

BX2416

BT 5.0 – BLE / MESH SoC

Features

- Complies with Bluetooth 5.0 with 1M / 2M bps data rates.

■ Radio Transceiver

- Single RF pin connected to antenna for input / output with integrated TX / RX switch
- -90 dBm RX sensitivity at 1Mbps mode
- -86 dBm RX sensitivity at 2Mbps mode
- RF output power levels: -20dBm, 0dBm and 5dBm
- 50dB RSSI dynamic range

■ Supply Current

- 17mA in RX and 30mA in TX with On Chip DCDC Converter@3.3V

■ Ultralow Current Mode

- Average current: 150uA, during 1.28 sec cycle time

■ Analog Interfaces

- 1 Embedding ADC in pin VBAT with Battery monitoring function from 3.3V to 2.0V
- Temperature sensor from -40°C to 85°C

■ Digital Interfaces

- Up to 8 GPIOs
- 1 Internal Quad-SPI Flash interface
- 2 UART -
Flow control up to 1Mbps and supports all the baud rate under 1Mbps, IRDA is supported
- 2 IIC -
Master / Slave programmable and speed up to 1Mbps
- 2 Timers and 1 Watch-dog Timer
- 5 PWM Outputs

■ Integrated 32-bit MCU

- Clock frequency: 16MHz, **32MHz (Major)** and **48MHz (Max)**
- 4-way associative cache
- SWD debug interface
- AHB / APB bus matrix with speed up to 48MHz

■ Memories

- 2Mb Flash
- 128 KB ROM (Boot ROM and BLE stack)
- 64 KB SRAM
 - ◆ Composed of **2 pages of 32KB**, with retention capability
 - ◆ Each 32KB can be set into retention state separately and exchange memory for BLE connection data
 - ◆ 16KB of 4 way cache controller for external SPI flash which enable CPU run on the external SPI flash, this 16KB cache can be also used as system SRAM when cache is disabled

Power Management

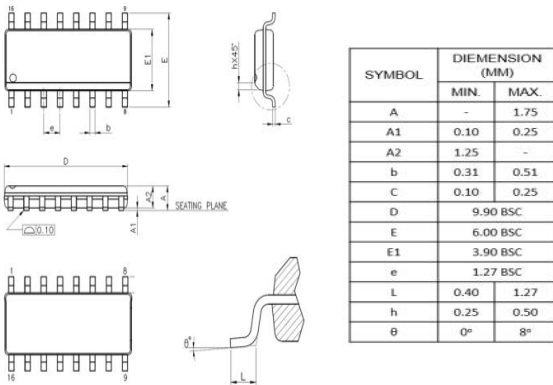
- 2.3-3.6V power input
- One 1.8V LDO with 40mA output

Cryptographic Engine

- ECC
- AES-128

Package

- SOP16 (9.9 X 3.9 mm²)



Pin Description

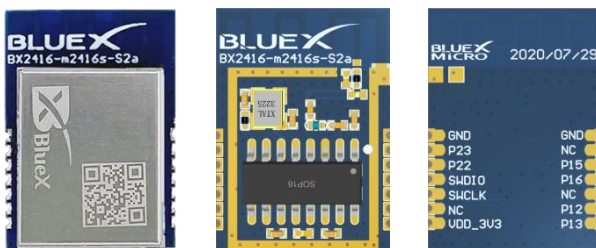
Pin	Symbol	Type	Description
1	LOOP_C	AIO	PLL loop filter external capacitor.
2	VDD_BAT	PI	Battery supply voltage
3	GND	GND	Ground for the whole chip
4	RF_P	AIO	RF input/output
5	XTAL32M_P	AI	32 MHz Crystal input (+)
6	XTAL32M_N	AI	32 MHz Crystal input (-)
7	P15	DIO	FUNC_IO13/GPIO15
8	P16	DIO	FUNC_IO14/GPIO16
9	P12	DIO	FUNC_IO10/GPIO12
10	P13	DIO	FUNC_IO11/GPIO13
11	VDD_1V8	PO	Supply to external 1.8V
12	P00	DIO	swck/GPIO00
13	P01	DIO	swd/GPIO01
14	VDD_AWO	PO	VDD_AWO output
15	P22	DIO	FUNC_IO20/GPIO22
16	P23	DIO	FUNC_IO21/GPIO23

NOTE: AI : analog input AO : analog output AIO : analog input/output

DI : digital input DIO : digital input/output PI : power input PO : power output

Module

- BX2416-m2416s-S2a



Size	Pin out	ID	Component	TX PWR	RX SEN	Interface	Functions
18.5 * 15 mm ² (2 layer)	14 Pins	8 GPIO	10 pcs (Standard)	+3 dBm	-90dBm @1Mbps -86dBm @2Mbps	(1) SWD (2) UART (3) IIC	3.3V Only
		NO Ext. ADC					

Operating Temperature

- -25°C to 105°C



Ver 2.4