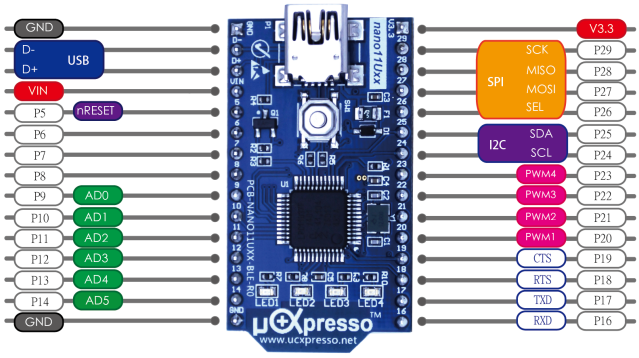
nano11U37-BLE

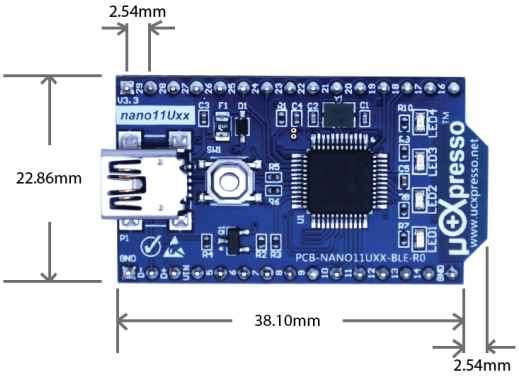
Pin Configurations



Overview

The nano11U37-BLE is small RTOS module that included the Bluetooth Low Energy (BLE) features, and based on the NXP LPC11U37 (ARM Cortex-M0 48MHz). This module platform provides the Real-Time and Multi-Tasking to handle the BLE transceiver in the background and works with your applications together. The nano11U37-BLE also provides the uCXpresso C/C++ framework to easy to make your RTOS & BLE applications on the Object-Oriented concept, and work on the free charge of LPCXpresso IDE (Eclipse).

Dimension:



uCXpresso.BLE RTOS C++ Framework

- Kernel : FreeRTOS v8.x and later
- Driver Class Library : CPin , CBus, SPI, I2C, CAdc, Serial, bleSerial, bleProximity, bleBattery ...
- RTOS Class Library : CThread, CSemaphore, CMutex, CMailBox, Gabrage Collector ...
- Advanced Memory Management.

Specification

NXP LPC11U37	Bluetooth Low Energy (BT 4.0)
● ARM Cortex-M0 / 48MHz ● 128K Flash Code Size (User's code size 120KB) ● 8K RAM Size ● 4K EEPROM (100000~1000000 write cycles) ● Full Speed USB CDC/MSC Supported ● GPIO x 24, Flex Interrupt x 8 ● ADC x 6 (10 bits) ● PWM x 4 ● SPI x 1 (Max 25Mb/s) ● I2C x 1 ● UART x 1 (with RTS/CTS)	● Full Bluetooth v4.0 low energy compliant ● 0、-6、-12 and -18dBm programmable Tx Power ● 1Mb on air data rate ● -87dBm RX sensitivity at 1Mbps ● Excellent co-existence performance ● LL, L2CAP, GAP, SM, ATT and GATT mandatory ● GATT Client and GATT ● Full Bluetooth Qualified

On Board Temperature Sensor
On Board Voltage Monitor
Power-On Reset (POR)
Temperature range - 20 ° C to +60 ° C.

Three ways to provide the power:

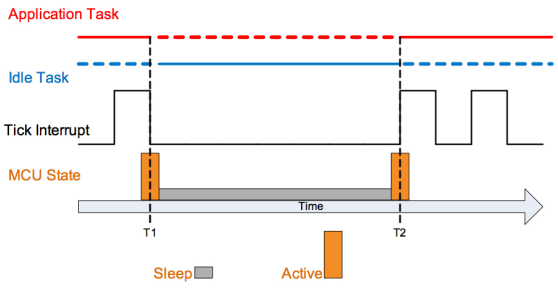
	PIN	Voltage Range	Power Consumption
Mini USB		DC 5.0V	Active : 20mA / Power Save: <4mA
VIN	P4	DC 5.0~9.0V	Active : 20mA / Power Save: <4mA @DC5V
V3.3	P30	DC 3.3V (2.0~3.6V)	Active : 15~20mA / Power Save: <1mA [1]

Note: It depends on your hardware design. As the result, If the power source lower than 1mA, you should use Nano11U37-BLE-3.3 (3.3V only ver.), and take advantage of the Tickless Low Power Feature.

Multiple BLE Operating Simultaneously

Service	Characteristic	UUID	AIR	Size	Descriptions
Device Name			Adv.	16	
UART		713D0000-503E-4C75-BA94-3148F18D941E	Adv.		
	Vendor Name	713D0001-503E-4C75-BA94-3148F18D941E	D > H	20	
	TXD	713D0002-503E-4C75-BA94-3148F18D941E	D > H	20	Notify
	RXD	713D0003-503E-4C75-BA94-3148F18D941E	D < H	20	Write
	ACK	713D0004-503E-4C75-BA94-3148F18D941E	D < H	1	ACK for TXD Data
	Version	713D0005-503E-4C75-BA94-3148F18D941E	D > H	4	F/W Version
Battery		180F			
	Battery Level	2A19	D > H	1	0~100 (%)
Health Therm.		1809	Adv.		
	Temp. Measure.	2A1C	D > H	4	Read or Indicate
	Temp. Type	2A1D	D > H	1	Read
	Measure. Interval	2A21	D > H	2	Read
Tx Power		1804	Adv.		
	Tx Power Level	2A07	D > H	1	Read, +20 ~ -100
Immediate Alert		1802	Adv.		
	Alert Level	2A06	<>	1	Read & Write
Link Lose		1803			
	Alert Level	2A06	<>	1	Read & Write
Device Info.		180A			
	H/W Rev	2A27	D > H	2	Read
Reserve For ODM					

Low Power Strategies (Tickless Techonlogy)



nano11U37-BLE works on the multi-tasking system, and provides a "Tickless Technology" to offer the low power features. As (IDLE) time line gets into power saving zone, It will shutdown the (all clocks), and the peripheal circuits, while (IDLE) times up , they will automatically recover to the working status. Repeats the ON and OFF to save the power and keep the system in Activity.