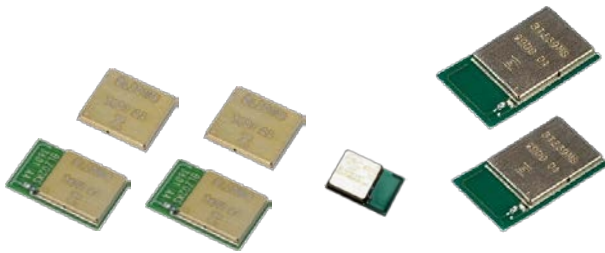




nRF52 module
coming Summer 2016

FUJITSU Component Wireless Module Selection Guide

FUJITSU Component Wireless Module is designed to facilitate easy and simple integration. The wireless modules are available in surface mount (with and without antenna) and connector joint type. All the products are authorized by QDID and conform to EU RoHS directive. The products with antenna are FCC/IC certified, with CE marking, Radio Act (Japan).



Product Highlights

Bluetooth[®] Smart Sensor Beacon

FWM8BLZ02A-109047



Without sensor type is also available!

A battery-powered *Bluetooth* Smart Sensor Beacon that can be paired with existing or OEM-developed Internet of Things (IoT) applications and other custom features for a complete, wireless beacon solution.

Applications

Indoor navigation at train stations, airports, and exhibition halls; logistics management; health care; retail couponing; and Point of Presence (PoP) for museums, expos, etc.

Specifications

- *Bluetooth* Specification Version 4.1 (single mode) compliant
- Built-in motion sensor (detection interval 500 to 6000ms)
 - Acceleration sensor: $\pm 16G$, Accuracy $\pm 3\%$
 - Temperature sensor: -30 to $+60$ degC, Accuracy ± 0.3 degC
- Operating temperature : -30 to $+60$ degC
- Battery type (CR2450)
- 40.0 x 31.0 x 12.0 mm / Approx. 10g (excluding battery)

Bluetooth Smart modules (Peripheral modules)

- Bluetooth Specification Version 4.1 (Single mode) compliant
- Nordic Semiconductor nRF51822 embedded
- Receiver sensitivity: -88dBm typical



Embedding Fujitsu Component's Firmware

- Host : UART
- Correspond to iOS and Android OS.
- Upper layer protocol stack (L2CAP, SM, ATT) and profiles (GATT, GAP, Fujitsu Component Data Communication)
- Host interface: UART
- Software interface: Simple proprietary command

Part number	Dimensions (mm)	Antenna	Transmit power	Operating temperature	Power supply (VDC)	Clock	Package
MBH7BLZ07	11.5 x 7.9 x 1.7	Embed	0dBm (+4dBm max.)	See note below	LDO mode: 1.9 to 3.6 Low voltage mode: 1.75 to 1.95	32MHz	LGA 42pin (SMD)
MBH7BLZ01	10.5 x 9.2 x 1.6	-	0dBm (+4dBm max.)	-40 to +75degC	1.8 to 3.6	16MHz	LGA 56pin (SMD)
MBH7BLZ02	15.7 x 9.8 x 2.0	Embed	0dBm (+4dBm max.)	-40 to +85degC	1.9 ~ 3.6	16MHz	LGA 56pin (SMD)

Note: MBH 7BLZ07-1090** operating temperature: LDC mode: -25 to +75degC at 1.8 to 3.6VDC
LDC mode: -40 to +85degC at 1.9 to 3.6VDC
Low voltage mode: -25 to +75degC at 1.75 to 1.95VDC

Without Fujitsu Component's Firmware ("Blank" module)

- Host : UART, SPI, I2C, GPIO
- Nordic Semiconductor provides SDK (source program for upper profiles)
- ARM M0 MPU in module available
- Available GPIO pins assigned to this module

Part number	Dimensions (mm)	Antenna	Transmit power	Operating temperature	Power supply (VDC)	Clock	Package
MBH7BLZ07-1090**	11.5 x 7.9 x 1.7	Embed	0dBm (+4dBm max.)	See below note	LDO mode: 1.9 to 3.6 Low voltage mode: 1.75 to 1.95	32MHz	LGA 42pin (SMD)
MBH7BLZ01-1090**	10.5 x 9.2 x 1.6	-	0dBm (+4dBm max.)	-40 to 85degC	1.9 ~ 3.6	16MHz	LGA 56pin (SMD)
MBH7BLZ02-1090**	15.7 x 9.8 x 2.0	Embed	0dBm (+4dBm max.)	-40 to +85degC	1.9 ~ 3.6	16MHz	LGA 56pin (SMD)

Bluetooth Smart modules (Central/Peripheral modules)

- Bluetooth Specification Version 4.1 (Single mode) compliant
- Nordic Semiconductor nRF51822 embedded
- Receiver sensitivity: -88dBm typical

Embedding Fujitsu Component's Firmware

- Host : UART
- Communicate with Fujitsu Component's *Bluetooth* Smart peripheral modules (firmware embedded types)
- Possible to switch central/peripheral by command



Part number	Dimensions (mm)	Antenna	Transmit power	Operating temperature	Power supply (VDC)	Clock	Package
MBH7BLZ01A	10.5 x 9.2 x 1.6	External	0dBm (+4dBm max.)	-25 to +85degC	1.9 to 3.6	16MHz	LGA 56pin (SMD)
MBH7BLZ02A	15.7 x 9.8 x 2.0	Embed	0dBm (+4dBm max.)	-25 to +85degC	1.9 to 3.6	16MHz	LGA 56pin (SMD)

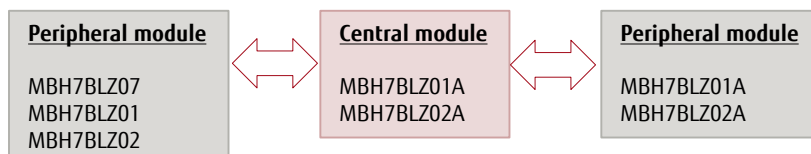
Without Fujitsu Component's Firmware ("Blank" module)

- Host : UART, SPI, I2C, GPIO
- Nordic Semiconductor provides SDK (source program for upper profiles)
- ARM M0 MPU in module available
- Available GPIO pins assigned to this module

Part number	Dimensions (mm)	Antenna	Transmit power	Operating temperature	Power supply (VDC)	Clock	Package
MBH7BLZ01A-109008	10.5 x 9.2 x 1.6	External	0dBm (+4dBm max.)	-25 to +85degC	1.9 ~ 3.6	16MHz	LGA 56pin (SMD)
MBH7BLZ02A-109009	15.7 x 9.8 x 2.0	Embed	0dBm (+4dBm max.)	-25 to +85degC	1.9 to 3.6	16MHz	LGA 56pin (SMD)

Note

Bluetooth Smart modules: Paired devices



* Use a central/peripheral module as a peripheral module.

Bluetooth modules (SPP)

- Bluetooth Specification Version 2.1 + EDR compliant
- CSR BlueCore4-External based
- Power Class 2 (+4 dBm max)
- Receiving sensitivity : Basic rate -87dBm typical
- Software interface: Simple proprietary command
- Bluetooth specification Ver3.0 possible



Bluetooth modules (iOS compatible)

- Host: UART
- Support iPod accessory protocol (iAP1/iAP2)
- CP chip on customer PCB

Part number	Dimensions (mm)	Antenna	Operating temperature	Power supply (VDC)	Mounting
MBH7BLZ39A	12.4 x 9.4 x 1.5	External	-40 to +85degC	2.7 to 3.6	SMD
MBH7BLZ42A	17.6 x 10.6 x 1.9	Embed	-40 to +85degC	2.7 to 3.6	SMD

Note: Participation in MFi licensing program is required.

Bluetooth modules (iOS non-compatible)

- Host: UART
- Support Android OS
- Low power consumption mode, auto slave mode, host wake-up function

Part number	Dimensions (mm)	Antenna	Operating temperature	Power supply (VDC)	Mounting
MBH7BLZ39	12.4 x 9.4 x 1.5	External	-40 to +85degC	2.7 to 3.6	SMD
MBH7BLZ40	31.0 x 15.0 x 2.5	Embed	-40 to +85degC	2.7 to 3.6	FPC/FFP
MBH7BLZ42	17.6 x 10.6 x 1.9	Embed	-40 to +85degC	2.7 to 3.6	SMD
MBH7BLZ43	22.5 x 10.6 x 2.3	Embed	-40 to +85degC	2.7 to 3.6	Stacking connector

The *Bluetooth*[®] word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Fujitsu Component is under license.

Fujitsu Components International Headquarter Offices

Japan

FUJITSU COMPONENT LIMITED
Shinagawa Seaside Park Tower
12-4, Higashi-shinagawa 4-chome,
Shinagawa-ku, Tokyo, 140-0002, Japan
Tel: (81-3) 3450-1682
Email: fcl-contact@cs.jp.fujitsu.com
Web: www.fujitsu.com/jp/fcl/

North and South America

FUJITSU COMPONENTS AMERICA, INC.
2290 North First Street, Suite 212
San Jose, CA 95131 USA
Tel: (1-408) 745-4900
Email: components@us.fujitsu.com
Web: http://us.fujitsu.com/components/

Europe

FUJITSU COMPONENTS EUROPE B.V.
Diamantlaan 25
2132 WV Hoofddorp/Netherlands
Tel: (31-23) 5560910
Email: info@fceu.fujitsu.com
Web: www.fujitsu.com/uk/components

Asia Pacific

FUJITSU COMPONENTS ASIA, LTD.
102E Pasir Panjang Road
#01-01 Citilink Warehouse Complex,
Singapore 118529
Tel: (65) 6375-8560
Email: fcal@sg.fujitsu.com
www.fujitsu.com/sg/products/devices/components/

China

FUJITSU ELECTRONIC COMPONENTS (SHANGHAI) CO., LTD.
Unit 4306, InterContinental Center
100 Yu Tong Road, Shanghai 200070,
China
Tel: (86-21) 3253 0998
Email: fcal@sg.fujitsu.com
www.fujitsu.com/sg/products/devices/components/

Hong Kong

FUJITSU COMPONENTS HONG KONG CO., LTD.
Unit 506, Inter-Continental Plaza
No.94 Granville Road, Tsim Sha Tsui, Kowloon,
Hong Kong
Tel: (852) 2881-8495
Email: fcal@sg.fujitsu.com
www.fujitsu.com/sg/products/devices/components/

All trademarks or registered trademarks are the property of their respective owners.
Fujitsu Component Limited or its affiliates do not warrant that the content of datasheet is error free. In a continuing effort to improve our products Fujitsu Component Limited or its affiliates reserve the right to change specifications/datasheets without prior notice. Copyright ©2016 Fujitsu Component Limited.
All rights reserved. Revised June 16, 2016
SG-WM-04/16