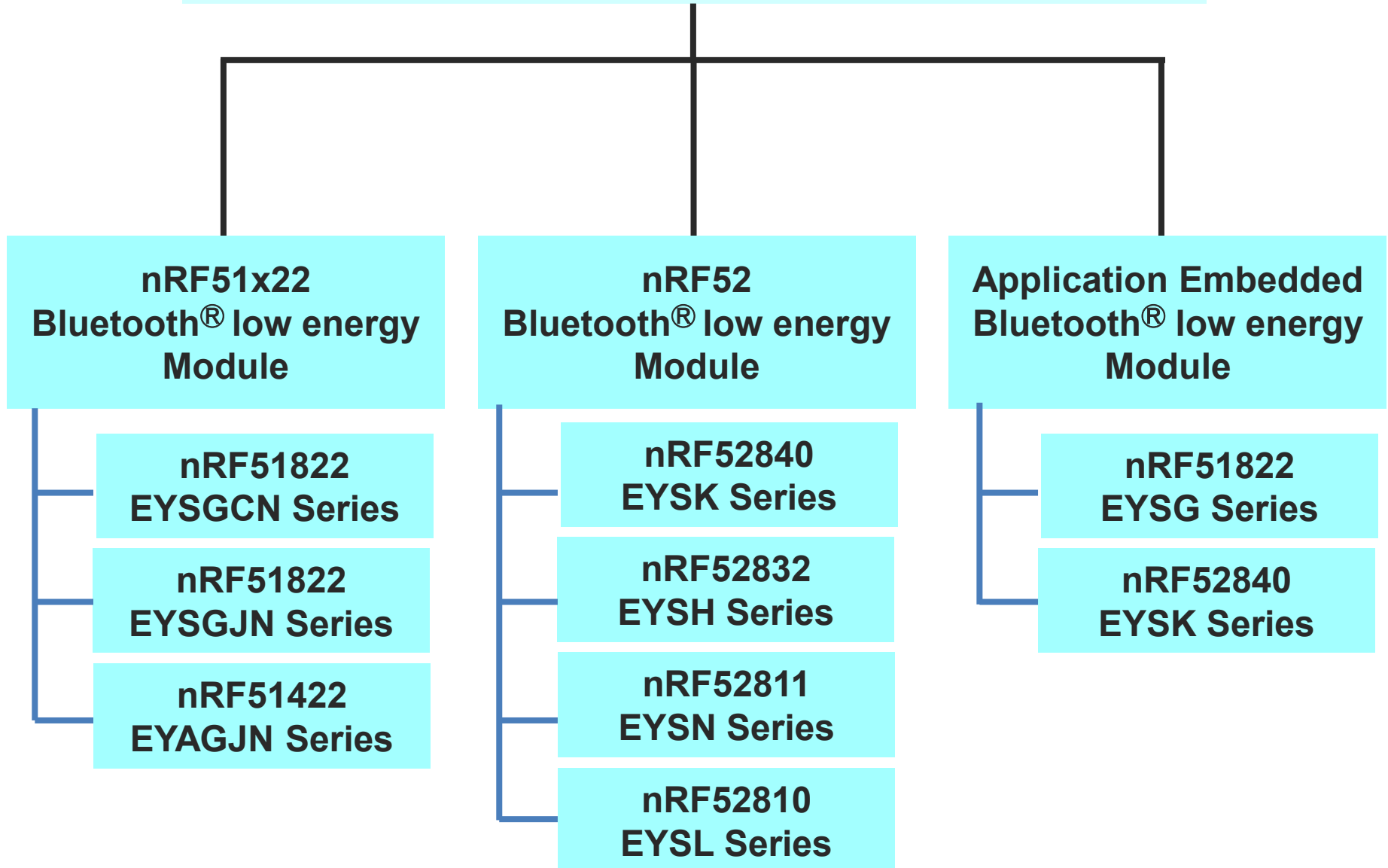


# Wireless Module *Bluetooth<sup>®</sup> low energy* Module Overview

May 11, 2020 Version 3.0

# TAIYO YUDEN Bluetooth® low energy Module Line-Up

## TAIYO YUDEN Bluetooth® low energy Module



# TAIYO YUDEN Bluetooth® low energy Module Line-Up

## nRF51x22 Bluetooth® low energy Module

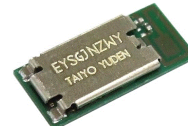
### nRF51822 EYSG Series

### nRF51422 EYAG Series

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

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

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



**EYSGCN**  
**ZXX**

**EYSGCN**  
**ZWY**

**EYSGJN**  
**ZXX**

**EYSGJN**  
**ZWY**

**EYAGJN**  
**ZXX**

RAM 16kB

RAM 32kB

RAM 16kB

RAM 32kB

RAM 32kB

SoftDevice

SoftDevice

SoftDevice

SoftDevice

ANT + BLE

S110

S120

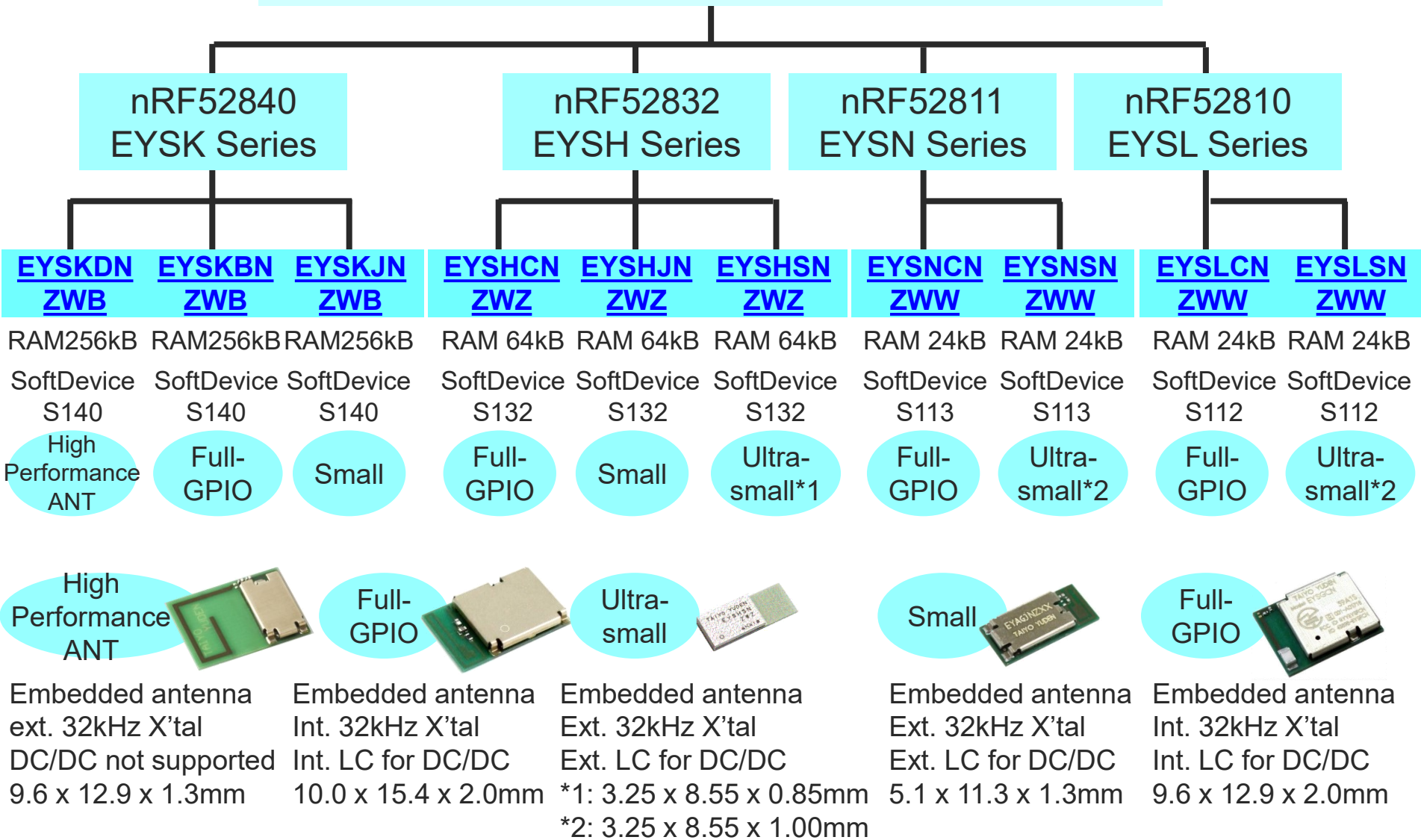
S110

S120

SoftDevice  
S310

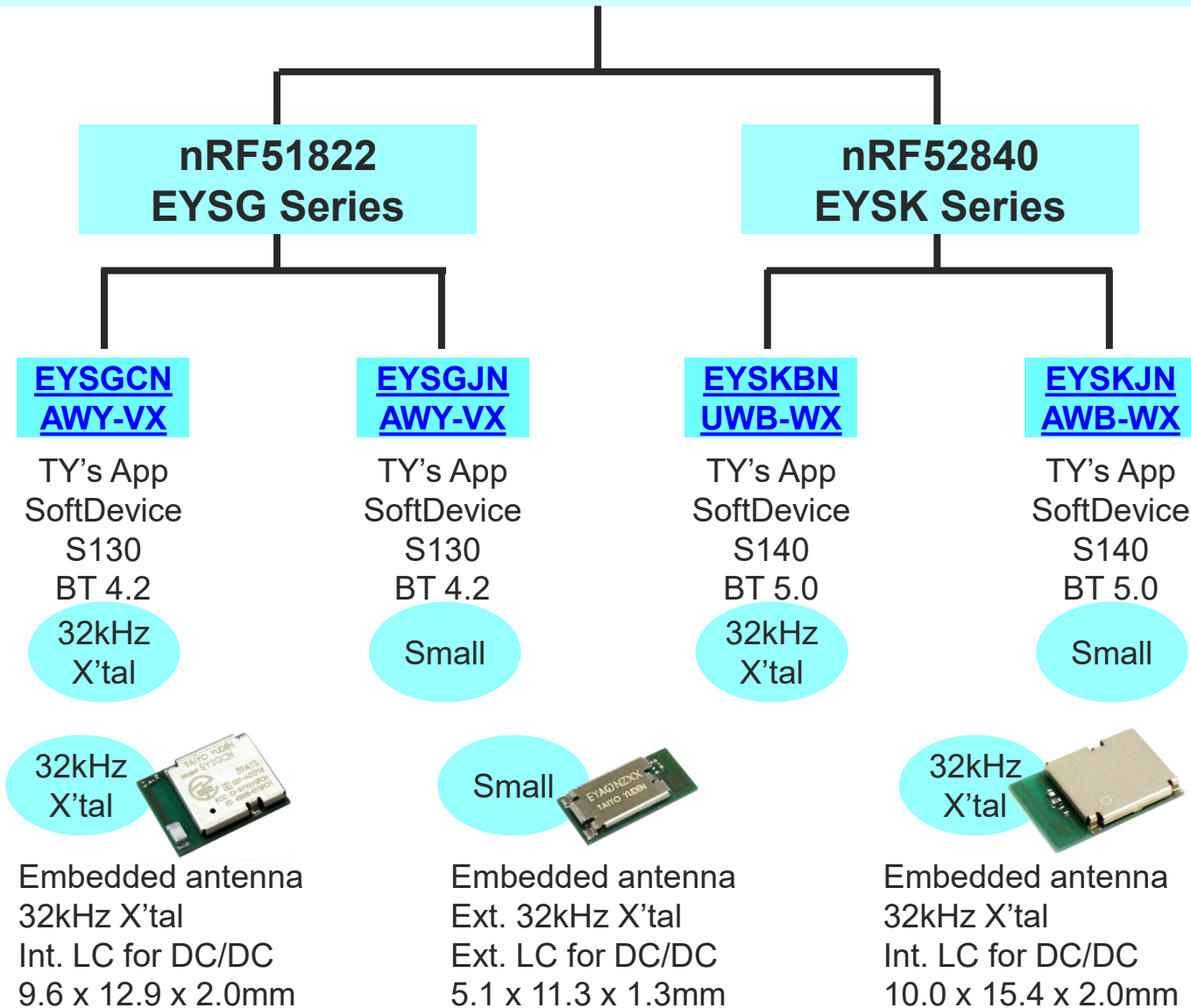
# TAIYO YUDEN Bluetooth® low energy Module Line-Up

## nRF52 Bluetooth® low energy Module



# TAIYO YUDEN Bluetooth® low energy Module Line-Up

## Application Embedded Bluetooth® low energy Module



# Latest Documents for Bluetooth® low energy Module

EYSKDNZWB	<a href="http://www.yuden.co.jp/or/product/category/module/EYSKDNZWB.html">http://www.yuden.co.jp/or/product/category/module/EYSKDNZWB.html</a>
EYSKJNZWB	<a href="http://www.yuden.co.jp/or/product/category/module/EYSKJNZWB.html">http://www.yuden.co.jp/or/product/category/module/EYSKJNZWB.html</a>
EYSKBNZWB	<a href="http://www.yuden.co.jp/or/product/category/module/EYSKBNZWB.html">http://www.yuden.co.jp/or/product/category/module/EYSKBNZWB.html</a>
EYSHSNZWZ	<a href="http://www.yuden.co.jp/or/product/category/module/EYSHSNZWZ.html">http://www.yuden.co.jp/or/product/category/module/EYSHSNZWZ.html</a>
EYSHCNZWZ	<a href="http://www.yuden.co.jp/or/product/category/module/EYSHCNZWZ.html">http://www.yuden.co.jp/or/product/category/module/EYSHCNZWZ.html</a>
EYSHJNZWZ	<a href="http://www.yuden.co.jp/or/product/category/module/EYSHJNZWZ.html">http://www.yuden.co.jp/or/product/category/module/EYSHJNZWZ.html</a>
EYSNSNZWW	<a href="http://www.yuden.co.jp/or/product/category/module/EYSNSNZWW.html">http://www.yuden.co.jp/or/product/category/module/EYSNSNZWW.html</a>
EYSNCNZWW	<a href="http://www.yuden.co.jp/or/product/category/module/EYSNCNZWW.html">http://www.yuden.co.jp/or/product/category/module/EYSNCNZWW.html</a>
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EYSLCNZWW	<a href="http://www.yuden.co.jp/or/product/category/module/EYSLCNZWW.html">http://www.yuden.co.jp/or/product/category/module/EYSLCNZWW.html</a>

EYSGCNZXX	<a href="http://www.yuden.co.jp/or/product/category/module/EYSGCNZXX.html">http://www.yuden.co.jp/or/product/category/module/EYSGCNZXX.html</a>
EYSGCNZWY	<a href="http://www.yuden.co.jp/or/product/category/module/EYSGCNZWY.html">http://www.yuden.co.jp/or/product/category/module/EYSGCNZWY.html</a>
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EYSGJNZWY	<a href="http://www.yuden.co.jp/or/product/category/module/EYSGJNZWY.html">http://www.yuden.co.jp/or/product/category/module/EYSGJNZWY.html</a>
EYAGJNZXX	<a href="http://www.yuden.co.jp/or/product/category/module/EYAGJNZXX.html">http://www.yuden.co.jp/or/product/category/module/EYAGJNZXX.html</a>

EYSKBNUWB-WX	<a href="http://www.yuden.co.jp/or/product/category/module/EYSKBNUWB-WX.html">http://www.yuden.co.jp/or/product/category/module/EYSKBNUWB-WX.html</a>
EYSKJNAWB-WX	<a href="http://www.yuden.co.jp/or/product/category/module/EYSKJNAWB-WX.html">http://www.yuden.co.jp/or/product/category/module/EYSKJNAWB-WX.html</a>
EYSGCNAWY-VX	<a href="http://www.yuden.co.jp/or/product/category/module/EYSGCNAWY-VX.html">http://www.yuden.co.jp/or/product/category/module/EYSGCNAWY-VX.html</a>
EYSGJNAWY-VX	<a href="http://www.yuden.co.jp/or/product/category/module/EYSGJNAWY-VX.html">http://www.yuden.co.jp/or/product/category/module/EYSGJNAWY-VX.html</a>

-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.

<http://www.yuden.co.jp/jp/product/category/module/lineup.html#Bluetooth>

# High performance Antenna Bluetooth® 5.0 Module: EYSKDNZWB

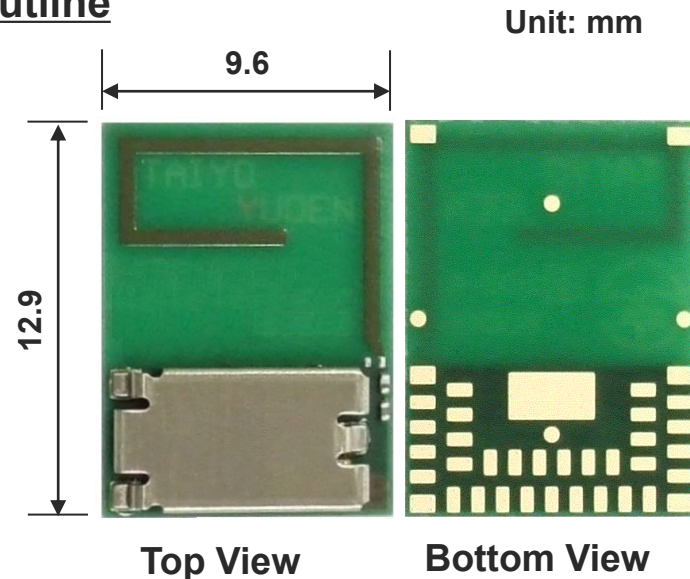
## Features

- Frequency: 2402 to 2480 MHz with +8dBm Output power
- Single power supply: 1.7– 5.5V
- Single Mode **Bluetooth 5.0 / 802.15.4 (Zigbee, Thread)**
- Bluetooth 5 data rate support: 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: **9.6 x 12.9 x 1.3mm MAX**
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

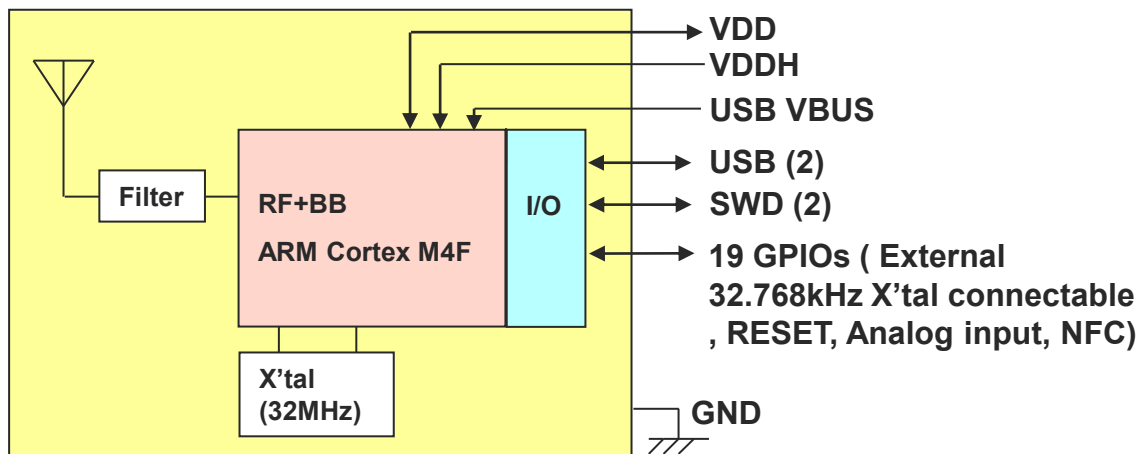
## Applications

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

## Outline



## Block Diagram



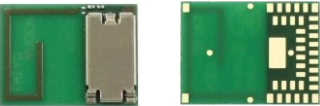
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# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSKDNZWB (Module)

### Module samples

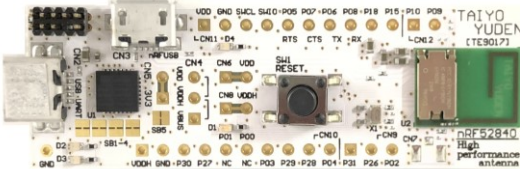


Tape



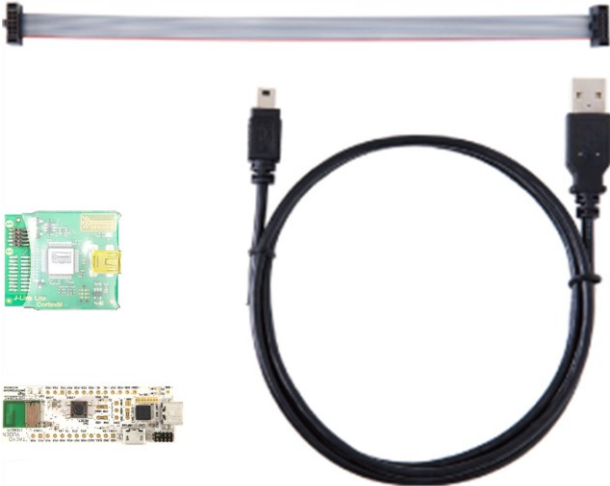
## EBSKDNZWB (EV-B)

### Evaluation board



## EKSKDNZWB (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached





# Bluetooth® 5.0 low energy Module: EYSKJNZWB

## 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 data rate support: 2M / 1M / 500k / 125kbps**
- Chip: **nRF52840** (Nordic)
- Integrated System Clock
- 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
- Integrated high performance pattern antenna
- Outline: **5.1 x 11.3 x 1.3mm MAX**
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

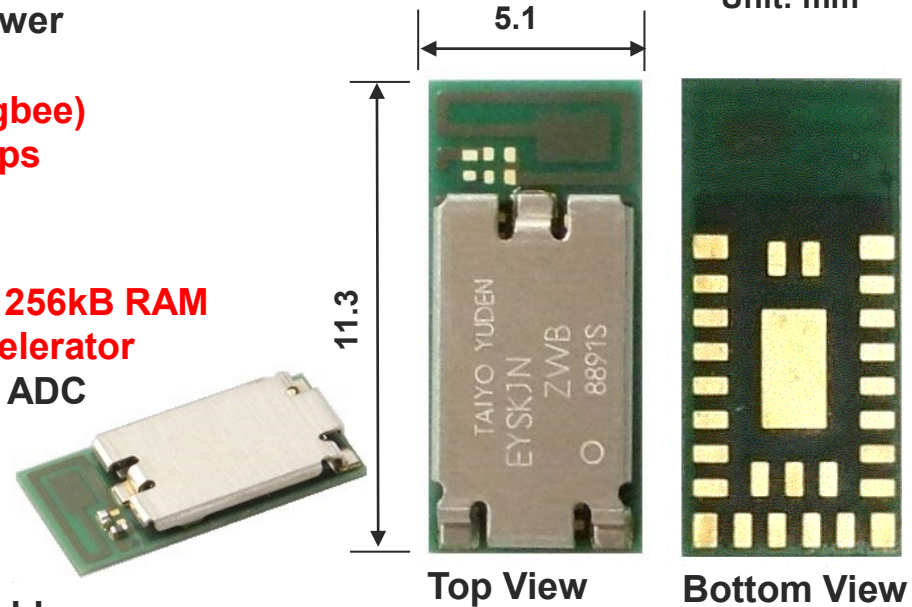
## Applications

- 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

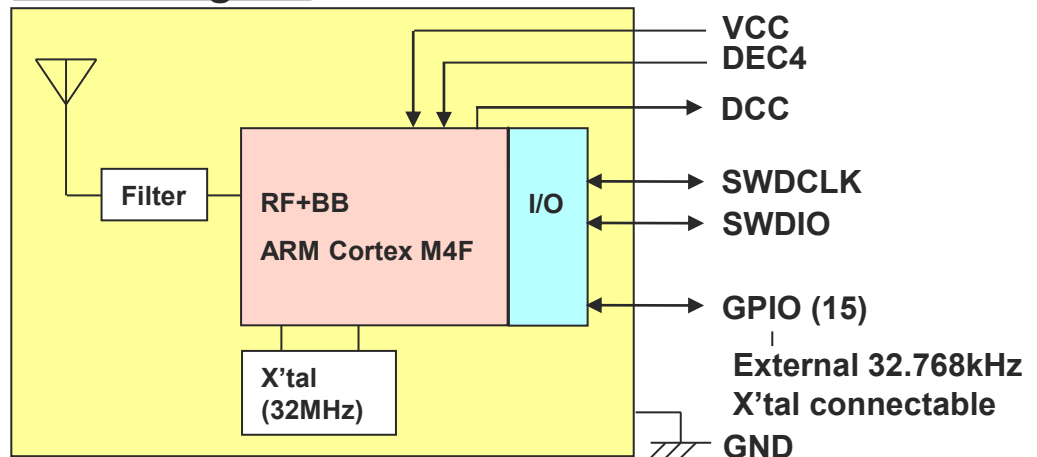
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## Outline



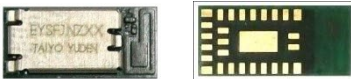
## Block Diagram



# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSKJNZWB (Module)

### Module samples



Tape



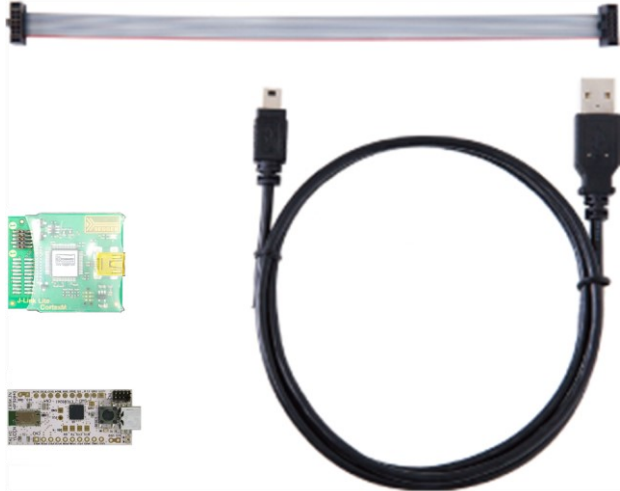
## EBSKJNZWB (EV-B)

### Evaluation board



## EKSKJNZWB (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached



# Bluetooth® 5.0 low energy Module: EYSKBNZWB

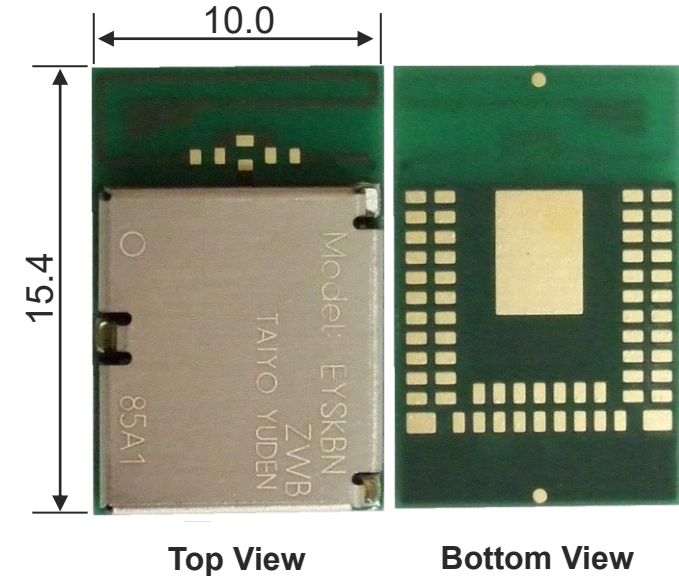
## Features

- 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 data rate support: 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
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

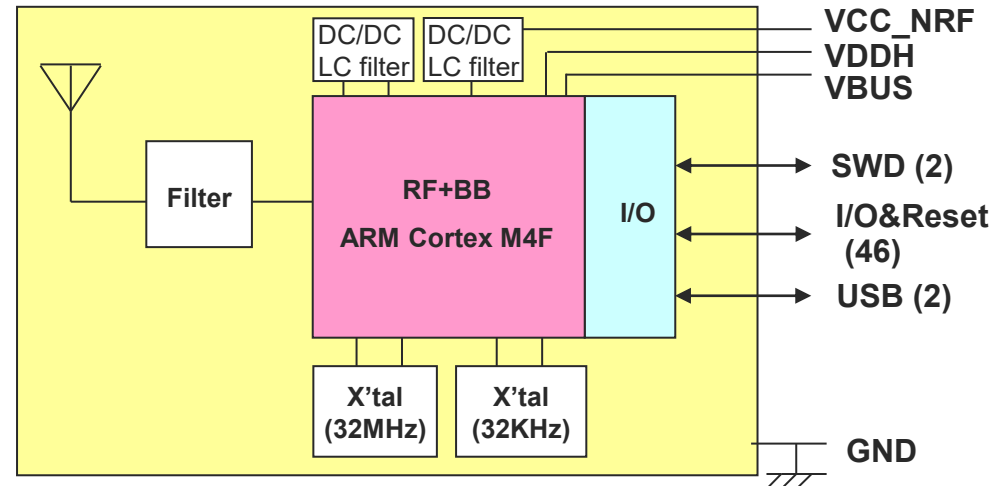
## Applications

- 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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# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSKBNZWB (Module)

### Module samples

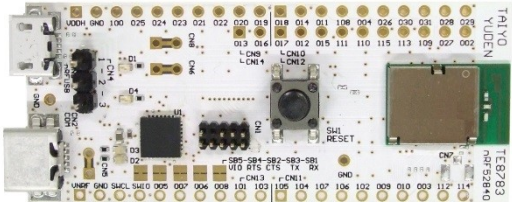


Tape



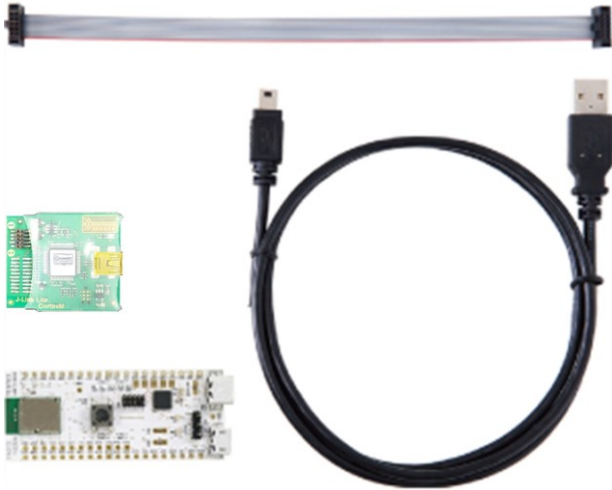
## EBSKBNZWB (EV-B)

### Evaluation board



## EKSKBNZWB (EV-K)

### Evaluation kit



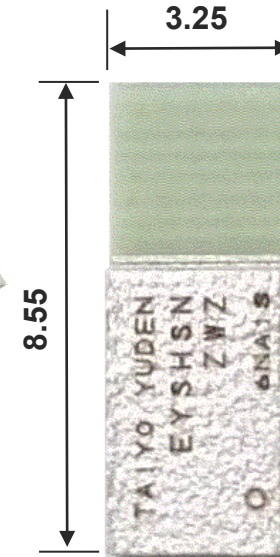
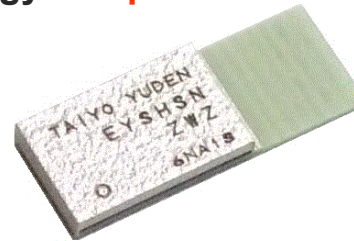
SEGGER  
J-Link LITE  
Attached

# 2Mbps Bluetooth® 5.0 low energy Module: EYSHSNZWZ

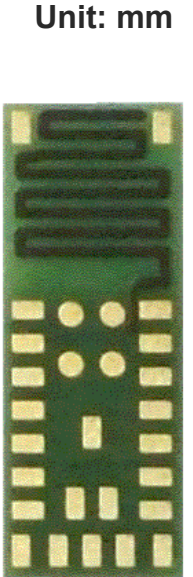
## Features

- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7– 3.6V
- Single Mode Bluetooth low energy (ANT™ Available)
- Chip: **nRF52832** (Nordic) with Bluetooth low energy **2Mbps** mode
- Integrated System Clock
- ARM Cortex M4F** 32bit processor
- 512kB Flash and 64kB RAM**
- Interface: SPI, UART, I2C, I2S, PDM and 12bit ADC
- Support **NFC-A Type-2** for Touch-to-Pair
- Integrated high performance PCB antenna
- Outline: **3.25 x 8.55 x 0.85**mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- Complies with standards required by RED (2014/53/EU)
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

## Outline



Top View



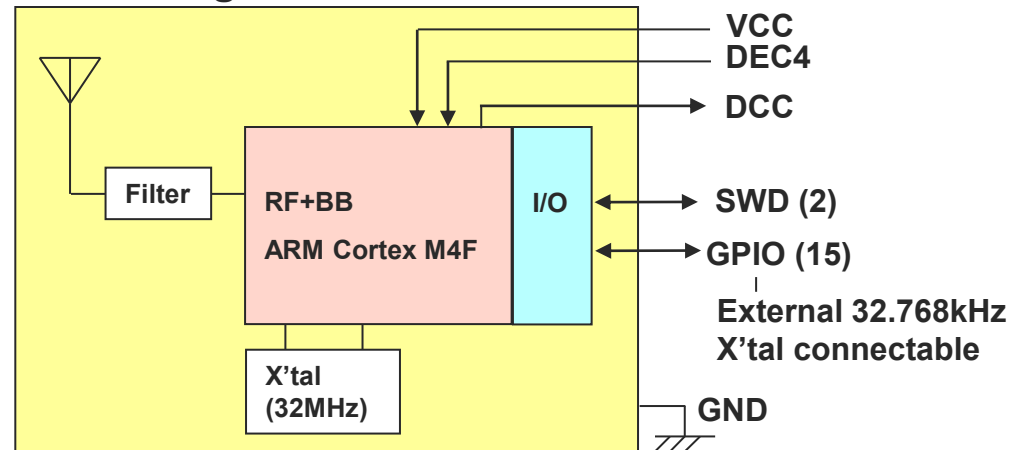
Bottom View

Unit: mm

## Applications

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

## Block Diagram



All specifications are subject to change without notice.

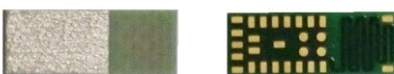
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# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSHSNZWZ (Module)

### Module samples

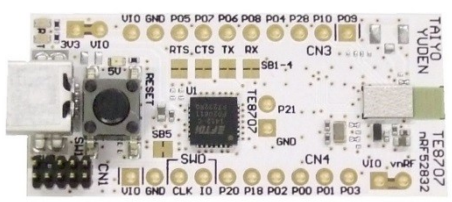


Tape



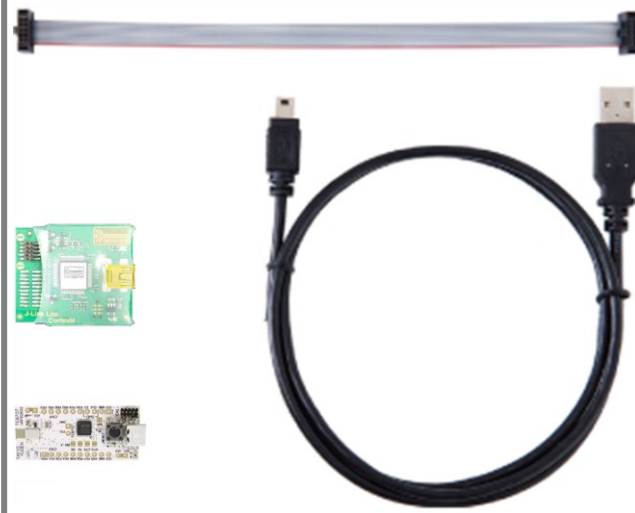
## EBSHSNZWZ (EV-B)

### Evaluation board



## EKSHSNZWZ (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached



# 2Mbps Bluetooth® 5.0 low energy Module: EYSHCNZWZ

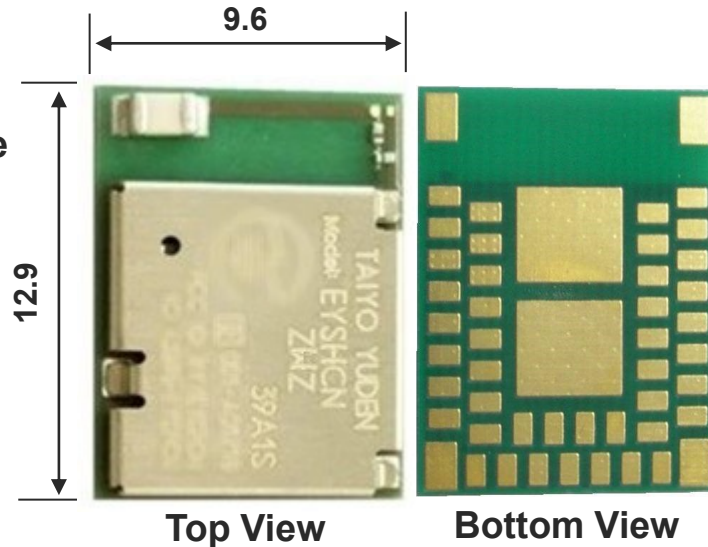
## Features

- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7 – 3.6V
- Single Mode Bluetooth low energy (ANT™ Available)
- Chip: **nRF52832** (Nordic) with Bluetooth low energy **2Mbps** mode
- Integrated System/Sleep Clock, **LC for DC/DC**
- Integrated high performance ceramic chip antenna
- ARM Cortex M4F** 32bit processor
- 512kB Flash** and **64kB RAM**
- Interface: SPI, UART, I2C, I2S, PDM and 12bit ADC
- Support **NFC-A Type-2** for Touch-to-Pair
- Outline: **9.6 x 12.9 x 2.0** mm with **1mm** pad pitch
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- Complies with standards required by RED (2014/53/EU)
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

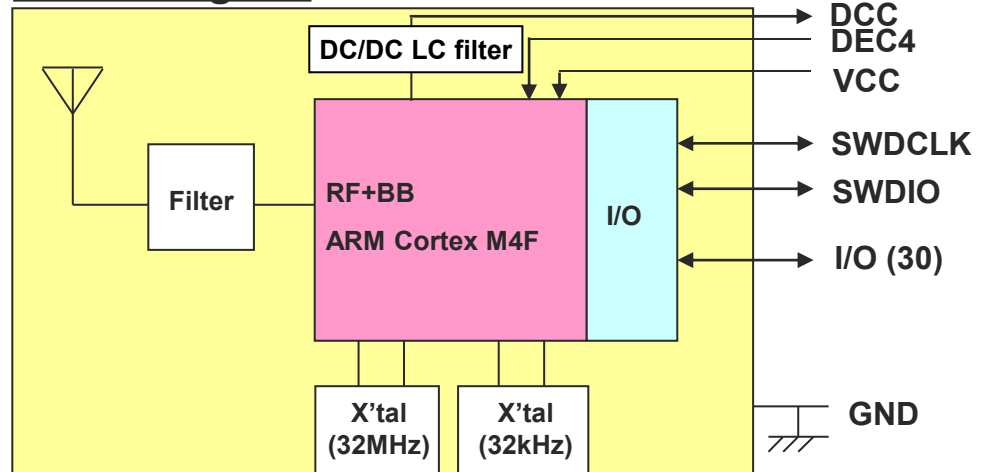
## Applications

- 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



All specifications are subject to change without notice.

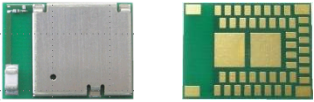
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# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSHCNZWZ (Module)

### Module samples



Tape



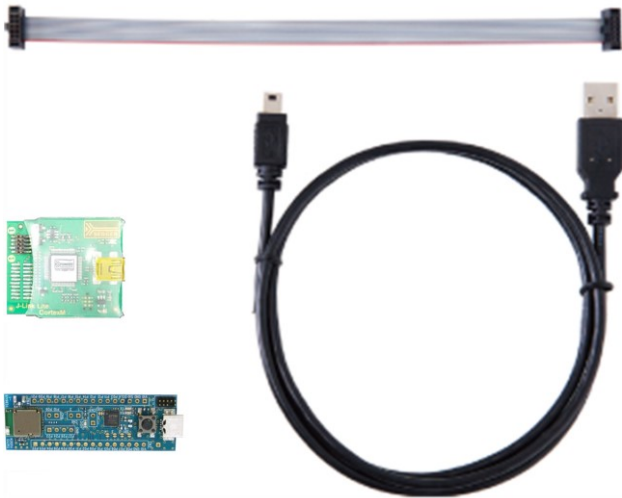
## EBSHCNZWZ (EV-B)

### Evaluation board



## EKSHCNZWZ (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached





# 2Mbps Bluetooth® 5.0 low energy Module: EYSHJNZWZ

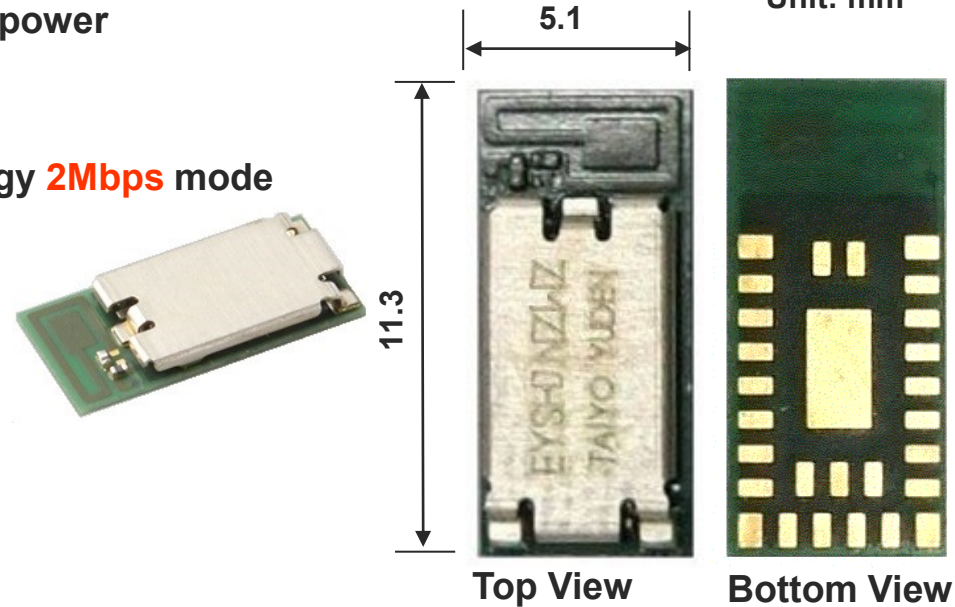
## Features

- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7– 3.6V
- Single Mode Bluetooth low energy (ANT™ Available)
- Chip: **nRF52832** (Nordic) with Bluetooth low energy **2Mbps** mode
- Integrated System Clock
- **ARM Cortex M4F** 32bit processor
- **512kB Flash and 64kB RAM**
- Interface: SPI, UART, I2C, I2S, PDM and 12bit ADC
- Support **NFC-A Type-2** for Touch-to-Pair
- Integrated high performance pattern antenna
- Outline: **5.1 x 11.3 x 1.3**mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- Complies with standards required by RED (2014/53/EU)
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

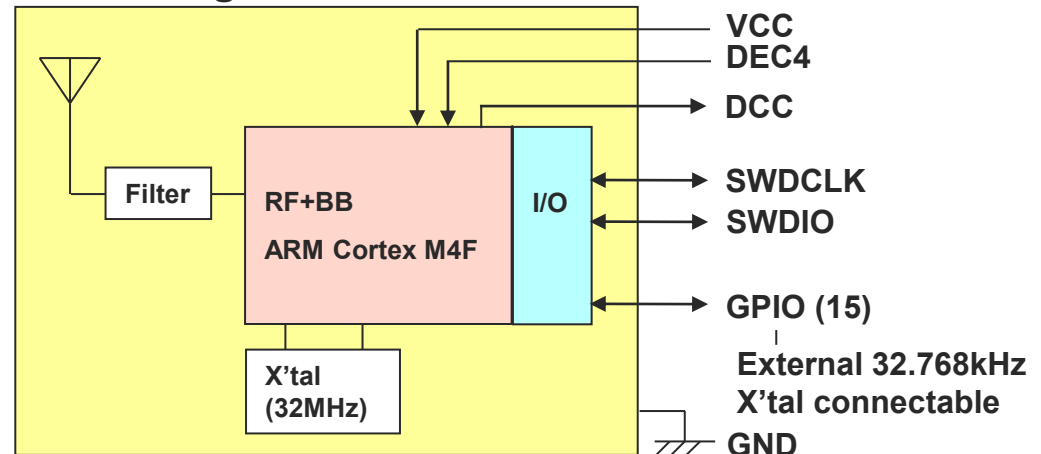
## Applications

- 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



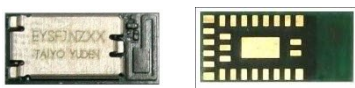
All specifications are subject to change without notice.

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# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSHJNZWZ (Module)

### Module samples

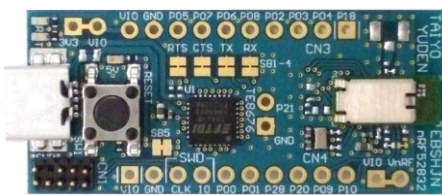


Tape



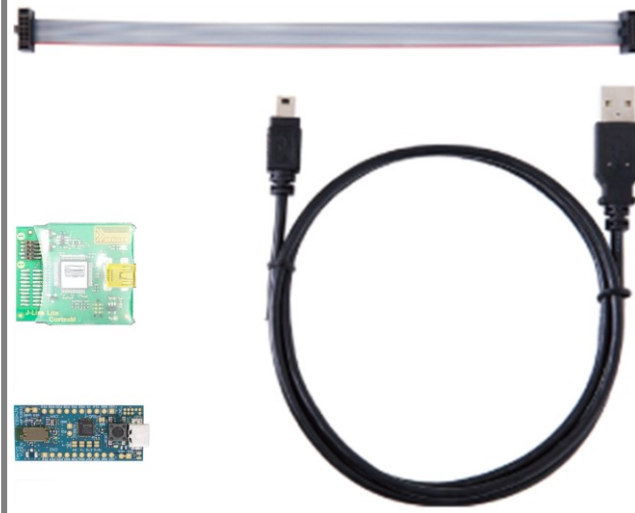
## EBSHJNZWZ (EV-B)

### Evaluation board



## EKSHJNZWZ (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached

# Bluetooth® 5.2 low energy Module: EYSNSNZWW

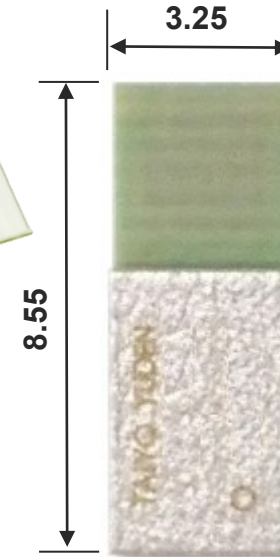
## Features

- 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 2Mbps / Long range / AoA / AoD**
- Chip: **nRF52811** (Nordic)
- Integrated System Clock
- ARM Cortex M4** 32bit processor
- 192kB Flash and 24kB RAM**
- Interface: SPI, UART, I2C, PDM and 12bit ADC
- Integrated high performance PCB antenna
- Outline: **3.25 x 8.55 x 1.00**mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

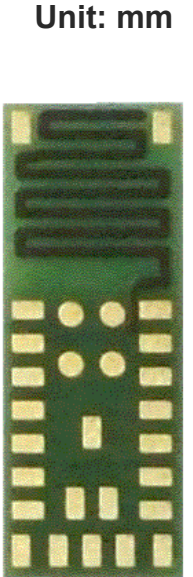
## Applications

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

## Outline



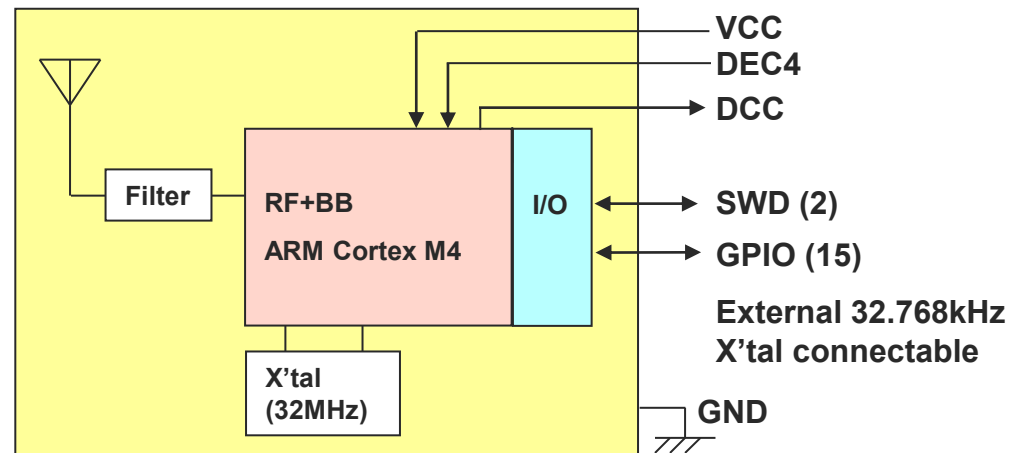
Top View



Bottom View

Unit: mm

## Block Diagram



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# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSNSNZWW (Module)

### Module samples

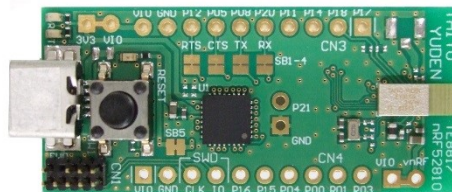


Tape



## EBSNSNZWW (EV-B)

### Evaluation board



## EKSNSNZWW (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached

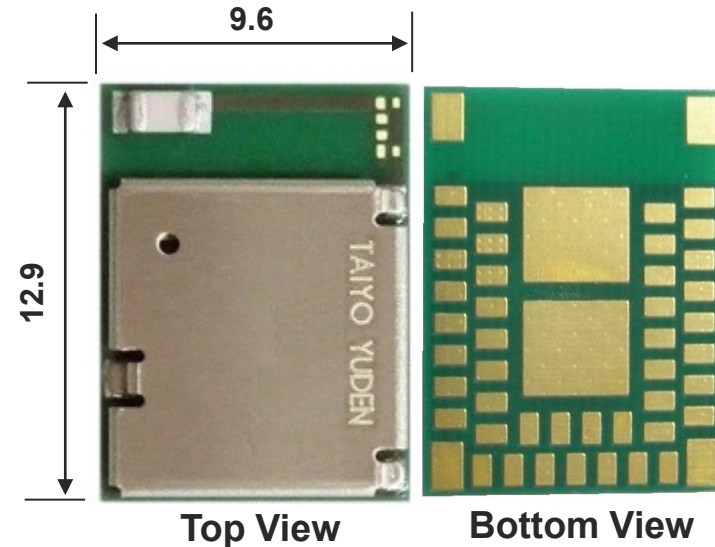


# Bluetooth® 5.2 low energy Module: EYSNCNZWW

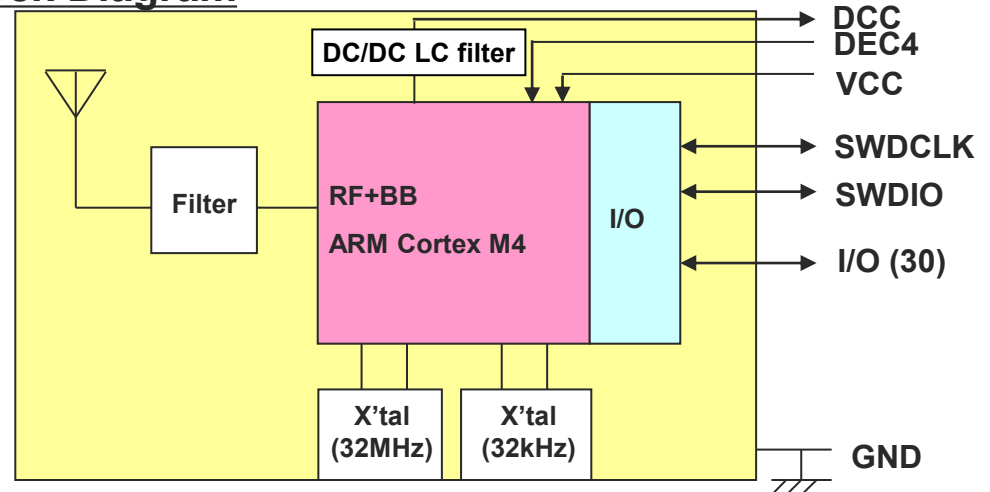
## Features

- 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 2Mbps / Long range / AoA / AoD**
- Chip: **nRF52811** (Nordic)
- Integrated System/Sleep Clock, **LC for DC/DC**
- Integrated high performance ceramic chip 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 with **1mm** pad pitch
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

## Outline



## Block Diagram



## Applications

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

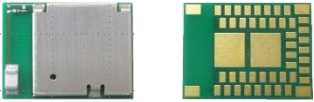
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# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSNCNZWW (Module)

### Module samples



Tape



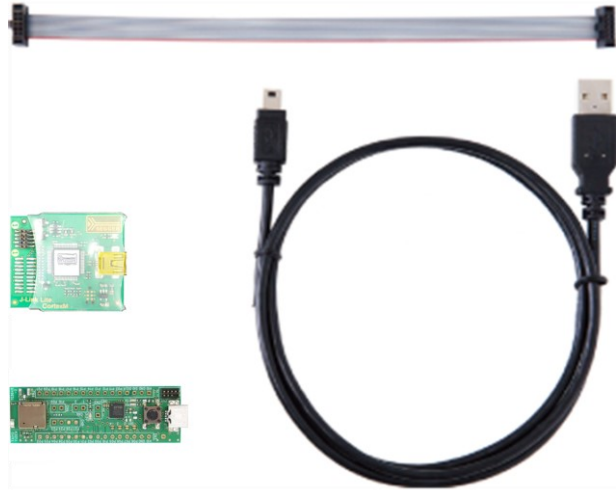
## EBSNCNZWW (EV-B)

### Evaluation board



## EKSNCNZWW (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached



# 2Mbps Bluetooth® 5.0 low energy Module: EYSLSNZWW

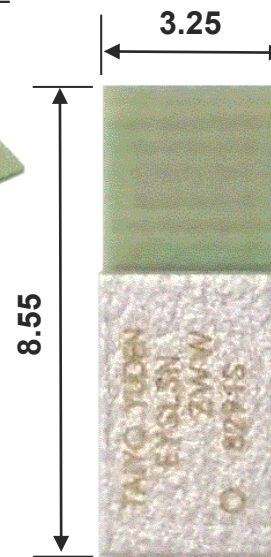
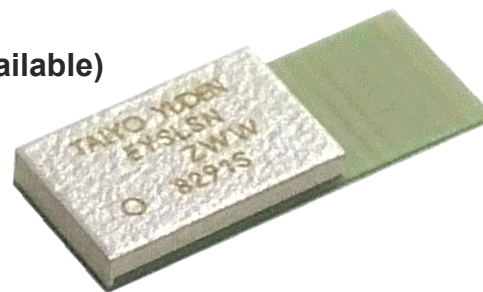
## Features

- 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
- ARM Cortex M4 32bit processor
- 192kB Flash and 24kB RAM
- Interface: SPI, UART, I2C, PDM and 12bit ADC
- Integrated high performance PCB antenna
- Outline: 3.25 x 8.55 x 1.00mm MAX
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

## Applications

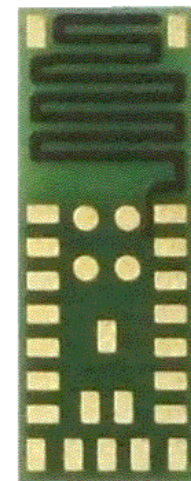
- Smart wristband
- Smart glasses
- Remote control ring
- Smart pen
- Heart rate monitor
- pressure monitor
- Blood glucose meter
- Thermometer
- Mobile accessories

## Outline



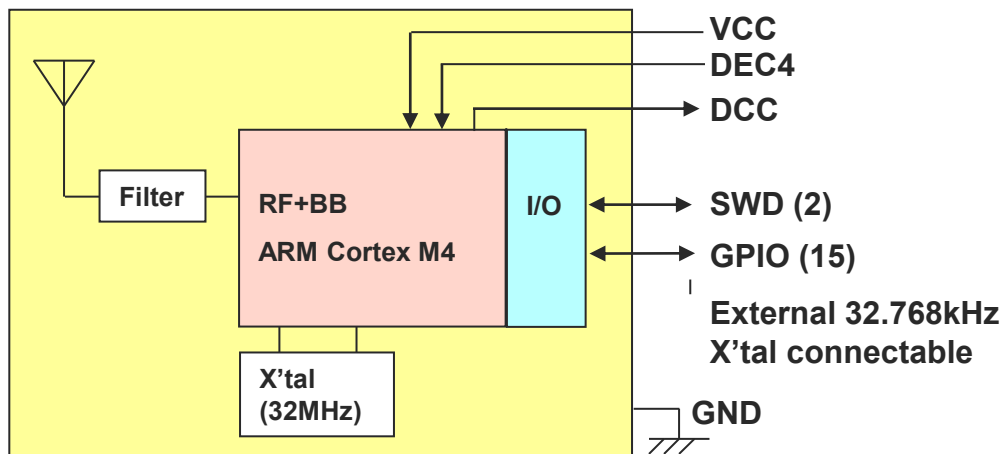
Top View

Unit: mm



Bottom View

## Block Diagram



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# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSLSNZWW (Module)

### Module samples

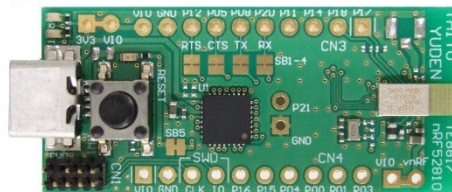


Tape



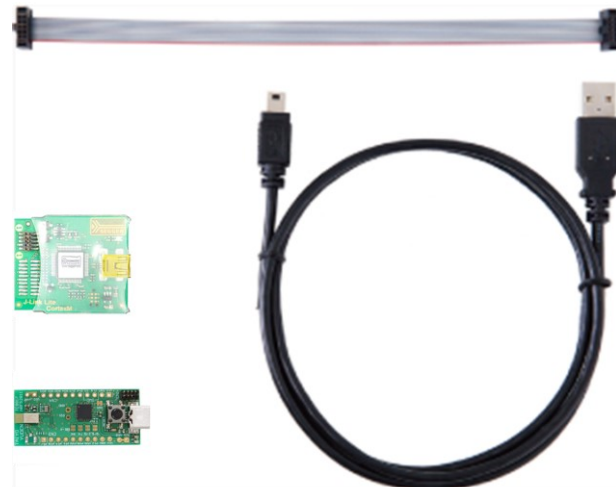
## EBSLSNZWW (EV-B)

### Evaluation board



## EKSLSNZWW (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached





# 2Mbps Bluetooth® 5.0 low energy Module: EYSLCNZWW

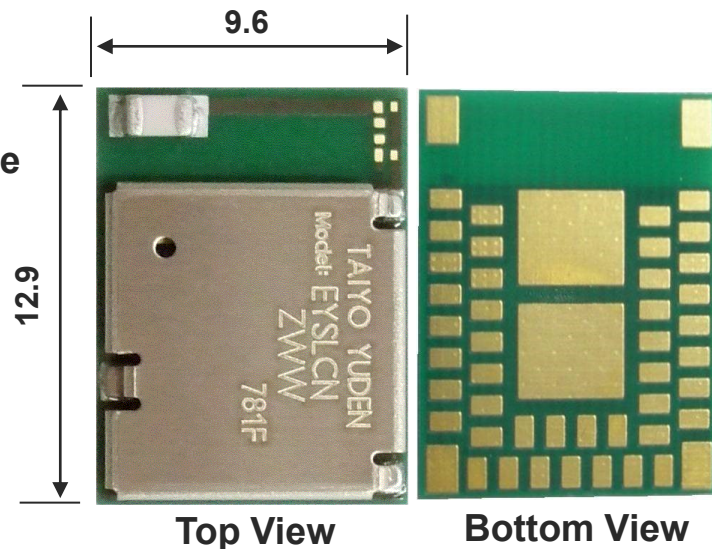
## Features

- Frequency: 2402 to 2480 MHz with +4dBm Output power
- Single power supply: 1.7 – 3.6V
- Single Mode Bluetooth low energy (ANT™ Available)
- Chip: **nRF52810** (Nordic) with Bluetooth low energy **2Mbps** mode
- Integrated System/Sleep Clock, **LC for DC/DC**
- Integrated high performance ceramic chip 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 with **1mm** pad pitch
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

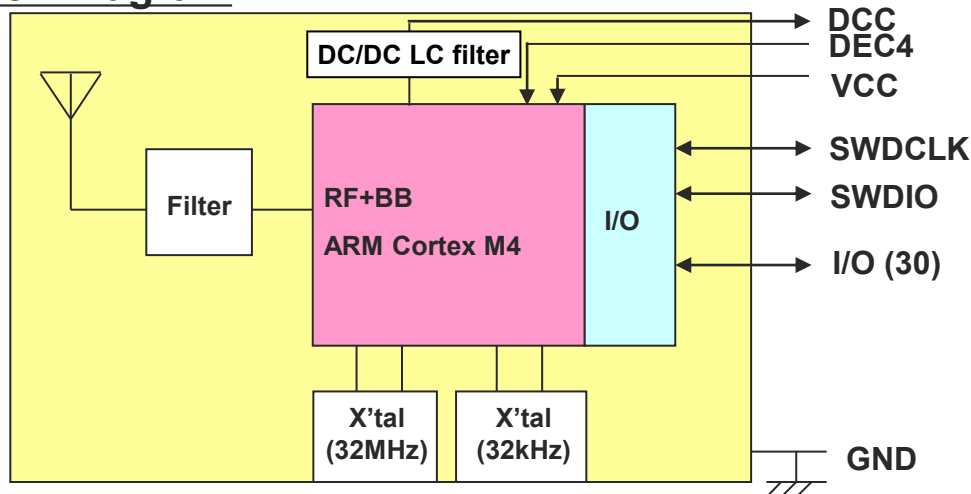
## Applications

- 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



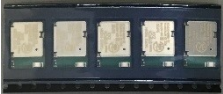
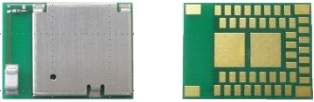
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# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSLCNZWW (Module)

### Module samples



Tape



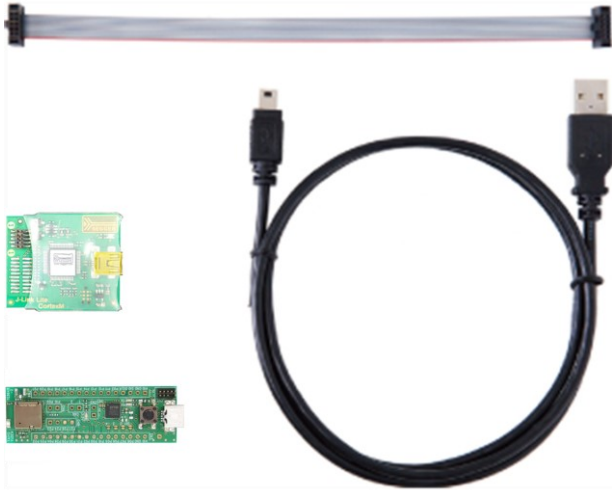
## EBSLCNZWW (EV-B)

### Evaluation board



## EKSLCNZWW (EV-K)

### Evaluation kit



SEgger  
J-Link LITE  
Attached



# Bluetooth® low energy Module: **EYSGCNZXX**

## Features

- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth low energy Slave
- Chip: nRF51822 (Nordic)
- Integrated System/Sleep Clock
- Integrated high performance ceramic chip antenna
- ARM Cortex M0** 32bit processor
- 256kB Flash** and **16kB RAM**
- Interface: SPI, UART, I2C and 8/9/10bit ADC
- Outline: **9.6 x 12.9 x 2.0** mm with **1mm** pad pitch
- Operating Temperature range: -40 to 85 deg-C**
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

## Applications

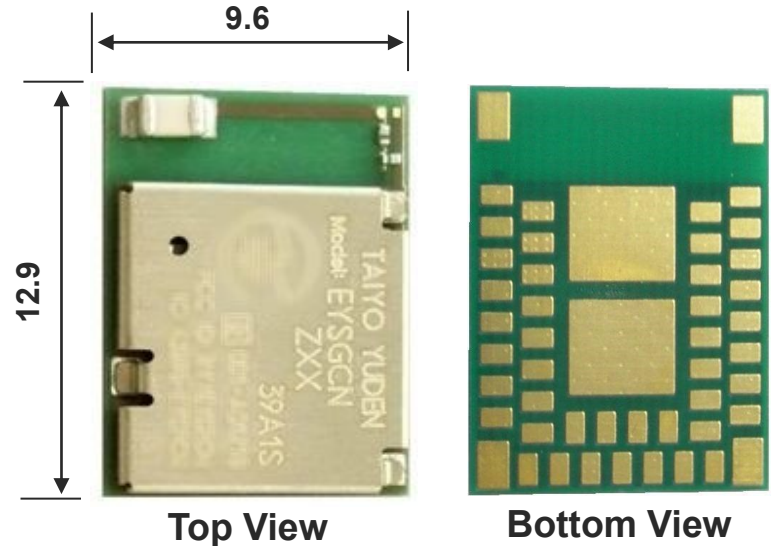
- Cycle computer
- Heart rate monitor
- Blood pressure monitor
- Blood glucose meter
- Weighing machine
- Thermometer
- Mobile accessories
- Sports and fitness sensors
- Remote controllers / Toys

All specifications are subject to change without notice.

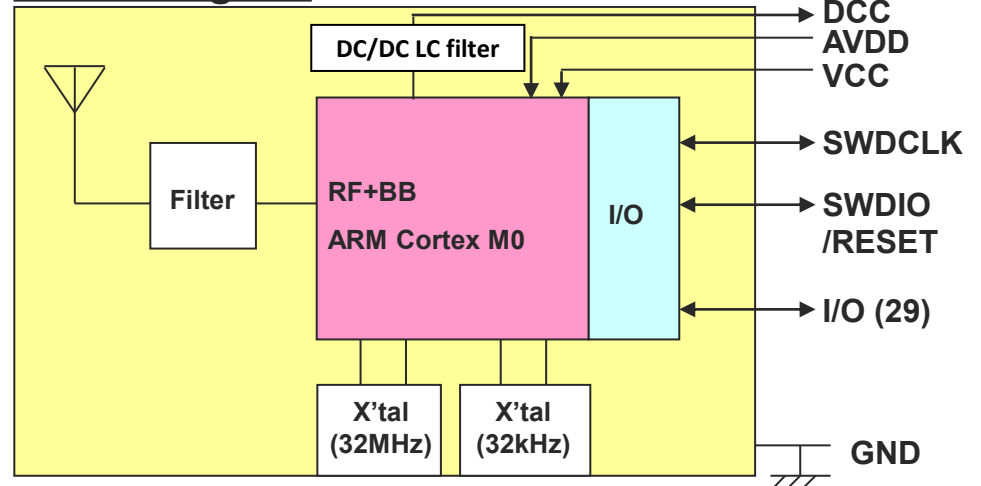
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## Outline

Unit: mm



## Block Diagram



# Bluetooth® low energy Module: **EYSGCNZWY**

## Features

- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth low energy **Slave / Master**
- Chip: nRF51822 (Nordic)
- Integrated System/Sleep Clock
- Integrated high performance ceramic chip antenna
- ARM Cortex M0** 32bit processor
- 256kB Flash** and **32kB RAM**
- Interface: SPI, UART, I2C and 8/9/10bit ADC
- Outline: **9.6 x 12.9 x 2.0** mm with **1mm** pad pitch
- Operating Temperature range: -25 to 85 deg-C**
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

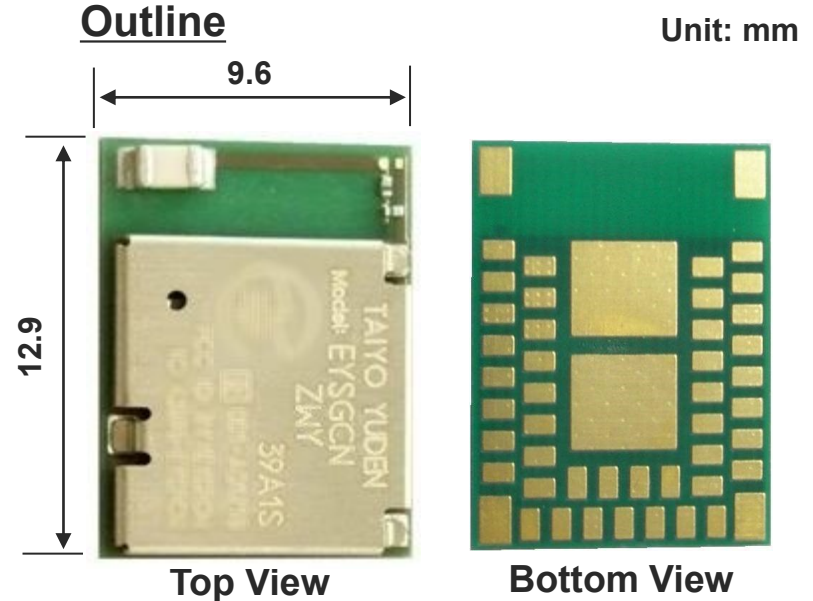
## Applications

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

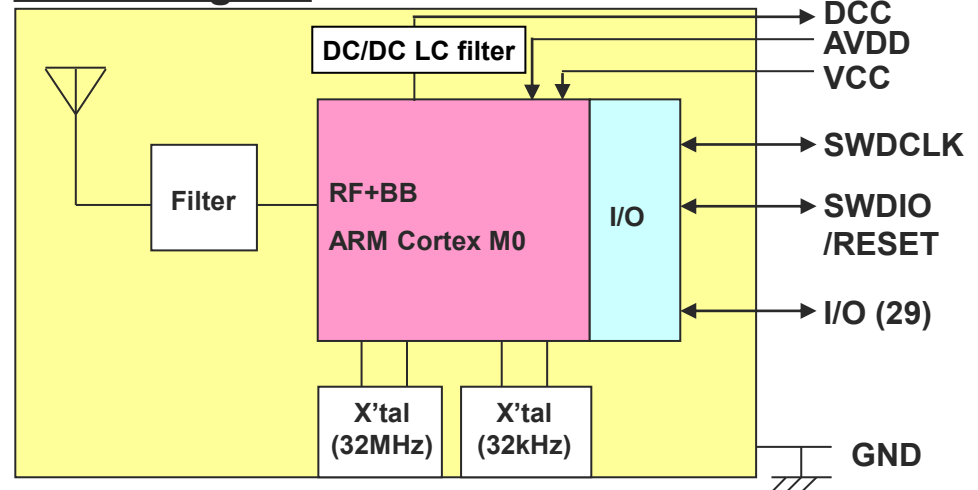
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**TAIYO YUDEN**



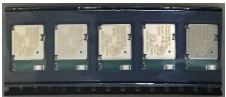
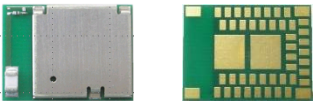
## Block Diagram



# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSGCNZXX, EYSGCNZWY (Module)

### Module samples



Tape



## EBSGCNZWY (EV-B)

### Evaluation board



## EKSGCNZWY (EV-K)

### Evaluation kit



SEGGER J-Link LITE Attached

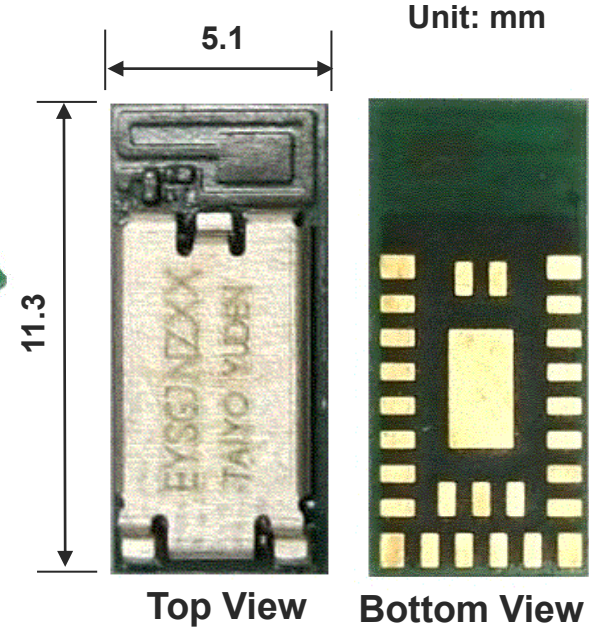


# Bluetooth® low energy Module **EYSGJNZXX**

## Features

- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth low energy Slave
- Chip: nRF51822 (Nordic)
- Integrated System Clock
- ARM Cortex M0** 32bit processor
- 256kB Flash** and **16kB RAM**
- Interface: SPI, UART, I2C and 8/9/10bit ADC
- Integrated high performance pattern antenna
- Outline: **5.1 x 11.3 x 1.3mm MAX**
- Operating Temperature range: -40 to 85 deg-C**
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

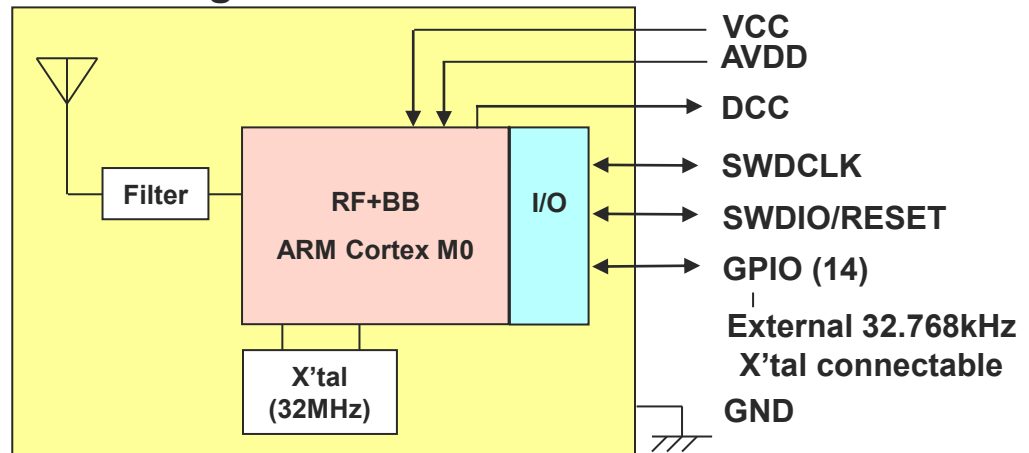
## Outline



## Applications

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

## Block Diagram



All specifications are subject to change without notice.

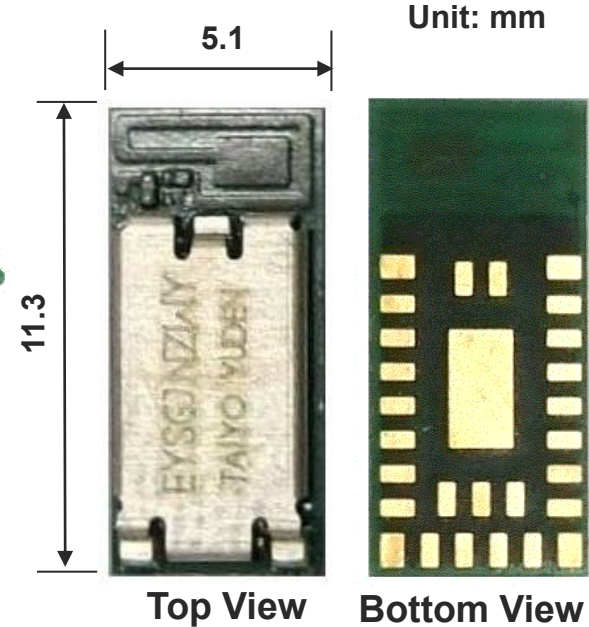
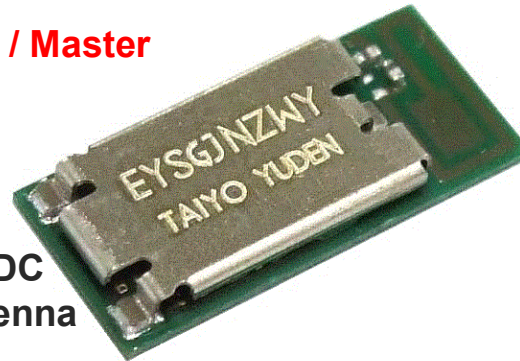
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# Bluetooth® low energy Module **EYSGJNZWY**

## Features

- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth low energy **Slave / Master**
- Chip: nRF51822 (Nordic)
- Integrated System Clock
- ARM Cortex M0** 32bit processor
- 256kB Flash** and **32kB RAM**
- Interface: SPI, UART, I2C and 8/9/10bit ADC
- Integrated high performance pattern antenna
- Outline: **5.1 x 11.3 x 1.3mm MAX**
- Operating Temperature range: -25 to 85 deg-C**
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

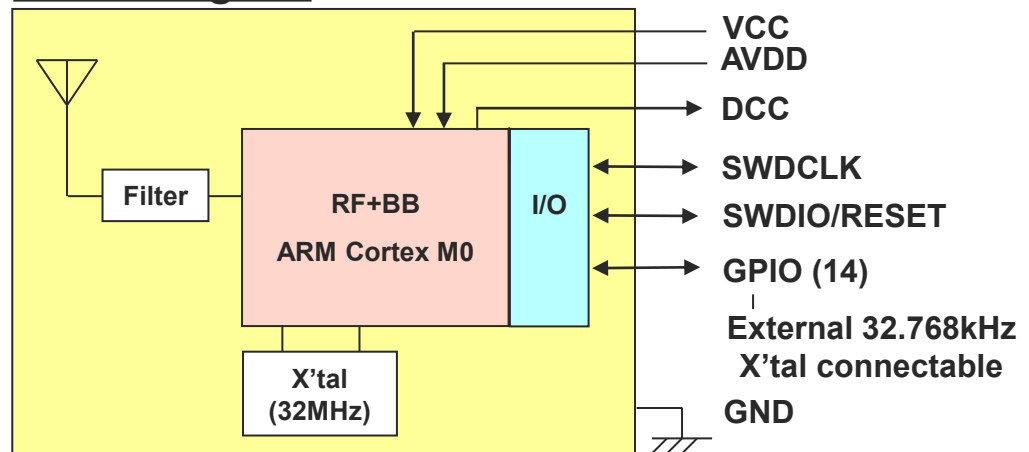
## Outline



## Applications

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

## Block Diagram



All specifications are subject to change without notice.

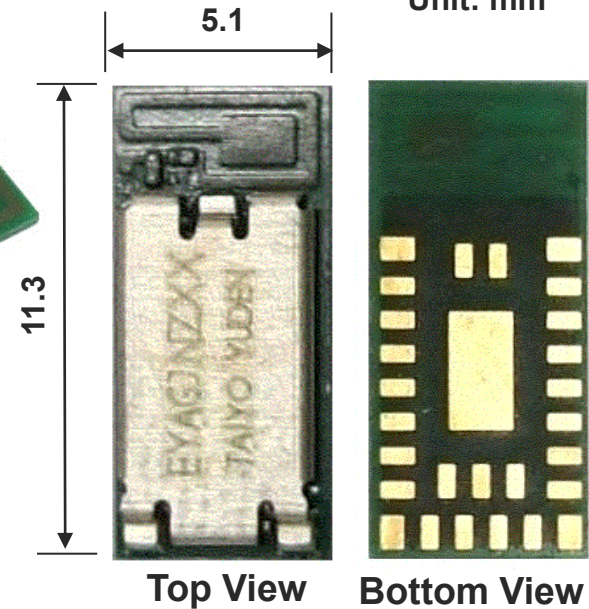
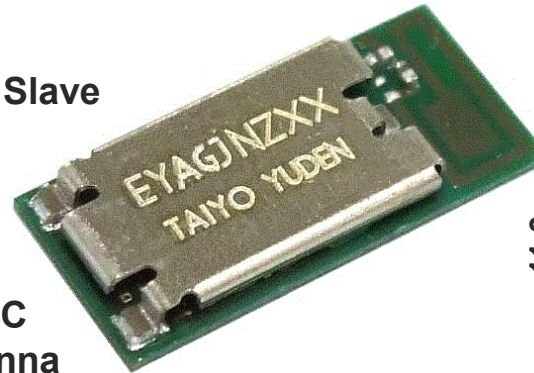
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# ANT + Bluetooth® low energy Module **EYAGJNZXX**

## Features

- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- ANT** + Single Mode Bluetooth low energy Slave
- Chip: **nRF51422** (Nordic)
- Integrated System Clock
- ARM Cortex M0** 32bit processor
- 256kB Flash and 32kB RAM**
- Interface: SPI, UART, I2C and 8/9/10bit ADC
- Integrated high performance pattern antenna
- Outline: **5.1 x 11.3 x 1.3mm MAX**
- Operating Temperature range: -25 to 85 deg-C**
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

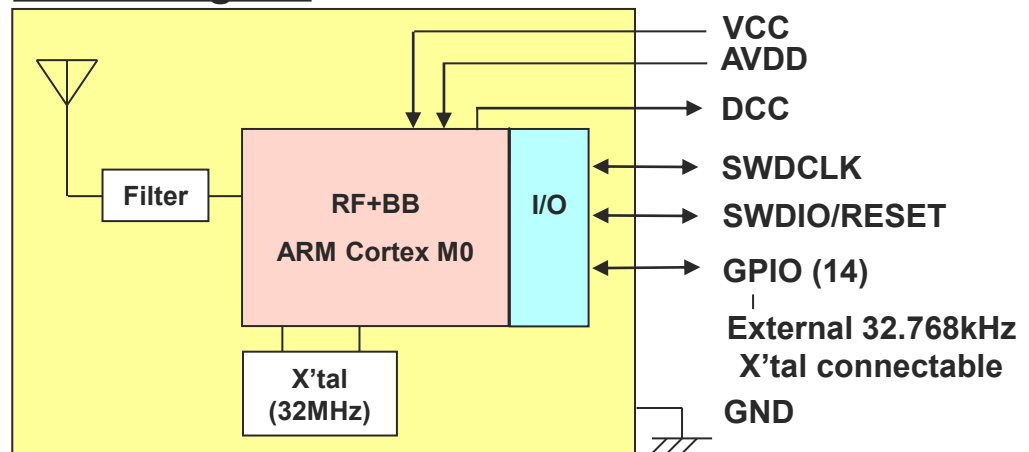
## Outline



## Applications

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

## Block Diagram



All specifications are subject to change without notice.

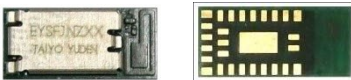
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# Bluetooth® low energy Module Sample, Evaluation Board / Kit

**EYSGJNZXX, EYSGJNZWY, EYAGJNZXX** (Module)

## Module samples

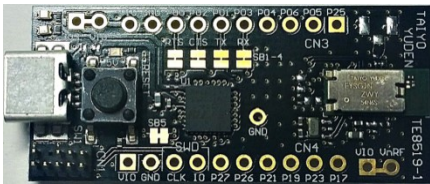


Tape



**EBSGJNZWY, EBAGJNZXX** (EV-B)

## Evaluation board



**EKSGJNZWY, EKAGJNZXX** (EV-K)

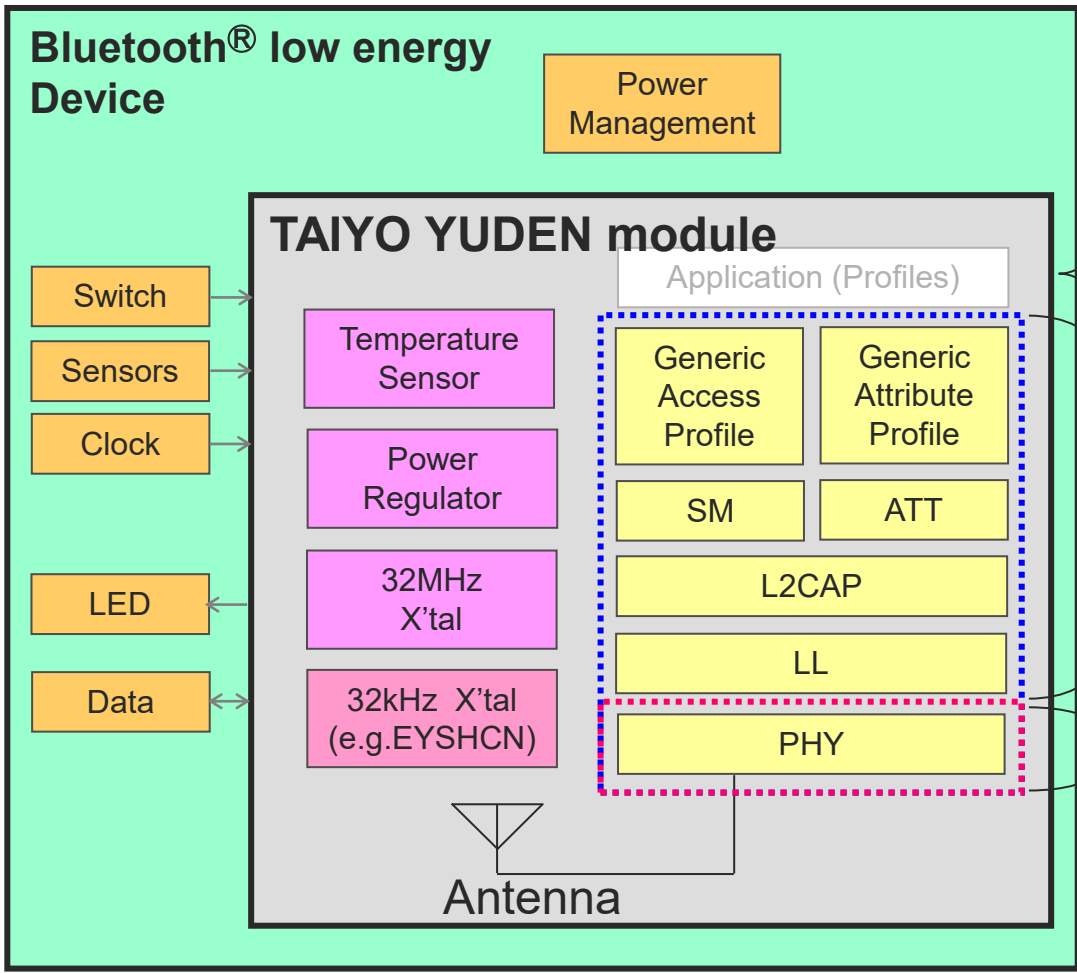
## Evaluation kit



**SEGGER J-Link LITE Attached**



# Application Layer image for Basic Module



- 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**

**TAIYO YUDEN module**

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

## TAIYO YUDEN Basic Module

# Bluetooth® 5.0 low energy Module: EYSKBNUWB-WX

## Features

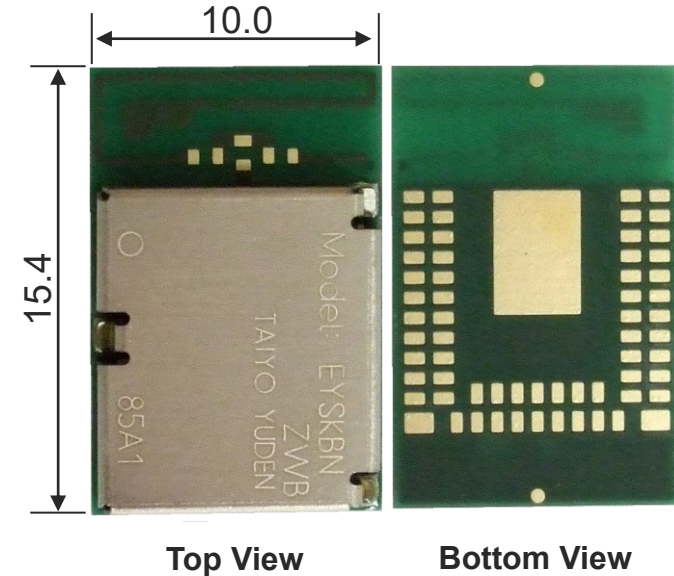
- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode **Bluetooth 5.0 (Master / Slave)**
- Bluetooth 5 data rate support: 2M / 1M / 125kbps**
- Chip: **nRF52840** (Nordic)
- Integrated System/Sleep Clock, 2 x LC for DC/DC
- Integrated high performance PCB antenna
- ARM® Cortex M4F 32bit processor and 1MB Flash & 256kB RAM
- Application Embedded by TAIYO YUDEN**
- Interface: UART, SPI, USB and ADC
- Outline: **10.0 x 15.4 x 2.0** mm
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

## Applications

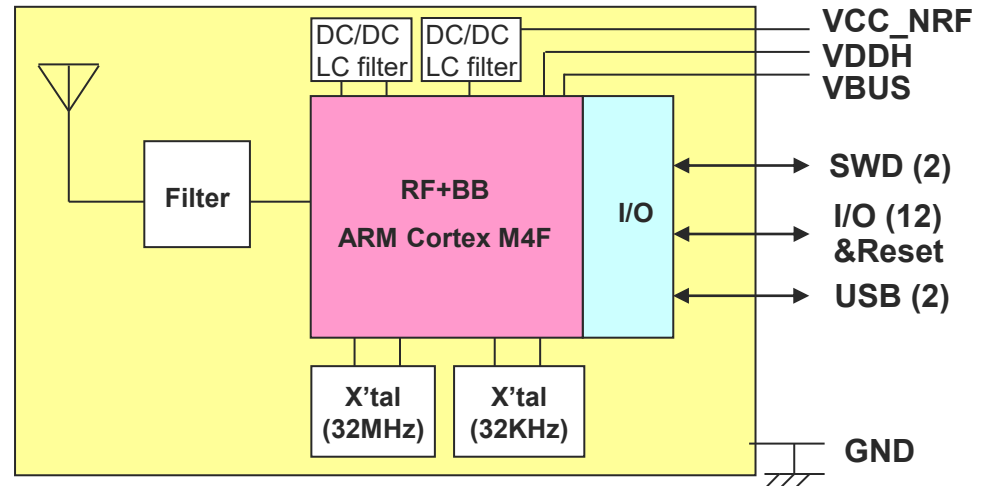
- Advanced wearables
  - Connected watches
  - Advanced personal fitness devices
  - Wearables with wireless payment
  - Connected health
  - Virtual/Augmented reality applications
- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
- Interactive entertainment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

## Outline

Unit: mm



## Block Diagram



All specifications are subject to change without notice.

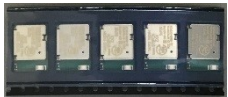
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**TAIYO YUDEN**

# Bluetooth® low energy Module Sample, Evaluation Board / Kit

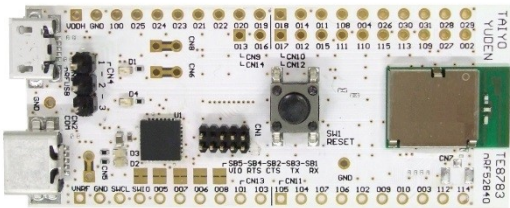
## EYSKBNUWB-WX (Module)

### Module samples



## EBSKBNUWB-WX (EV-B)

### Evaluation board

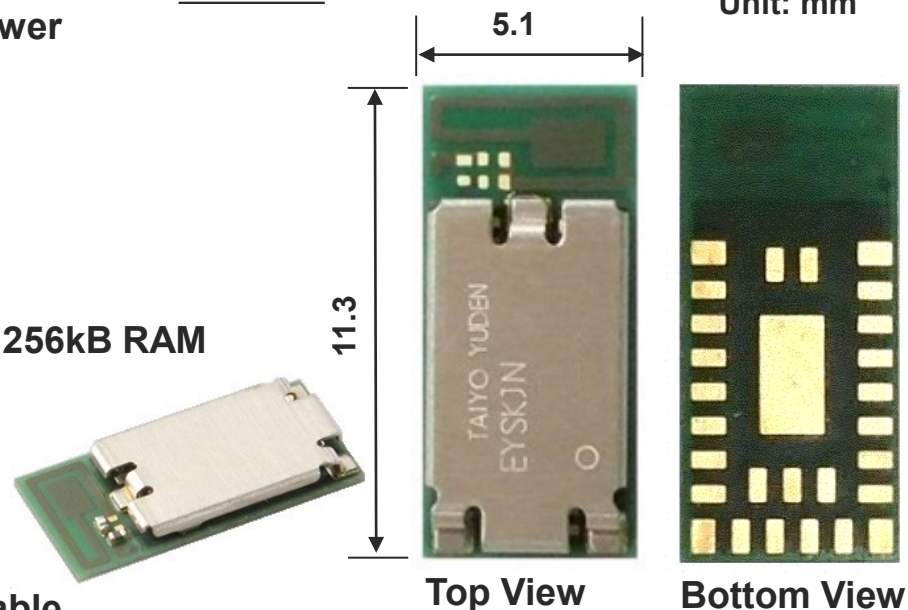


# Bluetooth® 5.0 low energy Module: EYSKJNAWB-WX

## Features

- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 3.6V
- Single Mode **Bluetooth 5.0 (Master / Slave)**
- Bluetooth 5 data rate support: 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 by TAIYO YUDEN**
- Interface: UART
- Outline: **5.1 x 11.3 x 1.3** mm
- Operating Temperature range: -40 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.1.1 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

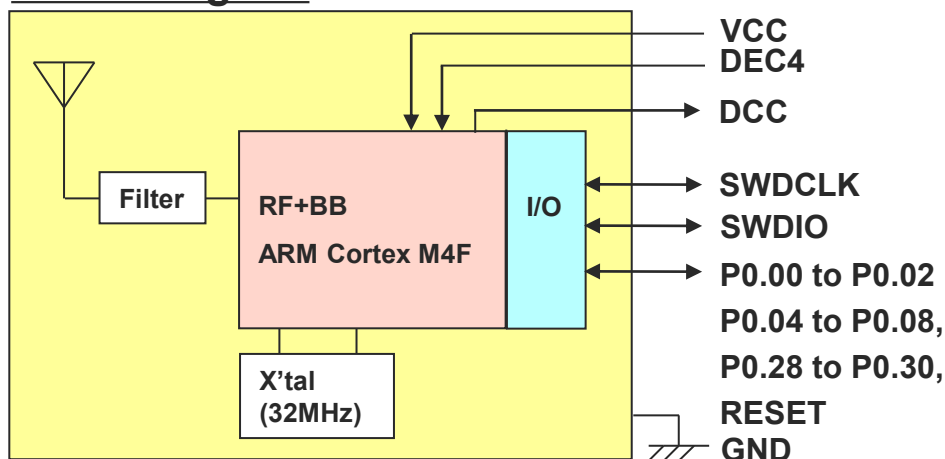
## Outline



## 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

## Block Diagram



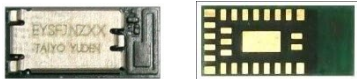
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# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSKJNAWB-WX (Module)

### Module samples

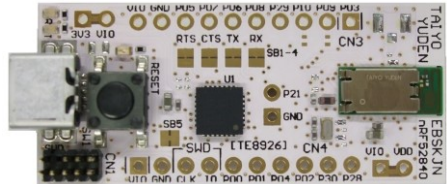


Tape



## EBSKJNAWB-WX (EV-B)

### Evaluation board



# Bluetooth® low energy Module: **EYSGCNAWY-VX**

## Features

- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth **4.2** low energy **Slave / Master**
- Chip: nRF51822 (Nordic)
- Integrated System/Sleep Clock
- Integrated high performance ceramic chip antenna
- ARM Cortex M0** 32bit processor
- Application Embedded by TAIYO YUDEN**
- (TY's App : Generic Data transfer, Battery Service)**
- Interface: UART
- Outline: **9.6 x 12.9 x 2.0** mm with **1mm** pad pitch
- Operating Temperature range: -25 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- CE Conducted Test Report Available
- RoHS compliant / Complete Lead Free

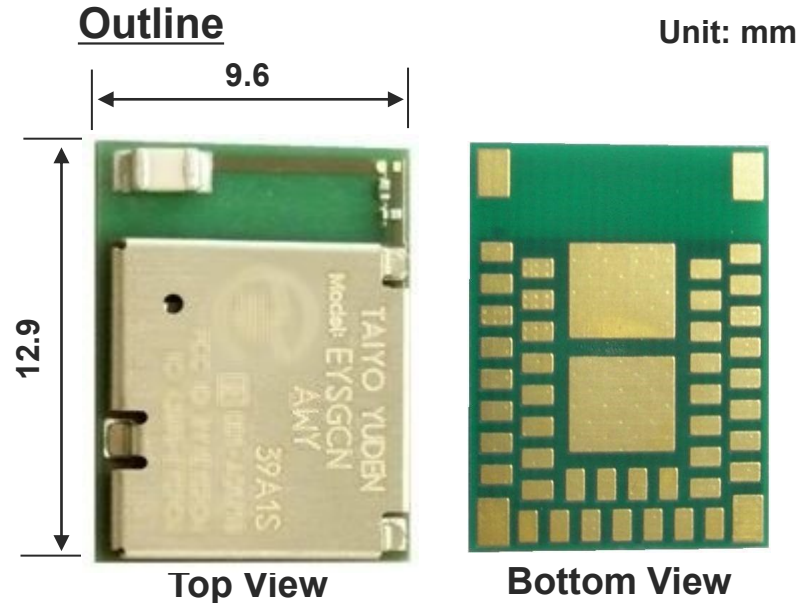
## Applications

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

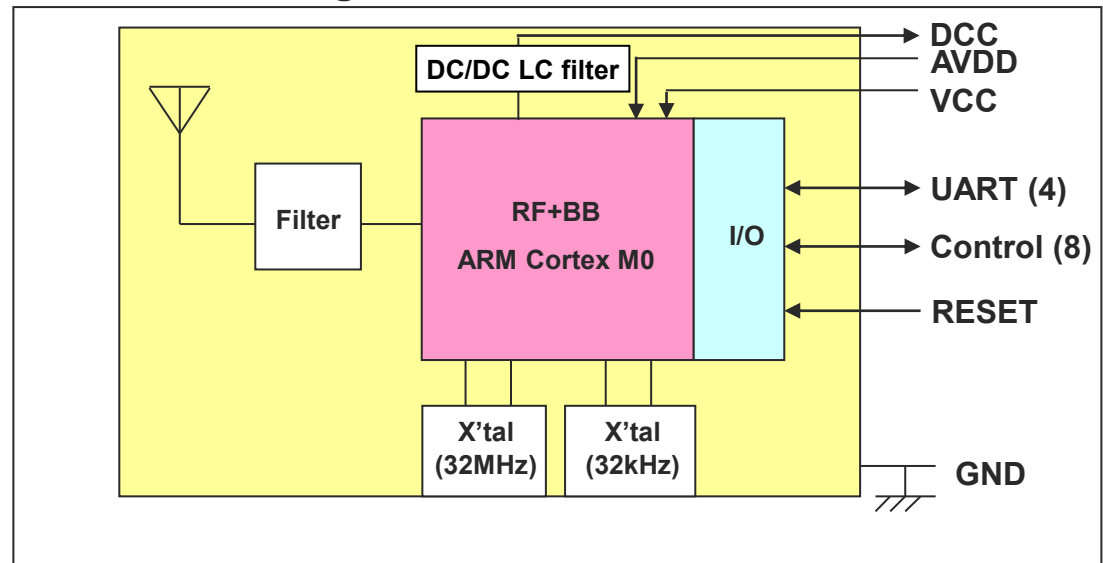
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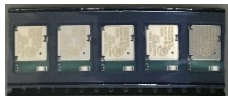
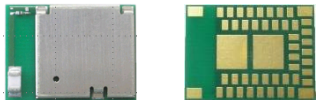
## Block Diagram



# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSGCNAWY-VX (Module)

### Module samples



Tape



## EBSGCNAWY-VX (EV-B)

### Evaluation board





# Bluetooth® low energy Module **EYSGJNAWY-VX**

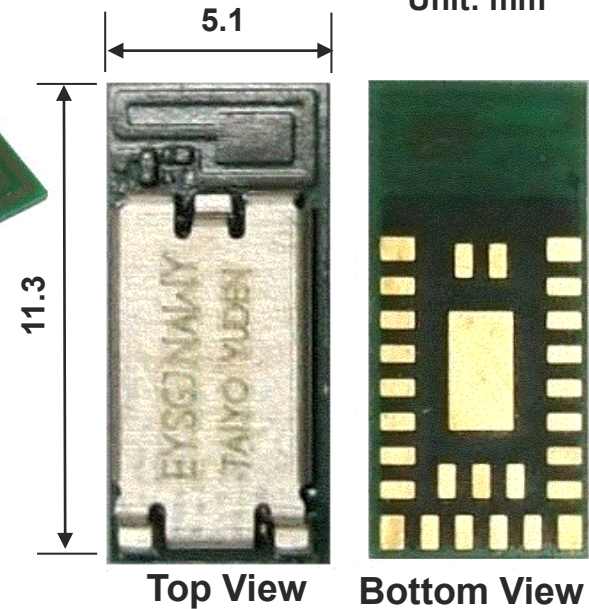
## Features

- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth **4.2** low energy **Slave / Master**
- Chip: nRF51822 Rev3 (Nordic)
- Integrated System Clock
- ARM Cortex M0** 32bit processor
- Application Embedded by TAIYO YUDEN**
- (TY's App : Generic Data transfer, Battery Service)**
- Interface: UART
- Integrated high performance pattern antenna
- Outline: **5.1 x 11.3 x 1.3**mm MAX
- Operating Temperature range: -25 to 85 deg-C
- Bluetooth and Japan, FCC, IC qualified
- CE Conducted Test Report Available
- RoHS compliant / Complete Lead Free

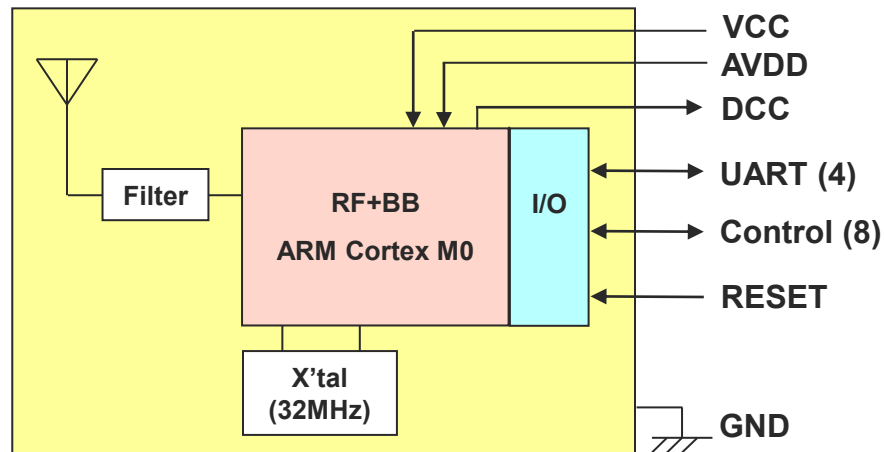
## Applications

- 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

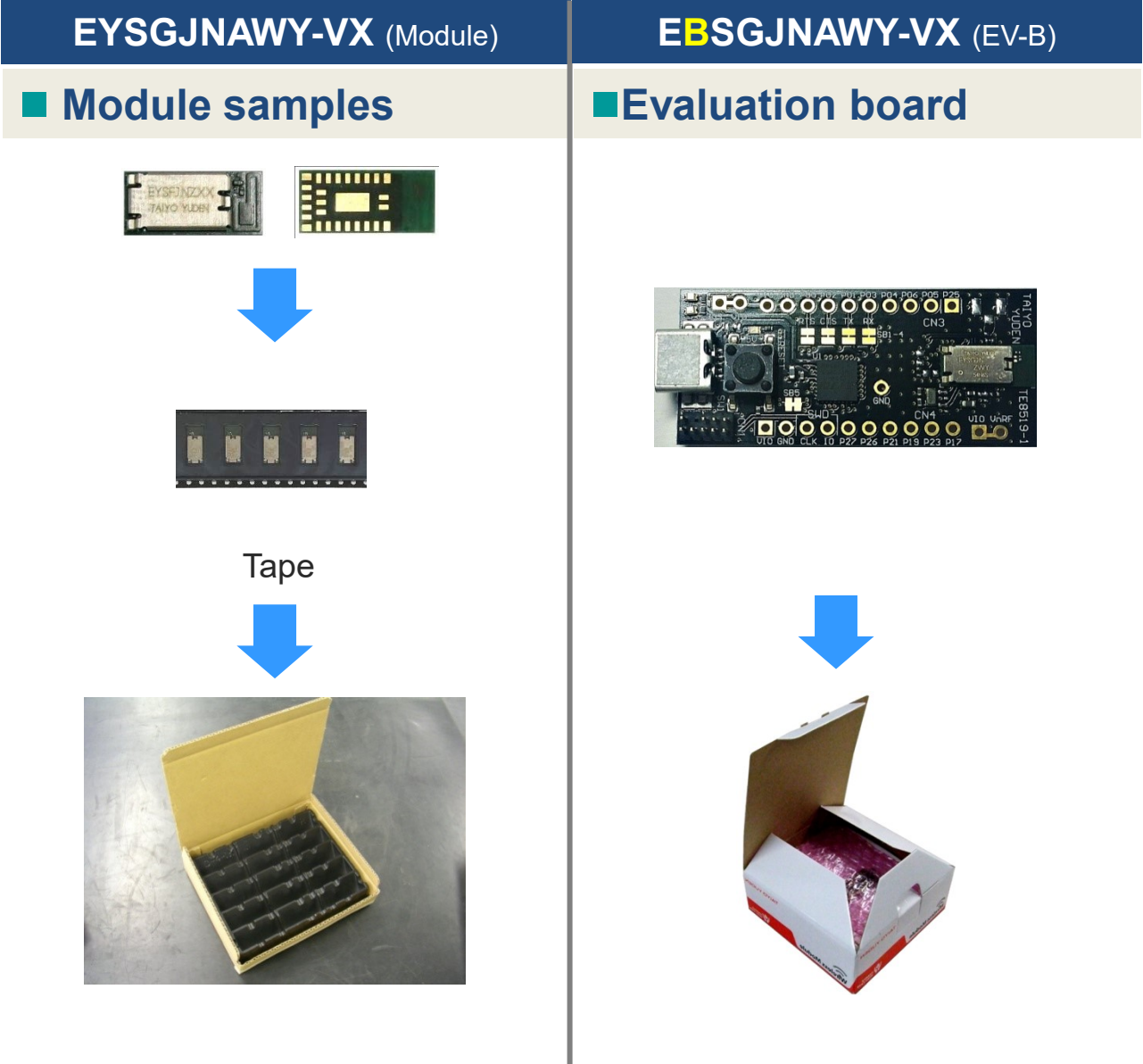


All specifications are subject to change without notice.

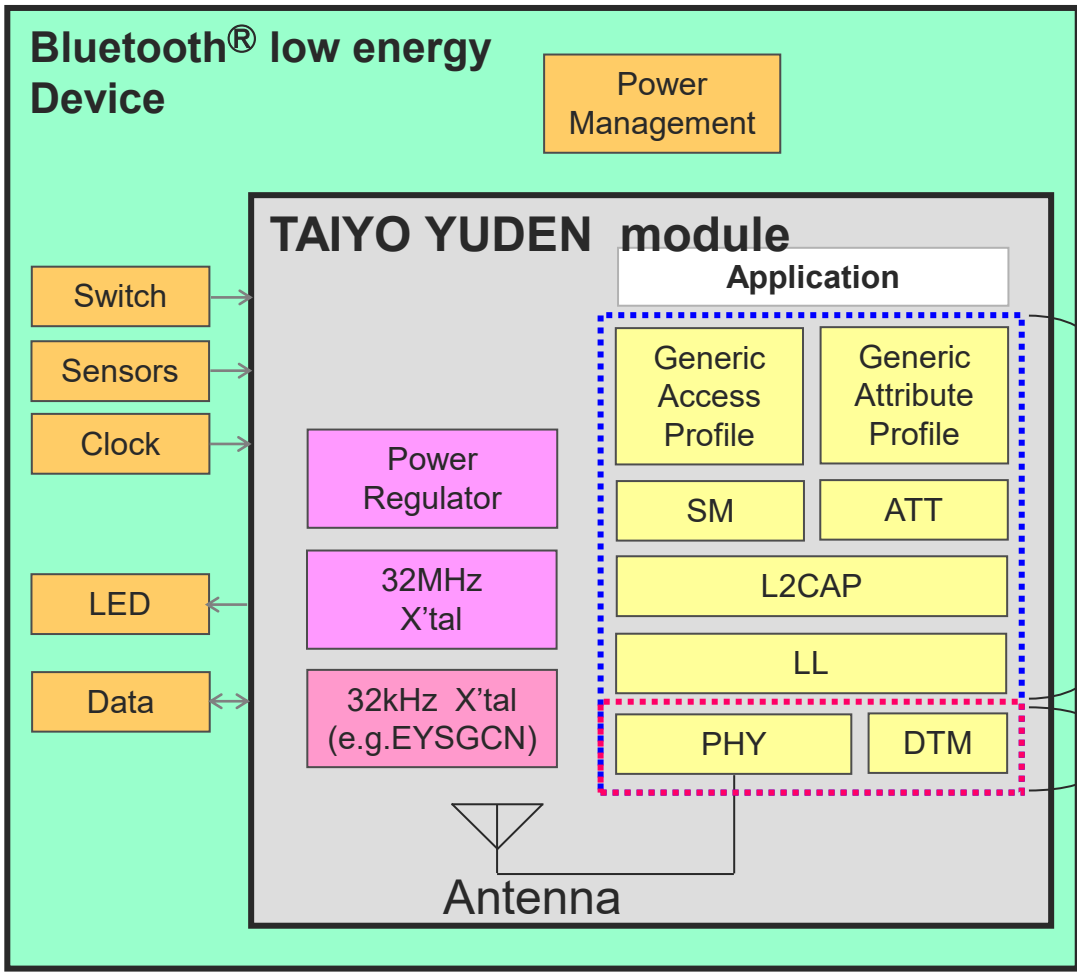
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# Bluetooth® low energy Module Sample, Evaluation Board / Kit



# Application Layer image for Application Embedded Module



**Connection option**

**-VX , -WX** module for  
**Module – Module**  
**Module – Smart phone**

Softdevice

TAIYO YUDEN module

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

## TAIYO YUDEN 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
nRF52 Basic (Software Support : Nordic)	EYSKDNZWB	9.6x12.9x1.3	V5.0	✓	USB※2 UART SPI I2C I2S※3 PDM	256	Japan FCC IC (CE)※1	-40~+85 deg-C
	EYSKBNZWB	10.0x15.4x2.0	V5.0			256		
	EYSHSNZWZ	3.25x8.55x0.85	V5.0			64		
	EYSNSNZWW	3.25x8.55x1.00	V5.2			24		
	EYSLSNZWW		V5.0			24		
	EYSHCNZWZ	9.6x12.9x2.0	V5.0			64		
	EYSNCNZWW		V5.2			24		
	EYSLCNZWW		V5.0			24		
	EYSKJNZWB	5.1x11.3x1.3	V5.0			256		
	EYSHJNZWZ		V5.0			64		
Application Embedded – Module (Software Support : TAIYO YUDEN)	EYSKBNUWB- WX	10.0x15.4x2.0	V5.0		UART, SPI,USB	N/A		
	EYSKJNAWB- WX	5.1x11.3x1.3			UART			
	EYSGCNAWY- VX	9.6x12.9x2.0	V4.2		UART			
	EYSGJNAWY- VX	5.1x11.3x1.3						

※1 ETSI EN 300 328 conducted test report available ※2 Supported by EYSKBNZWB only

※3 Supported by EYSKBNZWB and EYSHxNZWZ

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