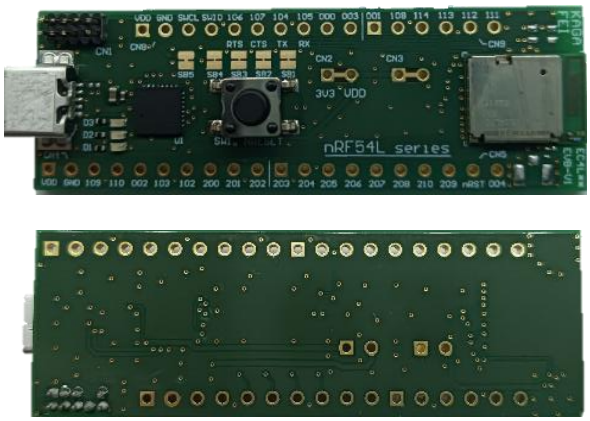
# EVALUATION BOARD MANUAL
# EC4L15BA1-EVB

# EVALUATION KIT MANUAL
# EC4L15BA1-EVK

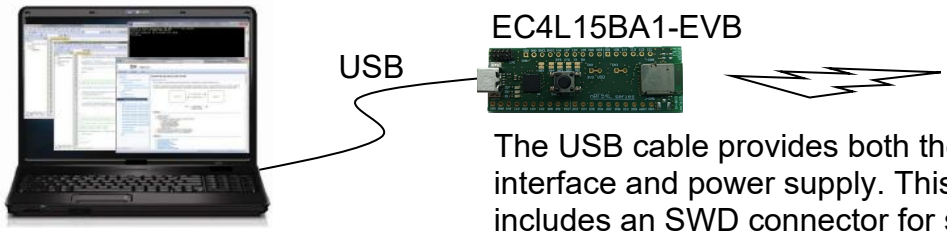
## for EC4L Series Bluetooth® Low Energy Module



# Contents

# 1.Introduction

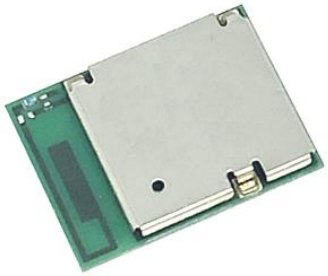
This evaluation board is applicable for KAGA FEI's ***Bluetooth*® Low Energy Module**, EC4L Series.

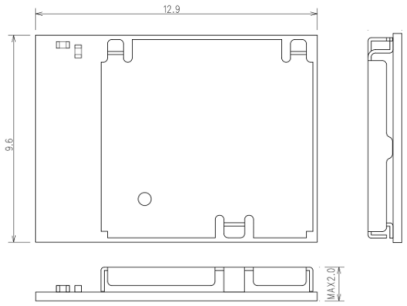



The USB cable provides both the serial UART interface and power supply. This board also includes an SWD connector for software development.

# 2.Mounted module

**EC4L15BA1** (9.6mm x 12.9mm x 2.0mm_MAX)





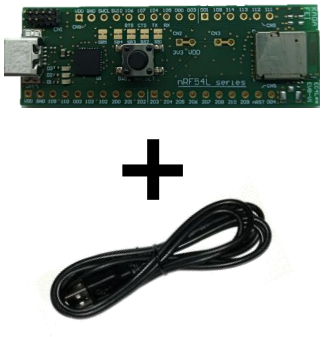

Nordic nRF54L15 / ARM® Cortex™-M33 processor
47-pin Land Grid Array / 29GPIOs / SWD

- Blank Module (formerly "Basic Module") -
A blank module is a hardware module with no pre-installed firmware, intended for user-developed applications.

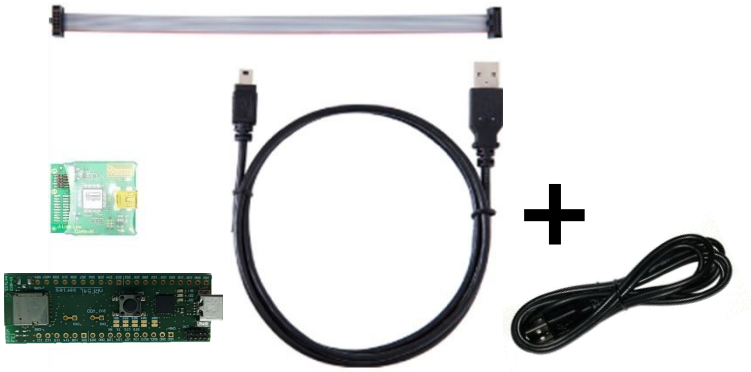
# 3.Content

| | | |
|---|---|---|
| 1 | EC4L15BA1-EVB Evaluation Board + USB cable for Evaluation Board | 1 pc |
| 2 | J-Link Lite (EC4L15BA1-EVK Only) + USB cable for Evaluation Board *1 | 1 set |

1. EC4L15BA1-EVB



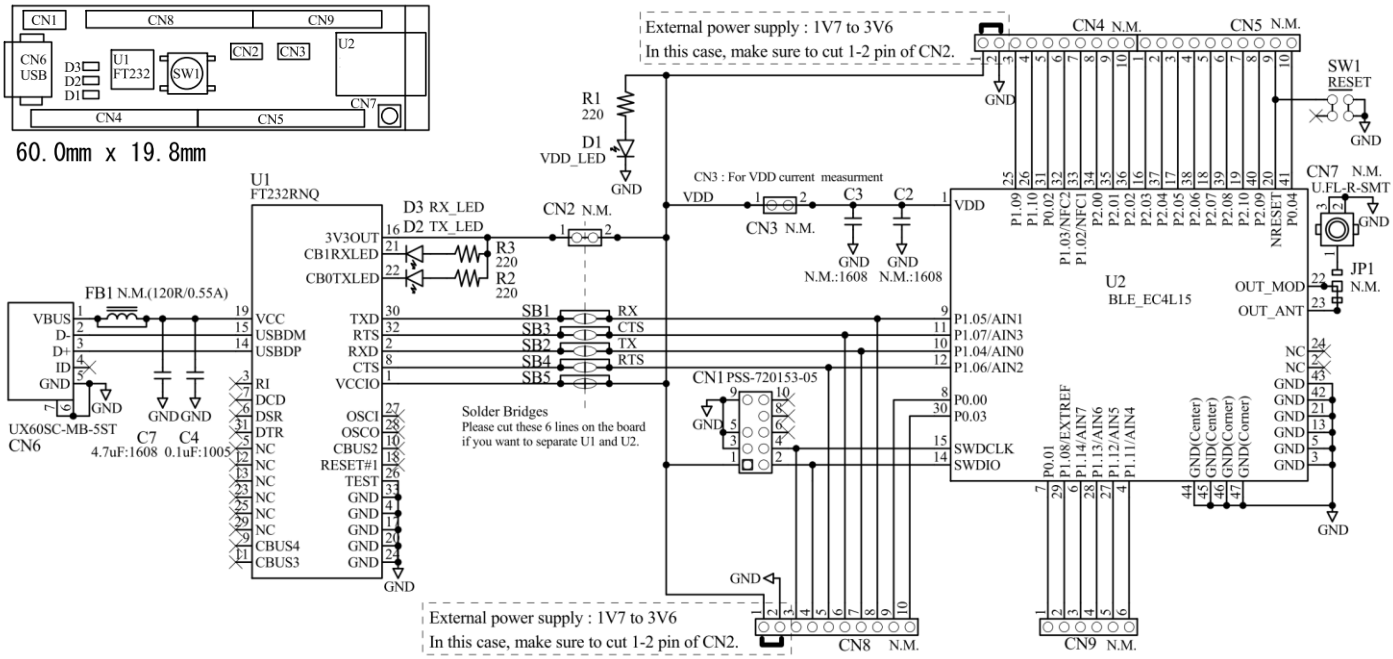
2. EC4L15BA1-EVK



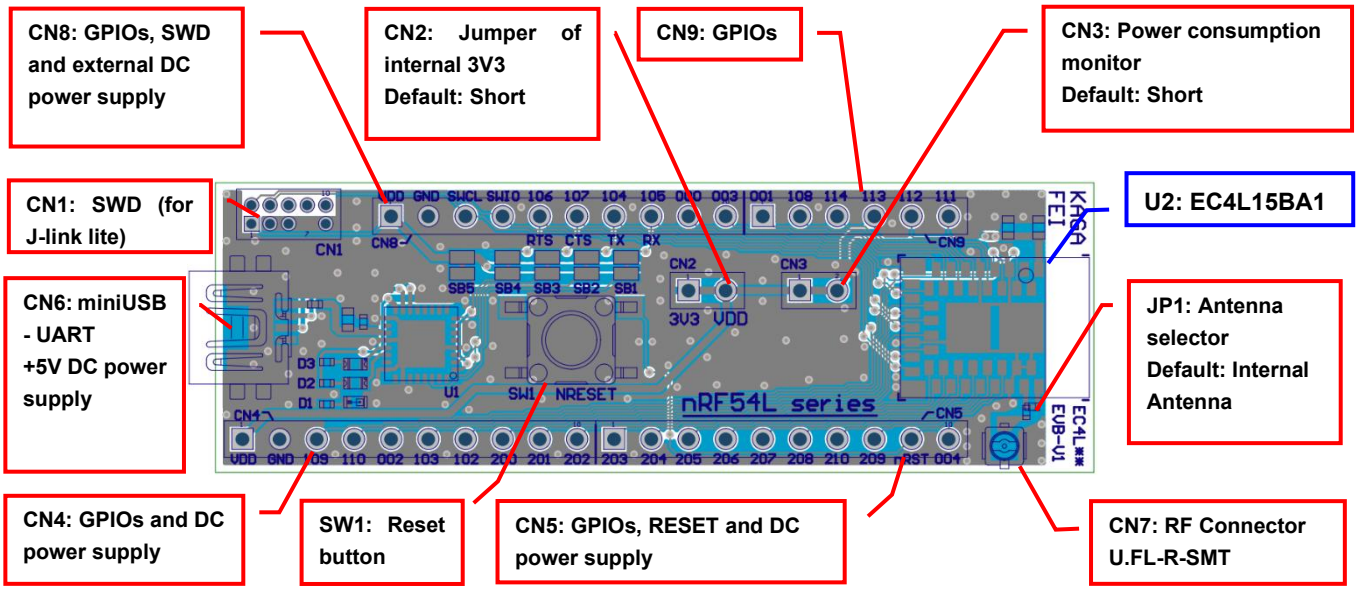
*1 Notes on using J-Link Lite

J-Link Lite is only delivered and supported as part of an evaluation kit, which includes an evaluation board. It may only be used with the evaluation board it came with, and not to be used for commercial product development.

# 4.Evaluation board circuit schematic

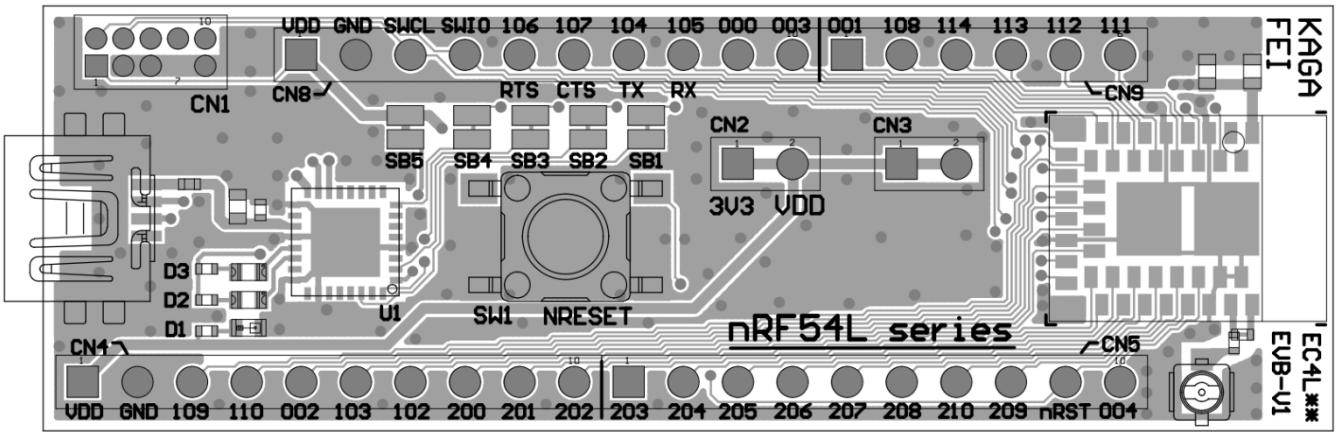


## 5.Evaluation board layout




1) All pin headers are 2.54mm pitch. And distance between **CN4** and **CN8** is **15.24mm**.
2) **CN2,3,4,5,7,8,9, C2,3, FB1, SB1-5, JP1** are not mounted (N.M.).
3) **D1 (LED):** 3.3V Indicator
4) **D2 (LED):** UART TX Indicator
5) **D3 (LED):** UART RX Indicator
6) **SW1 (Push button):** Module Reset (active low)

## 6.Silkscreen Printing



## 7.Pin Descriptions

| Pin No. | CN4 | CN5 | CN8 | CN9 |
|---|---|---|---|---|
| 1 | VDD | P2.03 | VDD | P0.01 |
| 2 | GND | P2.04 | GND | P1.08 |
| 3 | P1.09 | P2.05 | SWCL | P1.14 |
| 4 | P1.10 | P2.06 | SWIO | P1.13 |
| 5 | P0.02 | P2.07 | P1.06 | P1.12 |
| 6 | P1.03 | P2.08 | P1.07 | P1.11 |
| 7 | P1.02 | P2.10 | P1.04 | - |
| 8 | P2.00 | P2.09 | P1.05 | - |
| 9 | P2.01 | NRST | P0.00 | - |
| 10 | P2.02 | P0.04 | P0.03 | - |

## 8.How to use

Using this board is very simple-just connect it to a PC using a USB cable. No configuration changes are required. By default, the module is powered with 3.3V supplied from the FT232RQ's 3V3OUT pin.

# 9.For software development

・Nordic-DK and Use case


Nordic-DK

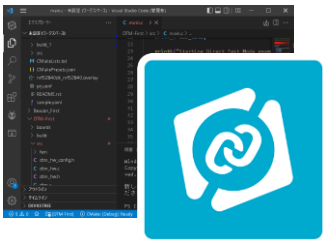
Nordic nRF Connect etc.

SWD

miniUSB

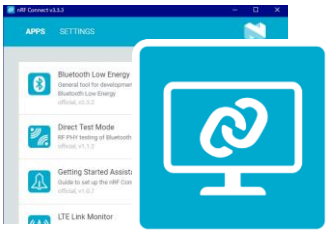
EC4L15BA1-EVB

・Visual Studio Code

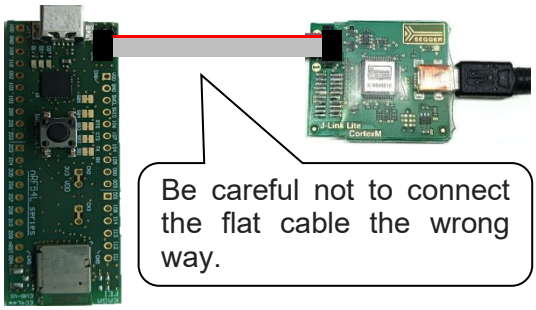


・Serial Wire Debug Interface (SWD)
・SWDIO/SWCLK
・10-pin 1.27mm pitch connector

・nRF Connect for Desktop

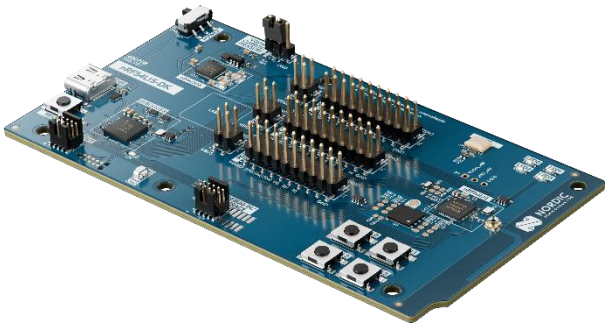



・[JTAG DEBUG TOOLS]
・J-Link Lite CortexM-9 etc.



Be careful not to connect the flat cable the wrong way.

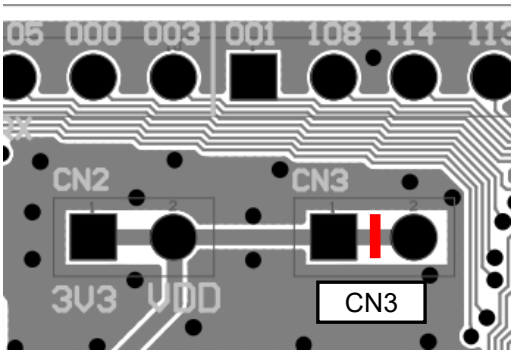
・Nordic-DK
https://www.nordicsemi.com/Products/Development-hardware/nRF54L15-DK



# 10.MEMO

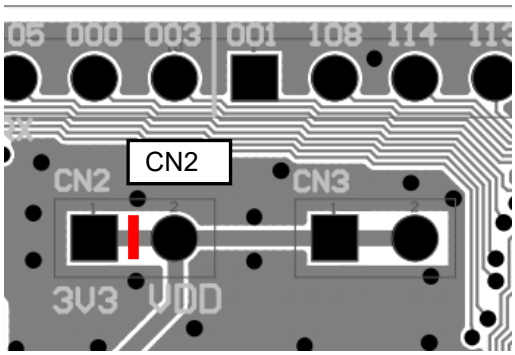
1) **Current consumption measurement**

To measure the current consumption, cut the trace between pin 1 and pin 2 of connector CN3 (as shown in red in the figure). Then connect an ammeter across the two pins of CN3 to monitor the current directly.




2) **Power Supply for the Module**

If you use an external power supply, use the VDD & GND pins of CN4 or CN8. In this case, cut pins 1 and 2 of CN2 to separate 3V3OUT of the FT232RNQ.




3) **USB to serial UART interface**

It needs to install driver of FT232RNQ to use USB for UART interface.
The drivers are available on FTDI website.

http://www.ftdichip.com/Drivers/D2XX.htm

On this evaluation board, the following GPIO is assigned to UART.

| GPIO | UART |
|---|---|
| P1.04 | TX |
| P1.05 | RX |
| P1.06 | RTS |
| P1.07 | CTS |

## 4) **Size and Coordinate information**