

# Bluetooth® Module

## Product By TAIYO YUDEN

No matter how far apart— several devices can be operated at the same time. The module is available worldwide, since the use of the 2.4 GHz band is license free in every country of the world.

Global standard that guarantees compatibility with products of all brands. TAIYO YUDEN CO., LTD. with customer with a reliable & small-sized module of low power consumption in the best harmony of core technologies: Multi-layer technology, High frequency designing technology & Mounting technology.

- EYSF2CAXX ; RF+B.B, UART, Ver.1.2\*1, RoHS Available(from Sep, '04)
- EYSF2CAXX-XX ; RF+B.B, UART, Embedded SPP, RoHS Available(from Sep, '04)
- EYSF2CSXX ; RF+B.B, USB, Ver.1.2\*1, RoHS Available(from Sep, '04)
- EYMF2CAMM ; ANT+RF+B.B, UART, Ver.1.2\*1 RoHS Available(from Jan, '05)
- EYMF2CAMM-XX ; ANT+RF+B.B, UART, Embedded SPP, RoHS Available(from Jan, '05)
- EYMF2CSMM ; ANT+RF+B.B, USB, Ver.1.2\*1, RoHS Available(from Jan, '05)
- EYTF2CSTT ; RF+B.B, USB, Connector Type, Ver.1.2\*1, RoHS Available(from Jan, '05)
- Up!! •EYSFCCSXX ; RF+B.B, USB, Connector Type, Ver.1.2, RoHS Available
- Up!! •EYSFDCSXX ; ANT+RF+B.B, USB, Connector Type, Ver.1.2, RoHS Available
- EWSCASQXX ; RF,CDMA I/F,5.1x5.1mm, RoHS Available
- New!! •EWSCBBQXX ; RF,CDMA I/F,5.0x4.0mm, RoHS Available
- New!! •EYSF1UAXX(-XX) ; RF+B.B, UART, Class1,(Embedded SPP), Ver.1.2, RoHS Available
- EYSF2CSUU ; USB Adaptor (Dongle)
- Evaluation Kit, Evaluation Board

\*All modules mentioned above are Class 2 unless stated.

\*Ver. 1.2\*1 ; Ver. 1.2 Mandatory Available (include Faster Connection, AFH)

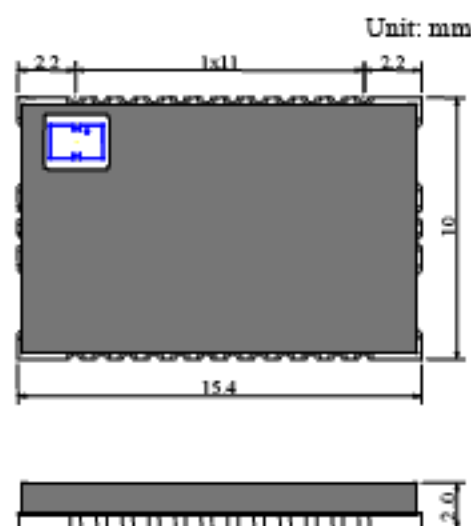
\*RoHS ; Restriction of the use of certain hazardous substances in electrical and electronic equipment.

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# TAIYO YUDEN

**Features**

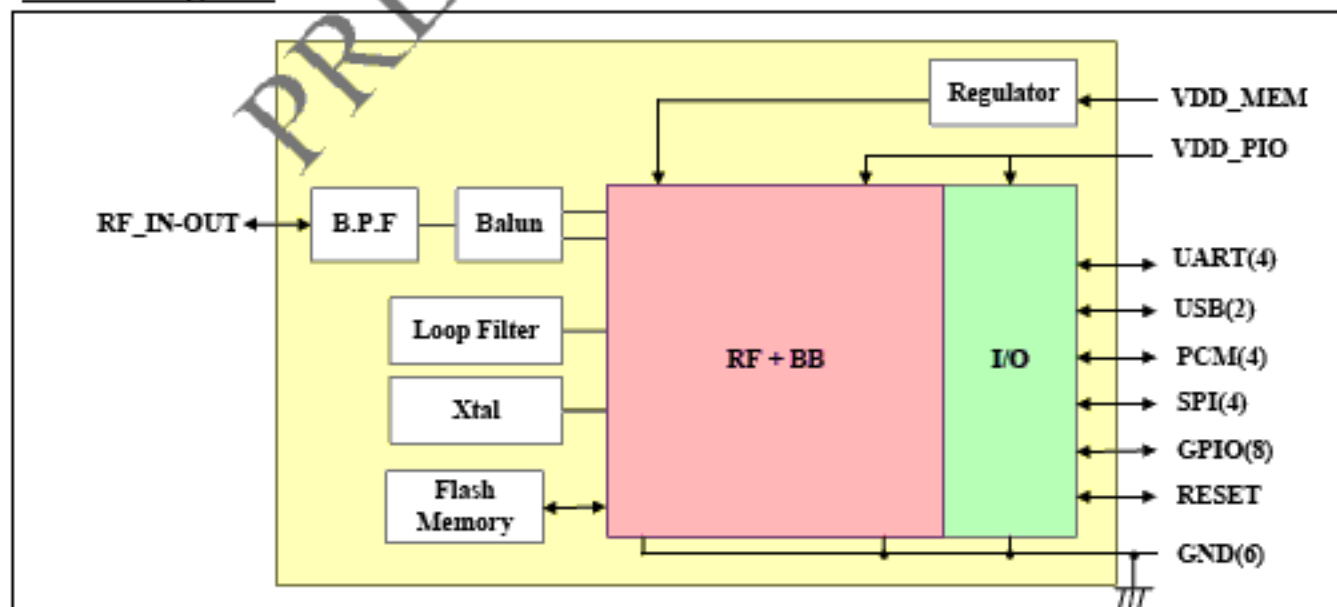
- The module is a Max.4dBm( Class2 ) module.
- Bluetooth® standard Ver. 1.2 conformity.
- Internal baseband clock oscillator.
- Internal 1.8V regulator
- Low current consumption
- Support functions  
SCO links,ACL links,Piconet<7>,Hold,Sniff,Park, AFH, Faster connection
- Interface:EYSF2CAXX:UART&PCM(for voice CODEC)
- Protocol stack:Under HCI firmware
- Small outline. 15.4 x 10 x 2.0 mm

**Outline****Applications**

- Notebook PC
- PDA
- Cellular Phone

**General Electrical Specification**

| Parameter                   | Description             | Min.         | Typ. | Max.         | Units |
|-----------------------------|-------------------------|--------------|------|--------------|-------|
| Carrier Frequency           |                         | 2.402        |      | 2.480        | GHz   |
| Operating Voltage (VDD_MEM) |                         | 3.00         | 3.30 | 3.60         | V     |
| Operating Voltage (VDD_PIO) |                         | 3.00         | 3.30 | 3.60         | V     |
| RF Output Power             | measured in 50 ohm      | -6           | 0    | 4            | dBm   |
| RX Sensitivity              |                         |              | -83  | -70          | dBm   |
| Load Impedance              | No abnormal Oscillation |              |      | 5:1          | -     |
| Input Low Voltage           | RESET, UART, GPIO, PCM  | -0.30        | -    | 0.80         | V     |
| Input High Voltage          | RESET, UART, GPIO, PCM  | 0.70VDD_PIO  | -    | VDD_PIO+0.30 | V     |
| Output Low Voltage          | UART, GPIO, PCM         | -            | -    | 0.40         | V     |
| Output High Voltage         | UART, GPIO, PCM         | VDD_PIO-0.40 | -    | -            | V     |
| Average Current Consumption | Receive DM1             |              | 46   | -            | mA    |

**Block Diagram**

Note: The above PRELIMINARY data are not guaranteed and are subject to change without notice.

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## Simple Cable Replacement

EYSF2CA\*\*-\*\*

Features

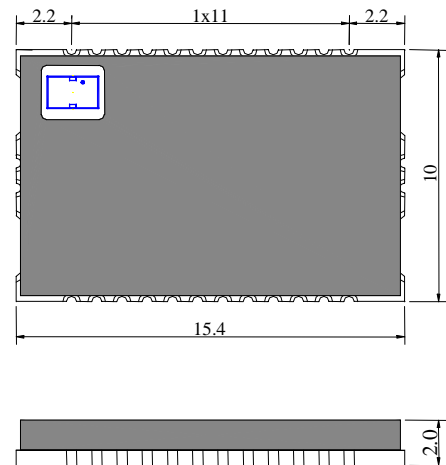
- The module is a Max.4dBm( Class2 ) module.
  - Bluetooth® standard Ver1.1 conformity.
  - Internal baseband clock oscillator.
  - Internal 1.8V regulator
  - Low current consumption
  - Support functions
- Serial Port Emulation (Point-To-Point)
- Interface: UART
  - Protocol Stack/Profile (L2CAP,RFCOMM,SDP,GAP,SPP)
  - Small outline. 15.4 x 10 x 2.0 mm

Applications

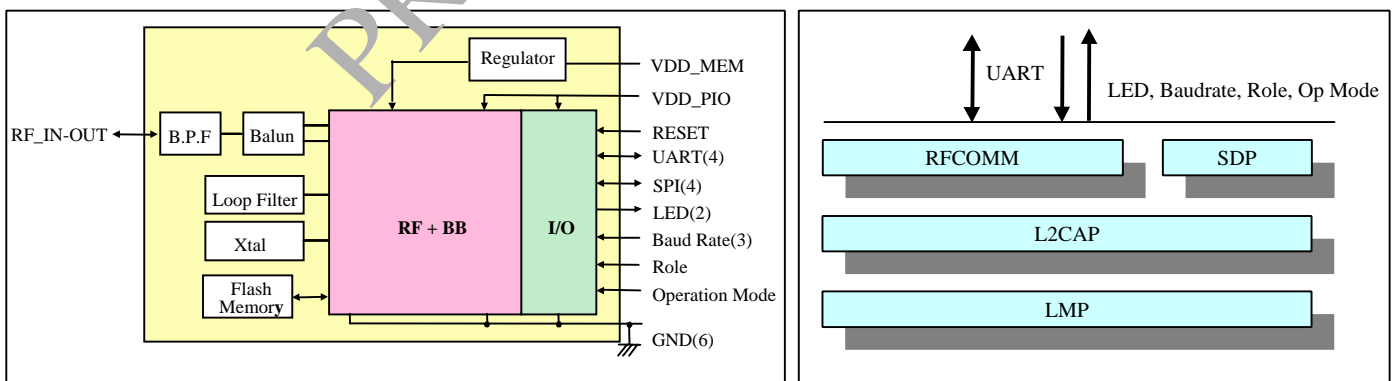
- POS,Barcode Reader,FA equipments

Outline

Unit: mm

General Electrical Specification

| Parameter                   | Description             | Min.         | Typ. | Max.         | Units |
|-----------------------------|-------------------------|--------------|------|--------------|-------|
| Carrier Frequency           |                         | 2.402        |      | 2.480        | GHz   |
| Operating Voltage (VDD_MEM) |                         | 3.00         | 3.30 | 3.60         | V     |
| Operating Voltage (VDD_PIO) |                         | 3.00         | 3.30 | 3.60         | V     |
| RF Output Power             | measured in 50 ohm      | -6           | 0    | 4            | dBm   |
| RX Sensitivity              |                         |              | -83  | -70          | dBm   |
| Load Impedance              | No abnormal Oscillation |              |      | 5:1          | -     |
| Input Low Voltage           | RESET, UART, GPIO       | -0.30        | -    | 0.80         | V     |
| Input High Voltage          | RESET, UART, GPIO       | 0.70VDD_PIO  | -    | VDD_PIO+0.30 | V     |
| Output Low Voltage          | UART, GPIO              | -            | -    | 0.40         | V     |
| Output High Voltage         | UART, GPIO              | VDD_PIO-0.40 | -    | -            | V     |
| Average Current Consumption | Receive DMI Packet      |              | TBD  | -            | mA    |

Block Diagram

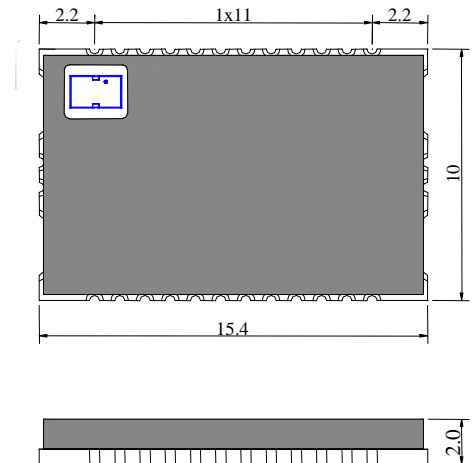
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**Features**

- The module is a Max.4dBm( Class2 ) module.
- Bluetooth® standard Ver. 1.2 conformity.
- Internal baseband clock oscillator.
- Internal 1.8V regulator
- Low current consumption
- Support functions  
SCO links,ACL links,Piconet<7>,Hold,Sniff,Park, AFH, Faster connection
- Interface:EYSF2CSXX: USB(for data and voice)
- Protocol stack:Under HCI firmware
- Small outline. **15.4 x 10 x 2.0 mm**

**Outline**

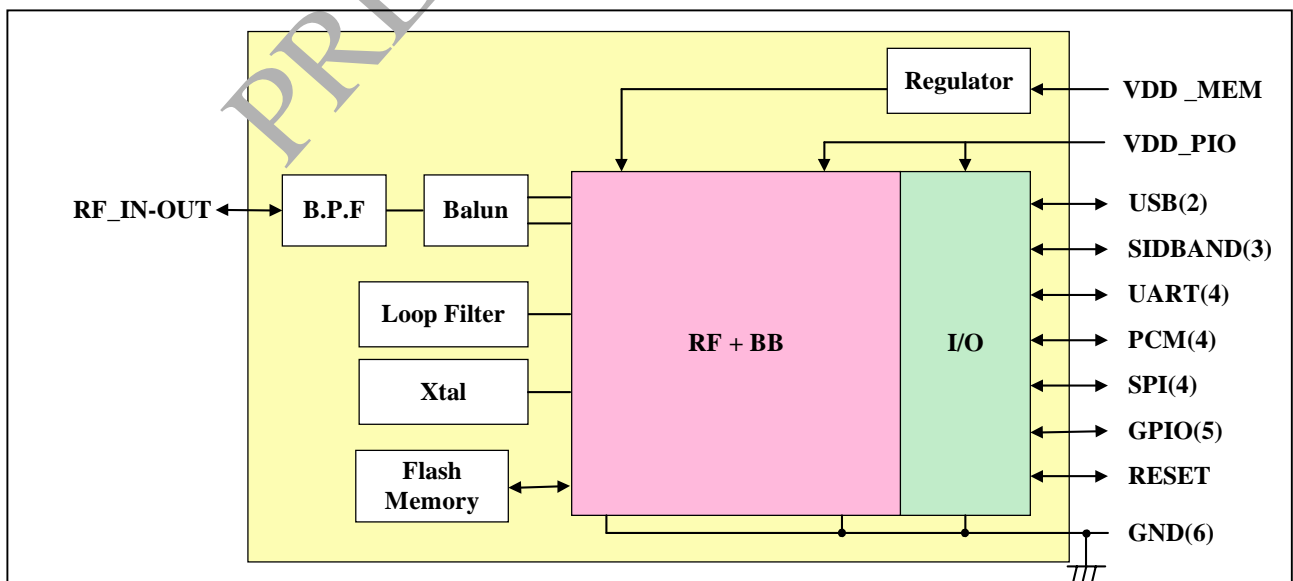
Unit: mm

**Applications**

- Notebook PC
- PDA

**General Electrical Specification**

| Parameter                   | Description             | Min.         | Typ. | Max.         | Units |
|-----------------------------|-------------------------|--------------|------|--------------|-------|
| Carrier Frequency           |                         | 2.402        |      | 2.480        | GHz   |
| Operating Voltage (VDD_MEM) |                         | 3.10         | 3.30 | 3.45         | V     |
| Operating Voltage (VDD_PIO) |                         | 3.10         | 3.30 | 3.45         | V     |
| RF Output Power             | measured in 50 ohm      | -6           | 0    | 4            | dBm   |
| RX Sensitivity              |                         |              | -83  | -70          | dBm   |
| Load Impedance              | No abnormal Oscillation |              |      | 5:1          | -     |
| Input Low Voltage           | RESET, SIDBAND, GPIO    | -0.30        | -    | 0.80         | V     |
| Input Low Voltage           | D+, D-                  | -            | -    | 0.80         | V     |
| Input High Voltage          | RESET, SIDBAND, GPIO    | 0.70VDD_PIO  | -    | VDD_PIO+0.30 | V     |
| Input High Voltage          | D+, D-                  | 2.00         | -    | -            | V     |
| Output Low Voltage          | SIDBAND, GPIO           | -            | -    | 0.40         | V     |
| Output Low Voltage          | D+, D-                  | -            | -    | 0.30         | V     |
| Output High Voltage         | SIDBAND, GPIO           | VDD_PIO-0.40 | -    | -            | V     |
| Output High Voltage         | D+, D-                  | 2.80         | -    | -            | V     |
| Average Current Consumption | Receive DM1             |              | 48   | -            | mA    |

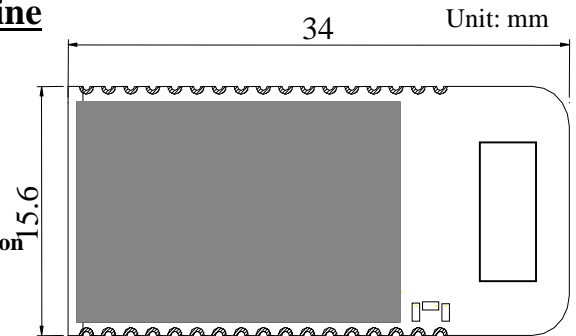
**Block Diagram**

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**TAIYO YUDEN****Bluetooth® Module****Class 2 UART All In One(ANT+RF+BB) EYMF2Camm****Features**

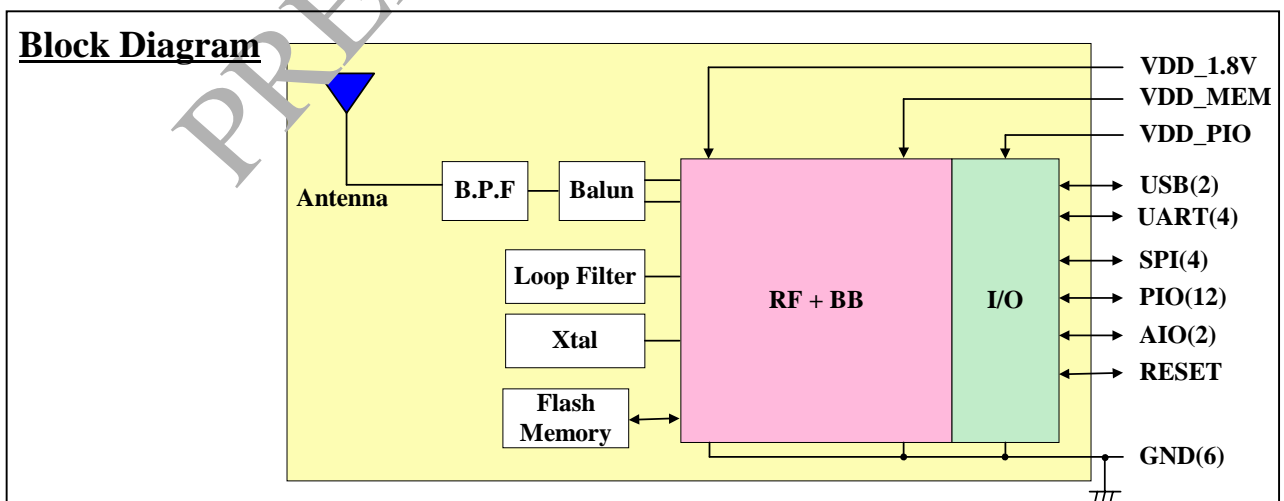
- Antenna is provided on board
- The module is Max.4 dBm( Class2 )module
- Bluetooth® standard Ver. 1.2 conformity
- Internal baseband clock oscillator
- Low current consumption
- Support functions  
ACL links, Piconet<7>, Hold, Sniff, Park, AFH, Faster connection
- Interface: UART
- HCI module
- Outline: 34.0 x 15.6 x 3.7 mm

**Outline****Applications**

- PC & peripheral

**General Electrical Specification**

| Parameter                   | Description                  | Min.       | Typ. | Max.     | Units    |
|-----------------------------|------------------------------|------------|------|----------|----------|
| Carrier Frequency           |                              | 2.402      |      | 2.480    | GHz      |
| Operating Voltage(VDD_MEM)  | VDD_MEM = VDD_PIO            | 3.0        | 3.3  | 3.6      | V        |
| Operating Voltage(VDD_PIO)  | VDD_MEM = VDD_PIO            | 3.0        | 3.3  | 3.6      | V        |
| Operating Voltage(VDD_1.8)  |                              | 1.75       | 1.8  | 1.9      | V        |
| RF Output Power             | Measured in 50 ohm           | -6         | 0    | 4        | dBm      |
| RX Sensitivity              |                              | -          | -83  | -70      | dBm      |
| Load Impedance              | No abnormal Oscillation      | -          |      | 5:1      | -        |
| Operation temperature range |                              | 0          | 25   | 70       | Degree C |
| Input Low Voltage           | PIO, AIO, SPI                | -0.3       |      | 0.8      | V        |
| Input Low Voltage           | UART_RX, UART_CTS            | -0.3       |      | 0.8      | V        |
| Input Low Voltage           | RESET                        | -0.3       |      | 0.8      | V        |
| Input High Voltage          | PIO, AIO, SPI                | 0.7VDD_PIO |      | VDD +0.3 | V        |
| Input High Voltage          | UART_RX, UART_CTS            | 0.7VDD_PIO |      | VDD +0.3 | V        |
| Input High Voltage          | RESET                        | 0.7VDD_PIO |      | VDD +0.3 | V        |
| Output Low Voltage          | PIO, AIO, SPI                | -          |      | 0.4      | V        |
| Output Low Voltage          | UART_TX, UART_RTS            | -          |      | 0.4      | V        |
| Output High Voltage         | PIO, AIO, SPI                | VDD -0.4   |      | -        | V        |
| Output High Voltage         | UART_TX, UART_RTS            | VDD -0.4   |      | -        | V        |
| Average Current Consumption | Receive DM1(VDD_MEM,VDD_PIO) |            | 14   | -        | mA       |
|                             | Receive DM1(VDD_1.8)         |            | 35   | -        |          |

**Block Diagram**

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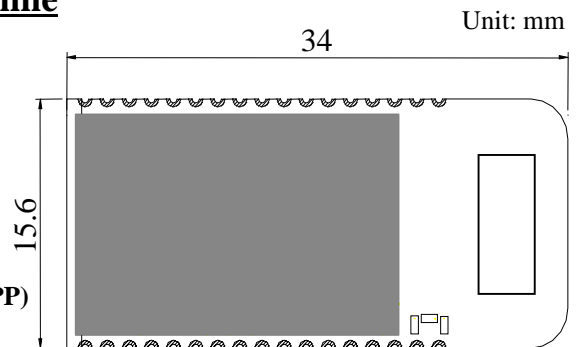
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## Simple Cable Replacement

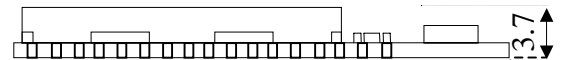
EYMF2CA\*\*-\*\*

Features

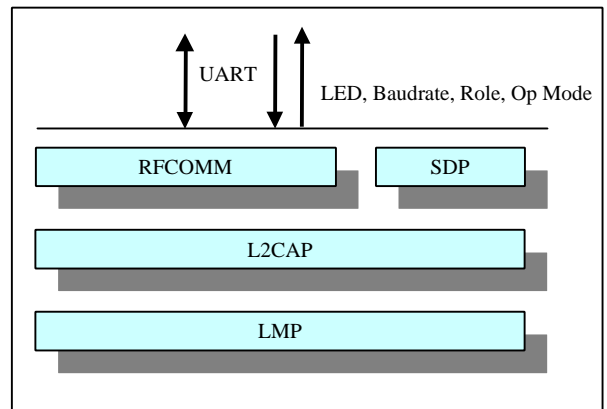
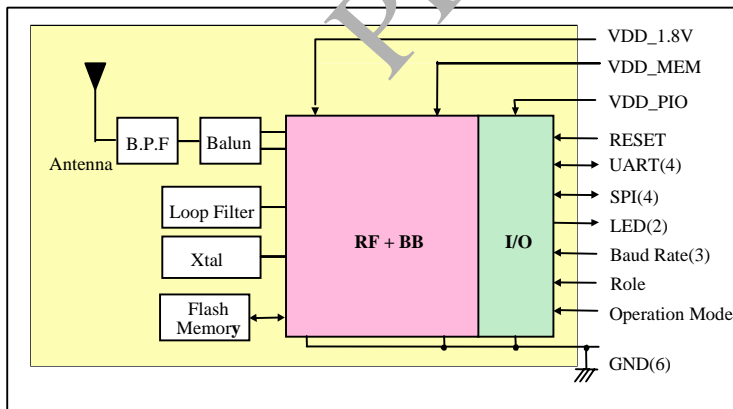
- Antenna is provided on board
- The module is Max.4 dBm( Class2 )module
- Bluetooth® standard Ver.1.1 conformity
- Internal baseband clock oscillator
- Low current consumption
- Support functions  
Serial Port Emulation (Point-To-Point)
- Interface: UART
- Protocol Stack/Profile (L2CAP,RFCOMM,SDP,GAP,SPP)
- Outline: 34.0 x 15.6 x 3.7 mm

OutlineApplications

- POS,Barcode Reader,FA equipments

General Electrical Specification

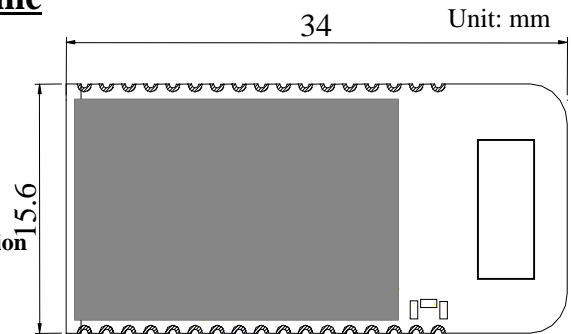
| Parameter                     | Description             | Min.       | Typ. | Max.     | Units    |
|-------------------------------|-------------------------|------------|------|----------|----------|
| Carrier Frequency             |                         | 2.402      |      | 2.480    | GHz      |
| Operating Voltage(VDD_MEM)    |                         | 3.0        | 3.3  | 3.6      | V        |
| Operating Voltage(VDD_PIO)    |                         | 3.0        | 3.3  | 3.6      | V        |
| Operating Voltage(VDD_1.8V)   |                         | 1.7        | 1.8  | 1.9      | V        |
| RF Output Power               | Measured in 50 ohm      | -6         | 0    | 4        | dBm      |
| RX Sensitivity                |                         | -          | -83  | -70      | dBm      |
| Load Impedance                | No abnormal Oscillation | -          |      | 5:1      | -        |
| Operation temperature range   |                         | 0          | 25   | 70       | Degree C |
| Input Low Voltage             | PIO, AIO, SPI           | -0.3       |      | 0.8      | V        |
| Input Low Voltage             | UART_RX, UART_CTS       | -0.3       |      | 0.8      | V        |
| Input Low Voltage             | RESET                   | -0.3       |      | 0.8      | V        |
| Input High Voltage            | PIO, AIO, SPI           | 0.7VDD_PIO |      | VDD +0.3 | V        |
| Input High Voltage            | UART_RX, UART_CTS       | 0.7VDD_PIO |      | VDD +0.3 | V        |
| Input High Voltage            | RESET                   | 0.7VDD_PIO |      | VDD +0.3 | V        |
| Output Low Voltage            | PIO, AIO, SPI           | -          |      | 0.4      | V        |
| Output Low Voltage            | UART_TX, UART_RTS       | -          |      | 0.4      | V        |
| Output High Voltage           | PIO, AIO, SPI           | VDD -0.4   |      | -        | V        |
| Output High Voltage           | UART_TX, UART_RTS       | VDD -0.4   |      | -        | V        |
| Average Current Consumption 1 | Receive DM1 Packet      |            | TBD  | -        | mA       |

Block Diagram

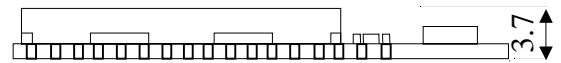
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**TAIYO YUDEN****Bluetooth® Module****Class 2 USB All In One(ANT+RF+BB)****EYMF2CSMM****Features**

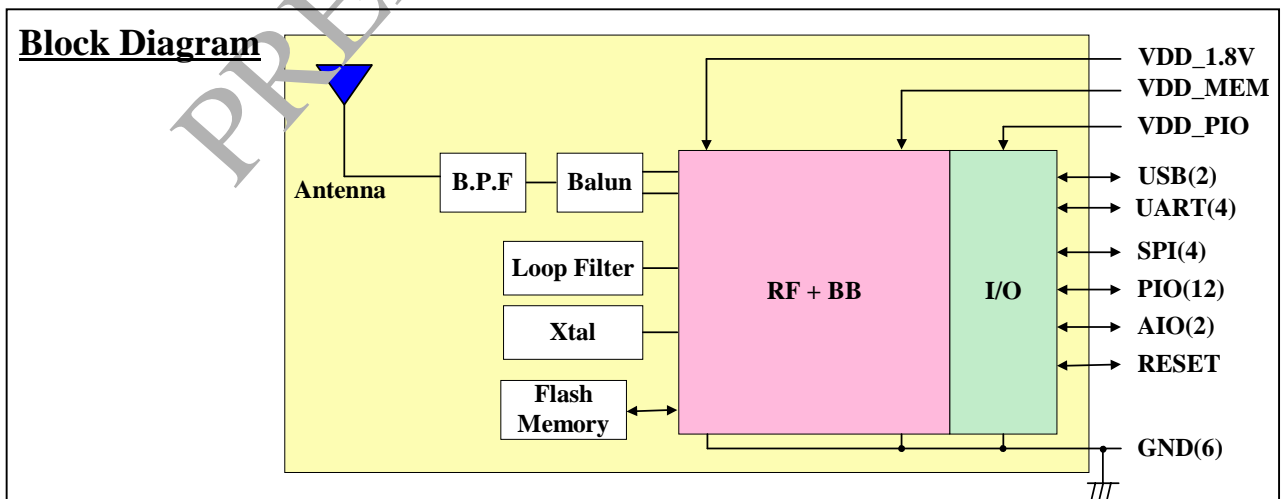
- Antenna is provided on board
- The module is Max.4 dBm( Class2 )module
- Bluetooth® standard Ver. 1.2 conformity
- Internal baseband clock oscillator
- Low current consumption
- Support functions  
ACL links, Piconet<7>, Hold, Sniff, Park, AFH, Faster connection
- Interface: USB
- HCI module
- Outline: 34.0 x 15.6 x 3.7 mm

**Outline****Applications**

- PC & peripheral

**General Electrical Specification**

| Parameter                   | Description                  | Min.        | Typ. | Max.     | Units    |
|-----------------------------|------------------------------|-------------|------|----------|----------|
| Carrier Frequency           |                              | 2.402       |      | 2.480    | GHz      |
| Operating Voltage(VDD_MEM)  |                              | 3.1         | 3.3  | 3.45     | V        |
| Operating Voltage(VDD_PIO)  |                              | 3.1         | 3.3  | 3.45     | V        |
| Operating Voltage(VDD_1.8V) |                              | 1.7         | 1.8  | 1.9      | V        |
| RF Output Power             | Measured in 50 ohm           | -6          | 0    | 4        | dBm      |
| RX Sensitivity              |                              | -           | -83  | -70      | dBm      |
| Load Impedance              | No abnormal Oscillation      | -           |      | 5:1      | -        |
| Operation temperature range |                              | 0           | 25   | 70       | Degree C |
| Input Low Voltage           | PIO, AIO, SPI                | -0.3        |      | 0.8      | V        |
| Input Low Voltage           | D+, D-                       | -           |      | 0.8      | V        |
| Input Low Voltage           | RESET                        | -0.3        |      | 0.8      | V        |
| Input High Voltage          | PIO, AIO, SPI                | 0.7VDD_PIO  |      | VDD +0.3 | V        |
| Input High Voltage          | D+, D-                       | 2.0         |      | -        | V        |
| Input High Voltage          | RESET                        | 0.7VDD_PIO  |      | VDD +0.3 | V        |
| Output Low Voltage          | PIO,AIO,SPI                  | -           |      | 0.4      | V        |
| Output Low Voltage          | D+, D-                       | -           |      | 0.3      | V        |
| Output High Voltage         | PIO, AIO, SPI                | VDD_PIO-0.4 |      | -        | V        |
| Output High Voltage         | D+, D-                       | 2.8         |      | -        | V        |
| Average Current Consumption | Receive DM1(VDD_MEM,VDD_PIO) |             | 14   | -        | mA       |
|                             | Receive DM1(VDD_1.8)         |             | 37   | -        |          |

**Block Diagram**

Note: The above PRELIMINARY data are not guaranteed and are subject to change without notice.

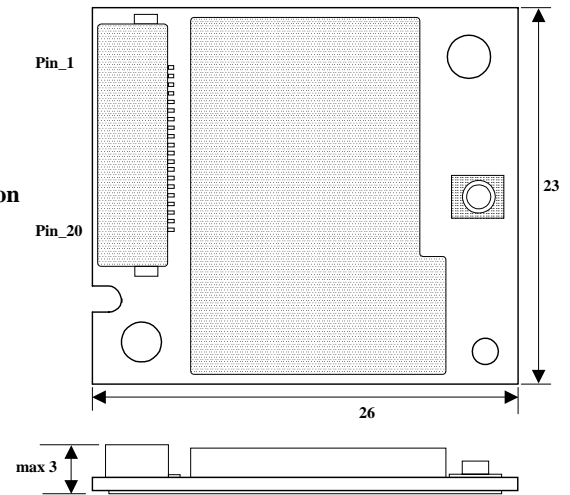
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**TAIYO YUDEN****Bluetooth® Module****Class 2 USB Connector Type Full Module****EYTF2CSTT****Features**

- The module is a Max.4dBm( Class2 ) module.
- Bluetooth® standard Ver. 1.2 conformity.
- Internal baseband clock oscillator.
- Internal 1.8V regulator.
- Low current consumption.
- Support functions  
ACL links, Piconet<7>, Hold, Sniff, Park, AFH, Faster connection
- USB Interface
- Protocol stack: Under HCI firmware.
- Outline: **26.0 x 23.0 x 3.0 mm.**

**Outline**

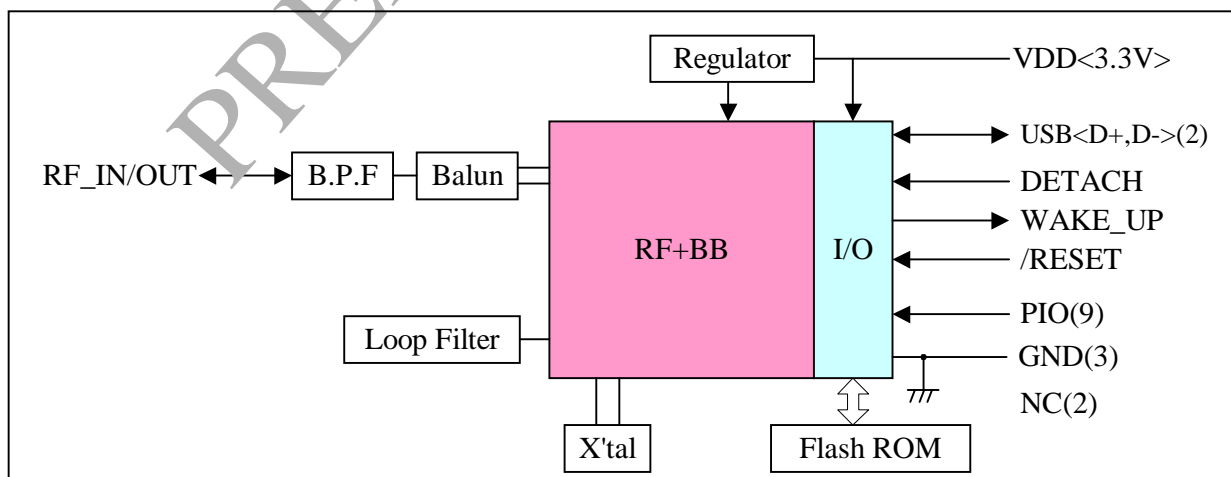
Unit: mm

**Applications**

- Notebook PC
- PDA

**General Electrical Specification**

| Parameter                   | Description             | Min.   | Typ. | Max.     | Units |
|-----------------------------|-------------------------|--------|------|----------|-------|
| Carrier Frequency           |                         | 2.402  |      | 2.480    | GHz   |
| Operating Voltage(VDD)      |                         | 3.15   | 3.3  | 3.45     | V     |
| RF Output Power             | Measured in 50 ohm      | -6     | 0    | 4        | dBm   |
| RX Sensitivity              |                         | -      | -83  | -70      | dBm   |
| Load Impedance              | No abnormal Oscillation | -      |      | 5:1      | -     |
| Input Low Voltage           | DETACH, PIO             | -0.3   |      | 0.56     | V     |
| Input Low Voltage           | D+,D-                   | -      |      | 0.8      | V     |
| Input Low Voltage           | /RESET                  | 0      |      | 0.6      | V     |
| Input High Voltage          | DETACH, PIO             | 2.47   |      | VDD +0.3 | V     |
| Input High Voltage          | D+, D-                  | 2.0    |      | -        | V     |
| Input High Voltage          | /RESET                  | High-Z |      | -        | V     |
| Output Low Voltage          | WAKE_UP                 | -      |      | 0.4      | V     |
| Output Low Voltage          | D+, D-                  | -      |      | 0.3      | V     |
| Output High Voltage         | WAKE_UP                 | 2.31   |      | -        | V     |
| Output High Voltage         | D+, D-                  | 2.8    |      | -        | V     |
| Average Current Consumption | Receive DM1             |        | 52.5 | -        | mA    |

**Block Diagram**

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# TAIYO YUDEN

# Bluetooth® Module

## Class 2 Full Module (RF Connector Type)

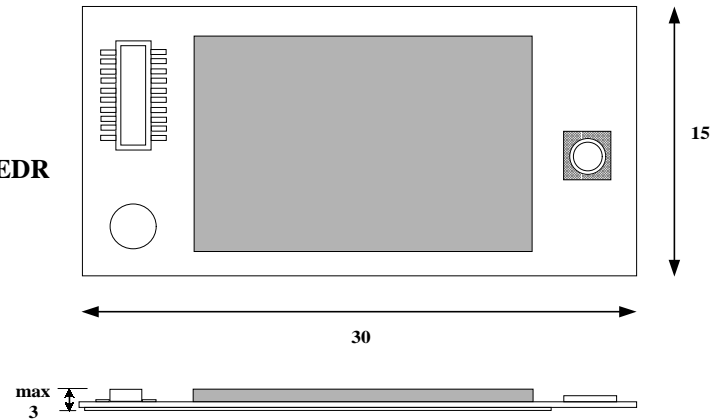
## EYSFCCSXX

### Features

- The module is a Max.4dBm( Class2 ) module.
- Bluetooth® standard Ver. 1.2 conformity.
- Internal baseband clock oscillator.
- Support functions
  - Bluetooth
    - ACL links, Piconet<7>, Scatternet <2.5>, Hold, Sniff, Park, AFH & Coexistence, Faster connection , eSCO , EDR
  - Others
    - Selective Suspend, Dual Boot.
- USB Interface
- Protocol stack: Under HCI firmware.
- Outline: 30 x 15 x 3 mm.
- Complete Lead Free
- RoHS Available

### Outline

Unit: mm



Board to Board Connector

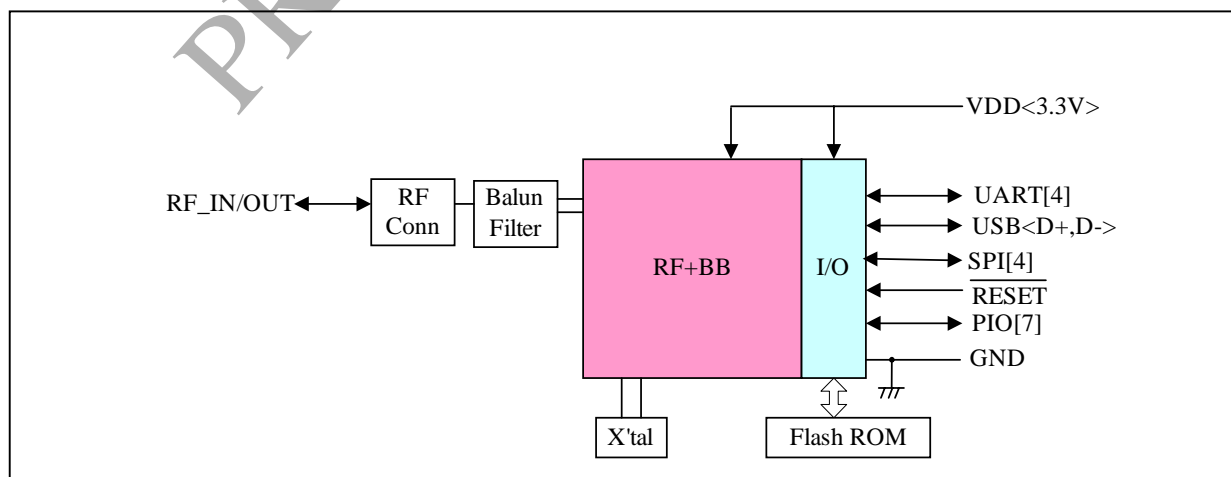
### Applications

- Notebook PC

### General Electrical Specification

| Parameter                   | Description             | Min.      | Typ.  | Max.     | Units |
|-----------------------------|-------------------------|-----------|-------|----------|-------|
| Carrier Frequency           |                         | 2.402     |       | 2.480    | GHz   |
| Operating Voltage (VDD)     | USB Interface           | 3.15      | 3.3   | 3.45     | V     |
| RF Output Power             | Measured in 50 ohm      | -6        | 0     | 4        | dBm   |
| RX Sensitivity              |                         | -         | -83   | -70      | dBm   |
| Load Impedance              | No abnormal Oscillation | -         |       | 5:1      | -     |
| Input Low Voltage           | /RESET, PIO             | -0.3      |       | 0.8      | V     |
| Input Low Voltage           | D+,D-                   | -         |       | 0.8      | V     |
| Input High Voltage          | /RESET, PIO             | 0.7 x VDD |       | VDD +0.3 | V     |
| Input High Voltage          | D+, D-                  | 2.0       |       | -        | V     |
| Output Low Voltage          | PIO                     | -         |       | 0.4      | V     |
| Output Low Voltage          | D+, D-                  | -         |       | 0.3      | V     |
| Output High Voltage         | PIO                     | 0.8 x VDD |       | -        | V     |
| Output High Voltage         | D+, D-                  | 2.8       |       | -        | V     |
| Average Current Consumption | Receive DM1             |           | T.B.D | -        | mA    |

### Block Diagram



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# TAIYO YUDEN

## Bluetooth® Module

### Class 2 Full Module (Antenna Type)

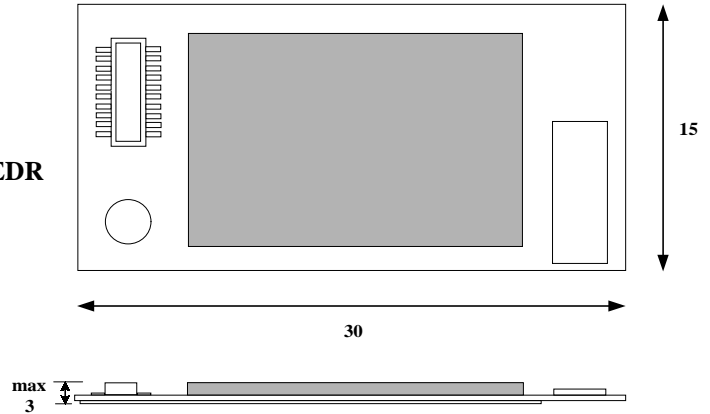
### EYSFDCSXX

#### Features

- The module is a Max.4dBm( Class2 ) module.
- Bluetooth® standard Ver. 1.2 conformity.
- Internal baseband clock oscillator.
- Support functions
  - Bluetooth
    - ACL links, Piconet<7>, Scatternet <2.5>, Hold, Sniff, Park, AFH & Coexistence, Faster connection , eSCO , EDR
  - Others
    - Selective Suspend, Dual Boot.
- USB Interface
- Protocol stack: Under HCI firmware.
- Outline: 30 x 15 x 3 mm.
- Complete Lead Free
- RoHS Available

#### Outline

Unit: mm



Board to Board Connector

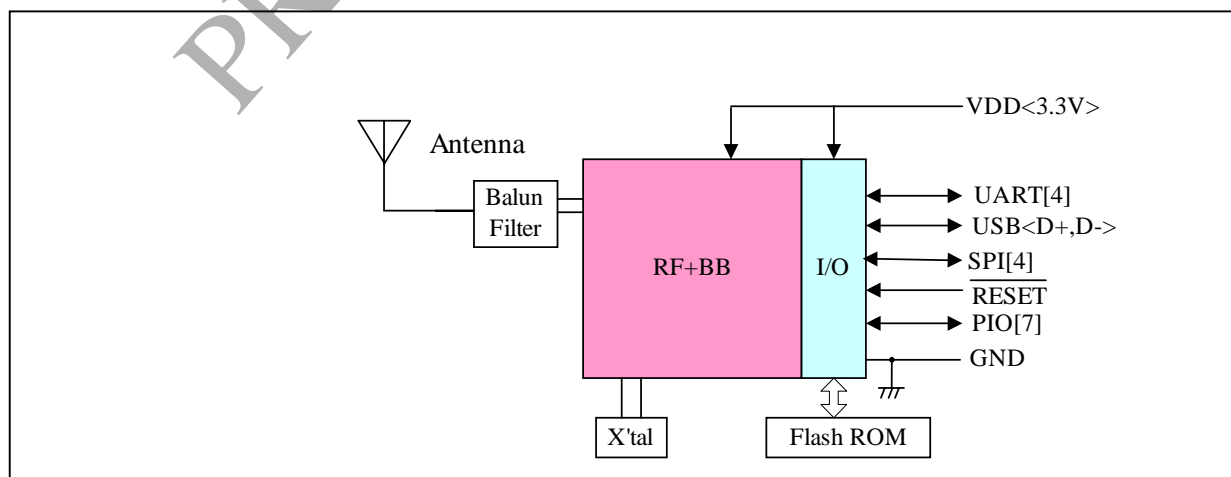
#### Applications

- Notebook PC

#### General Electrical Specification

| Parameter                   | Description             | Min.      | Typ.  | Max.     | Units |
|-----------------------------|-------------------------|-----------|-------|----------|-------|
| Carrier Frequency           |                         | 2.402     |       | 2.480    | GHz   |
| Operating Voltage (VDD)     | USB Interface           | 3.15      | 3.3   | 3.45     | V     |
| RF Output Power             | Measured in 50 ohm      | -6        | 0     | 4        | dBm   |
| RX Sensitivity              |                         | -         | -83   | -70      | dBm   |
| Load Impedance              | No abnormal Oscillation | -         |       | 5:1      | -     |
| Input Low Voltage           | /RESET, PIO             | -0.3      |       | 0.8      | V     |
| Input Low Voltage           | D+,D-                   | -         |       | 0.8      | V     |
| Input High Voltage          | /RESET, PIO             | 0.7 x VDD |       | VDD +0.3 | V     |
| Input High Voltage          | D+, D-                  | 2.0       |       | -        | V     |
| Output Low Voltage          | PIO                     | -         |       | 0.4      | V     |
| Output Low Voltage          | D+, D-                  | -         |       | 0.3      | V     |
| Output High Voltage         | PIO                     | 0.8 x VDD |       | -        | V     |
| Output High Voltage         | D+, D-                  | 2.8       |       | -        | V     |
| Average Current Consumption | Receive DM1             |           | T.B.D | -        | mA    |

#### Block Diagram

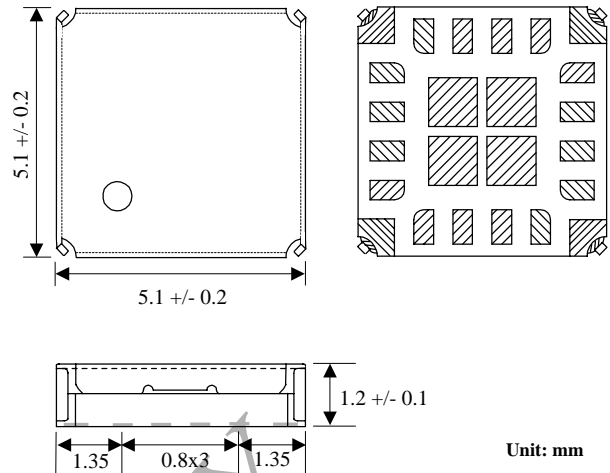


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**TAIYO YUDEN****Bluetooth® Module****Class2 Bluetooth® RF Module****EWSCASQ\*\*****Features**

- The module is a Max.4dBm ( Class2 ) module.
- Bluetooth® standard Ver1.1 conformity.
- Compatible with CDMA Interface.
- Supports multiple host reference clock inputs (19.2MHz, 19.68MHz and 19.8MHz)
- Supports multiple host reference clock inputs ( Reference clock frequency is corresponding to last 2 wild cards(\*\*) of the module name.  
“XX” : 19.2MHz, “XY” : 19.68MHz and “XZ” : 19.8MHz)
- Shield case type.
- Small outline by LTCC substrate built-in RF function.
- Outline : 5.1 x 5.1 x 1.2 mm Pin pitch 0.8mm
- 16 pin LGA package.
- Lead Free
- RoHS Available

**Outline**

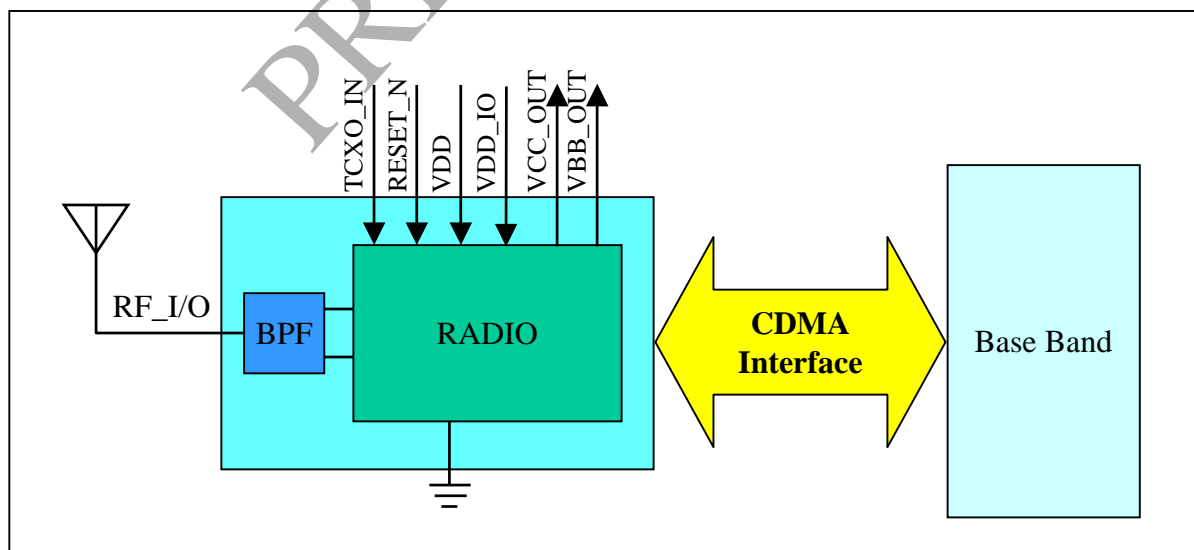
Unit: mm

**Applications**

- Cellular Phone

**General Electrical Specification**

| Parameter                               | Description              | Min.  | Typ. | Max.  | Units |
|---|--------------------------|-------|------|-------|-------|
| Carrier Frequency                       |                          | 2.402 |      | 2.480 | GHz   |
| Supply Voltage                          | VDD                      | 2.3   |      | 3.6   | V     |
| Supply Voltage                          | VDD_IO                   | 1.62  |      | 3.6   | V     |
| RF Output Power                         | Measured in 50 ohm       | -6    | -1   | 4     | dBm   |
| RX Sensitivity                          |                          |       | -80  | -70   | dBm   |
| TX Peak Current Consumption             | Worst Case Transmit Mode |       | 62   |       | mA    |
| RX Peak Current Consumption             | Worst Case Receive Mode  |       | 74   |       | mA    |
| General Operating Temperature condition |                          | -30   | 25   | 80    | deg-C |

**Block Diagram**

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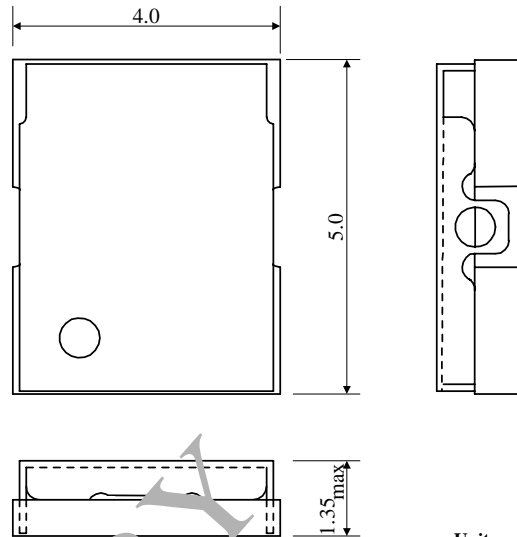
#### Features

- The module is a Max.4dBm ( Class2 ) module.
- Bluetooth® standard Ver1.1, 1.2 conformity.
- Compatible with CDMA Interface.
- Support the 19.2MHz host reference clock input.
- Shield case type.
- Small outline by LTCC substrate built-in RF function.
- Outline : 5.0 x 4.0 x 1.35max mm Pin pitch 0.75mm (Min)
- 16 pin LGA package.
- Lead Free
- RoHS Available

#### Applications

- Cellular Phone

#### Outline

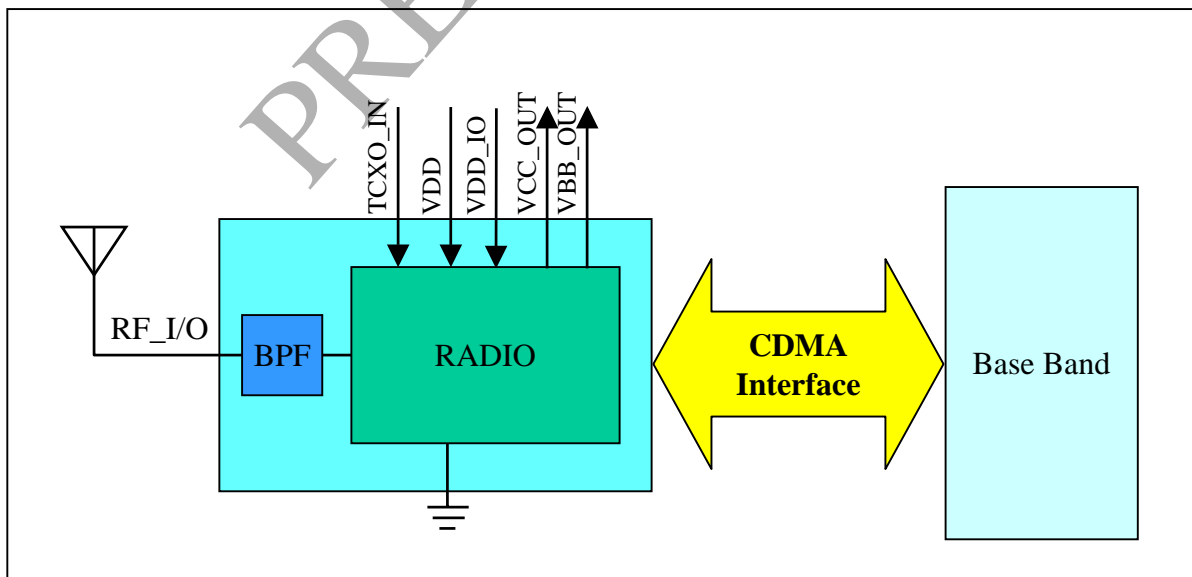


Unit: mm

#### General Electrical Specification

| Parameter                               | Description              | Min.  | Typ. | Max.  | Units |
|---|--------------------------|-------|------|-------|-------|
| Carrier Frequency                       |                          | 2.402 |      | 2.480 | GHz   |
| Supply Voltage                          | VDD                      | 1.9   |      | 3.6   | V     |
| Supply Voltage                          | VDD_IO                   | 1.62  |      | 2.92  | V     |
| RF Output Power                         | Measured in 50 ohm       | -6    |      | 4     | dBm   |
| RX Sensitivity                          |                          |       | -86  | -70   | dBm   |
| TX Peak Current Consumption             | Worst Case Transmit Mode |       | 37   |       | mA    |
| RX Peak Current Consumption             | Worst Case Receive Mode  |       | 38   |       | mA    |
| General Operating Temperature condition |                          | -30   | 25   | 80    | deg-C |

#### Block Diagram



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# TAIYO YUDEN

# Bluetooth® Module

## Class1 UART Full Module

## EYSF1UA\*\*, EYSF1UA\*\*-\*\*

### Features

- The module is a Max.20dBm( Class1 ) module.
- Bluetooth® standard Ver1.2(Mandatory) conformity.  
( Ready for Optional Ver1.2 features )
- Internal baseband clock oscillator.
- Support functions  
SCO links,ACL links,Piconet<7>,Hold,Sniff,Park,  
Power Control
- Interface:UART,PCM,GPIO
- Protocol stack:  
**Under HCI firmware Type,**  
**GAP+SDP+SPP+DUN+FAX+OPP+GOEP+HSP,**  
**A2DP+AVRCP+AVDTP+GAVDP+AVCTP+(HSP),**  
**HCRP+BIP +OPP+GOEP Stacked Type , etc**
- Small outline. 34.0 x 15.6 x 2.4 mm
- RoHS regulation substance (Pb.Cd.Hg.Cr+6.PBB.PBDE) :

Non use

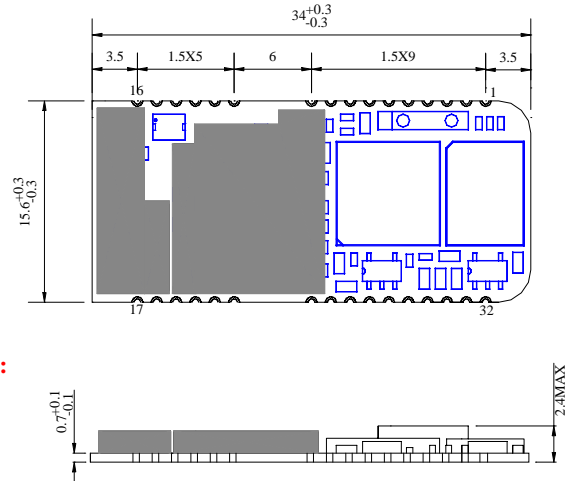
### Applications

- PC peripheral equipment
- Home Network , AV
- Access Point , FA etc

### General Electrical Specification

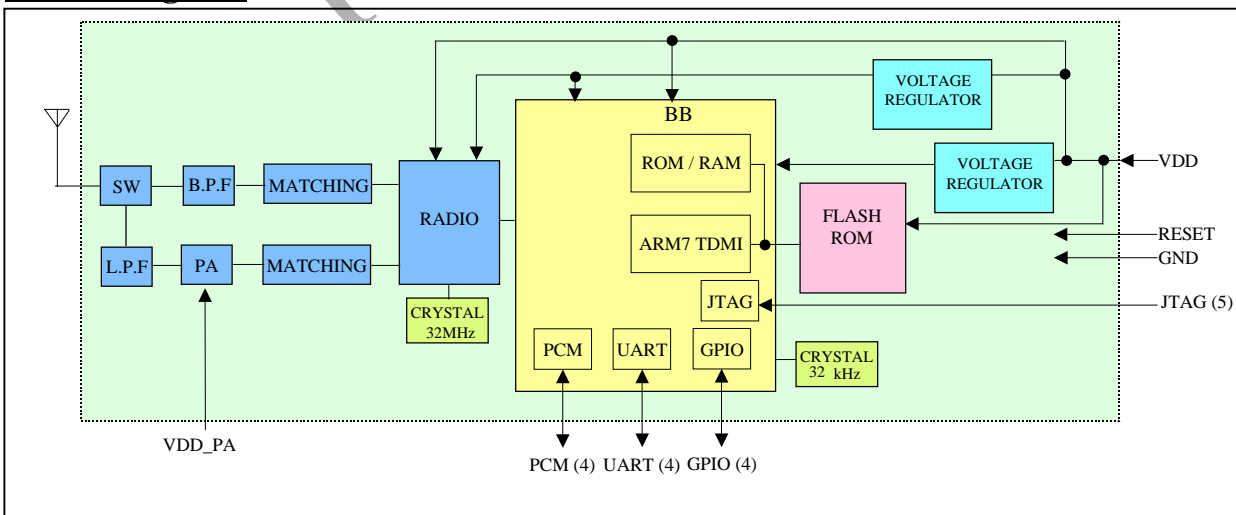
### Outline

Unit:mm



| Parameter                               | Description                                       | Min.    | Typ. | Max.   | Units |
|---|---|---------|------|--------|-------|
| Carrier Frequency                       |   | 2.402   |      | 2.480  | GHz   |
| Operating Voltage (VDD_PA)              |   | 3.2     | 3.3  | 3.4    | V     |
| Operating Voltage (VDD)                 |   | 3.2     |      | VDD_PA | V     |
| RF Output Power                         | measured in 50 ohm,VDD_PA=VDD=3.3V                |         | +17  | +20    | dBm   |
| RX Sensitivity                          |   |         | -81  | -70    | dBm   |
| Load Impedance                          | No abnormal Oscillation                           |         |      | 5:1    | -     |
| Input Low Voltage                       | UART,PCM,GPIO                                     | -       | -    | 0.2VDD | V     |
| Input High Voltage                      |   | 0.8VDD  | -    | -      | V     |
| Output Low Voltage                      |   |         | -    | 0.4    | V     |
| Output High Voltage                     |   | VDD-0.6 | -    | -      | V     |
| Peak Current                            | Continues TX, ,VDD=3.3V                           |         | 135  | 180    | mA    |
| Average Current Consumption 1           | Audio with HV3 ,VDD=3.3V ,<br>TX=Max Power, Slave |         | 43   |        | mA    |
| Average Current Consumption 2           | Send ,(Master) DH5 packet , 921.6kbps,HCI,        |         | 95   |        | mA    |
| Average Current Consumption 3           | Receive, (Slave) TX=Max Power,VDD=3.3V            |         | 56   |        | mA    |
| Average Current Consumption 4           | Deep Sleep ,VDD=3.3V                              |         | 0.9  |        | mA    |
| General Operating temperature condition |   | -20     |      | +70    | deg-C |

### Block Diagram



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# TAIYOYUDEN

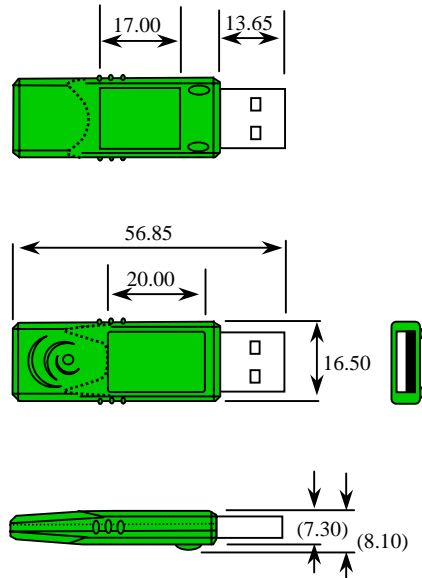
## Bluetooth® Module

### USB Adaptor (Dongle) EYSF2CSUU

#### Features

- All in one solution
- The module is a Max.4dBm( Class2 ) module.
- Bluetooth® standard Ver1.1 conformity.
- Internal baseband clock oscillator.
- Low current consumption
- Support functions  
SCO links,ACL links,Piconet<7>,Hold,Sniff,Park,Deep Sleep
- Interface: **USB**
- Protocol stack:Under HCI firmware
- Small outline. **16.50 x 56.85x 8.10**mm(typ)
- Strong Housing-case

#### Outline



#### Applications

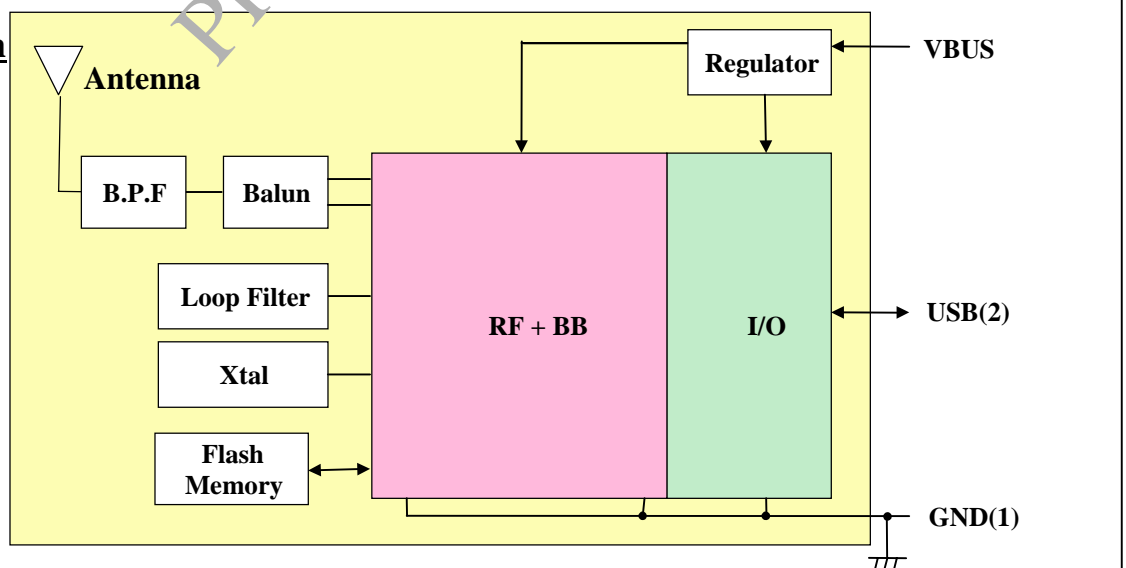
- PC(Windows)

#### Profiles

(Current) GAP, SPP, Fax, LAP, GOEP, OPP, FTP, DNP, SyncP  
Audio Gateway / Headset, PAN, HCRP, HID total 14 profiles

| Parameter                     | Description        | Min.        | Typ. | Max.  | Units |
|-------------------------------|--------------------|-------------|------|-------|-------|
| Carrier Frequency             |                    | 2.402       |      | 2.480 | GHz   |
| Operating Voltage (VBUS)      |                    | 4.5         | -    | 5.5   | V     |
| RF Output Power               | measured in 50 ohm | -6          | -1   | 4     | dBm   |
| RX Sensitivity                |                    | -           | -80  | -70   | dBm   |
| Input Low Voltage             | D+,D-              | -           |      | 0.80  | V     |
| Input High Voltage            | D+,D-              | 0.70VDD_PIO | -    | -     | V     |
| Output Low Voltage            | D+,D-              | -           | -    | 0.30  | V     |
| Output High Voltage           | D+,D-              | 3.1         | -    | -     | V     |
| Average Current Consumption 1 | transmitter        |             | -    | 68    | mA    |
| Average Current Consumption 2 | Receiver           |             | -    | 75.5  | mA    |

#### Block Diagram



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