

BX2417

BT 5.0 – BLE / MESH SoC

Features

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

■ Radio Transceiver

- -93 dBm RX sensitivity at 1Mbps mode
- -90 dBm RX sensitivity at 2Mbps mode
- RF output power levels: -20dBm, 0dBm, 3dBm and 8dBm
- 50dB RSSI dynamic range

■ Supply Current

- 4.3mA in RX and 4.4mA in TX with On Chip DCDC Converter@4.3V
- 5.5mA in RX and 5.7mA in TX with On Chip DCDC Converter@3.3V

■ Ultralow Current Mode

- Sleep current : 2.5uA ~ 6uA, SRAM (16 KB ~ 208 KB) retention
- Average current: 20uA , during 1.28 sec cycle time (Active / Sleep)
 Notice: Active (Broadcasting ADV) / Sleep (208 KB SRAM retention)

■ Analog Interfaces

- 1 Battery monitoring function from 5.5V to 2.0V
- 1 External channel of ADC (ENOB = 10) with average capability (Oversampling up to ENOB = 12)
- Temperature sensor from -40°C to 125°C

■ Digital Interfaces

- Up to 11 GPIOs
- 1 Internal Quad-SPI Flash interface
- 1 General SPI interface
 - ◆ Support both SPIM / SPIS Mode
- 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) , 48MHz, 64MHz, 80MHz and 96MHz (Max)
- CPU Benchmarking : 2.07 Coremark / MHz
- SWD debug interface
- AHB / APB bus matrix with speed up to 96MHz

■ Memories

- 2Mb Flash
- 128 KB ROM (Boot ROM and BLE stack)
- 208 KB SRAM
 - ◆ Composed of 6 pages of 32KB and 1 page of 16KB , 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

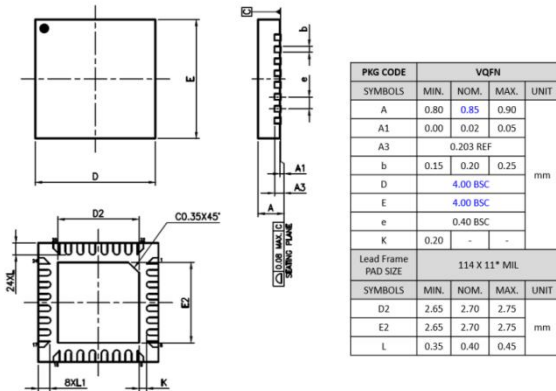
- 2.3-5.0V power input
- One 1.2V Integrated DCDC buck converter
- One 1.8V LDO with 40mA output
- Two 3.3V LDO with 50mA & 25mA output each

Cryptographic Engine

- ECC
- AES-128

Package

- QFN32 (4 X 4 mm²)



Pin Description

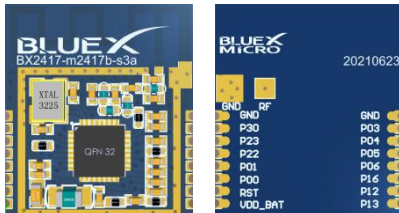
Pin	Symbol	Type	Description	Pin	Symbol	Type	Description
1	P03	DIO	spim0_cs0/SPIS_CS/FUNC_I001/GPIO03	18	P22	DIO	FUNC_I020/GPIO22
2	P04	DIO	spim0_clk/SPIS_CLK/FUNC_I002/GPIO04	19	P23	DIO	FUNC_I021/GPIO23
3	P05	DIO	spim0_miso/SPIS_MISO/FUNC_I003/GPIO05	20	VDD_3V_2	PO	Supply to external 3.3V
4	P06	DIO	spim0_mosi/FUNC_I004/GPIO06	21	VDD_BAT_2	PI	Guard ring power supply
5	P16	DIO	FUNC_I014/GPIO16	22	VDD_VCO	PI	VCO power supply
6	P12	DIO	FUNC_I010/GPIO12	23	LOOP_C	AIO	PLL loop filter external capacitor.
7	P13	DIO	FUNC_I011/GPIO13	24	VDD_CP	PI	PLL power supply
8	VDD_3V1	PO	Supply to external 3.3V	25	VDD_RF1	PI	RF power supply
9	VDD_1V8	PO	Supply to external 1.8V	26	RF_P	AIO	RF input/output
10	VDD_DIG	PI	Digital circuit power supply	27	RF_N	AIO	RF input/output
11	VDD_1V2	PO	DC/DC Converter output	28	VDD_A	PI	Power supply for an analog circuit
12	VDD_BAT	PI	Battery supply voltage	29	VDD_BAT_1	PI	ADC power supply
13	Ext Reset	DI	Pull low internally. High active.	30	P30	AI	ADC Input Channel 0
14	P00	DIO	swck/GPIO00	31	XTAL32MP	AI	32 MHz Crystal input (+)
15	P01	DIO	swd/GPIO01	32	XTAL32MN	AI	32 MHz Crystal input (-)
16	VDD_CPU	PO	VDD_CPU output	IC Ground pad	GND	Backside GND plane. Must be connected to the GND.	
17	VDD_AW0	PO	VDD_AW0 output				

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

- BX2417-m2417b-S3a



Size	Pin out	IO	Component	TX PWR	RX SEN	Interface	Functions	
17*15 mm ² (2 layer)	16 Pins	11 GPIO	33 pcs (Standard) Op t i o n	1 pcs (Added)	0 dBm (default)	-93dBm @1Mbps	(1) SWD (2) UART (3) IIC (4) SPI	(1) 5V/3.3V (2) RTC (3) RST (4) DC Buckler
		1 Ext. ADC		4 pcs (Reduced)	8 dBm (Max)	-90dBm @2Mbps		

Operating Temperature

- -25°C to 85°C



Ver 1.2