FUJITSU Component Wireless Modules
Bluetooth® Version 5.3 without Firmware

FWM7BLZ23-109172

Overview

Compact Bluetooth Version 5.3 (low energy single mode) module with antenna, without Fujitsu Component firmware. It is possible to communicate in 2.4 GHz Industrial Scientific Medical (ISM) band.

RoHS compliant

Features

- **Replaceable with FWM7BLZ20/20B**
  Same size and footprint as FWM7BLZ20/20B. It is possible to use an appropriate module according to required performance
- **Increased memory**
  256KB RAM and 1MB Flash memory
  QSPI for the high-speed external memory interface
- **Long Range communcation**
  Coded PHY (Long Range) enables approx. 4 times (theoretical value) long-distance communication compared to conventional products.
- **High output**
  High power output (+8 dBm) also contributes long range communication.
- **30 GPIO pins of nRF52840-QFAA are assigned**
  Possible to use pins as NFC*, SPI, TWI, URAT, ADC, QSPI
  Note*: external antenna is required to use NFC

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Applications

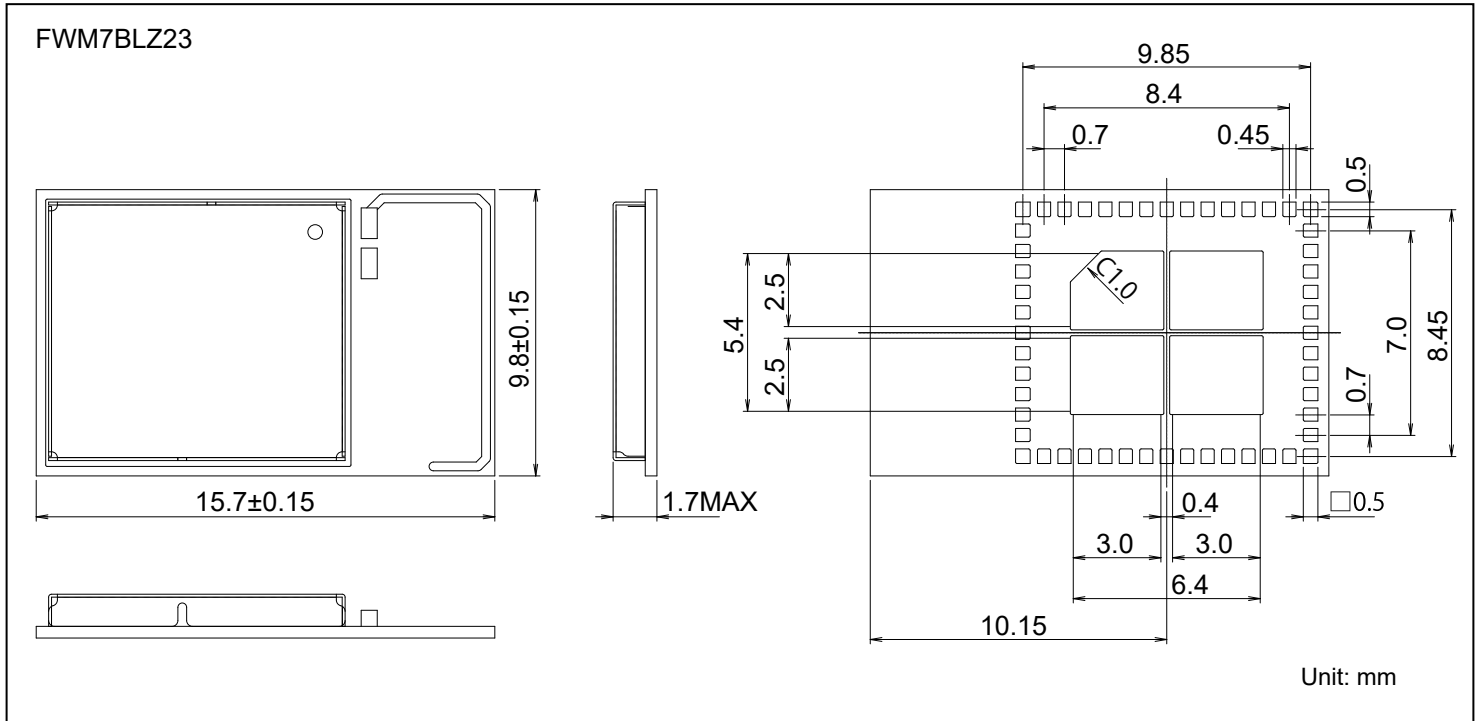IoT equipment, remote control and maintenance of equipment, etc.

■ Specifications

Item	Specifications	
Part number	FWM7BLZ23 -109172	
Antenna	Embedded (Pattern antenna)	
Bluetooth technology	Conforms to Bluetooth Core Specification Version 5.3 technology (Low energy single mode)	
Carrier frequency	2,402 MHz to 2,480 MHz	
Modulation	GFSK	
RAM	256 KB	
FLASH	1,024 KB	
Output power	+8 dBm max.	
Receiver sensitivity	-94 dBm typical (1 Mbps BLE ideal transmitter packet length, ≥128 bytes BER=0.01%)	
Interface	NFC[1], SPI, TWI, UART, ADC, QSPI	
Crystal oscillator	Embedded	
Operating voltage	1.7 to 3.6 VDC	
Data rate	1 Mbps / 2 Mbps (ON-AIR)	
Number of channels	40 RF channels	
Advertising size	255 bytes (payload), max. 254 bytes (advertising data)	
SoC	nRF52840 (Nordic Semiconductor)	
Power consumption	Tx only	LDO mode: 10.6 mA typical (at 0 dBm), DC/DC mode: 4.8 mA typical (at 0 dBm)
	Rx only	LDO mode: 9.9 mA typical (data rate 1 Mbps), 11.1 mA typical (data rate 2 Mbps) DC/DC mode: 4.6 mA typical (data rate 1 Mbps), 5.2 mA typical (data rate 2 Mbps)
Operating temperature	-40°C to +85°C	
Dimensions	15.7 x 9.8 x 1.7 mm	
Mounting method	Surface mount (SMT)	
Certifications (plan)	Bluetooth qualification (QDID)[2], Radio Act (Japan), FCC, ISED, CE, UKCA	

Note: *1: External antenna is required to use NFC
          *2: Bluetooth SIG registration is required to use modules QDID

■ Dimensions

FWM7BLZ23

Unit: mm

■ Evaluation board

Part number	Details
MBH-FUJI2-E1	Evaluation board (USB cable is attached)
FWM7BLZ23-DAU-EB1	Daughter board (FWM7BLZ23 x 1 is mounted)

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