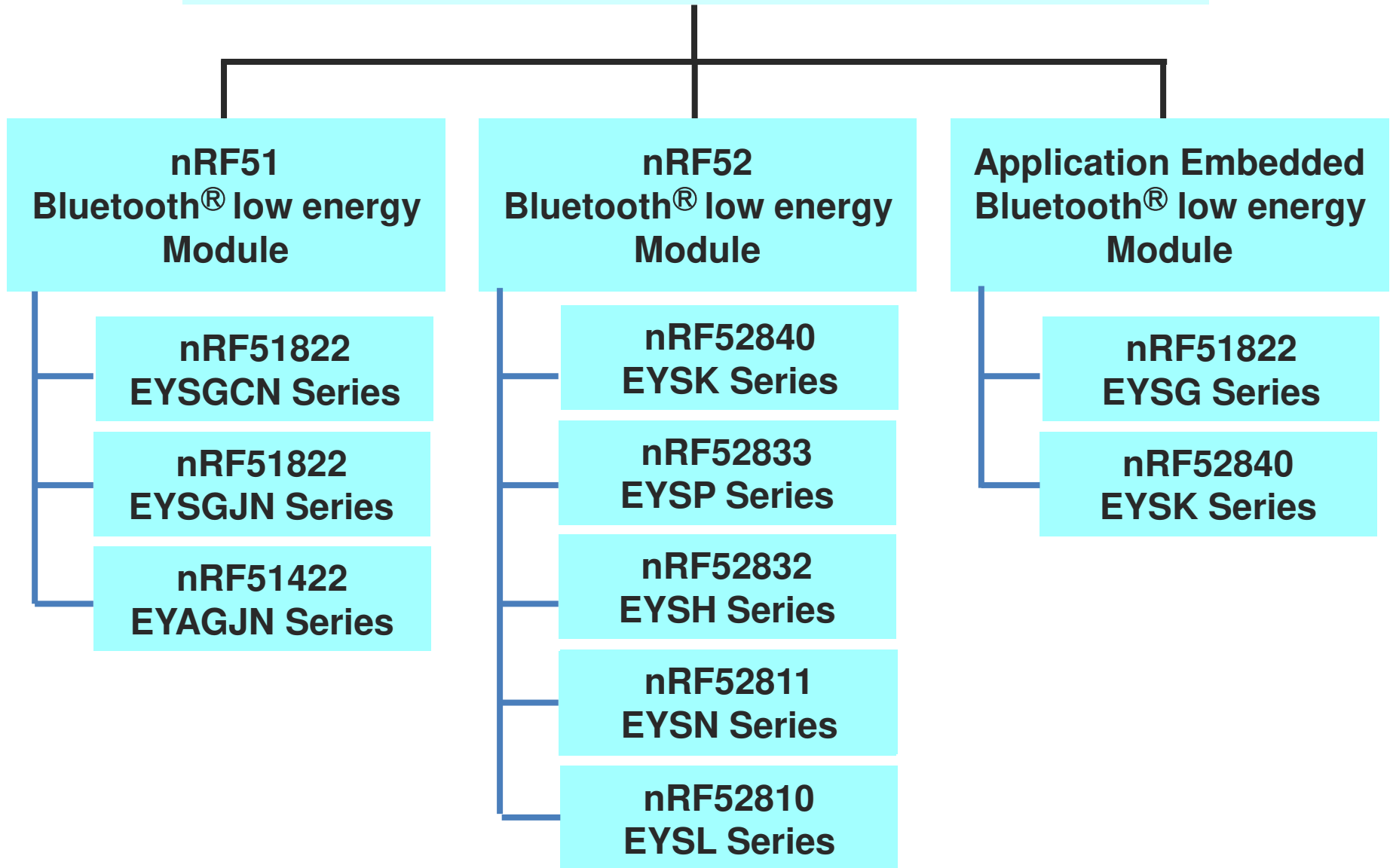


# Wireless Module *Bluetooth<sup>®</sup> low energy* Module Overview

Aug. 02, 2020 Version 3.1

# TAIYO YUDEN Bluetooth® low energy Module Line-Up

## TAIYO YUDEN Bluetooth® low energy Module



# TAIYO YUDEN Bluetooth® low energy Module Line-Up

## nRF52 Bluetooth® low energy Module

### nRF52840 EYSK Series

### nRF52833 EYSP Series

### nRF52832 EYSH Series

**EYSKBN**  
**ZWB**

RAM256kB  
SoftDevice  
S140

Full-  
GPIO

**EYSKDN**  
**ZWB**

RAM256kB  
SoftDevice  
S140

High  
Performance  
ANT

**EYSKJN**  
**ZWB**

RAM256kB  
SoftDevice  
S140

Small

**EYSPBN**  
**ZUA**

RAM128kB  
SoftDevice  
S140

Full-  
GPIO

**EYSHCN**  
**ZWZ**

RAM 64kB  
SoftDevice  
S132

Full-  
GPIO

**EYSHJN**  
**ZWZ**

RAM 64kB  
SoftDevice  
S132

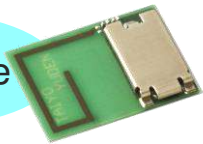
Small

**EYSHSN**  
**ZWZ**

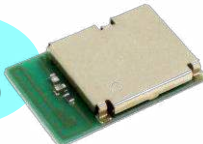
RAM 64kB  
SoftDevice  
S132

Ultra-  
small\*1

High  
Performance  
ANT



Full-  
GPIO



Full-  
GPIO



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. LC for DC/DC  
5.1 x 11.3 x 1.3mm

Embedded antenna  
Ext. 32kHz X'tal  
Ext. LC for DC/DC

\*1: 3.25 x 8.55 x 0.85mm  
\*2: 3.25 x 8.55 x 1.00mm

# TAIYO YUDEN Bluetooth® low energy Module Line-Up

## nRF52 Bluetooth® low energy Module

### nRF52811 EYSN Series

#### EYSNCN ZWW

RAM 24kB  
SoftDevice  
S113

Full-  
GPIO

Full-  
GPIO



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

#### EYSNSN ZWW

RAM 24kB  
SoftDevice  
S113

Ultra-  
small\*2

Small



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

### nRF52810 EYSL Series

#### EYSLCN ZWW

RAM 24kB  
SoftDevice  
S113

Full-  
GPIO

Ultra-  
small



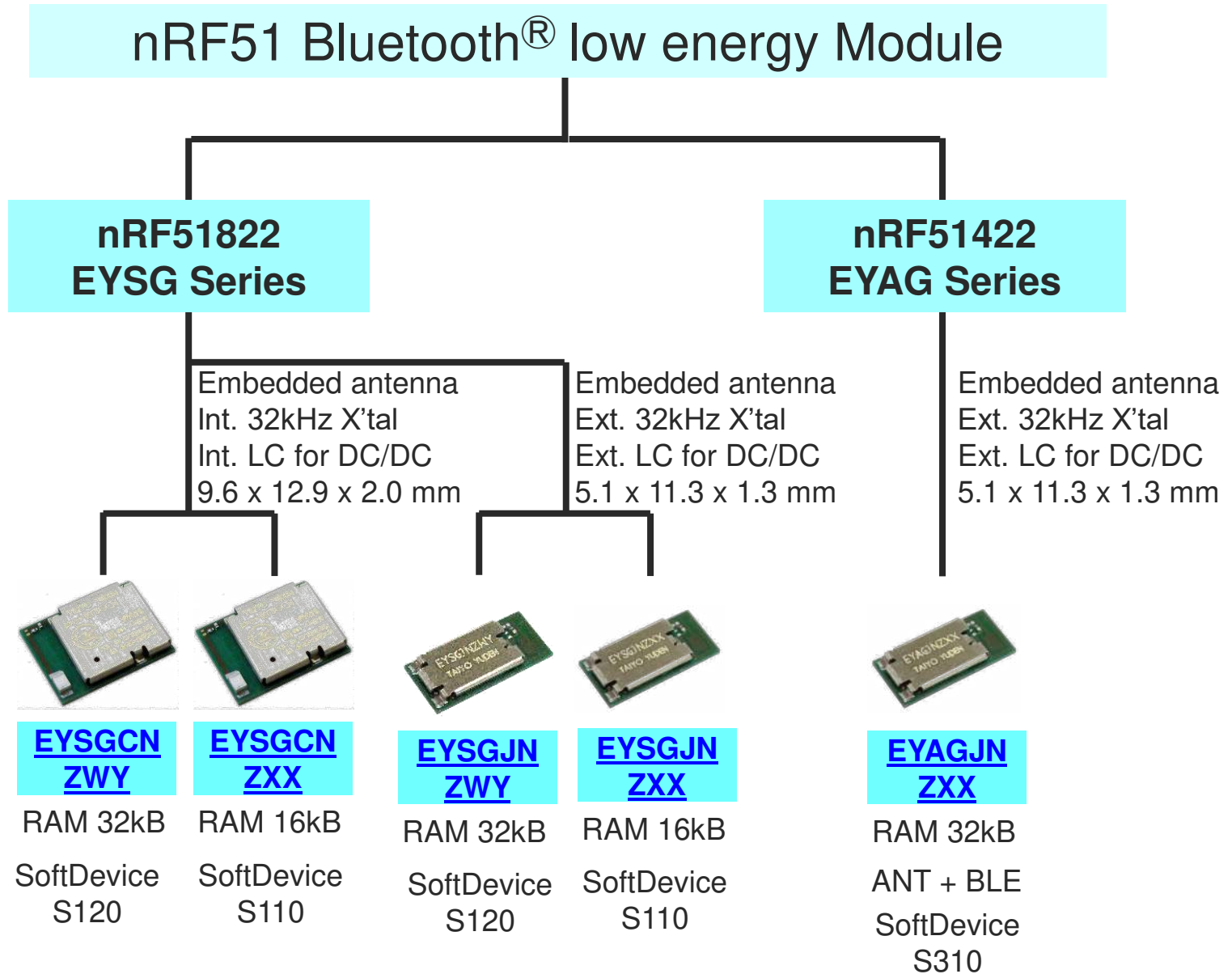
Embedded antenna  
Ext. 32kHz X'tal  
Ext. LC for DC/DC  
\*1: 3.25 x 8.55 x 0.85mm  
\*2: 3.25 x 8.55 x 1.00mm

#### EYSLSN ZWW

RAM 24kB  
SoftDevice  
S113

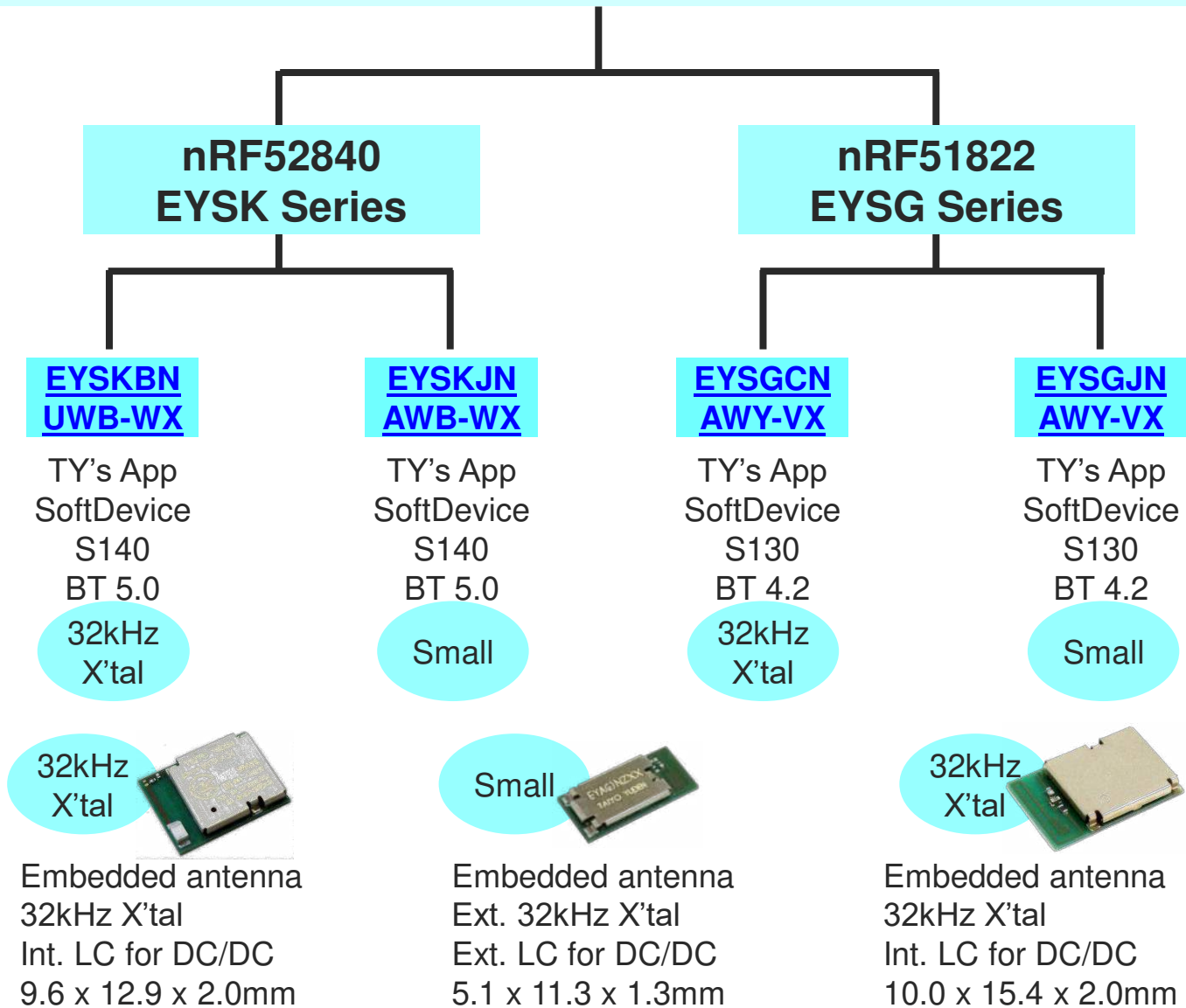
Ultra-  
small\*2

# TAIYO YUDEN Bluetooth® low energy Module Line-Up



# TAIYO YUDEN Bluetooth® low energy Module Line-Up

## Application Embedded Bluetooth® low energy Module



# Latest Documents for Bluetooth® low energy Module

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>
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>
EYSPBNZUA	<a href="https://www.yuden.co.jp/jp/product/category/module/lineup/eyspbnzua/">https://www.yuden.co.jp/jp/product/category/module/lineup/eyspbnzua/</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>
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>
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>
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>
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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>
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>
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>
EYSGJNZXX	<a href="http://www.yuden.co.jp/or/product/category/module/EYSGJNZXX.html">http://www.yuden.co.jp/or/product/category/module/EYSGJNZXX.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>

# Bluetooth® 5.0 low energy Module: **EYSKBNZWB**

## Features

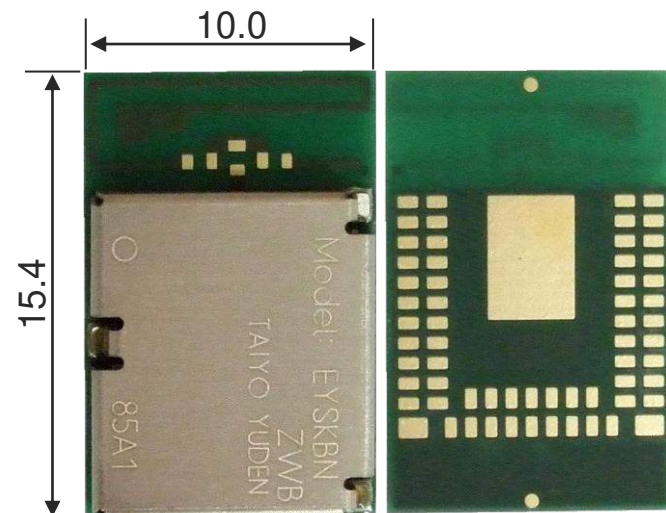
- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode **Bluetooth 5.0 / 802.15.4 (e.g. Thread, Zigbee)**
- Bluetooth 5 data rate support: 2M / 1M / 500k / 125kbps**
- Chip: **nRF52840** (Nordic)
- Integrated System/Sleep Clock, **2 x LC for DC/DC**
- 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

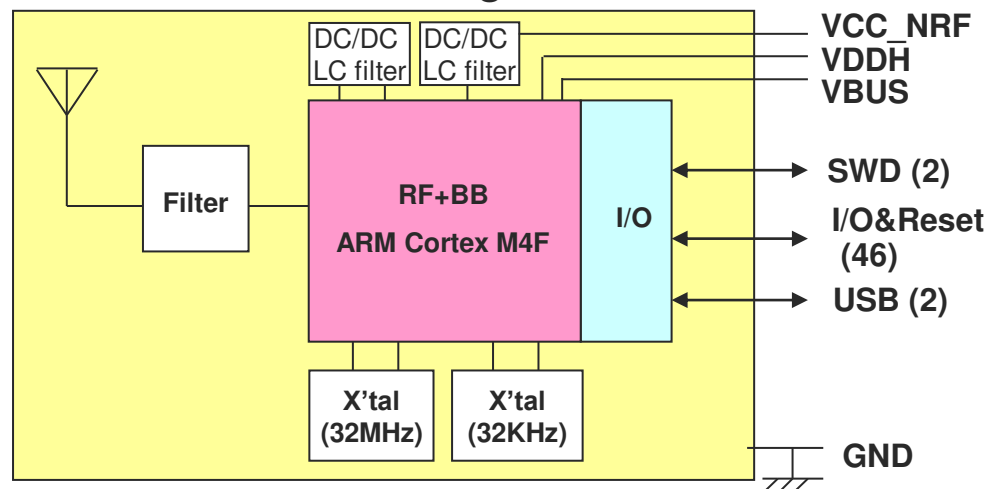
Unit: mm



Top View

Bottom View

## Block Diagram



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**TAIYO YUDEN**



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

## EYSKBNZWB (Module)

### Module samples

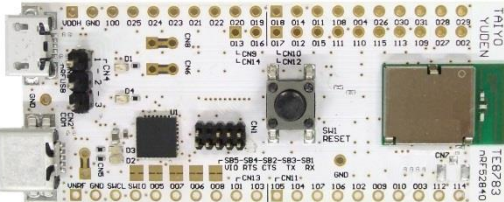


Tape



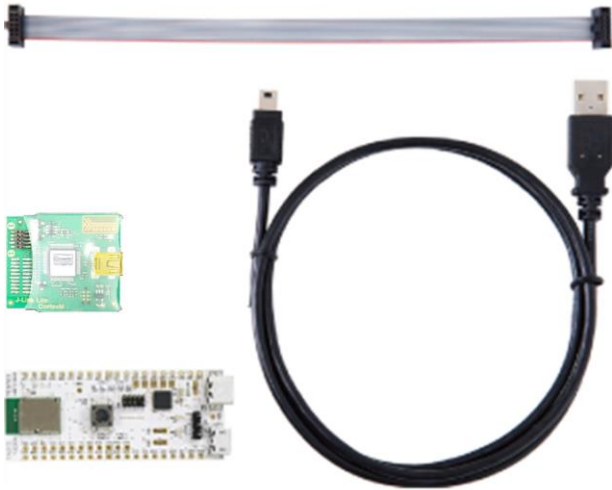
## EBSKBNZWB (EV-B)

### Evaluation board



## EKSKBNZWB (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached



# High performance Antenna Bluetooth® 5.0 Module: EYSKDNZWB

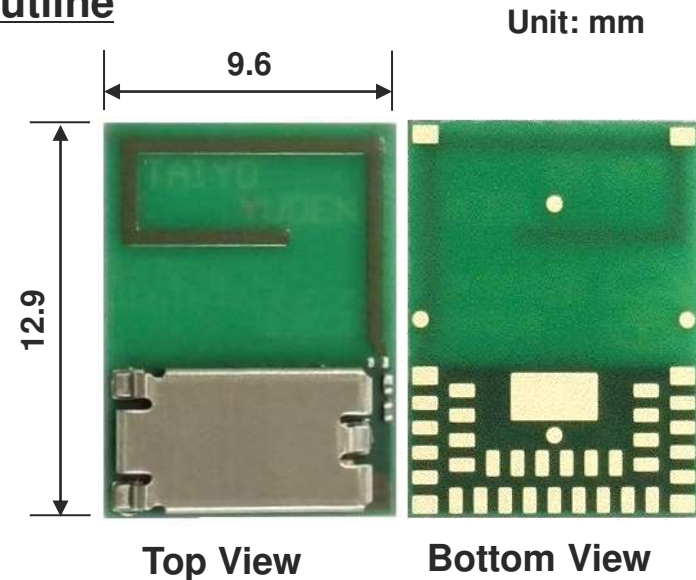
## Features

- 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

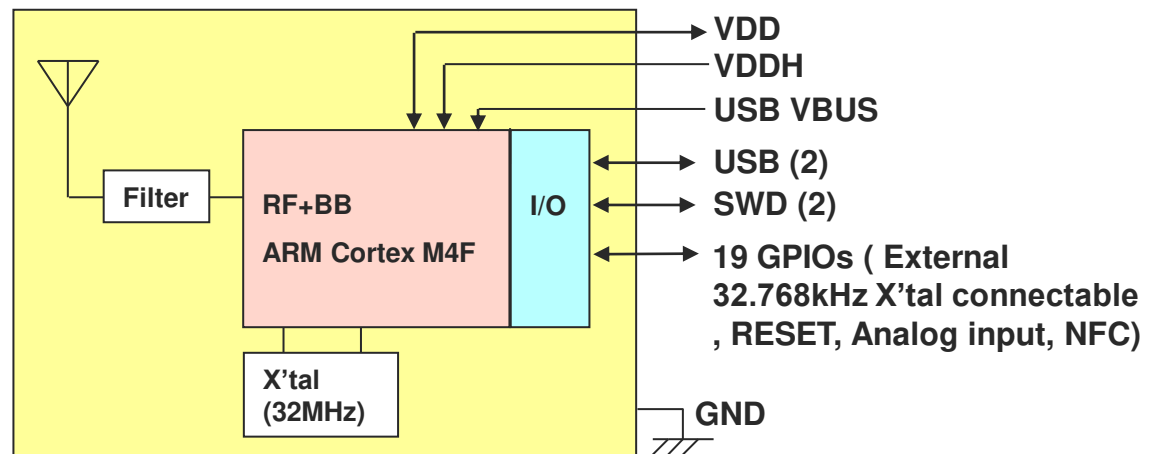
## Applications

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

## Outline



## Block Diagram



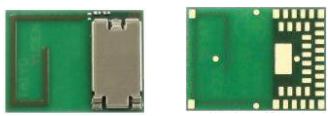
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# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSKDNZWB (Module)

### Module samples

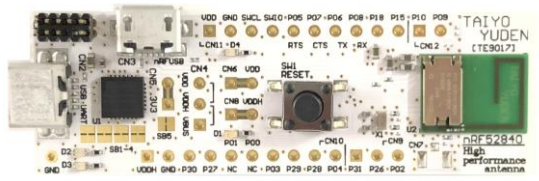


Tape



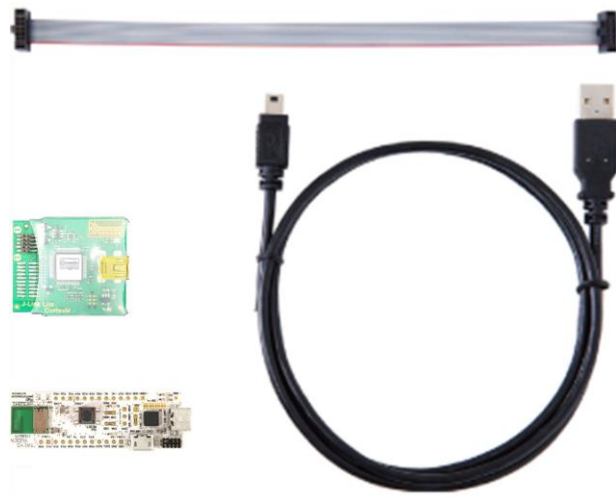
## EBSKDNZWB (EV-B)

### Evaluation board



## EKSKDNZWB (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached



# Bluetooth® 5.0 low energy Module: EYSKJNZWB

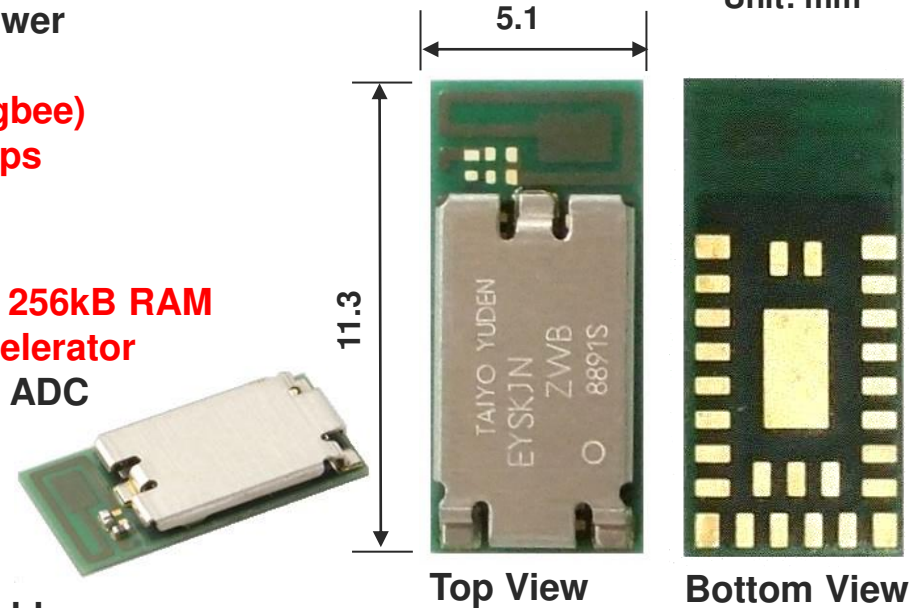
## Features

- 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

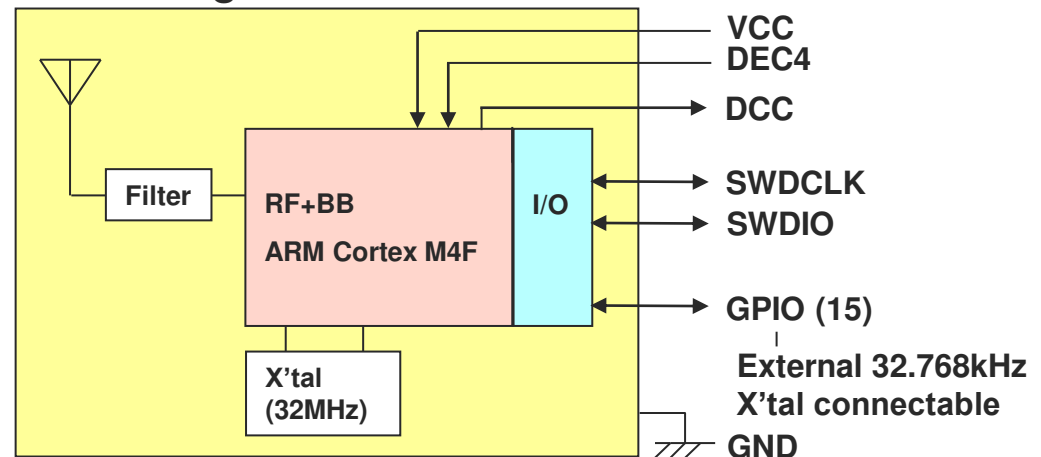
## Applications

- 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

## Outline



## Block Diagram



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

## EYSKJNZWB (Module)

### Module samples

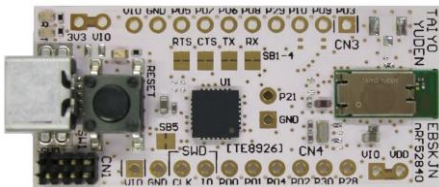


Tape



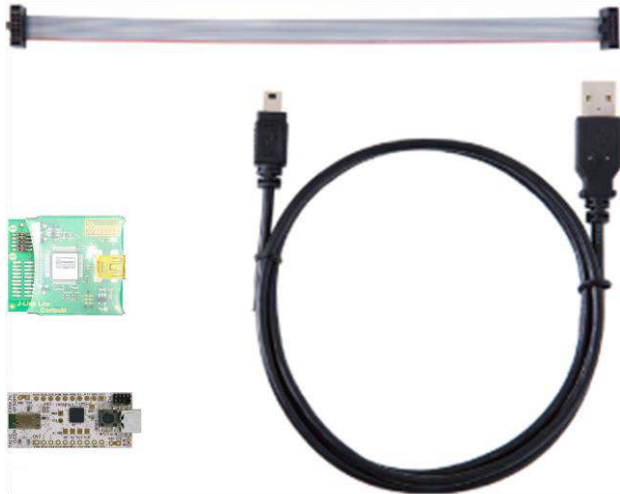
## EBSKJNZWB (EV-B)

### Evaluation board



## EKSKJNZWB (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached



# Bluetooth® 5.2 low energy Module: EYSPBNZUA

## 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 2Mbps / Long range / 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 & 128kB RAM**
- 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 105 deg-C**
- Bluetooth and Japan, FCC, IC qualified
- ETSI EN 300 328 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

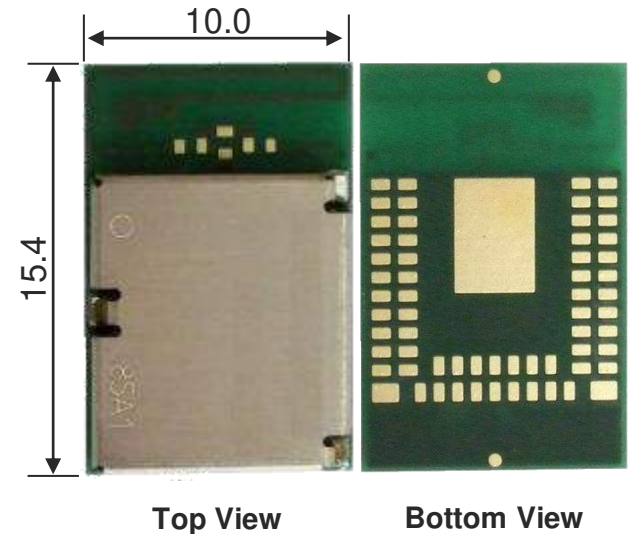
## Applications

- 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

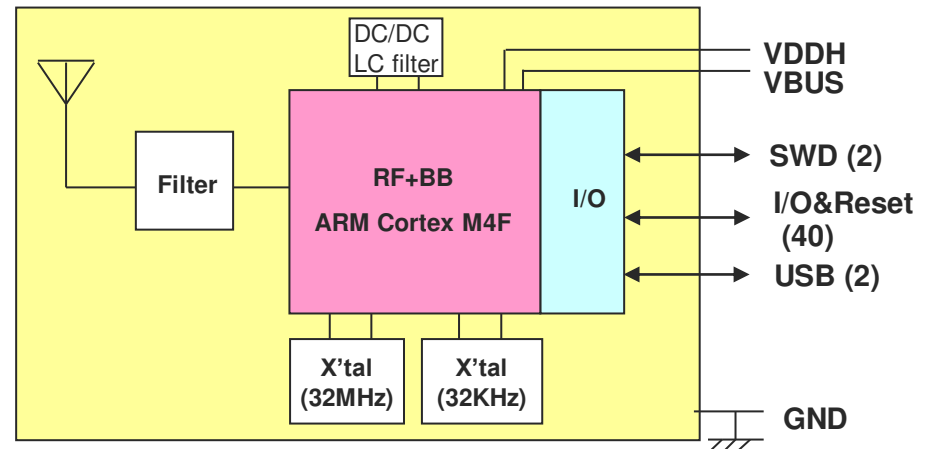
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## Outline



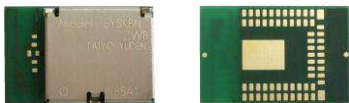
## Block Diagram



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

## EYSPBNZUA (Module)

### Module samples

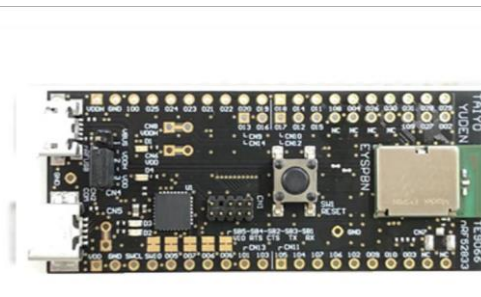


Tape



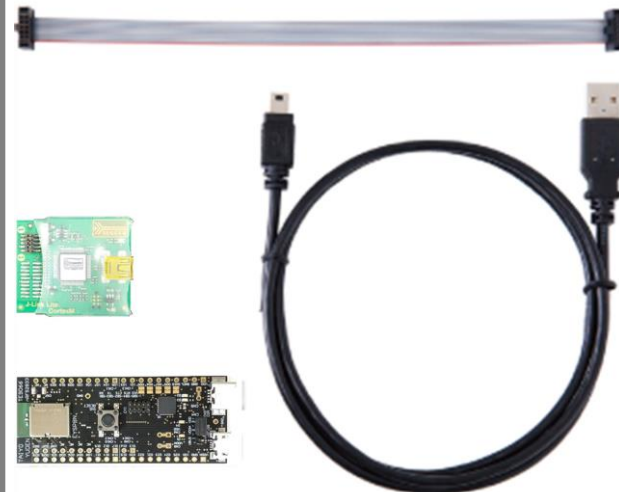
## EBSPBNZUA (EV-B)

### Evaluation board



## EKSPBNZUA (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached

# 2Mbps Bluetooth® 5.0 low energy Module: EYSHCNZWZ

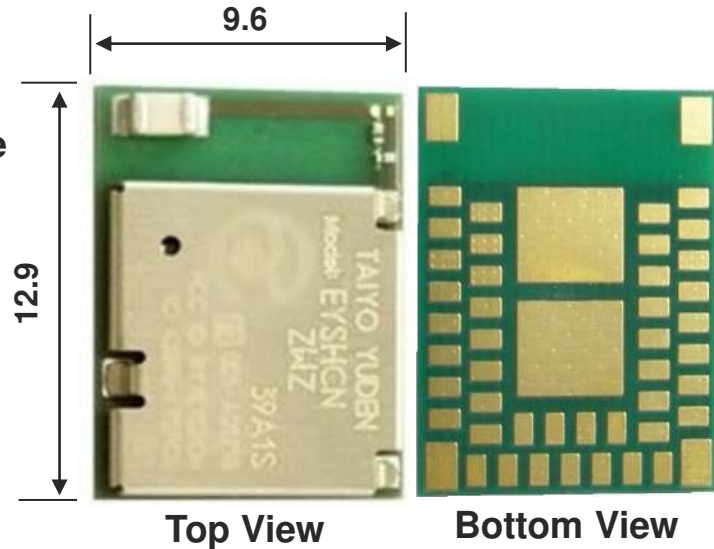
## Features

- 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 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

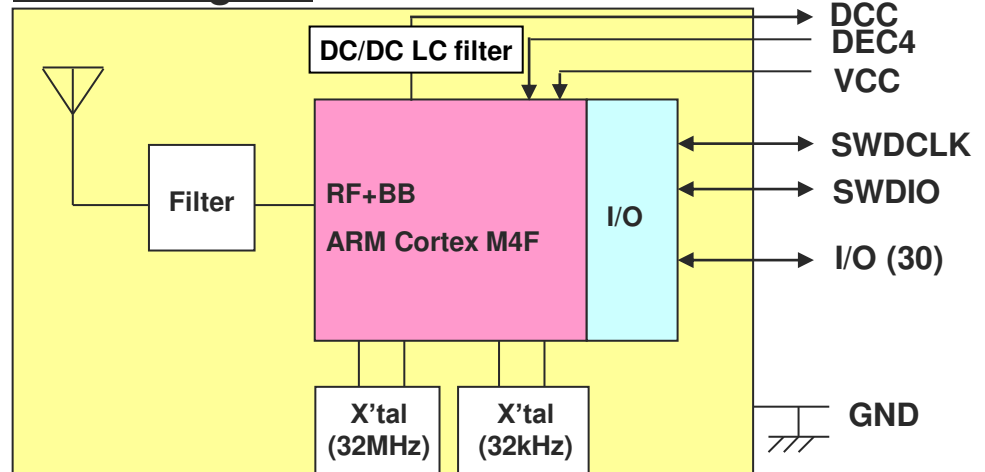
## Applications

- 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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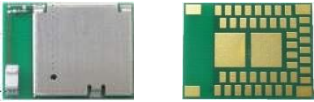
**TAIYO YUDEN**



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

## EYSHCNZWZ (Module)

### Module samples

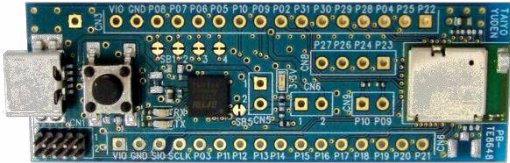


Tape



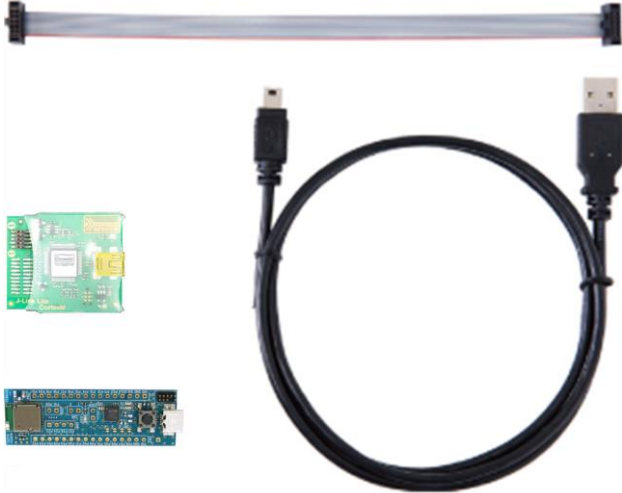
## EBSHCNZWZ (EV-B)

### Evaluation board



## EKSHCNZWZ (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached



# 2Mbps Bluetooth® 5.0 low energy Module: EYSHJNZWZ

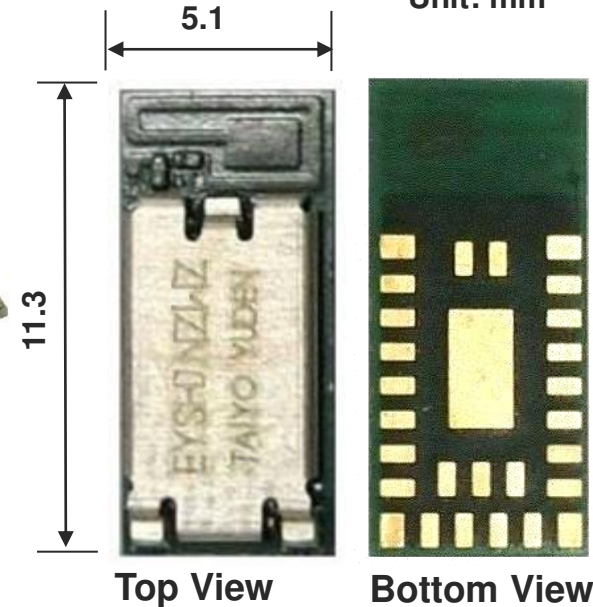
## Features

- 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 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

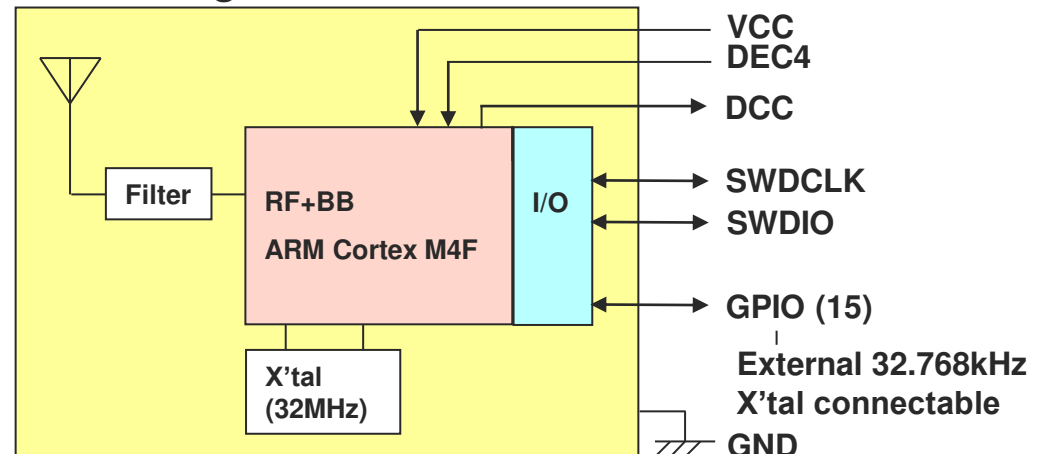
## Applications

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

## Outline



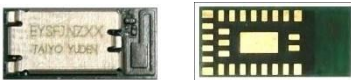
## Block Diagram



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

## EYSHJNZWZ (Module)

### Module samples

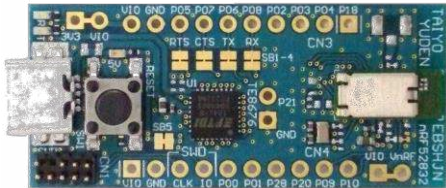


Tape



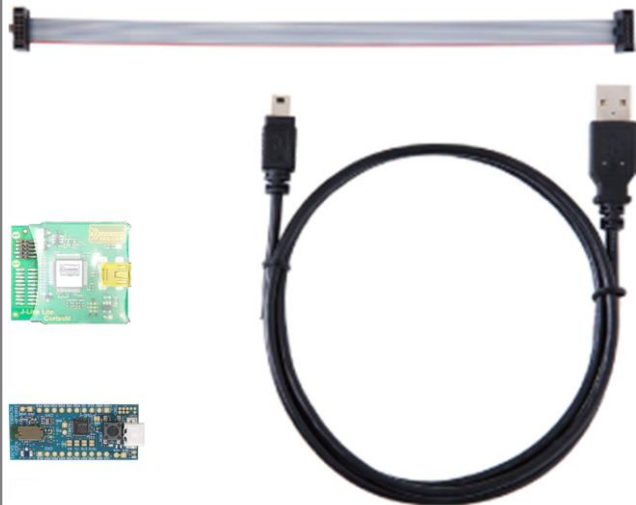
## EBSHJNZWZ (EV-B)

### Evaluation board



## EKSHJNZWZ (EV-K)

### Evaluation kit



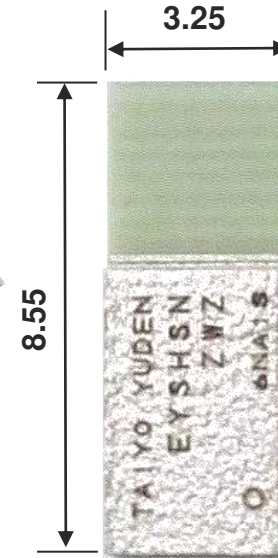
SEGGER  
J-Link LITE  
Attached

# 2Mbps Bluetooth® 5.0 low energy Module: EYSHSNZWZ

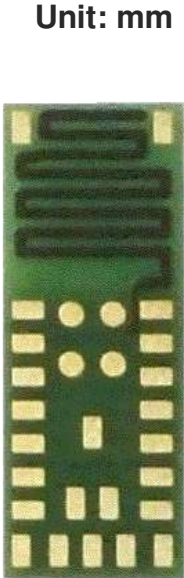
## Features

- 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 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

## Outline



Top View



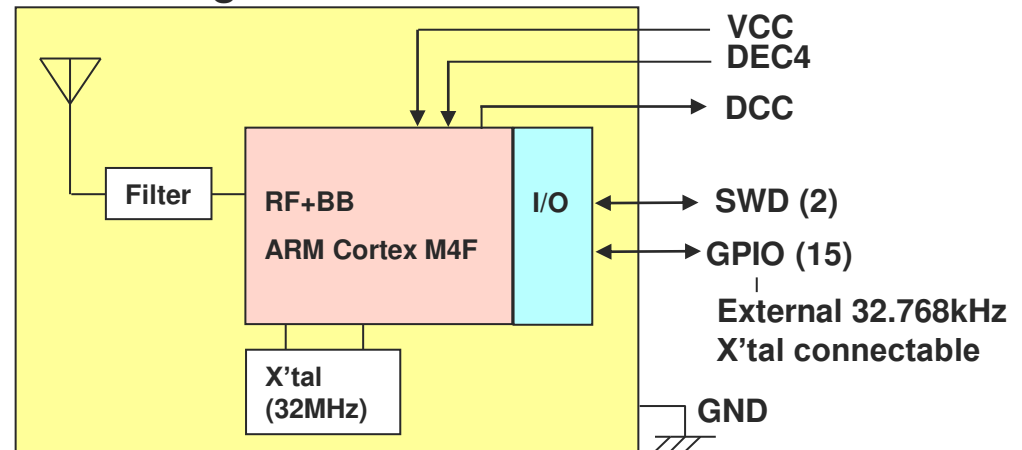
Bottom View

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



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**TAIYO YUDEN**

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

## EYSHSNZWZ (Module)

### Module samples

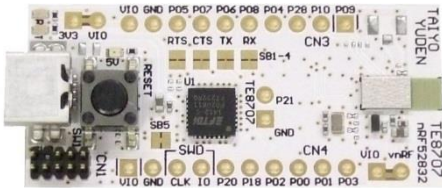


Tape



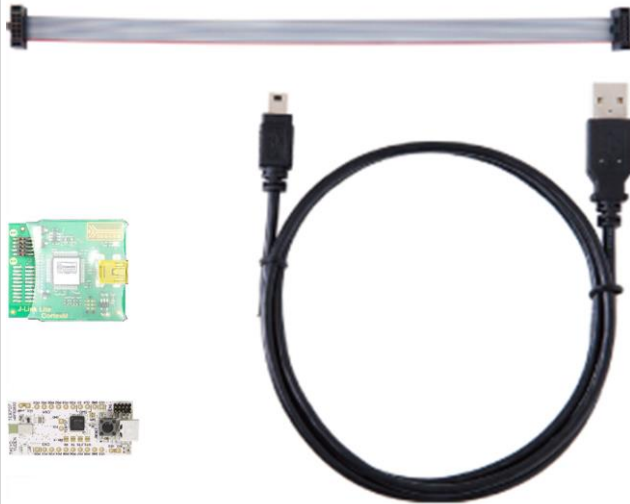
## EBSHSNZWZ (EV-B)

### Evaluation board



## EKSHSNZWZ (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached



# 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

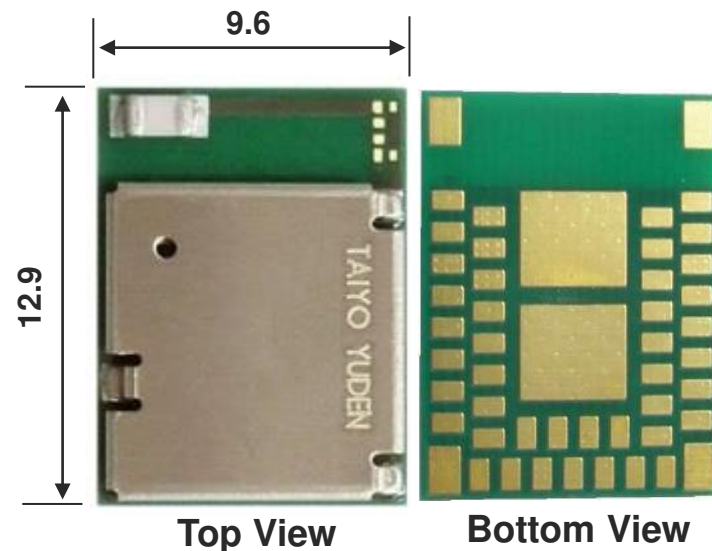
## Applications

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

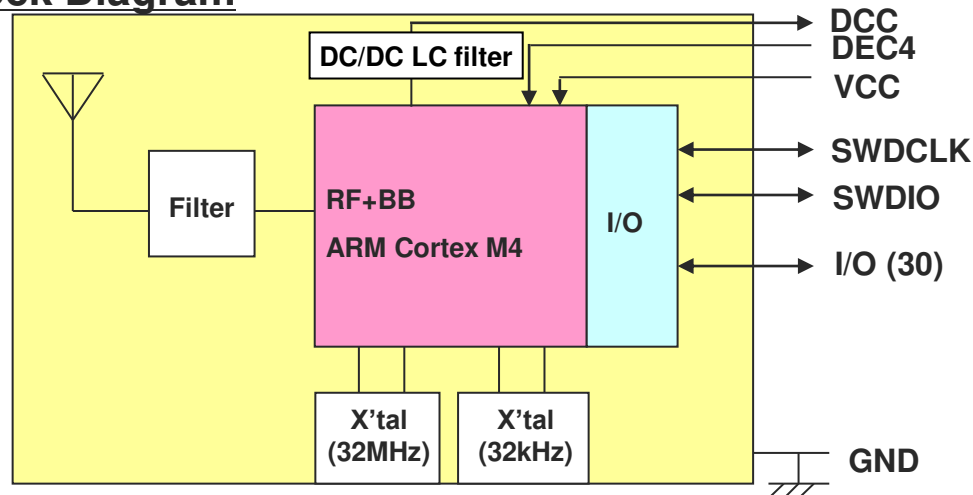
All specifications are subject to change without notice.

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## Outline



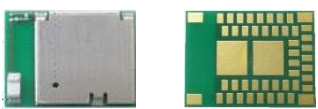
## Block Diagram



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

## EYSNCNZWW (Module)

### Module samples

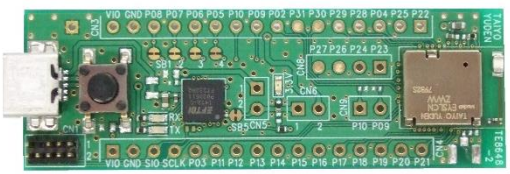


Tape



## EBSNCNZWW (EV-B)

### Evaluation board



## EKSNCNZWW (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached



# Bluetooth® 5.2 low energy Module: EYSNSNZWW

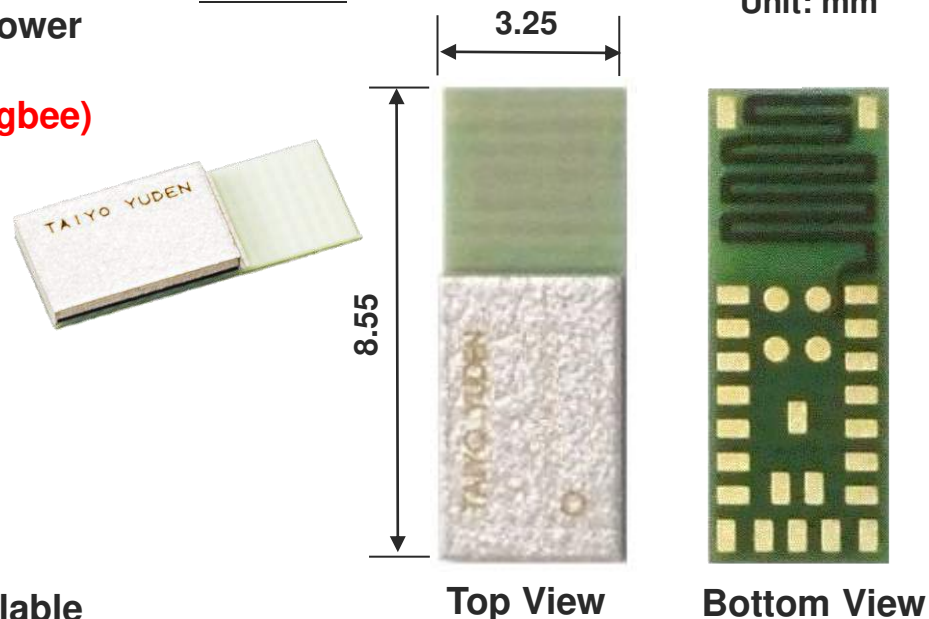
## Features

- 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 1.00mm 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

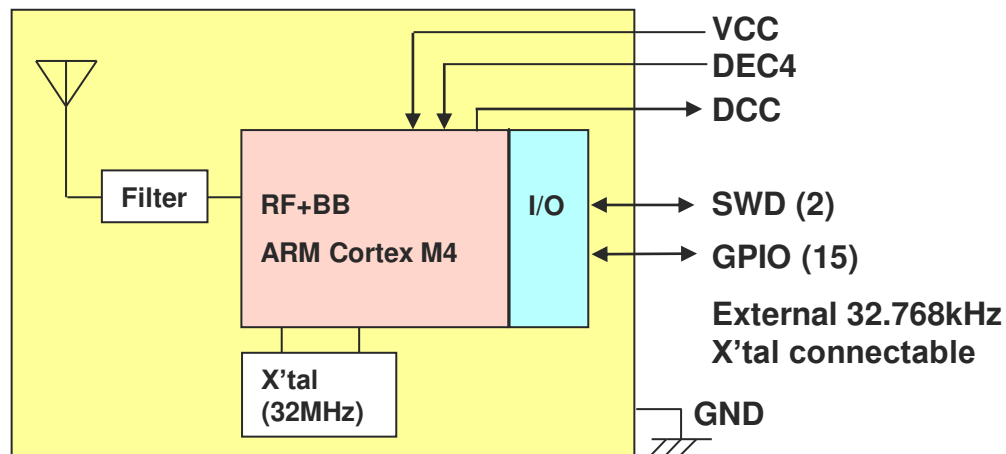
## Applications

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

## Outline



## Block Diagram



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

## EYSNSNZWW (Module)

### Module samples



Tape



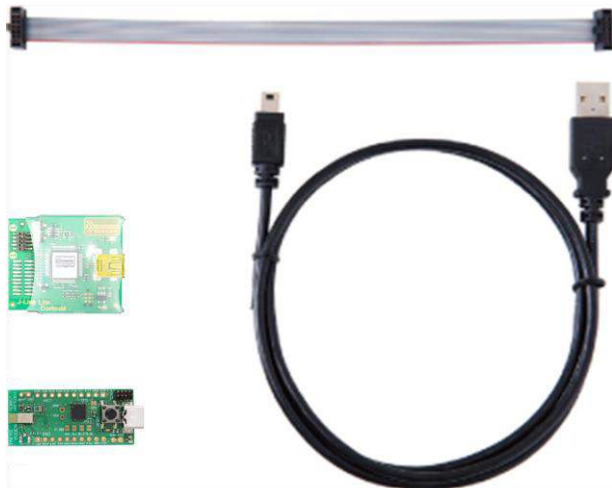
## EBSNSNZWW (EV-B)

### Evaluation board



## EKSNSNZWW (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached



# 2Mbps Bluetooth® 5.0 low energy Module: EYSLCNZWW

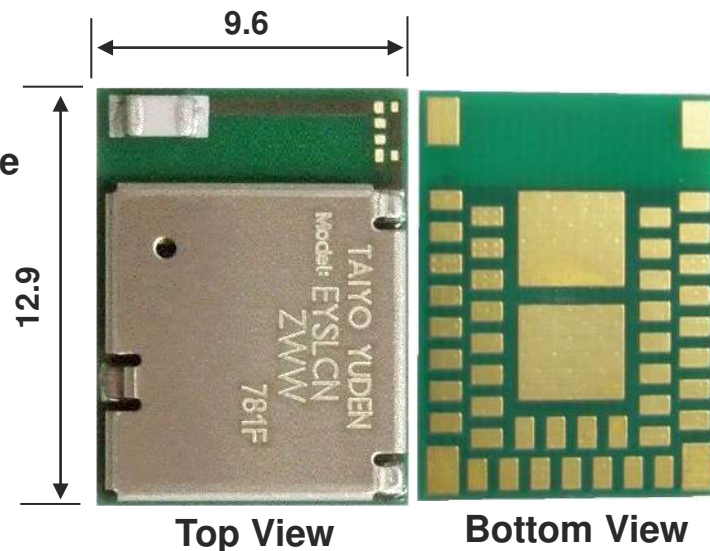
## Features

- 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 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

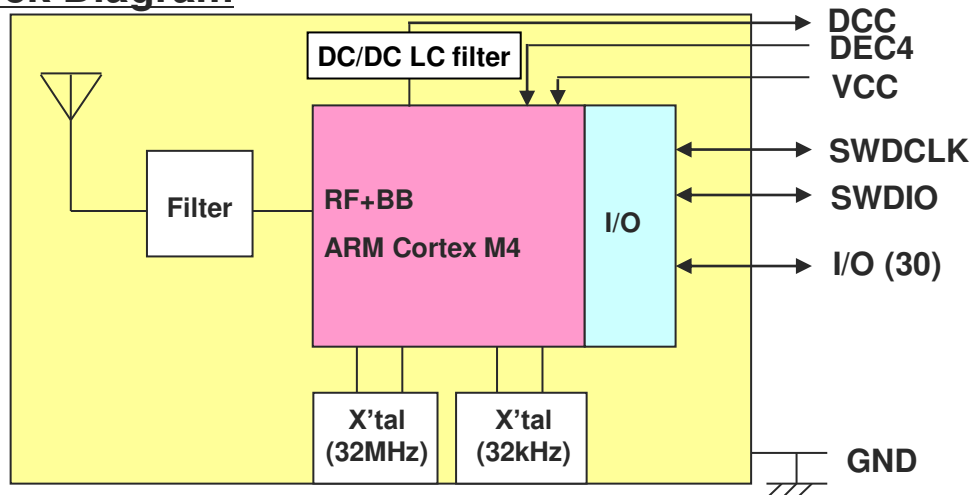
## Applications

- 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



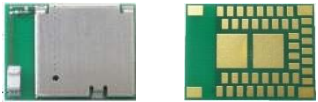
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# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSLCNZWW (Module)

### Module samples

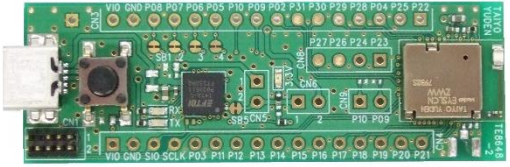


Tape



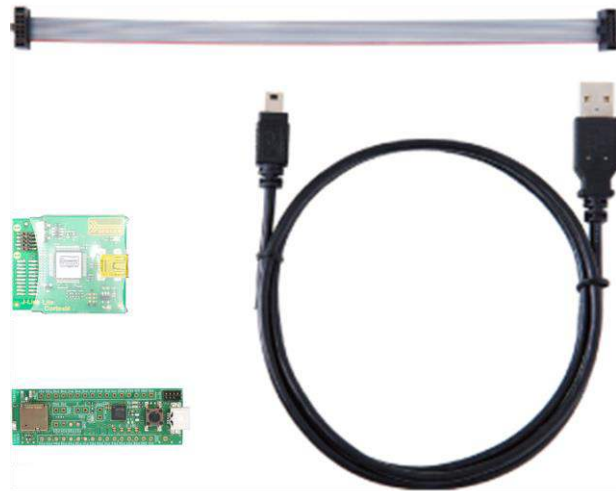
## EBSLCNZWW (EV-B)

### Evaluation board



## EKSLCNZWW (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached



# 2Mbps Bluetooth® 5.0 low energy Module: EYLSNZWW

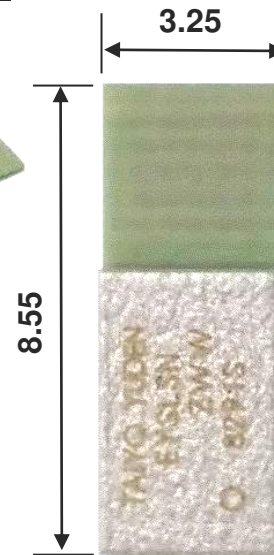
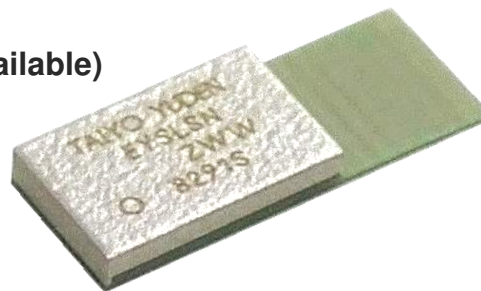
## Features

- 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 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

## Applications

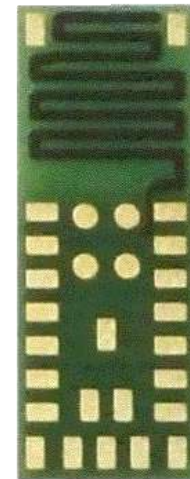
- Smart wristband
- Smart glasses
- Remote control ring
- Smart pen
- Heart rate monitor
- pressure monitor
- Blood glucose meter
- Thermometer
- Mobile accessories

## Outline



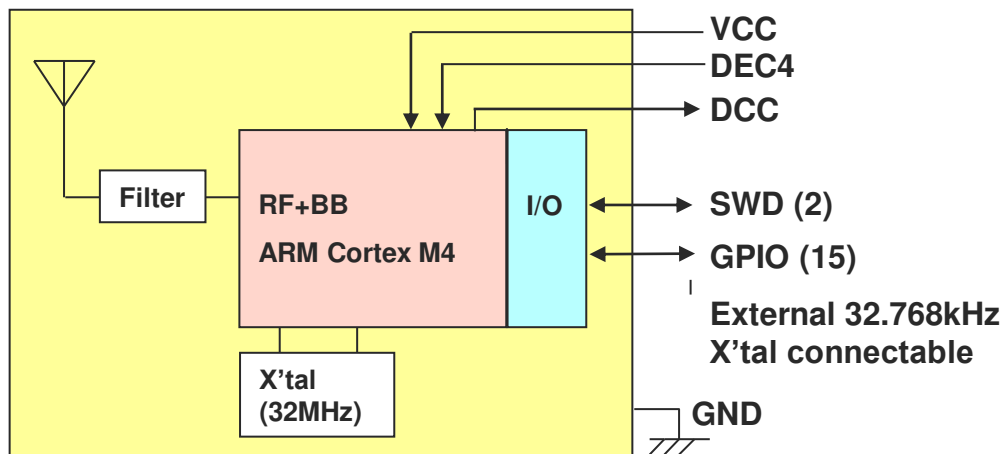
Top View

Unit: mm



Bottom View

## Block Diagram



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

## EYSLSNZWW (Module)

### Module samples



Tape



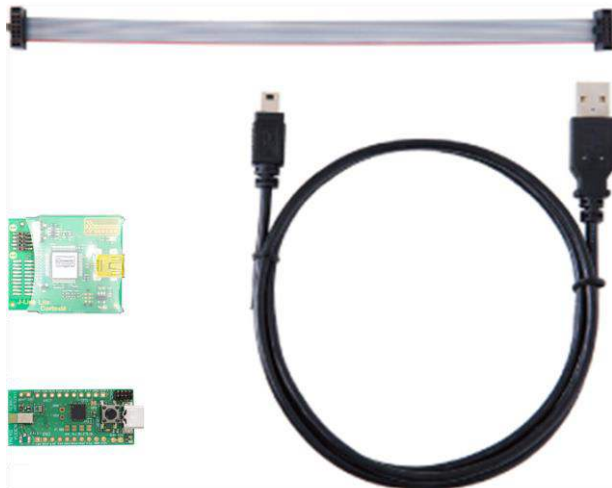
## EBSLSNZWW (EV-B)

### Evaluation board



## EKSLSNZWW (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached



# 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 **Central / Peripheral**
- 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 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

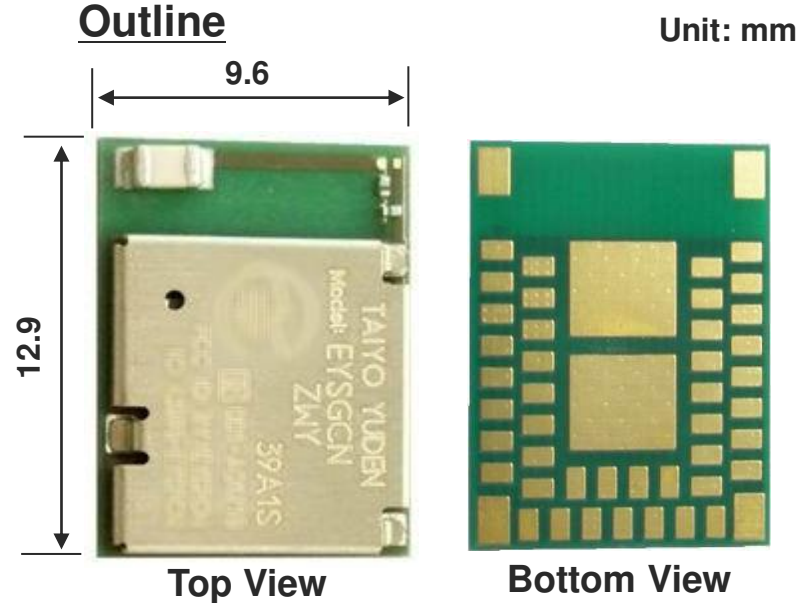
## Applications

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

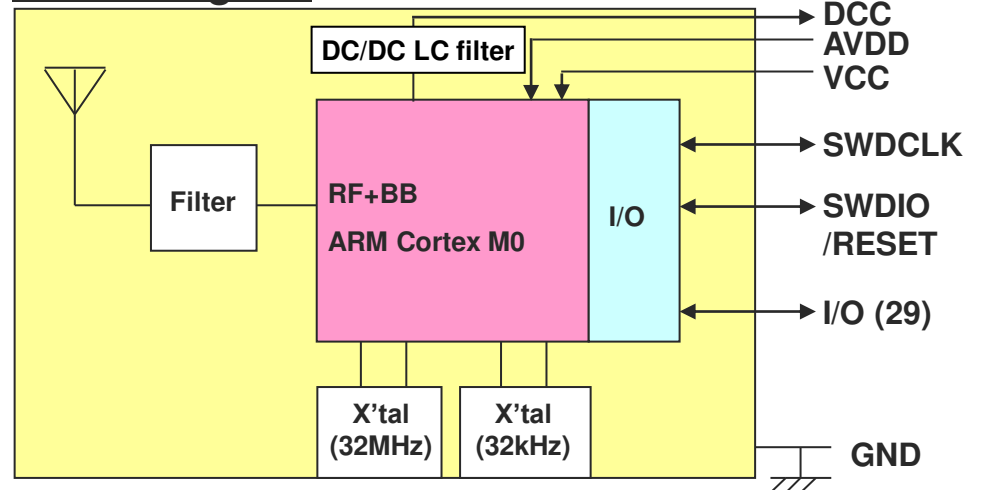
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**TAIYO YUDEN**



## Block Diagram



# 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 Peripheral
- 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 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

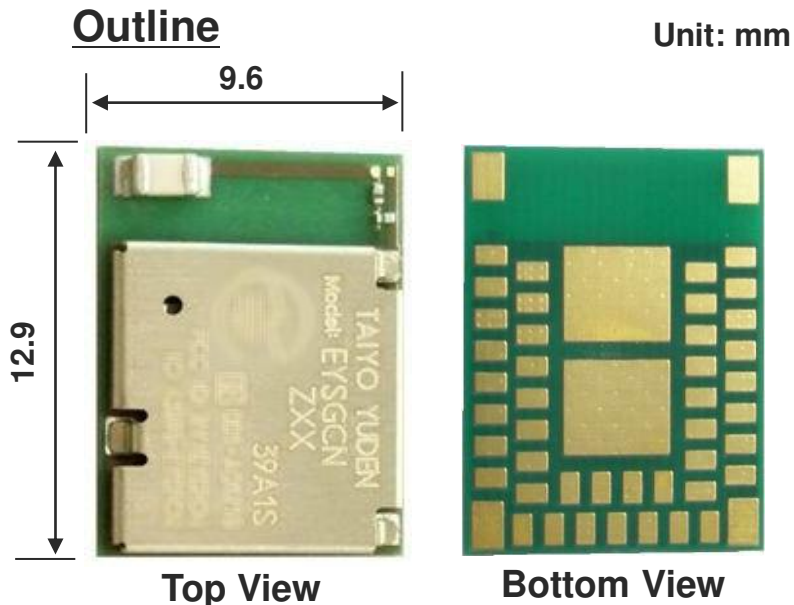
## Applications

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

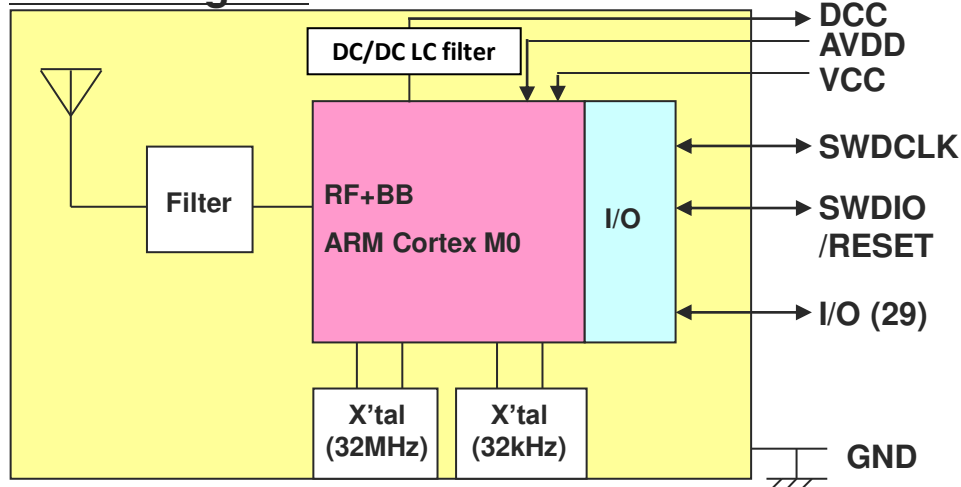
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**TAIYO YUDEN**



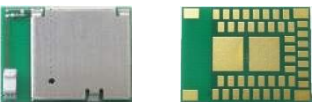
## Block Diagram



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

## EYSGCNZWY, EYSGCNZXX (Module)

### Module samples



Tape



## EBSGCMZWY (EV-B)

### Evaluation board



## EKSGCMZWY (EV-K)

### Evaluation kit



SEGGER  
J-Link LITE  
Attached



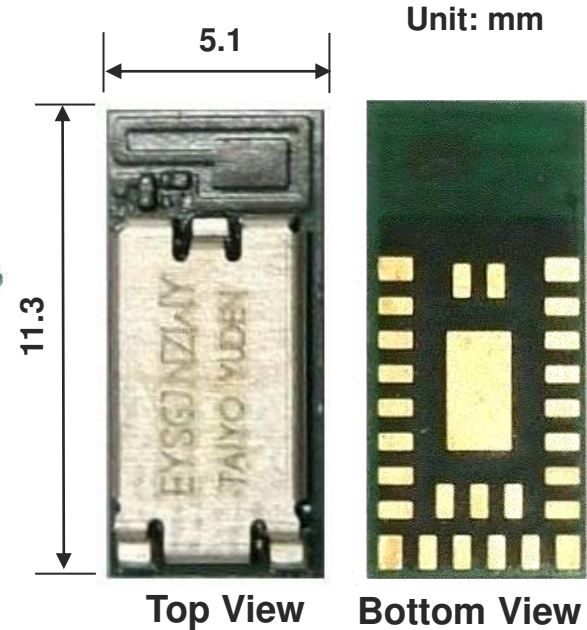
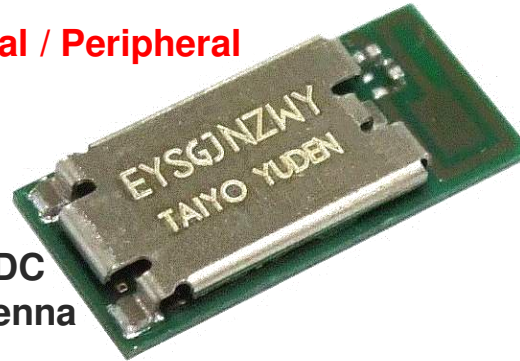


# Bluetooth® low energy Module **EYSGJNZWY**

## Features

- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth low energy **Central / Peripheral**
- 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 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

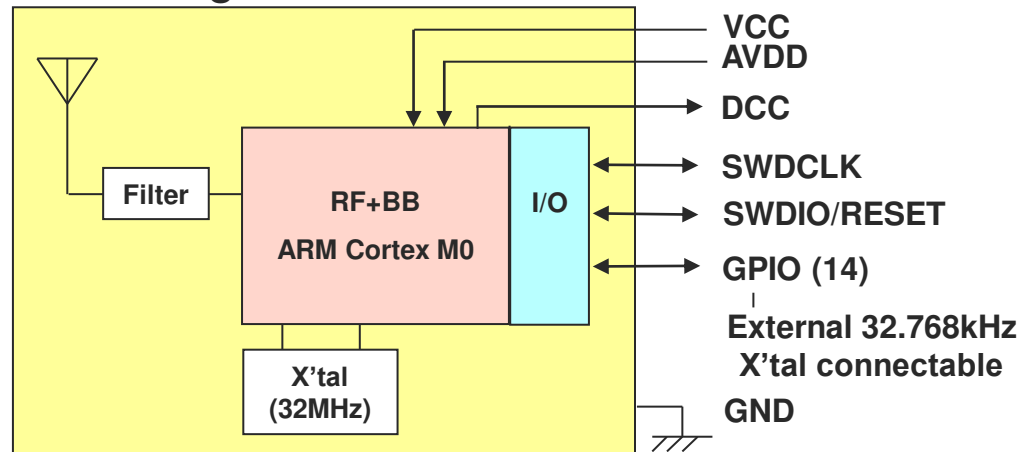
## Outline



## 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.

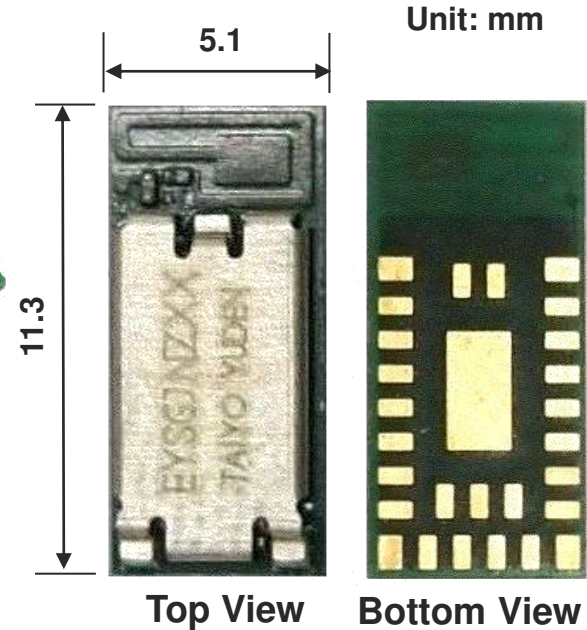
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# Bluetooth® low energy Module **EYSGJNZXX**

## Features

- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth low energy Peripheral
- 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 v2.2.2 Conducted Test Report Available
- RoHS compliant / Complete Lead Free

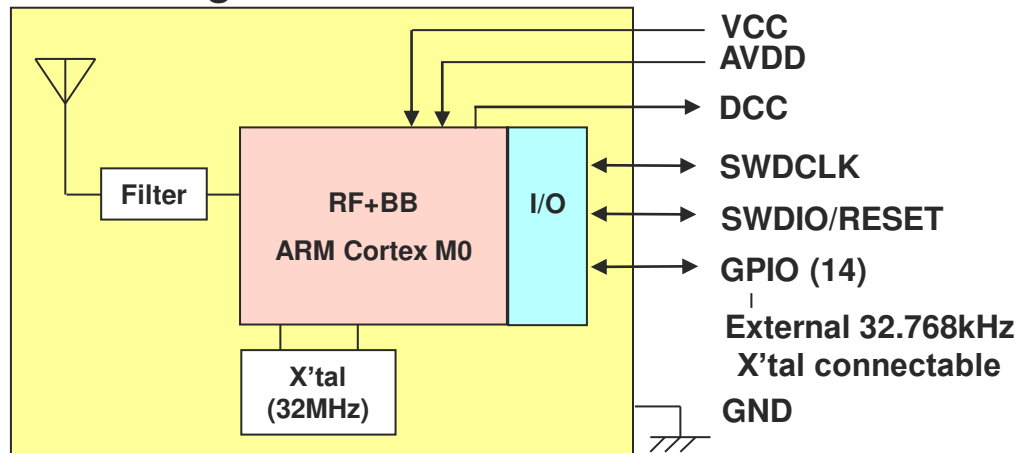
## Outline



## 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.

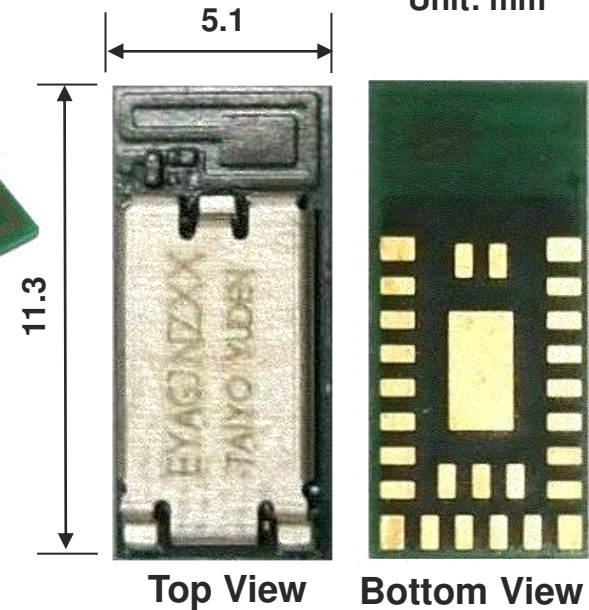
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# ANT + Bluetooth® low energy Module **EYAGJNZXX**

## Features

- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- ANT** + Single Mode Bluetooth low energy Peripheral
- 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

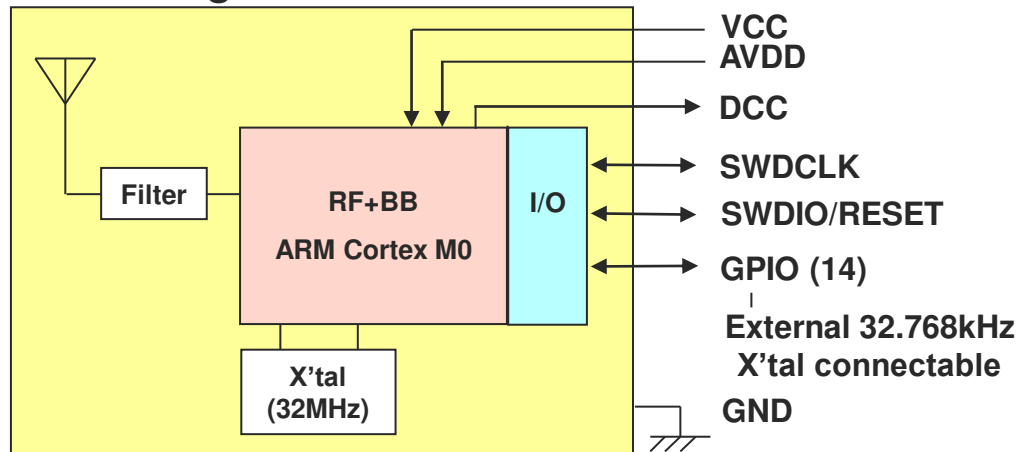
## Outline



## 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



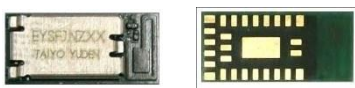
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# Bluetooth® low energy Module Sample, Evaluation Board / Kit

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

## Module samples

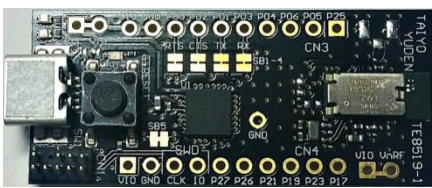


Tape



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

## Evaluation board



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

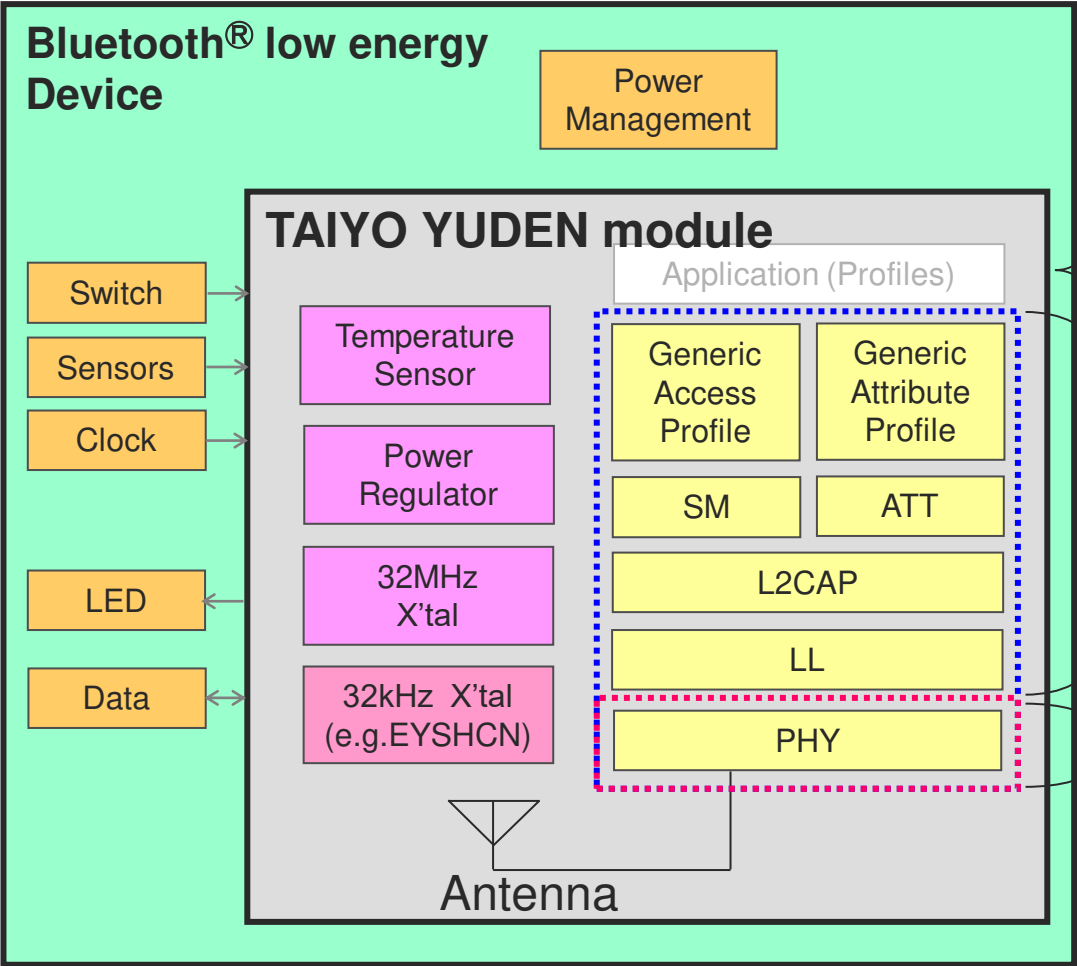
## Evaluation kit



**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

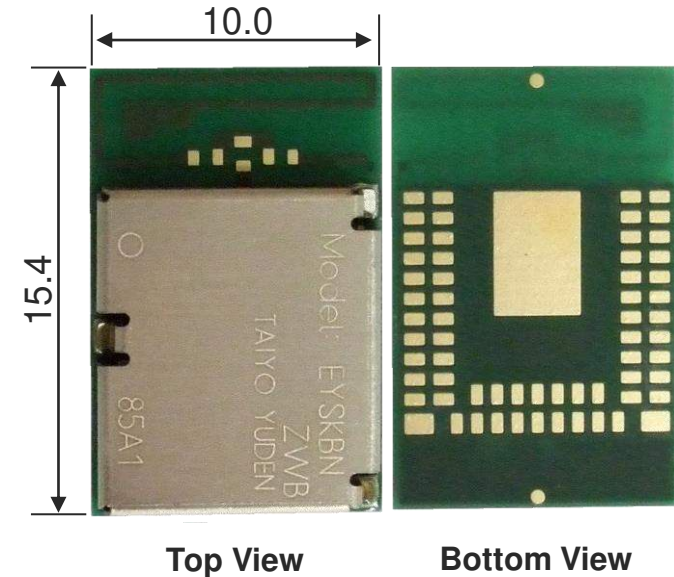
- Frequency: 2402 to 2480 MHz with **+8dBm** Output power
- Single power supply: 1.7 – 5.5V
- Single Mode **Bluetooth 5.0 (Central / Peripheral)**
- Bluetooth 5 data rate support: 2M / 1M / 125kbps**
- Chip: **nRF52840** (Nordic)
- Integrated System/Sleep Clock, 2 x LC for DC/DC
- Integrated high performance PCB antenna
- ARM® Cortex M4F 32bit processor
- 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

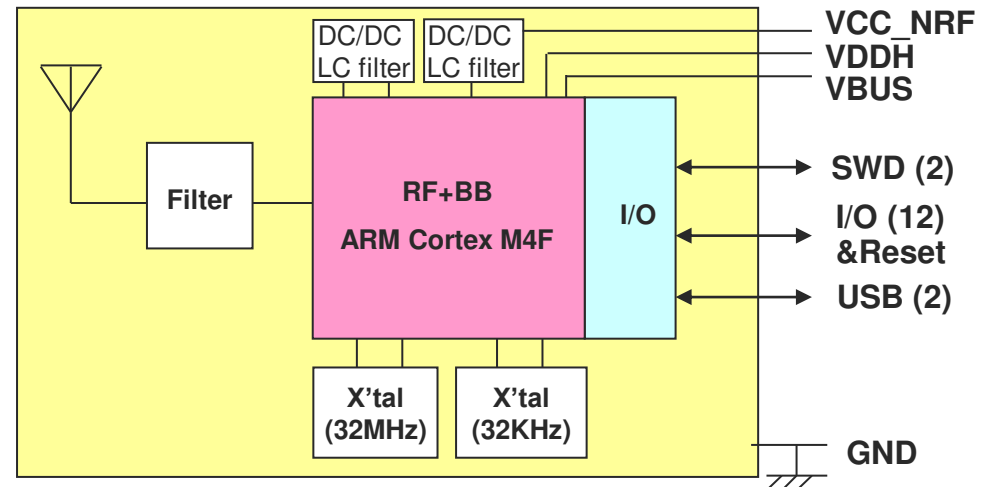
- Advanced wearables
  - Connected watches
  - Advanced personal fitness devices
  - Wearables with wireless payment
  - Connected health
  - Virtual/Augmented reality applications
- Internet of Things
  - Smart home sensors and controllers
  - Industrial IoT sensors and controllers
- Interactive entertainment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

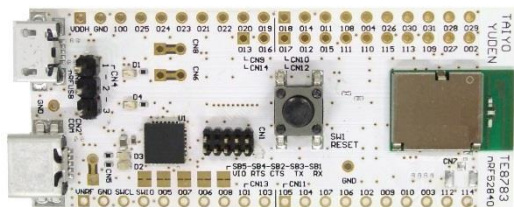


Tape



## 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 (Central / Peripheral)**
- Bluetooth 5 data rate support: 2M / 1M / 125kbps**
- Chip: **nRF52840** (Nordic)
- Integrated System Clock
- Integrated high performance PCB antenna
- ARM® Cortex M4F 32bit processor
- 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

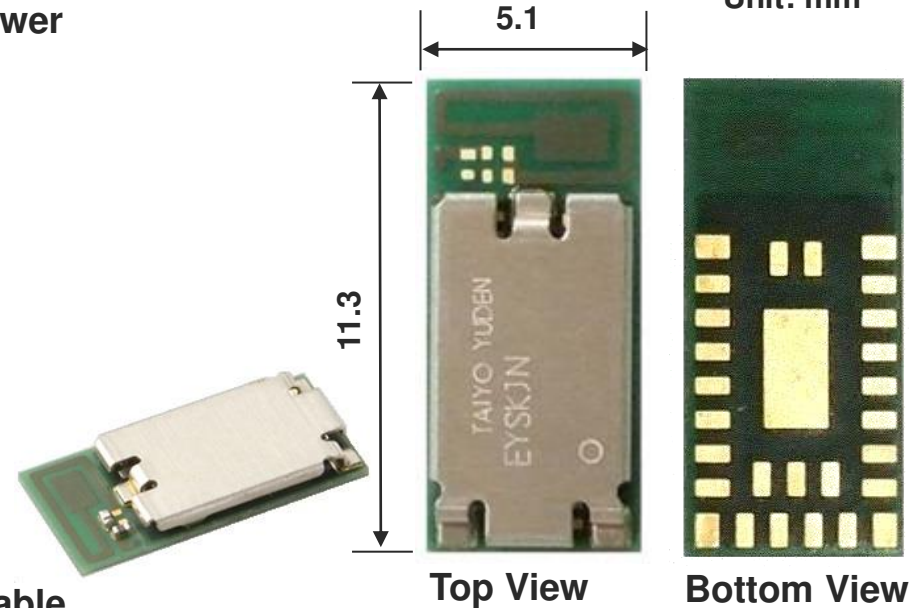
## Applications

- 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

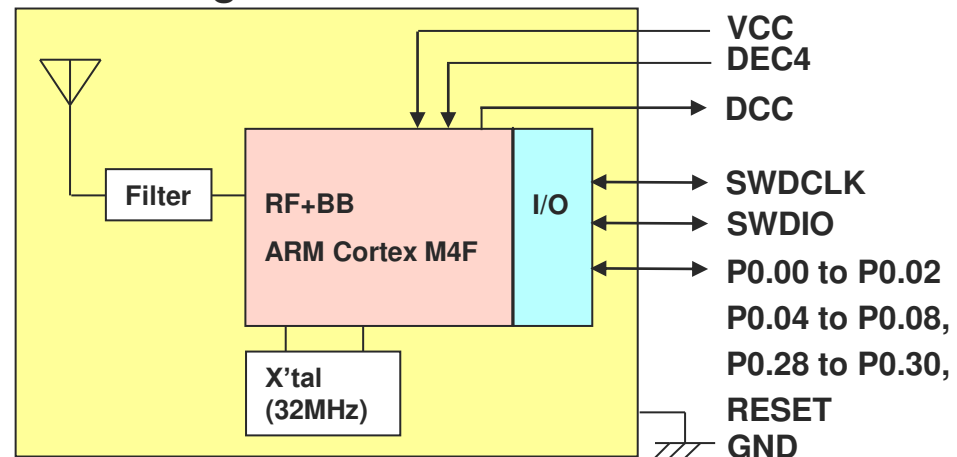
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## Outline

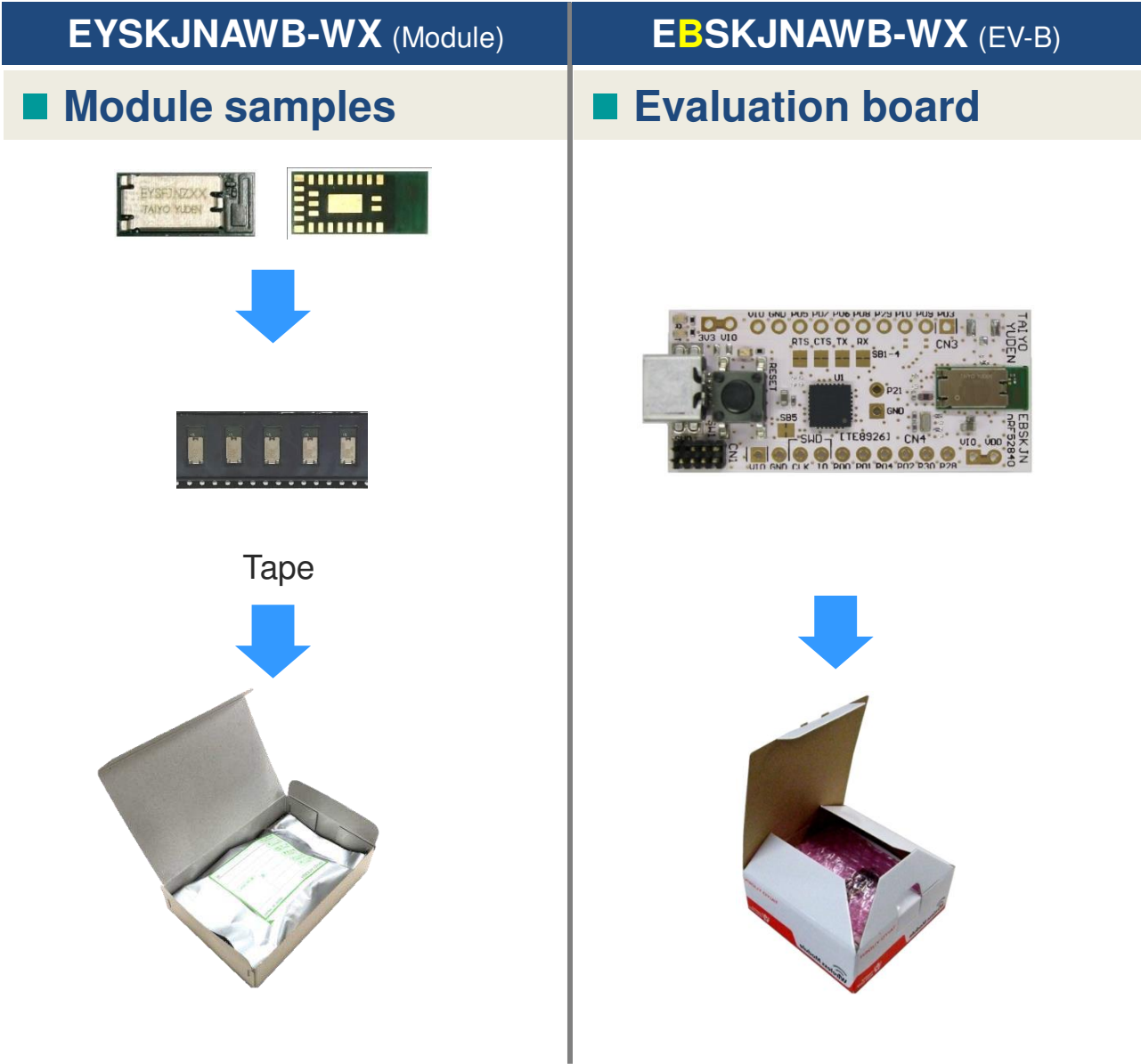


## Block Diagram





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



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

## Features

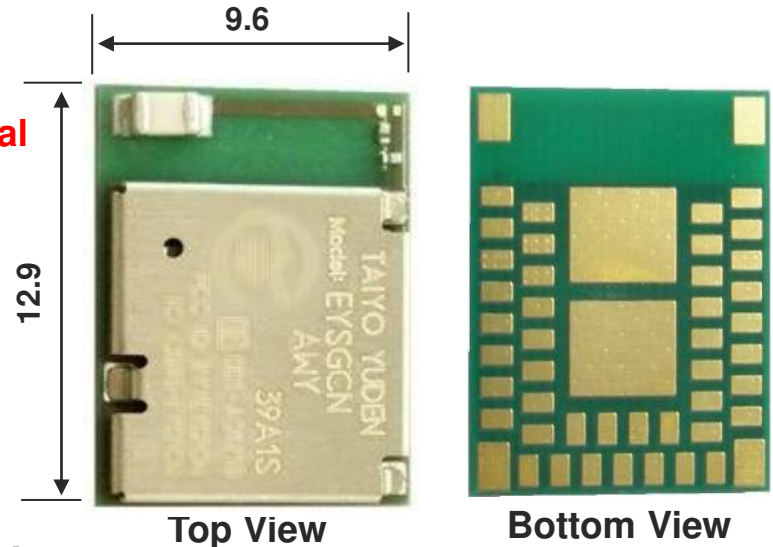
- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth **4.2** low energy **Central / Peripheral**
- Chip: nRF51822 (Nordic)
- Integrated System/Sleep Clock
- Integrated high performance ceramic chip antenna
- ARM Cortex M0** 32bit processor
- 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

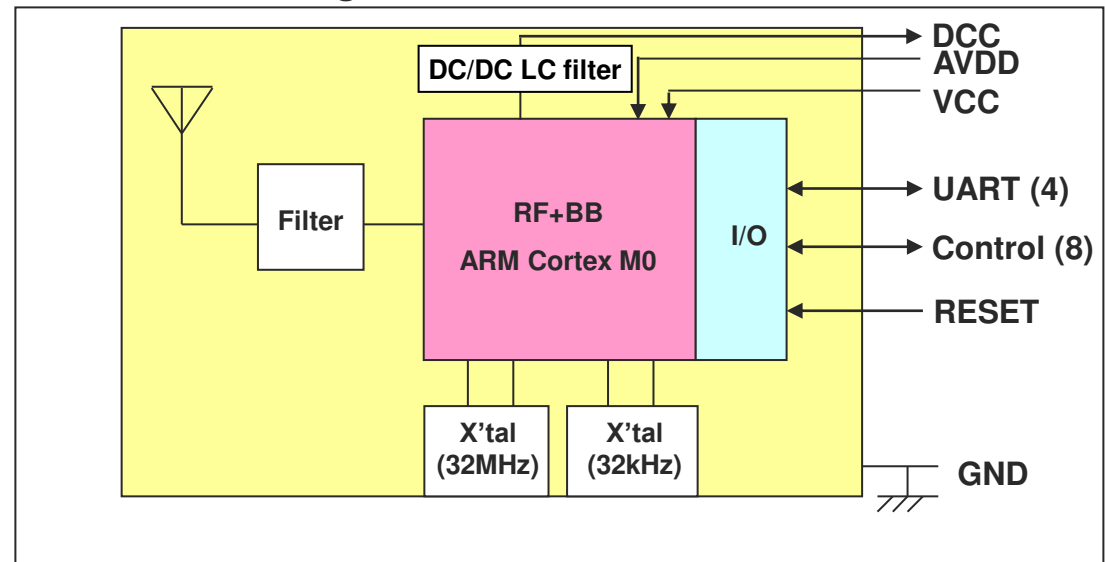
- Cycle computer
- Heart rate monitor
- Blood pressure monitor
- Blood glucose meter
- Weighing machine
- Thermometer
- Mobile accessories
- Sports and fitness sensors
- Remote controllers / Toys

## Outline

Unit: mm



## Block Diagram



All specifications are subject to change without notice.

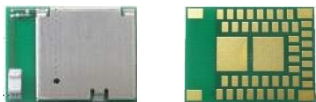
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# Bluetooth® low energy Module Sample, Evaluation Board / Kit

## EYSGCNAWY-VX (Module)

### Module samples



Tape



## EBSGCNAWY-VX (EV-B)

### Evaluation board



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

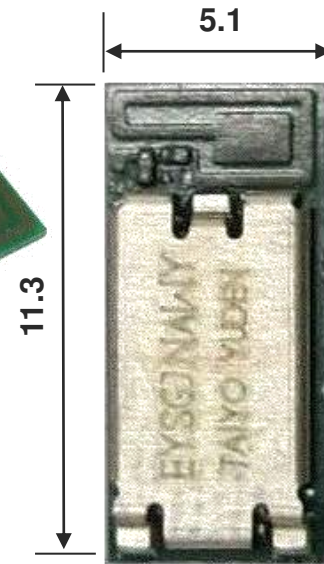
## Features

- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth **4.2** low energy **Central / Peripheral**
- 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

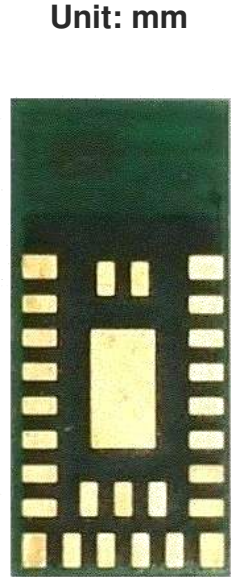
## Applications

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

## Outline



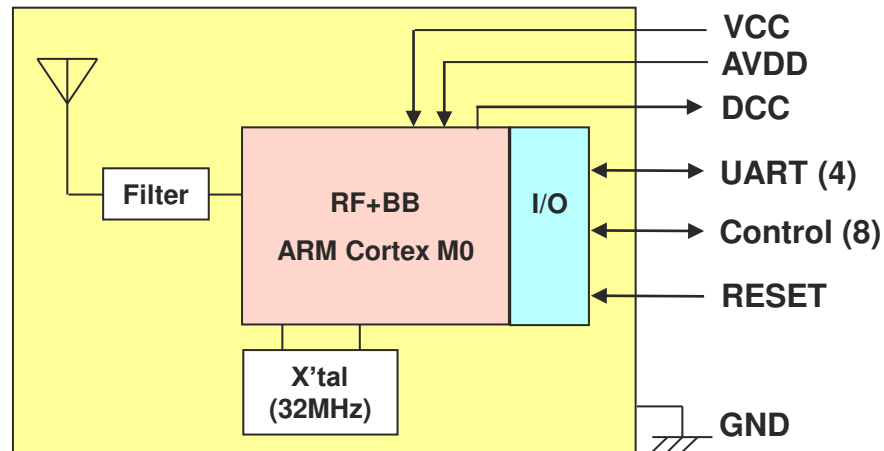
Top View



Bottom View

Unit: mm

## Block Diagram

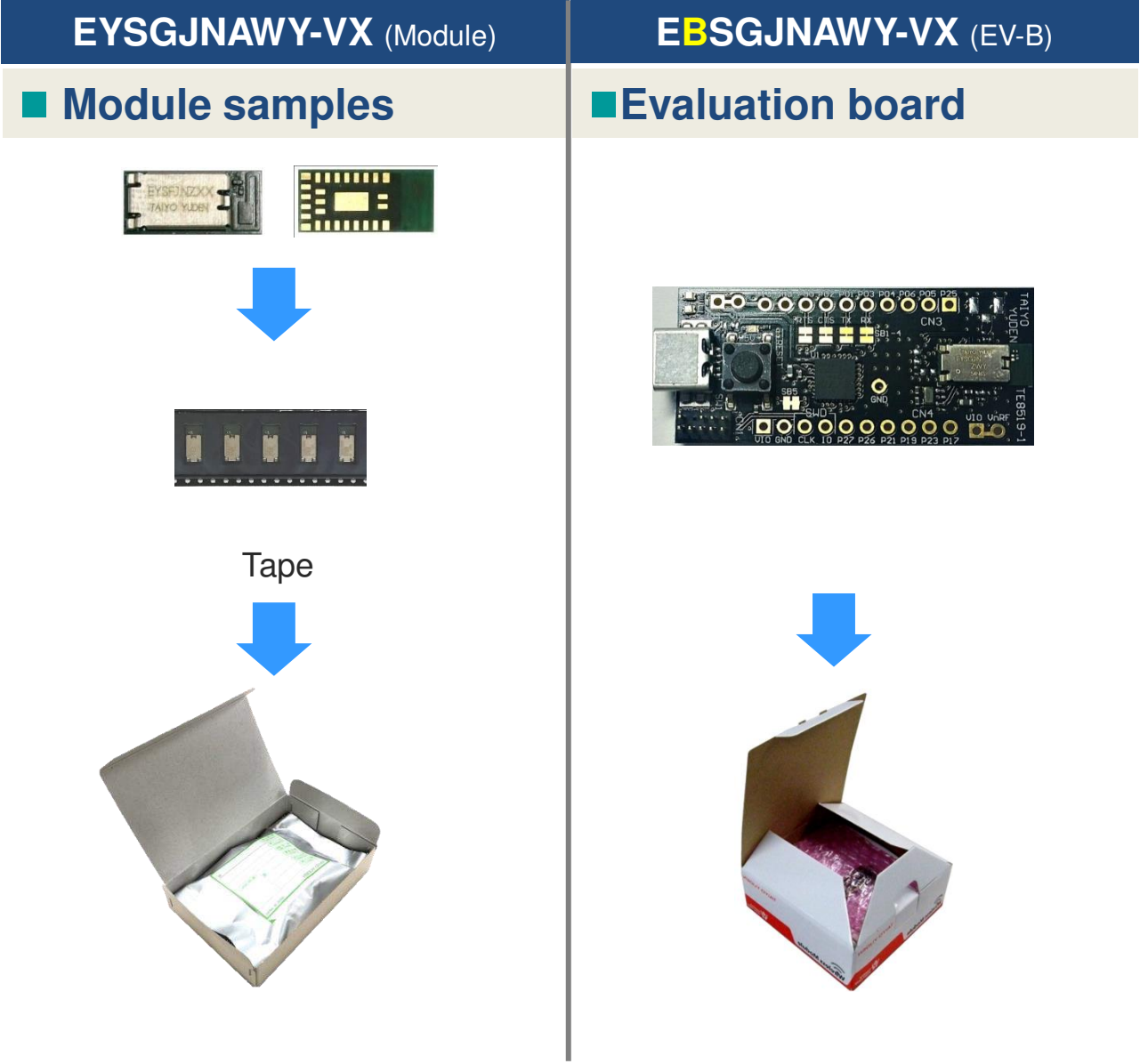


All specifications are subject to change without notice.

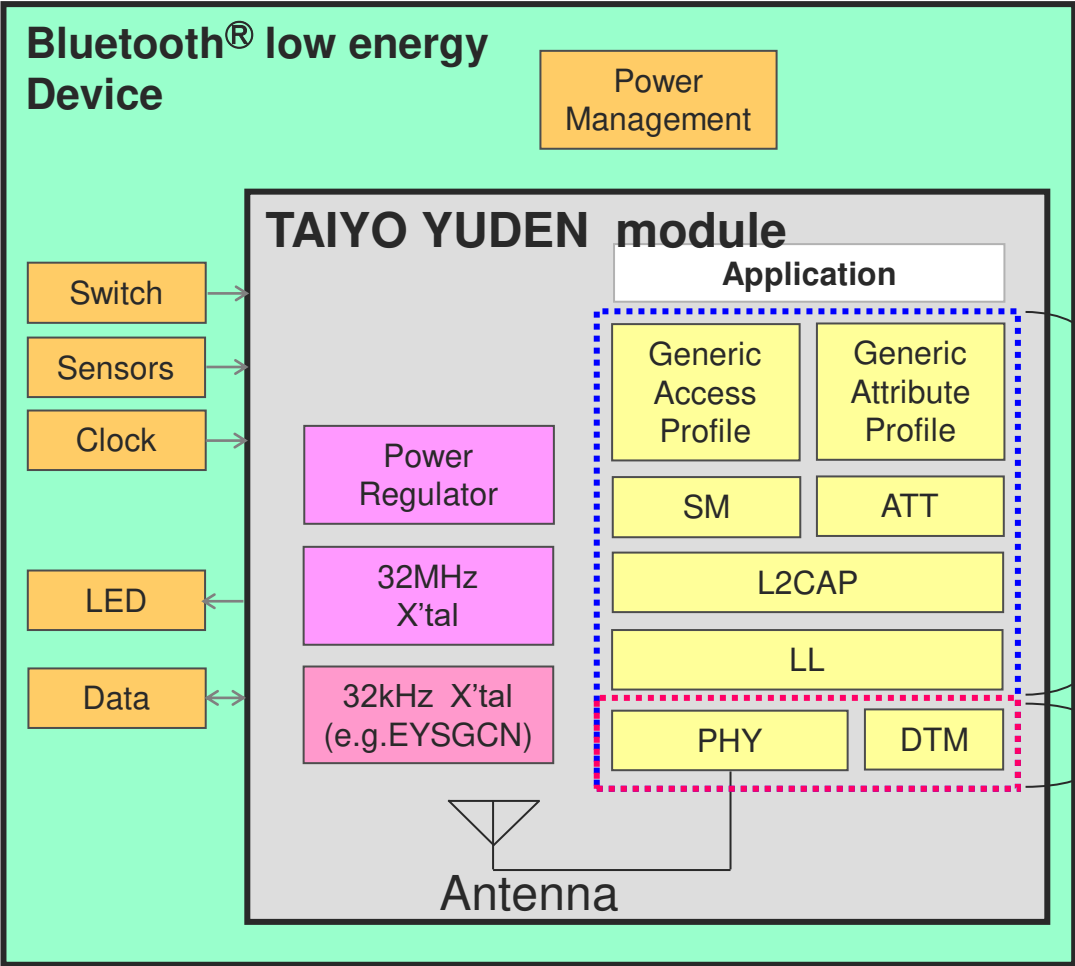
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# Bluetooth® low energy Module Sample, Evaluation Board / Kit



# 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

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**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)	EYSKBNZWB	10.0x15.4x2.0	V5.0	✓	USB※2 UART SPI I2C I2S※3 PDM	256	Japan FCC IC (CE)※1	-40~+85 deg-C
	EYSKDNZWB	9.6x12.9x1.3	V5.0			256		
	EYSKJNZWB	5.1x11.3x1.3	V5.0			256		
	EYSPBNZUA	10.0x15.4x2.0	V5.2			128		-40~+105 deg-C
	EYSHCNZWZ	9.6x12.9x2.0	V5.0			64		
	EYSHJNZWZ	5.1x11.3x1.3	V5.0			64		
	EYSHSNZWZ	3.25x8.55x0.85	V5.0			64		
	EYSNCNZWW	9.6x12.9x2.0	V5.2			24		
	EYSNSNZWW	3.25x8.55x1.00	V5.2			24		
	EYSLCNZWW	9.6x12.9x2.0	V5.0			24		
EYSLSNZWW	3.25x8.55x1.00	V5.0	24	-40~+85 deg-C				

※1 ETSI EN 300 328 conducted test report available ※2 Supported by EYSKDNZWB / EYSKBNZWB / EYSPBNZUA

※3 Supported by EYSKDNZWB / EYSKBNZWB / EYSKJNZWB / EYSPBNZUA / EYSHxNZWZ

# Bluetooth® low energy standard module

Type	Part No.	Size(mm) (LxWxH)	Bluetooth Version	ANT™ Support	I/F	RAM (kB)	Certifi- cation	Tempera- ture
nRF51 Basic (Software Support : Nordic)	EYSGCNZWY	9.6x12.9x2.0	V4.2		UART SPI I2C PDM	32	Japan FCC IC (CE)※1	-25~+85 deg-C
	EYSGCNZXX	9.6x12.9x2.0	V4.2			16		-40~+85 deg-C
	EYSGJNZWY	5.1x11.3x1.3	V4.2			32		-25~+85 deg-C
	EYSGJNZXX	5.1x11.3x1.3	V4.2			16		-40~+85 deg-C
	EYAGJNZXX	5.1x11.3x1.3	V4.2	✓		32		-25~+85 deg-C

Type	Part No.	Size(mm) (LxWxH)	Bluetooth Version	ANT™ Support	I/F	RAM (kB)	Certifi- cation	Tempera- ture
Application Embedded – Module (Software Support : TAIYO YUDEN)	EYSKBNUWB- WX	10.0x15.4x2.0	V5.0		UART, SPI,USB	N/A	Japan FCC IC (CE)※1	-40~+85 deg-C
	EYSKJNAWB- WX	5.1x11.3x1.3			UART			
	EYSGCNAWY- VX	9.6x12.9x2.0	V4.2		UART			-25~+85 deg-C
	EYSGJNAWY- VX	5.1x11.3x1.3						

※1 ETSI EN 300 328 conducted test report available



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