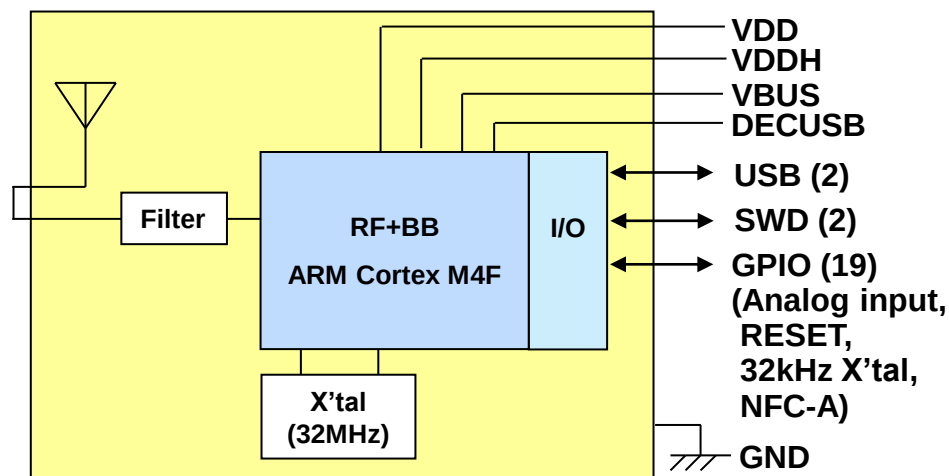
Applications

- 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



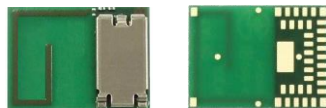
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Sample, Evaluation Board / Kit

ED2833AA2 (Module)

■ Module samples



Tape



ED2833AA2-**EVB**

■ Evaluation board



ED2833AA2-**EVK**

■ Evaluation kit



**SEGGER
J-Link LITE
Attached**



- 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

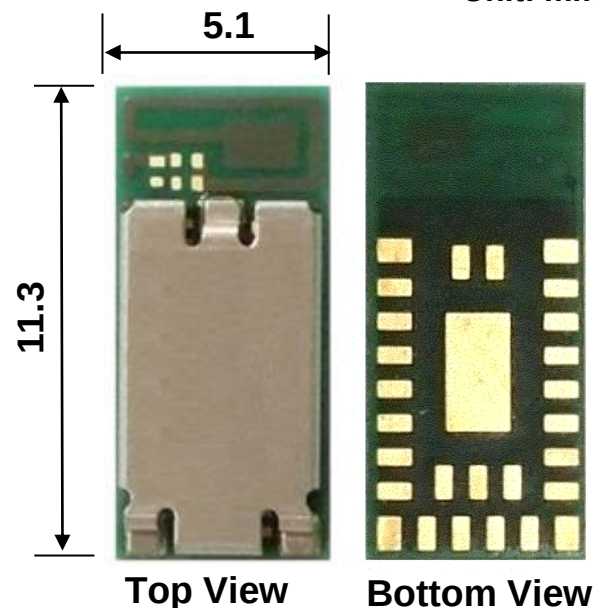
- Internet of Things
 - Smart home sensors and controllers
 - Industrial IoT sensors and controllers
 - LED lighting
- Advanced wearables
 - Smart watch
 - Health/Fitness sensor and monitor devices
 - Wireless payment enabled devices
- Interactive entertainment devices
- Advanced computer peripherals

All specifications are subject to change without notice.

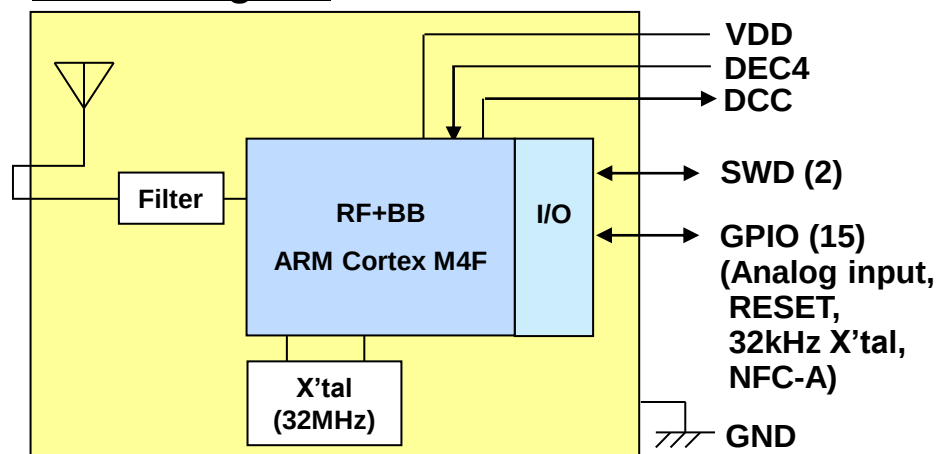
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Outline

Unit: mm



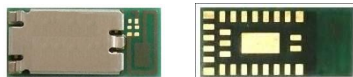
Block Diagram



Sample, Evaluation Board / Kit

EJ2833AA2 (Module)

■ Module samples



Tape



EJ2833AA2-EVB

■ Evaluation board



EJ2833AA2-EVK

■ Evaluation kit



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J-Link LITE
Attached



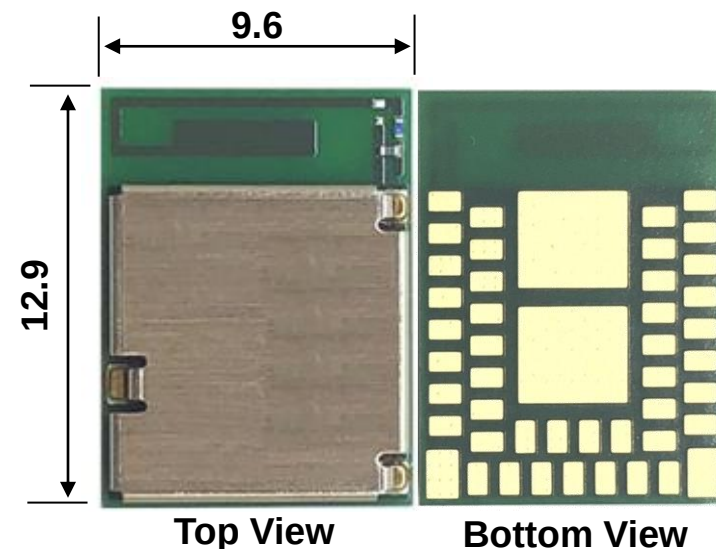
Features

- 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

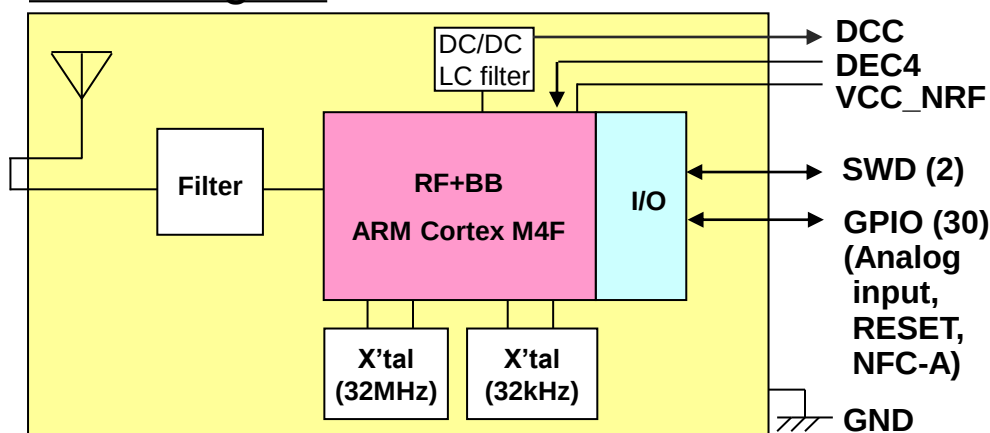
Applications

- 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



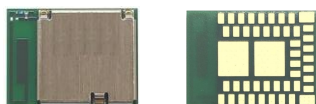
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Sample, Evaluation Board / Kit

EC2832AA2 (Module)

■ Module samples



Tape



EC2832AA2-**EVB**

■ Evaluation board



EC2832AA2-**EVK**

■ Evaluation kit



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J-Link LITE
Attached



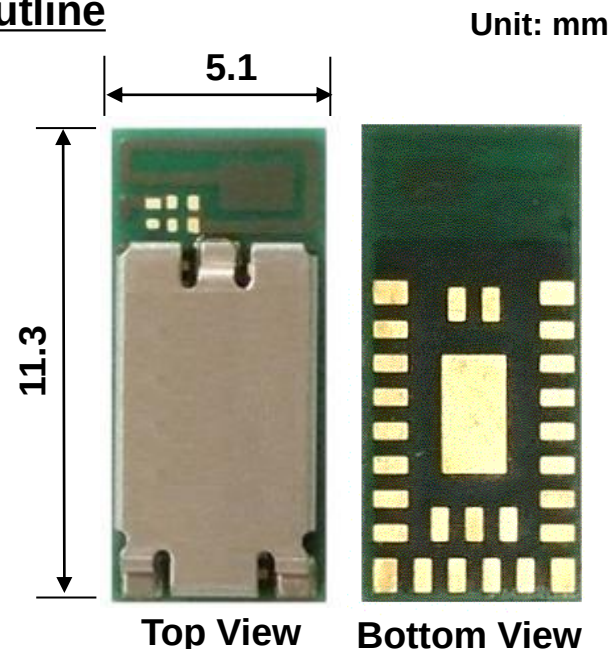
Features

- 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
- 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

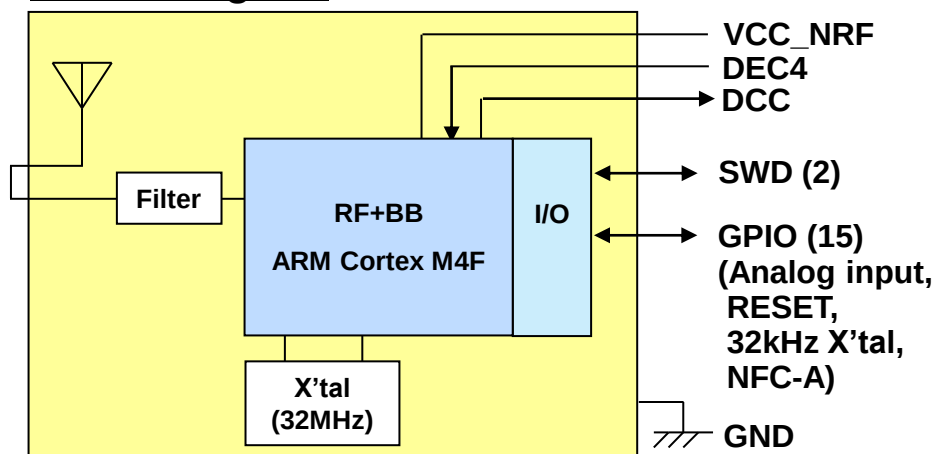
Applications

- 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



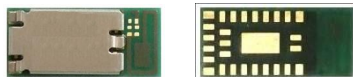
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Sample, Evaluation Board / Kit

EJ2832AA2 (Module)

■ Module samples



Tape



EJ2832AA2-EVB

■ Evaluation board



EJ2832AA2-EVK

■ Evaluation kit



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J-Link LITE
Attached



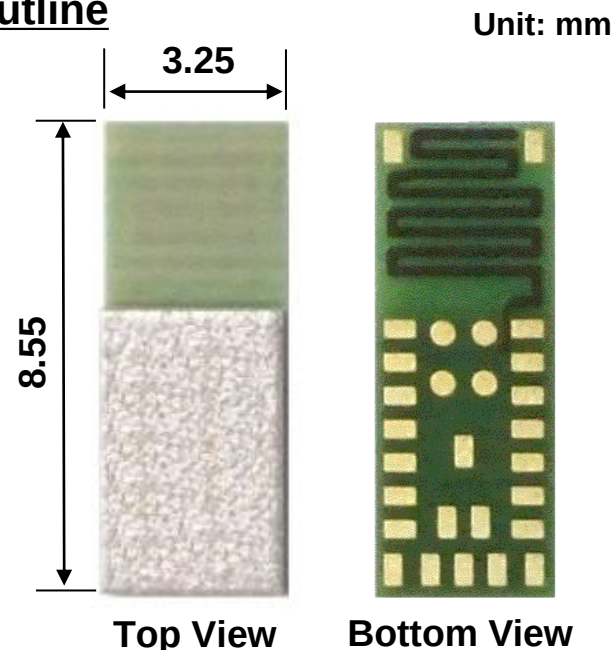
Features

- 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

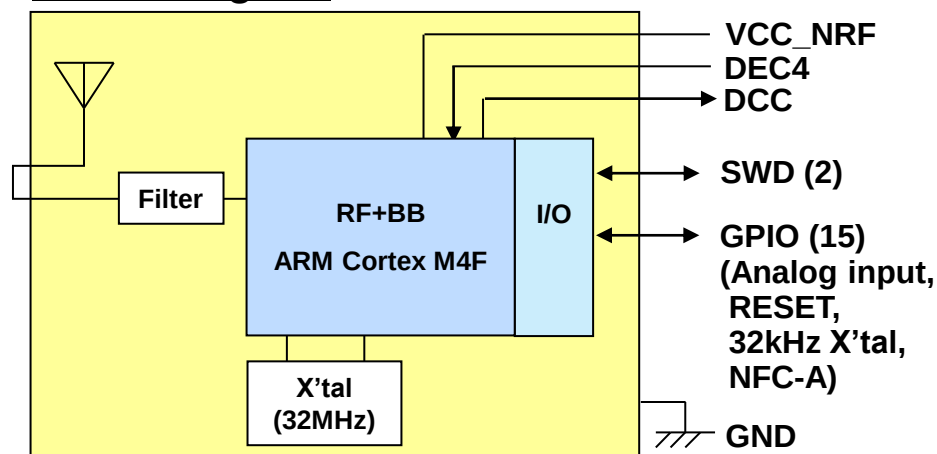
Applications

- 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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Sample, Evaluation Board / Kit

ES2832AA2 (Module)

■ Module samples



Tape



ES2832AA2-EVB

■ Evaluation board



ES2832AA2-EVK

■ Evaluation kit



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J-Link LITE
Attached



Features

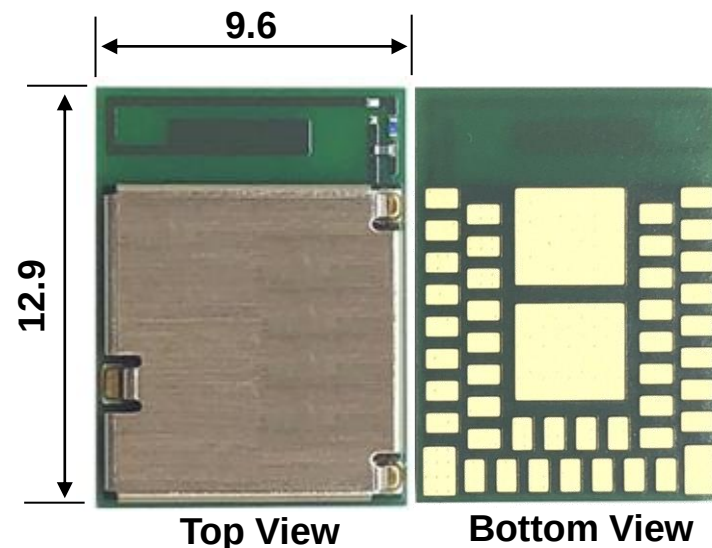
- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode **Bluetooth 5.3 / 802.15.4 (e.g Thread, Zigbee)**
- Bluetooth 5.3 **2M / 1M / 500k / 125kpbs / AoA / AoD**
- Chip: **nRF52820** (Nordic)
- Integrated System / **Sleep Clock, LC for DC/DC**
- Integrated 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

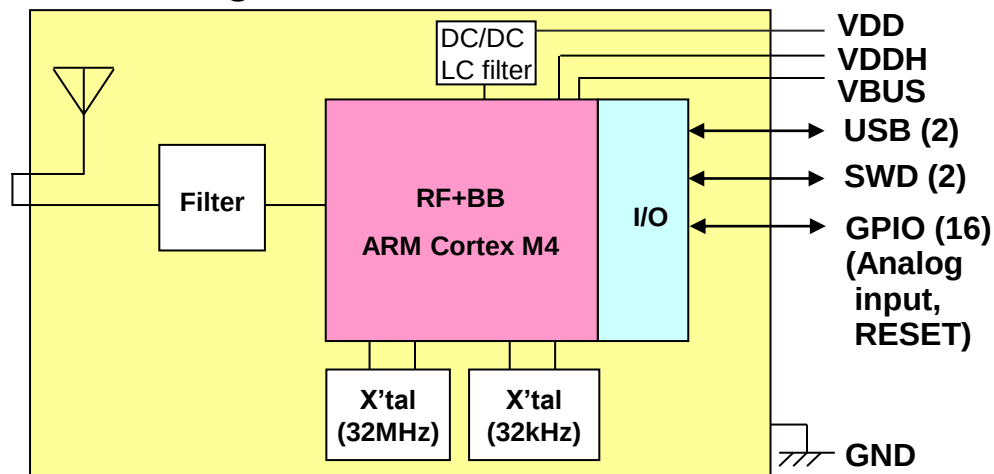
- Internet of Things
 - Smart home sensors and controllers
 - Industrial IoT sensors and controllers
 - LED lighting
- Advanced wearables
 - Smart watch
 - Health/Fitness sensor and monitor devices
 - Wireless payment enabled devices
- Interactive entertainment devices
- Advanced computer peripherals

Outline

Unit: mm



Block Diagram



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Sample, Evaluation Board / Kit

EC2820AA2 (Module)

■ Module samples



Tape



EC2820AA2-EVB

■ Evaluation board



EC2820AA2-EVK

■ Evaluation kit



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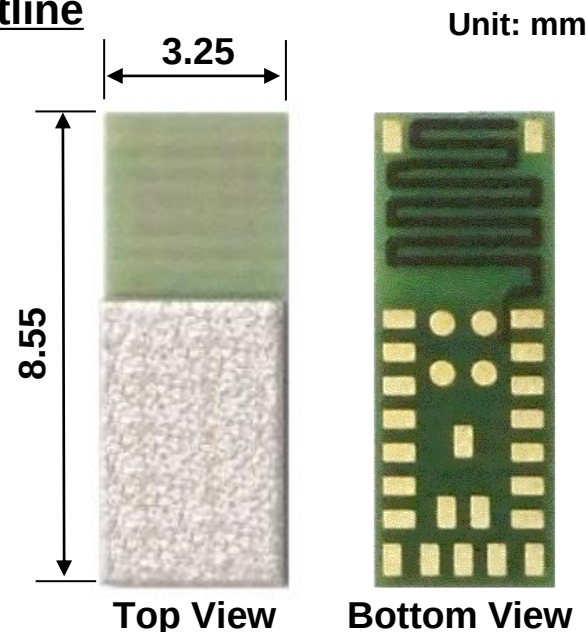
Features

- 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

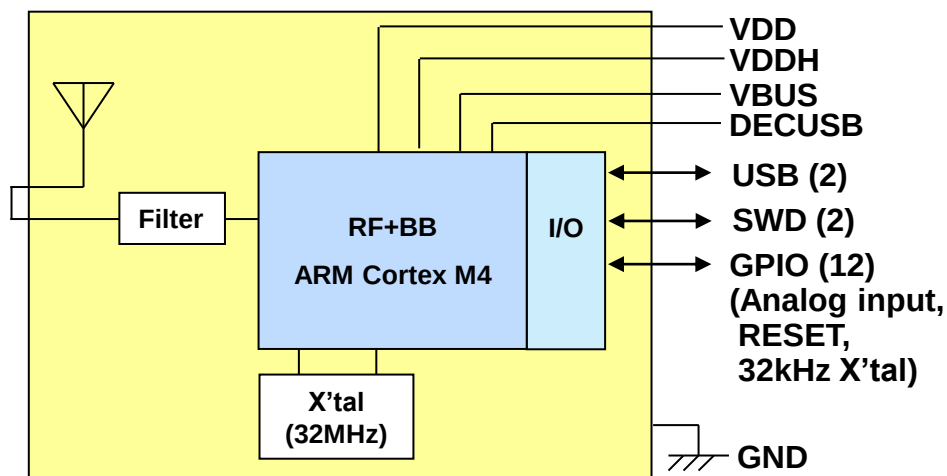
Applications

- 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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Sample, Evaluation Board / Kit

ES2820AA2 (Module)

■ Module samples

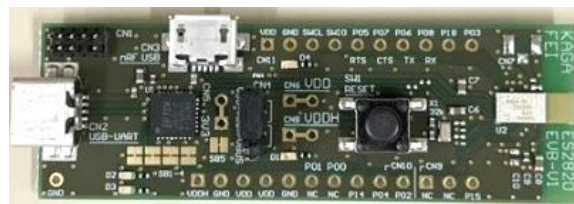


Tape



ES2820AA2-EVB

■ Evaluation board



ES2820AA2-EVK

■ Evaluation kit



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J-Link LITE
Attached



Features

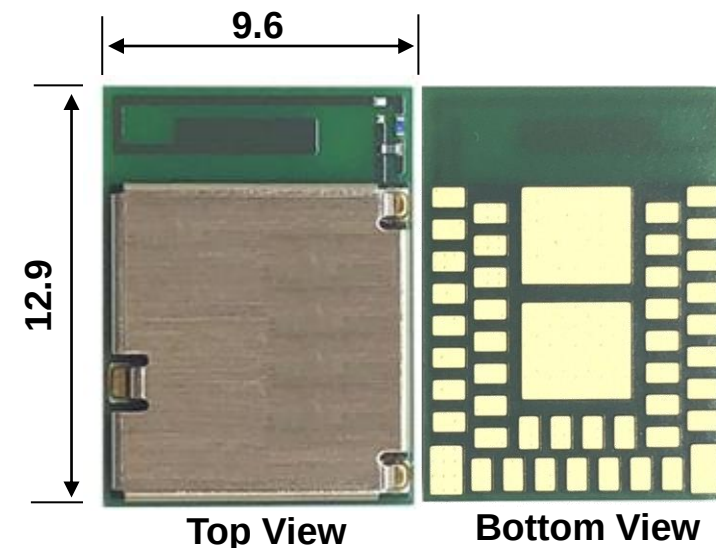
- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7 – 3.6V
- Single Mode **Bluetooth 5.2 / 802.15.4 (e.g Thread, Zigbee)**
- Bluetooth 5.2 **2M / 1M / 500k / 125kbps / AoA / AoD**
- Chip: **nRF52811** (Nordic)
- Integrated System / **Sleep Clock, LC for DC/DC**
- Integrated 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

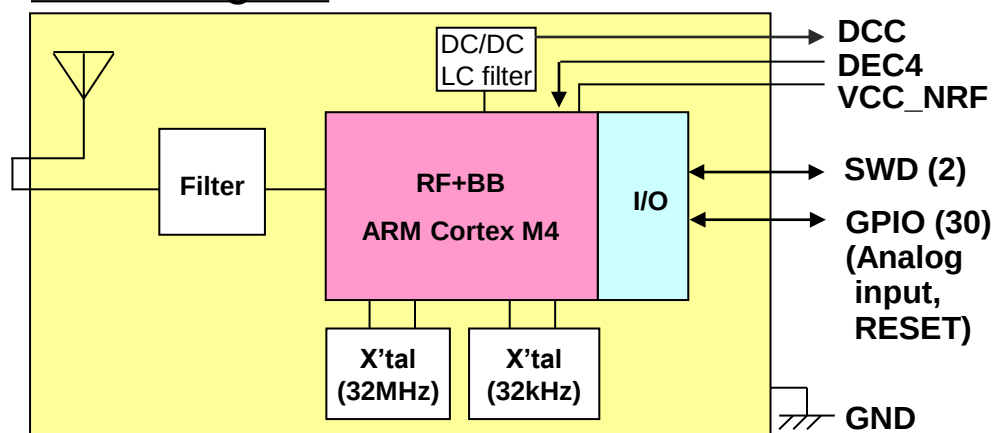
- Beacon
- Heart rate monitor
- Blood pressure monitor
- Blood glucose meter
- Weighing machine
- Thermometer
- Mobile accessories
- Sports and fitness sensors
- Remote controllers / Toys

Outline

Unit: mm



Block Diagram



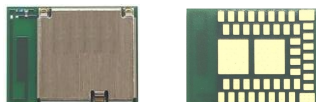
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Sample, Evaluation Board / Kit

EC2811AA2 (Module)

■ Module samples



Tape



EC2811AA2-EVB

■ Evaluation board



EC2811AA2-EVK

■ Evaluation kit



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J-Link LITE
Attached



ES2811AA2

Features

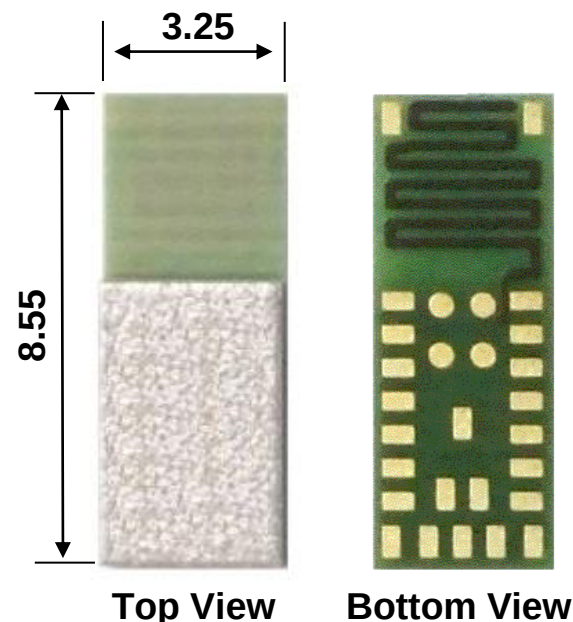
- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7 – 3.6V
- Single Mode **Bluetooth 5.2 / 802.15.4 (e.g Thread, Zigbee)**
- Bluetooth 5.2 **2M / 1M / 500k / 125kbps / AoA / AoD**
- Chip: **nRF52811** (Nordic)
- Integrated System Clock
- Integrated high performance PCB antenna
- 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

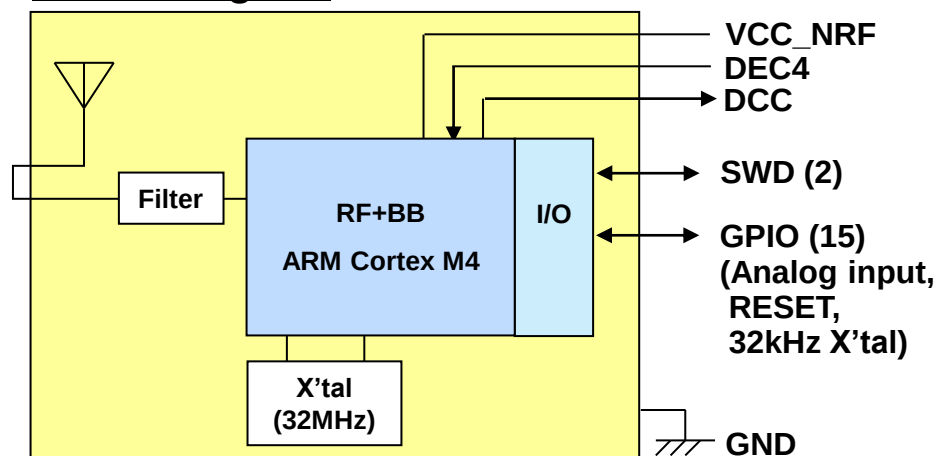
- Smart wristband
- Smart glasses
- Remote control ring
- Smart pen
- Heart rate monitor
- pressure monitor
- Blood glucose meter
- Thermometer
- Mobile accessories

Outline

Unit: mm



Block Diagram



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Sample, Evaluation Board / Kit

ES2811AA2 (Module)

■ Module samples

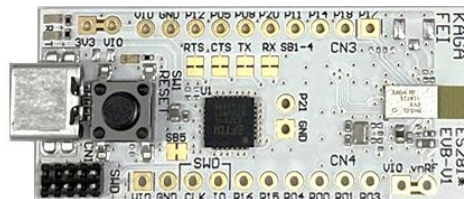


Tape



ES2811AA2-EVB

■ Evaluation board



ES2811AA2-EVK

■ Evaluation kit



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J-Link LITE
Attached



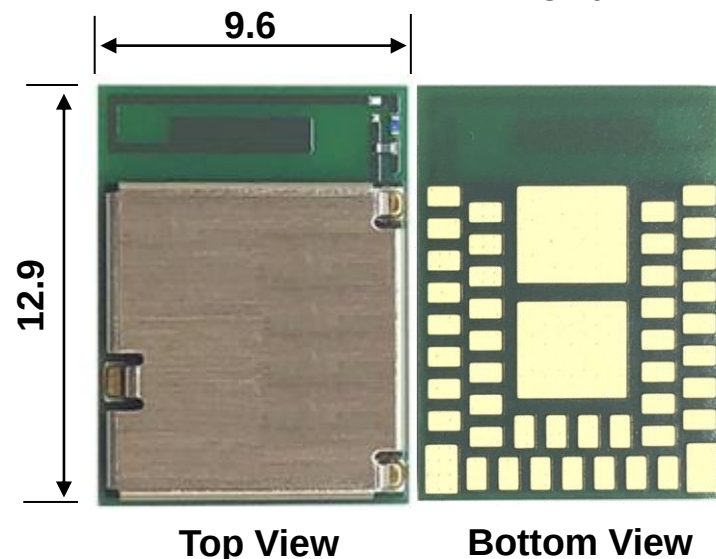
Features

- 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

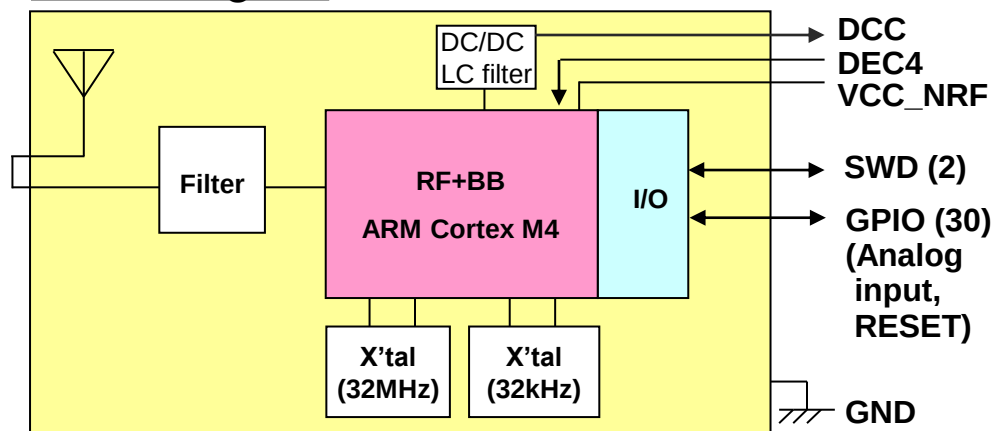
Applications

- 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



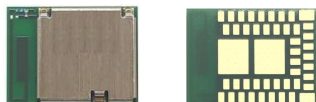
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Sample, Evaluation Board / Kit

EC2810AA2 (Module)

■ Module samples



Tape



EC2810AA2-EVB

■ Evaluation board



EC2810AA2-EVK

■ Evaluation kit



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J-Link LITE
Attached



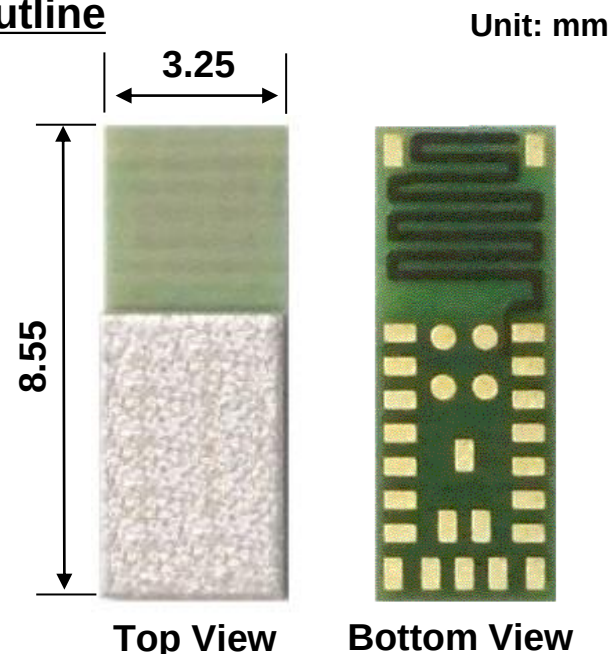
Features

- 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

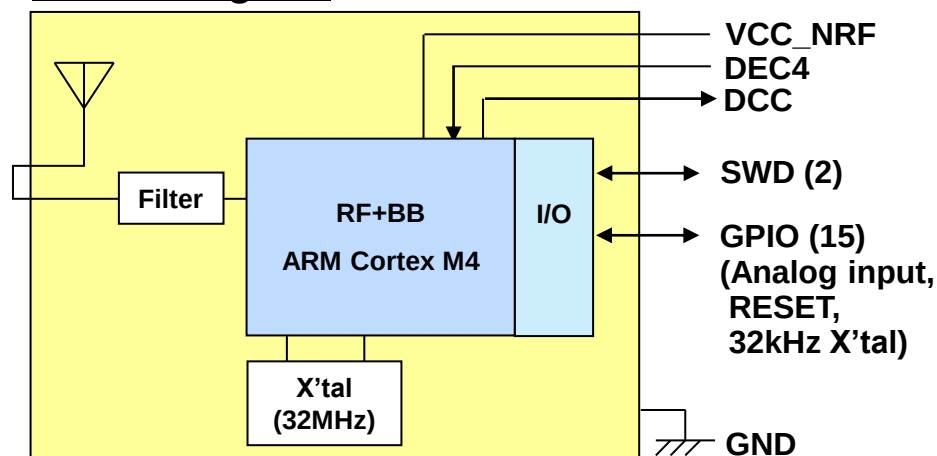
Applications

- 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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Sample, Evaluation Board / Kit

ES2810AA2 (Module)

■ Module samples



Tape



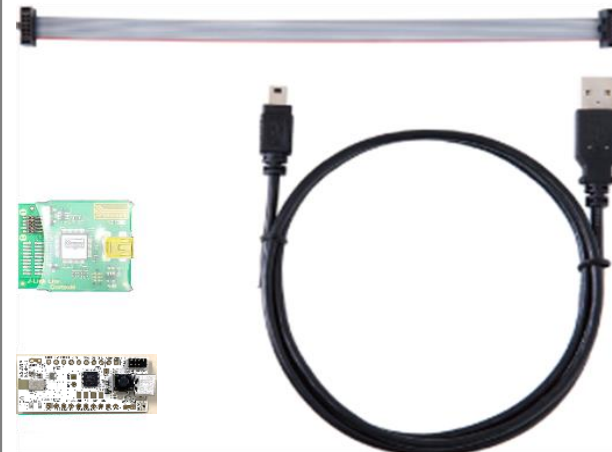
ES2810AA2-EVB

■ Evaluation board



ES2810AA2-EVK

■ Evaluation kit



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Attached



ES2805AA2

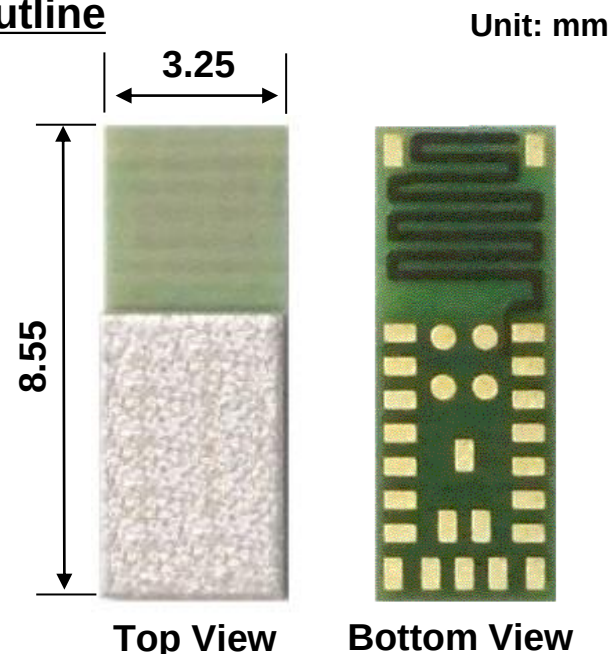
Features

- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7 – 3.6V
- Single Mode Bluetooth low energy (ANT™ Available)
- Bluetooth 5.2 low energy 2Mbps mode
- Chip: nRF52805 (Nordic)
- Integrated System Clock
- Integrated high performance PCB antenna
- ARM® Cortex M4 32bit processor
- 192KB Flash and 24KB RAM
- Interface: SPI, UART, I2C 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

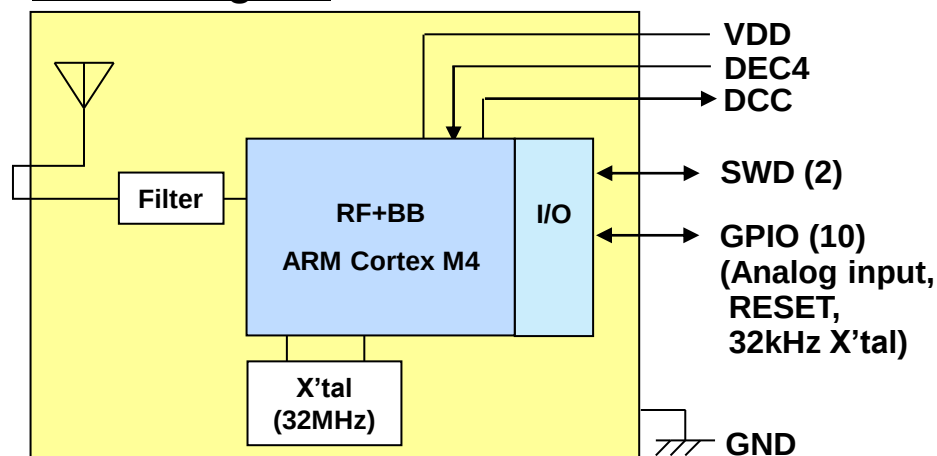
Applications

- 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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Sample, Evaluation Board / Kit

ES2805AA2 (Module)

■ Module samples

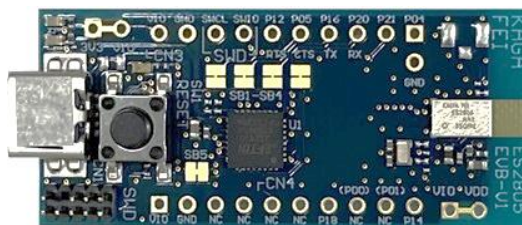


Tape



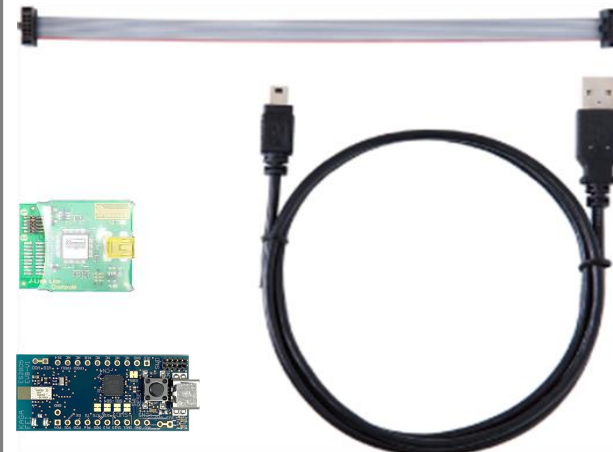
ES2805AA2-EVB

■ Evaluation board



ES2805AA2-EVK

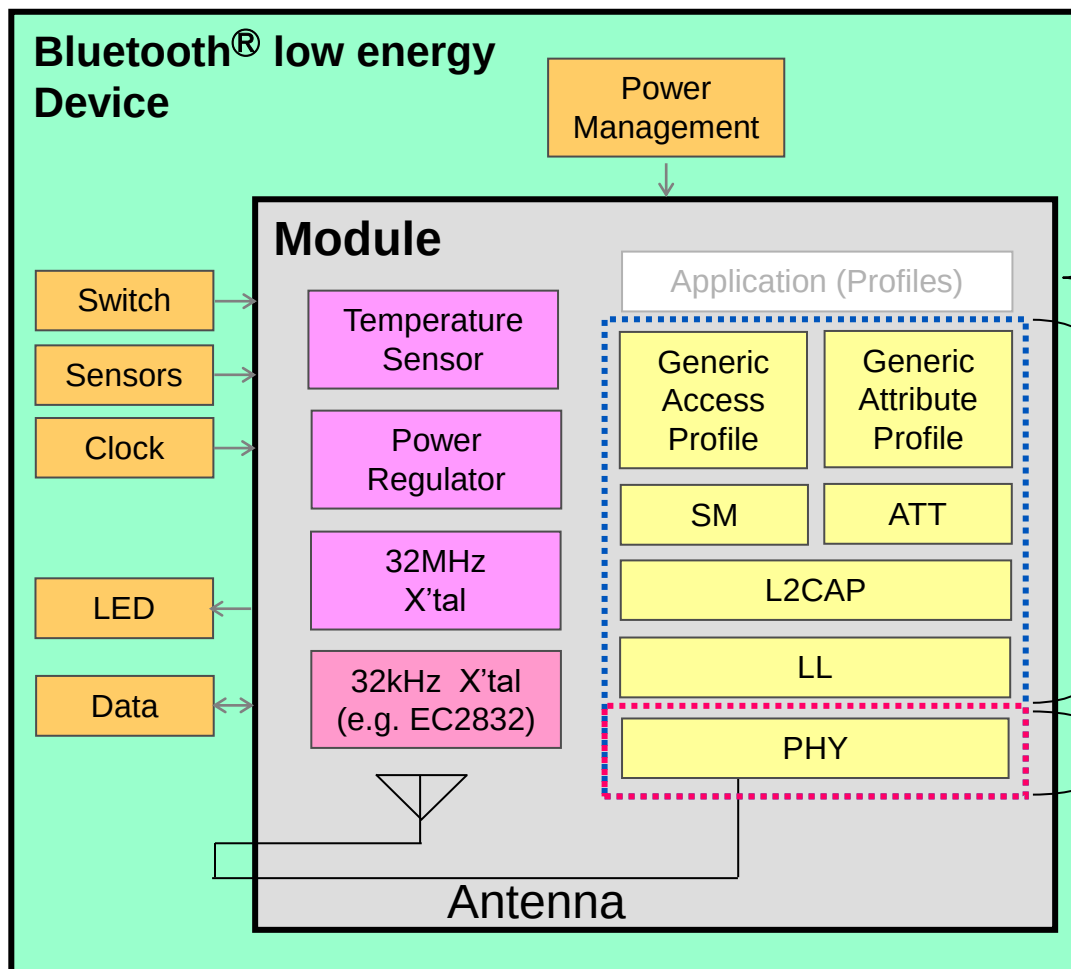
■ Evaluation kit



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J-Link LITE
Attached



Application Layer image for Basic Module



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

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.

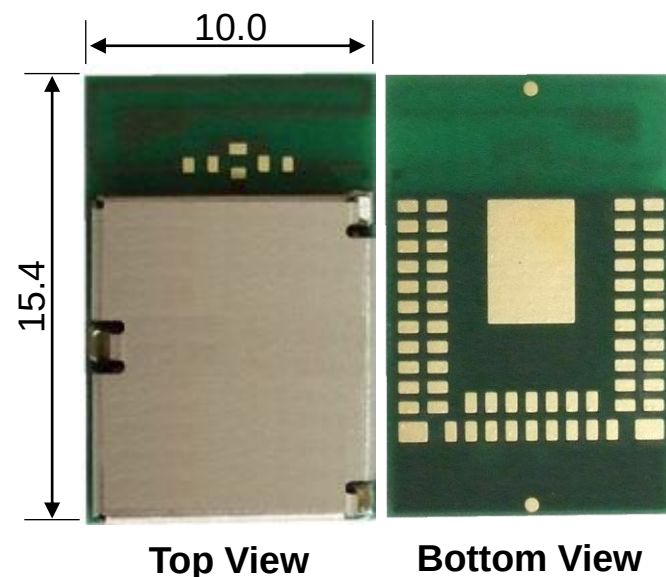
Features

- 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: USB, UART, SPI 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

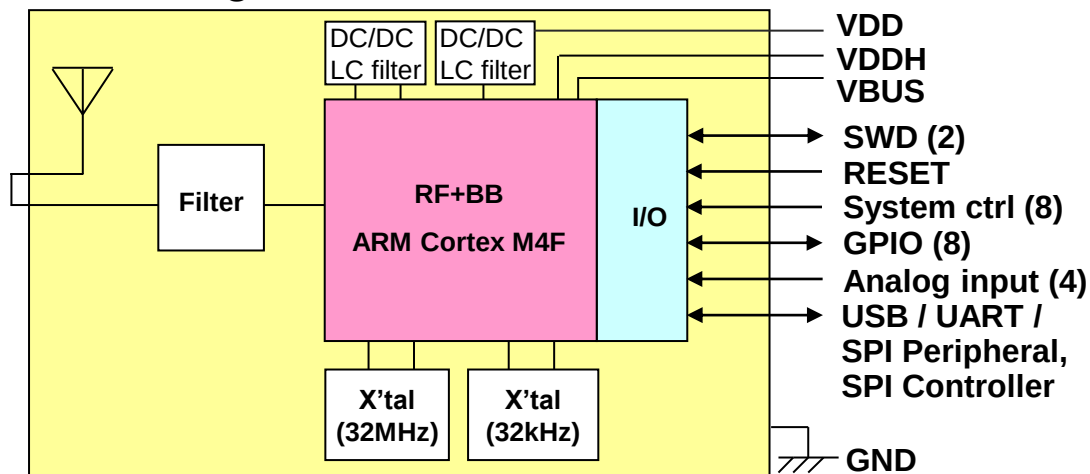
Applications

- 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



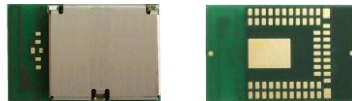
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Sample, Evaluation Board / Kit

EB2840MA2 (Module)

■ Module samples

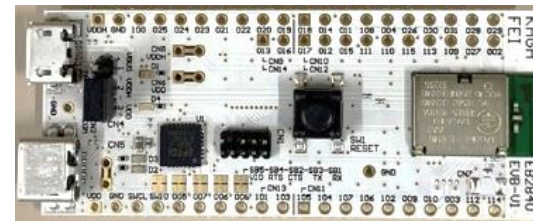


Tape



EB2840MA2-**EVB**

■ Evaluation board



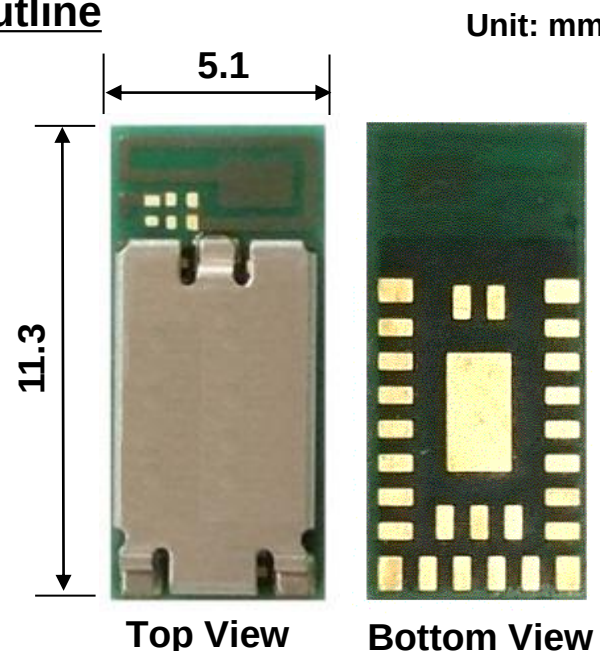
Features

- 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

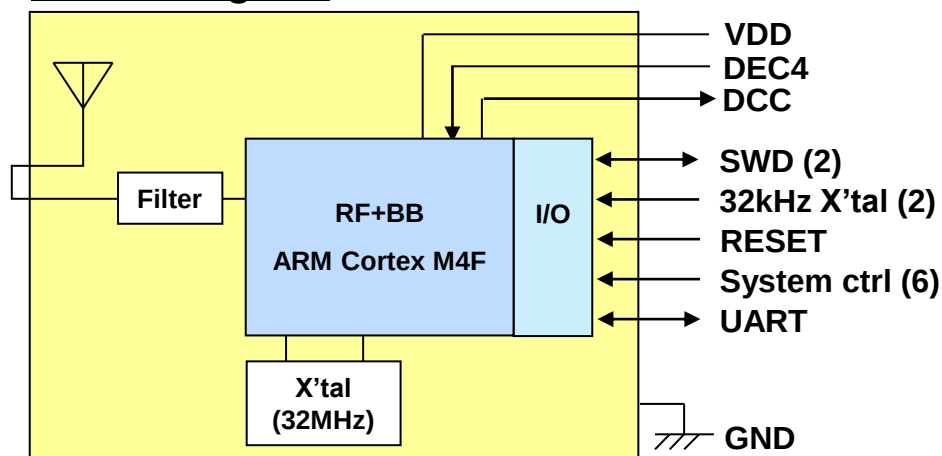
Applications

- 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



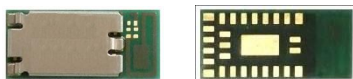
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Sample, Evaluation Board / Kit

EJ2840MA2 (Module)

■ Module samples

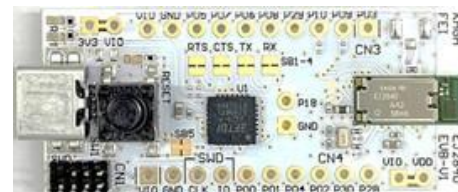


Tape



EJ2840MA2-**EVB**

■ Evaluation board



Features

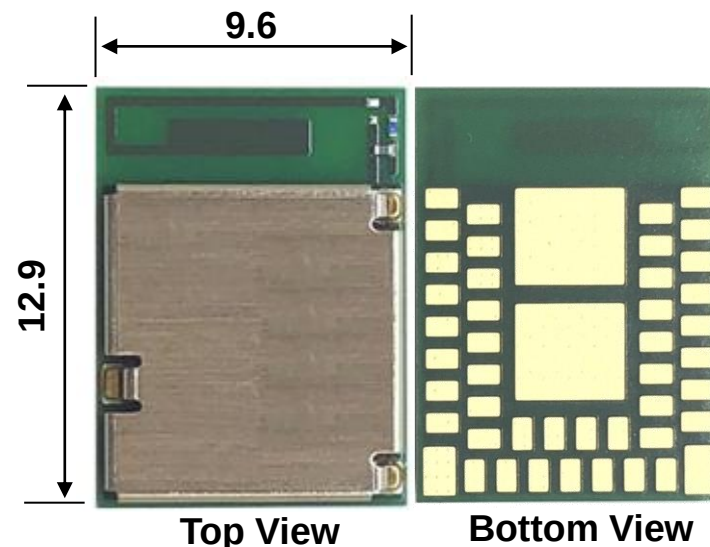
- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode **Bluetooth 5.1 / (Peripheral)**
- Bluetooth 5.1 **2M / 1M**
- Chip: **nRF52820** (Nordic)
- Integrated System / **Sleep Clock, LC for DC/DC**
- Integrated high performance PCB antenna
- ARM® Cortex 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

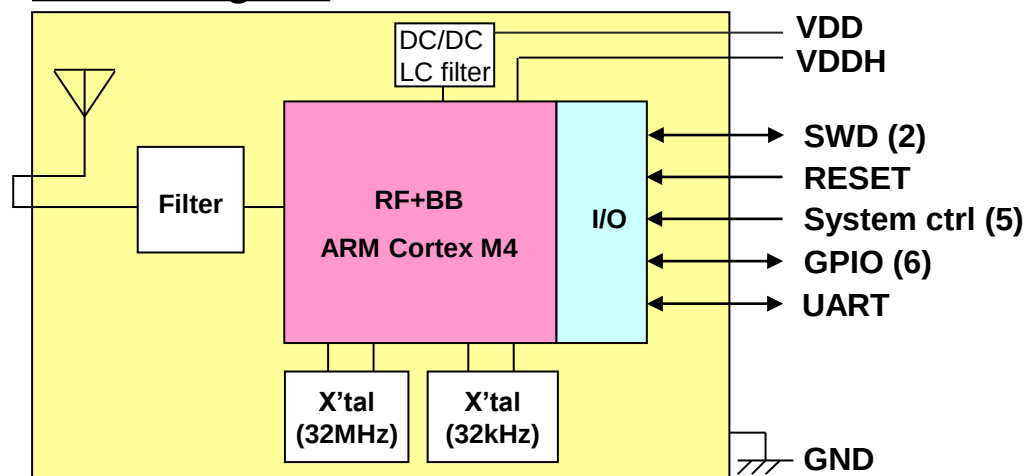
- Internet of Things
 - Smart home sensors and controllers
 - Industrial IoT sensors and controllers
 - LED lighting
- Advanced wearables
 - Smart watch
 - Health/Fitness sensor and monitor devices
 - Wireless payment enabled devices
- Interactive entertainment devices
- Advanced computer peripherals

Outline

Unit: mm



Block Diagram



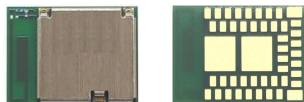
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Sample, Evaluation Board / Kit

EC2820MA2 (Module)

■ Module samples



Tape



EC2820MA2-**EVB**

■ Evaluation board



ES2820MA2

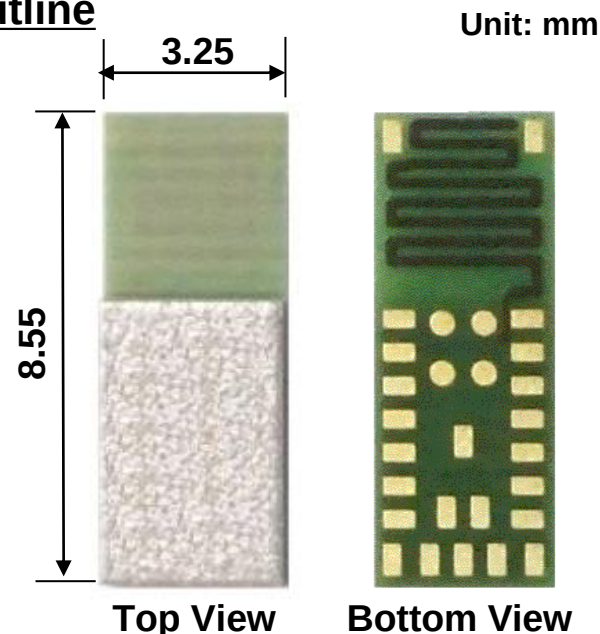
Features

- 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

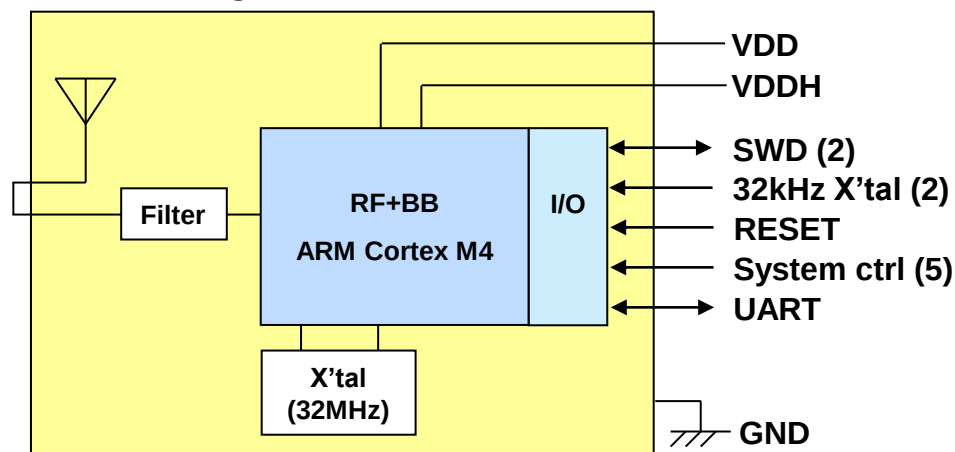
Applications

- 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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Sample, Evaluation Board / Kit

ES2820MA2 (Module)

■ Module samples



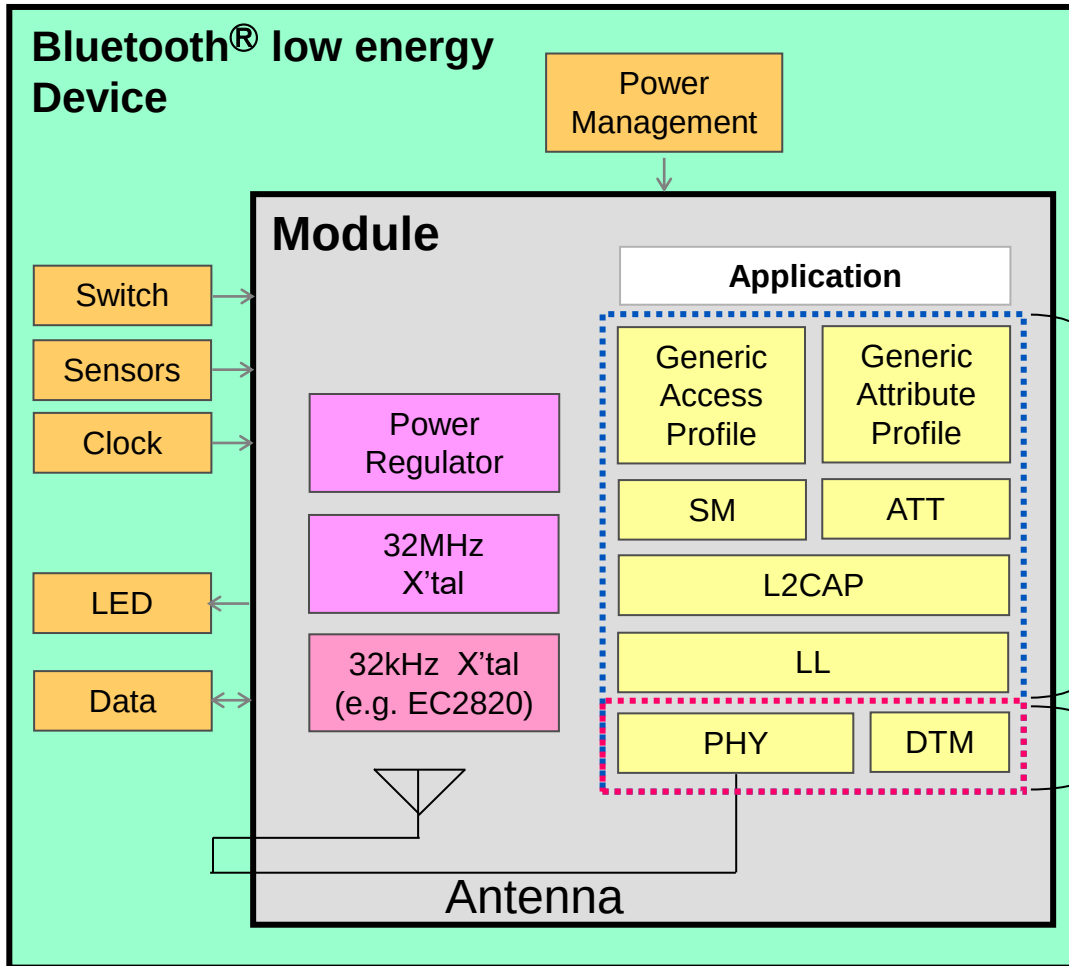
Tape



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	RAM (KB)	I/F	32kHz X'tal	DC/DC	Tempe- rature	ANT™ Support	Certifi- cation
nRF53 Basic (Software Support : Nordic)	EB5340BA1	10.0x15.4x2.0	V5.4	App.512 Net.64	USB, SPI, UART, I2C, I2S, PDM, NFC-A	Int.	Int. LC	-40 ~ +105 deg-C	✓	Japan FCC ISED (CE)※1
	EJ5340BA1	5.1x11.3x1.3	V5.4	App.512 Net.64		Ext.	None			

※1 ETSI EN 300 328 conducted test report available

Type	Part No.	Size(mm) (LxWxH)	Bluetooth Version	RAM (KB)	I/F	32kHz X'tal	DC/DC	Tempe- rature	ANT™ Support	Certifi- cation
nRF52 Basic (Software Support : Nordic)	EB2840AA2	10.0x15.4x2.0	V5.0	256	USB※1 SPI UART I2C I2S PDM NFC-A	Int.	Int. LC	-40 ~ +85 deg-C	✓	Japan FCC ISED (CE)※2
	ED2840AA2	9.6x12.9x1.3	V5.0	256		Ext.	None			
	EJ2840AA2	5.1x11.3x1.3	V5.0	256		Ext.	Ext. L			
	EB2833AA2	10.0x15.4x2.0	V5.2	128		Int.	Int. LC	-40 ~ +105 deg-C		
	ED2833AA2	9.6x12.9x1.3	V5.3	128		Ext.	None			
	EJ2833AA2	5.1x11.3x1.3	V5.3	128		Ext.	Ext. L			
	EC2832AA2	9.6x12.9x2.0	V5.0	64		Int.	Int. LC	-40 ~ +85 deg-C		
	EJ2832AA2	5.1x11.3x1.3	V5.0	64		Ext.	Ext. L			
	ES2832AA2	3.25x8.55x0.85	V5.0	64		Ext.	Ext. LC			

※1 Supported by EB2840AA2 / ED2840AA2 / EB2833AA2 / ED2833AA2

※2 ETSI EN 300 328 conducted test report available

Bluetooth® low energy standard module

Type	Part No.	Size(mm) (LxWxH)	Bluetooth Version	RAM (KB)	I/F	32kHz X'tal	DC/DC	Tempe- rature	ANT™ Support	Certifi- cation
nRF52 Basic (Software Support : Nordic)	EC2820AA2	9.6x12.9x2.0	V5.3	32	USB※1 UART SPI I2C PDM※2	Int.	Int. LC	-40~+105 deg-C	✓	Japan FCC ISED (CE)※3
	ES2820AA2	3.25x8.55x1.00	V5.3	32		Ext.	None			
	EC2811AA2	9.6x12.9x2.0	V5.2	24		Int.	Int. LC	-40 ~ +85 deg-C		
	ES2811AA2	3.25x8.55x1.00	V5.2	24		Ext.	Ext. L			
	EC2810AA2	9.6x12.9x2.0	V5.0	24		Int.	Int. LC			
	ES2810AA2	3.25x8.55x1.00	V5.0	24		Ext.	Ext. L			
	ES2805AA2	3.25x8.55x1.00	V5.2	24		Ext.	Ext. LC			

※1 Supported by EC2820AA2 / ES2820AA2

※2 Supported by EC2811AA2 / ES2811AA2 / EC2810AA2 / ES2810AA2

※3 ETSI EN 300 328 conducted test report available

Type	Part No.	Size(mm) (LxWxH)	Bluetooth Version	RAM (KB)	I/F	32kHz X'tal	DC/DC	Tempe- rature	ANT™ Support	Certifi- cation
Application Embedded - Module (Software Support : KAGA FEI)	EB2840MA2	10.0x15.4x2.0	V5.0	N/A	USB, SPI, UART	Int.	Int. LC	-40 ~ +85 deg-C	N/A	Japan FCC ISED (CE)*1
	EJ2840MA2	5.1x11.3x1.3	V5.0		UART	Ext.	Ext. L			
	EC2820MA2	9.6x12.9x2.0	V5.1		UART	Int.	Int. LC	-40 ~ +105 deg-C		
	ES2820MA2	3.25x8.55x1.00	V5.1		UART	Ext.	None			

※1 ETSI EN 300 328 conducted test report available



KAGA FEI