Wireless Module

Bluetooth® low energy Module Overview

May 20, 2019 Version 1.9
TAIYO YUDEN Bluetooth® low energy Module Line-Up

nRF52 Bluetooth® low energy Module

nRF52840 Module

EYSKBN Series

High-end

EYSKBN ZWBP
RAM 256kB
SoftDevice S140

EYSCHN Series

Big

EYSCHN ZWW
RAM 64kB
SoftDevice S132

EYSLCN Series

Small

EYSLCN ZWW
RAM 24kB
SoftDevice S112

EYSHJN Series

Ultra-small

EYSHJN ZWW
RAM 64kB
SoftDevice S132

EYSHSN Series

EYSHSN ZWW
RAM 64kB
SoftDevice S132

EYSLSN Series

EYSLSN ZWW
RAM 24kB
SoftDevice S112

TAIYO YUDEN
TAIYO YUDEN Bluetooth® low energy Module Line-Up

**nRF51x22 Bluetooth® low energy Module**

- **Big**
  - Embedded antenna
  - Int. 32kHz X’tal
  - Int. LC for DC/DC
  - 9.6 x 12.9 x 2.0 mm
  - EYSGJN Series
    - Basic Application
    - Embedded
  - EYSGCN Series
    - Basic

- **Small**
  - Embedded antenna
  - Ext. 32kHz X’tal
  - Ext. LC for DC/DC
  - 5.1 x 11.3 x 1.3 mm
  - EYSJN Series
    - Basic Application
    - Embedded

**Specifications**

- EYSGCN ZXX: RAM 16kB, SoftDevice S110
- EYSGCN ZWY: RAM 32kB, SoftDevice S120
- EYSGCN AWY-VX: TY’s App BT 4.2, UART Control
- EYSGCN AWY-WX: TY’s App BT 4.1, UART Control
- EYSJN ZXX: RAM 32kB, ANT + BLE SoftDevice S310
- EYSJN ZWY: RAM 16kB, SoftDevice S110
- EYSJN AWY-VX: TY’s App BT 4.2, UART Control
- EYSJN AWY-WX: TY’s App BT4.1, UART Control
Latest Documents for Bluetooth® low energy Module

EYSKBNZWB  http://www.yuden.co.jp/or/product/category/module/EYSKBNZWB.html
EYSHSNZWZ  http://www.yuden.co.jp/or/product/category/module/EYSHSNZWZ.html
EYSHCNZWZ  http://www.yuden.co.jp/or/product/category/module/EYSHCNZWZ.html
EYSHJNZWZ  http://www.yuden.co.jp/or/product/category/module/EYSHJNZWZ.html
EYSLSNZWW  http://www.yuden.co.jp/or/product/category/module/EYSLSNZWW.html
EYSLCNZWW  http://www.yuden.co.jp/or/product/category/module/EYSLCNZWW.html

EYSGCNZXX  http://www.yuden.co.jp/or/product/category/module/EYSGCNZXX.html
EYSGCNZWy  http://www.yuden.co.jp/or/product/category/module/EYSGCNZWy.html
EYSGJNZXX  http://www.yuden.co.jp/or/product/category/module/EYSGJNZXX.html
EYSGJNZWY  http://www.yuden.co.jp/or/product/category/module/EYSGJNZWY.html
EYAGJNZXX  http://www.yuden.co.jp/or/product/category/module/EYAGJNZXX.html

EYSGCNAWY-VX http://www.yuden.co.jp/or/product/category/module/EYSGCNAWY-VX.html
EYSGJNAWY-VX http://www.yuden.co.jp/or/product/category/module/EYSGJNAWY-VX.html
EYSGCNAWY-WX http://www.yuden.co.jp/or/product/category/module/EYSGCNAWY-WX.html
EYSGJNAWY-WX http://www.yuden.co.jp/or/product/category/module/EYSGJNAWY-WX.html

EYSHCNZXZ  http://www.yuden.co.jp/or/product/category/module/EYSHCNZXZ.html
EYSHJNZZXZ http://www.yuden.co.jp/or/product/category/module/EYSHJNZZXZ.html

- The documents for the evaluation board and evaluation kit are also available on the above page.
- The Japanese documents are available on the following page.
  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

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Bluetooth® low energy Module Sample, Evaluation Board / Kit

<table>
<thead>
<tr>
<th>EYSKBNZWB (Module)</th>
<th>EBSKBNZWB (EV-B)</th>
<th>EKSKBNZWB (EV-K)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module samples</strong></td>
<td><strong>Evaluation board</strong></td>
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<tr>
<td><img src="image1" alt="Module samples" /></td>
<td><img src="image2" alt="Evaluation board" /></td>
<td><img src="image3" alt="Evaluation kit" /></td>
</tr>
</tbody>
</table>

- **Tray**
- **Tape**

TAIYO YUDEN

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 0.85mm 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

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**Block Diagram**

**Outline**

<table>
<thead>
<tr>
<th>Top View</th>
<th>Bottom View</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: mm</td>
<td>3.25</td>
</tr>
<tr>
<td>8.55</td>
<td></td>
</tr>
</tbody>
</table>

**Features Outline**

- VCC
- DEC4
- DCC
- SWD (2)
- GPIO (15)
- External 32.768kHz X’tal connectable
- GND

**Block Diagram**

- Filter
- RF+BB
- ARM Cortex M4F
- X’tal (32MHz)
- I/O
Bluetooth® low energy Module Sample, Evaluation Board / Kit

**EYSN** (Module)
- Module samples

**EB** (EV-B)
- Evaluation board

**EKS** (EV-K)
- Evaluation kit

- Tray
- Tape

**SEGG** 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
• 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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Bluetooth® low energy Module Sample, Evaluation Board / Kit

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<tr>
<td>or</td>
<td></td>
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TAIYO YUDEN
**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 1.3mm 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**
- 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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Bluetooth® low energy Module Sample, Evaluation Board / Kit

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TAIYO YUDEN
**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

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**Block Diagram**

- Filter
- RF+BB
- ARM Cortex M4
- X’tal (32MHz)
- I/O
- DEC4
- SWD (2)
- GPIO (15)
- External 32.768kHz X’tal connectable
- VCC
- DCC
- GND

**Outline**

- Top View
- Bottom View

**Unit: mm**

- 3.25
- 8.55
Bluetooth® low energy Module Sample, Evaluation Board / Kit

- **EYSLSNZWW** (Module)
  - Module samples
  - Tray

- **EBSLSNZWW** (EV-B)
  - Evaluation board

- **EKSLSNZWW** (EV-K)
  - Evaluation kit
  - SEGGER J-Link LITE Attached

*TAIYO YUDEN*
**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

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

<table>
<thead>
<tr>
<th></th>
<th>EYSLCNZWW (Module)</th>
<th>EBSLCNZWW (EV-B)</th>
<th>EKSLCNZWW (EV-K)</th>
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<tr>
<td><strong>Module samples</strong></td>
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<td><img src="image" alt="Module samples" /></td>
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<tr>
<td><img src="image" alt="Evaluation kit" /></td>
<td></td>
<td></td>
<td>SEGGER J-Link LITE Attached</td>
</tr>
</tbody>
</table>

- **EYSLCNZWW (Module)**
  - Module samples
  - Tray
  - Tape

- **EBSLCNZWW (EV-B)**
  - Evaluation board

- **EKSLCNZWW (EV-K)**
  - Evaluation kit
  - SEGGER J-Link LITE Attached
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 Rev.3 (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
- 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

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**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 Rev.3 (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
- 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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Bluetooth® low energy Module Sample, Evaluation Board / Kit

<table>
<thead>
<tr>
<th>EYSGCNZXX, EYSGCNZWY (Module)</th>
<th>EBSGCNZWY (EV-B)</th>
<th>EKSGCNZWY (EV-K)</th>
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</tr>
<tr>
<td>Or</td>
<td><img src="image4" alt="Tape" /></td>
<td><img src="image5" alt="Tape" /></td>
</tr>
<tr>
<td><img src="image6" alt="Tray" /></td>
<td><img src="image7" alt="Tray" /></td>
<td><img src="image8" alt="Tray" /></td>
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<tr>
<td><img src="image9" alt="Tape" /></td>
<td><img src="image10" alt="Tape" /></td>
<td><img src="image11" alt="Tape" /></td>
</tr>
</tbody>
</table>

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 Rev.3 (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

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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 Rev3 (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

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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**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 Rev 3 (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
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- RoHS compliant / Complete Lead Free

**Applications**
- Cycle computer
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- Thermometer
- Mobile accessories
- Sports and fitness sensors
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## Bluetooth® low energy Module Sample, Evaluation Board / Kit

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<td>Tray or Tape</td>
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</table>

**TAIYO YUDEN**

23
Application Layer image for **Basic Module**

**Bluetooth® low energy Device**

- Switch
- Sensors
- Clock
- LED
- Data

**nRF51822, 422 module**

- Temperature Sensor
- Power Regulator
- 32MHz X’tal
- 32kHz X’tal (EYSGCN)

**Antenna**

**Application (Profiles)**

- Generic Attribute Server
- Generic Attribute Client
- SM
- ATT
- L2CAP
- LL
- PHY
- DTM

- **EYSGCN, EYSJGN, EYAGJN Basic Module**

**Nordic SDK**

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

Basic module will be written under GATT.

**Softdevice**

- **GAP:** Generic Access Profile
- **SM:** Security Manager
- **ATT:** Attribute Protocol
- **L2CAP:** Logical Link Control and Adaptation Protocol
- **LL:** Link Layer
- **PHY:** Physical Layer
- **DTM:** Direct Test Mode
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
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- Remote controllers / Toys

All specifications are subject to change without notice.

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TAIYO YUDEN
Bluetooth low energy Module Sample, Evaluation Board

<table>
<thead>
<tr>
<th>EYSGCNAWY-VX (Module)</th>
<th>EBSGCNAWY-VX (EV-B)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module samples</strong></td>
<td><strong>Evaluation board</strong></td>
</tr>
</tbody>
</table>

- ![Module samples](image1)
- ![Evaluation board](image2)
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 1.3mm 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

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Bluetooth low energy Module Sample, Evaluation Board

<table>
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<th>EYSGJNAWY-VX (Module)</th>
<th>EBSGJNAWY-VX (EV-B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Module samples</td>
<td>■ Evaluation board</td>
</tr>
</tbody>
</table>

TAIYO YUDEN
Bluetooth® low energy Module: EYSGCNAWY-WX

Features
- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth 4.1 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
- 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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## Bluetooth low energy Module Sample, Evaluation Board

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<td>EBSGCNAWY-WX (EV-B)</td>
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<tr>
<td>Module samples</td>
<td>Evaluation board</td>
</tr>
<tr>
<td>Tray</td>
<td>Tape</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
</tbody>
</table>

**Taiyo Yuden**
Bluetooth® low energy Module  EYSGJNAWY-WX

Features
- Frequency: 2402 to 2480 MHz
- Output power: +4dBm typ.
- Single power supply: 1.8 – 3.6V
- Single Mode Bluetooth 4.1 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 1.3mm 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

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

Blonde Diagram

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### Bluetooth low energy Module Sample, Evaluation Board

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<tr>
<td><strong>Module samples</strong></td>
<td><strong>Evaluation board</strong></td>
</tr>
</tbody>
</table>

- Tray
- Tape

![Module samples](image1)

![Evaluation board](image2)
Application Layer image for **Application Embedded Module**

**Bluetooth® low energy Device**

- **nRF51822 module**
  - Power Management
  - Application
    - Generic Attribute Server
    - Generic Attribute Client
    - SM
    - ATT
    - L2CAP
    - LL
    - PHY
    - DTM

**Connection option**

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

**Softdevice**

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

**EYSGCN, EYSGJN**

Application Embedded Module

Taiyo Yuden
## Bluetooth® low energy standard module

<table>
<thead>
<tr>
<th>Type</th>
<th>Part No.</th>
<th>Size (LxWxH)</th>
<th>Specification</th>
<th>ANT™ Support</th>
<th>I/F</th>
<th>RAM</th>
<th>Certification</th>
<th>Temperature</th>
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<td>64kB</td>
<td></td>
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<td>5.1x11.3 x1.3mm</td>
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<td>EYSHJNZZWZ</td>
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<td>Basic</td>
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<td>32kB</td>
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<td>5.1x11.3x 1.3mm</td>
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<td>16kB</td>
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<tr>
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<td>EYAGJNZXX</td>
<td></td>
<td></td>
<td>✔</td>
<td>32kB</td>
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</tr>
<tr>
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<td></td>
<td>✔</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

※1 Supported by S130 SoftDevice, ※2 ETSI EN 300 328 v2.1.1 conducted test report available
※3 Supported by EYSKBNZWB only, ※4 Supported by EYSKBNZWB and EYSHxNZWZ
TAIYO YUDEN