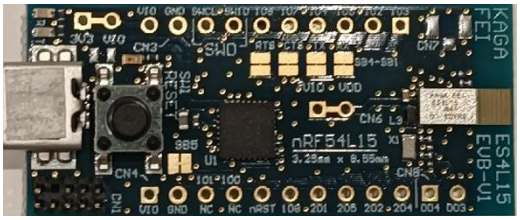
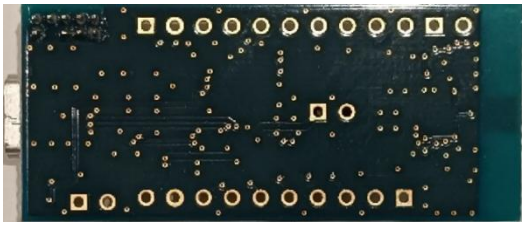
EVALUATION BOARD MANUAL
ES4L15BA1-EVB

EVALUATION KIT MANUAL
ES4L15BA1-EVK

for ES4L15 Series Bluetooth® Low Energy Module

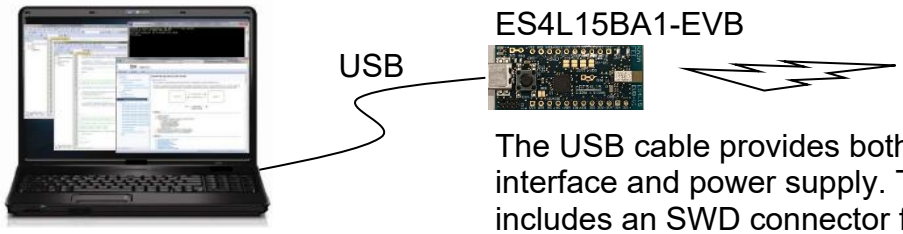




Contents

1.Introduction

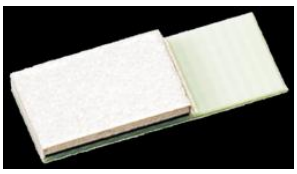
This evaluation board is applicable for KAGA FEI's ***Bluetooth***® **Low Energy Module**, ES4L15 Series.



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

ES4L15BA1 (8.55mm x 3.25mm x 1.00mm_MAX)



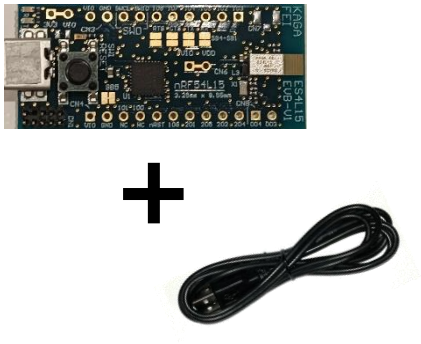
Nordic nRF54L15 / ARM® Cortex™-M33 processor
28-pin Land Grid Array / 15GPIOs / SWD

- 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	ES4L15BA1-EVB Evaluation Board + USB cable for Evaluation Board	1 pc
2	J-Link Lite (ES4L15BA1-EVK Only) + USB cable for Evaluation Board *1	1 set

1. ES4L15BA1-EVB

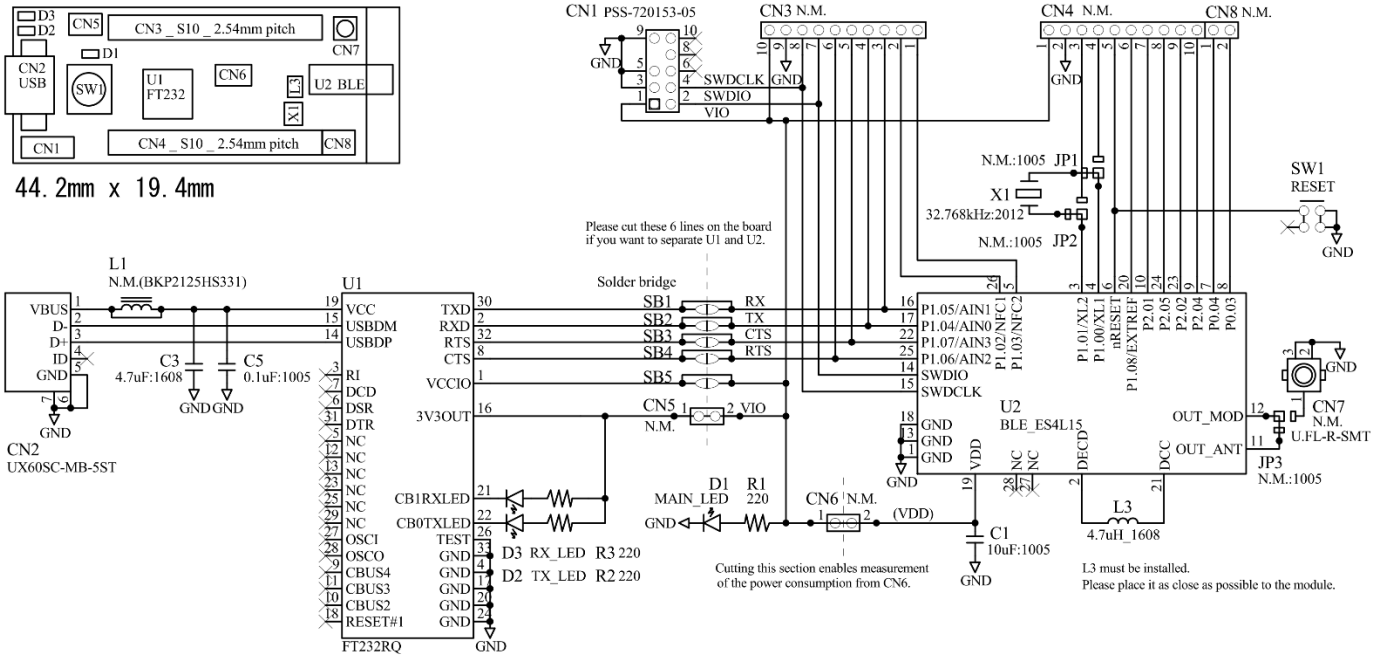


2. ES4L15BA1-EVK

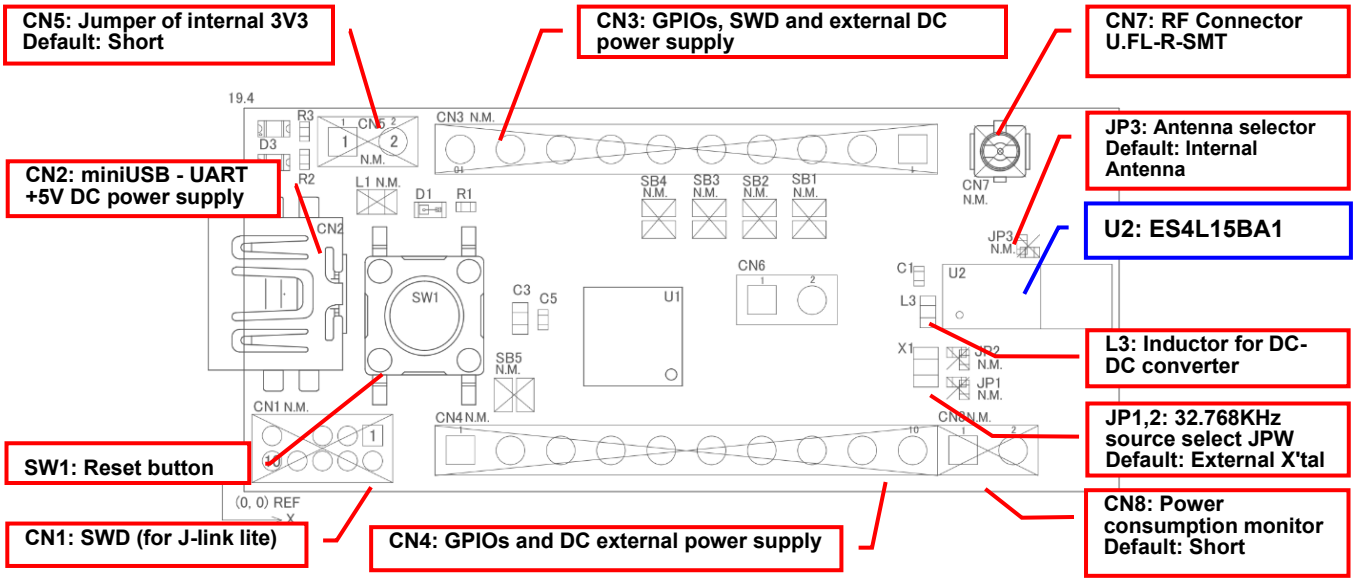
*1 Notes on using J-Link Lite

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

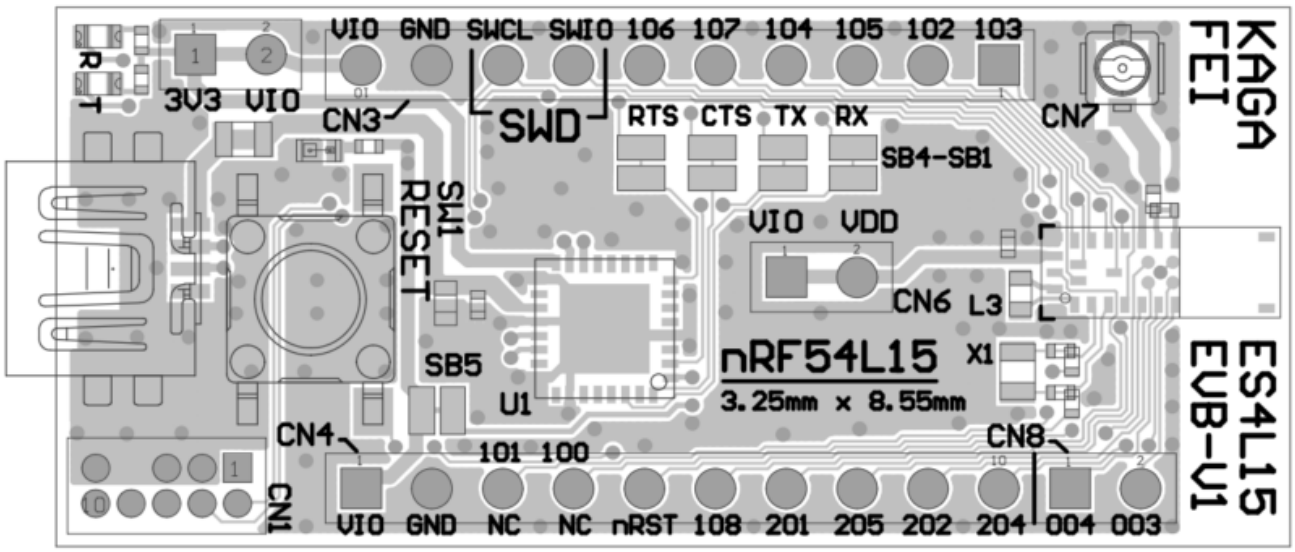


5.Evaluation board layout



1) All pin headers are 2.54mm pitch. And distance between **CN3** and **CN4** is **15.24mm**.
2) **CN3-CN8, JP1-JP3, SB1-5** 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

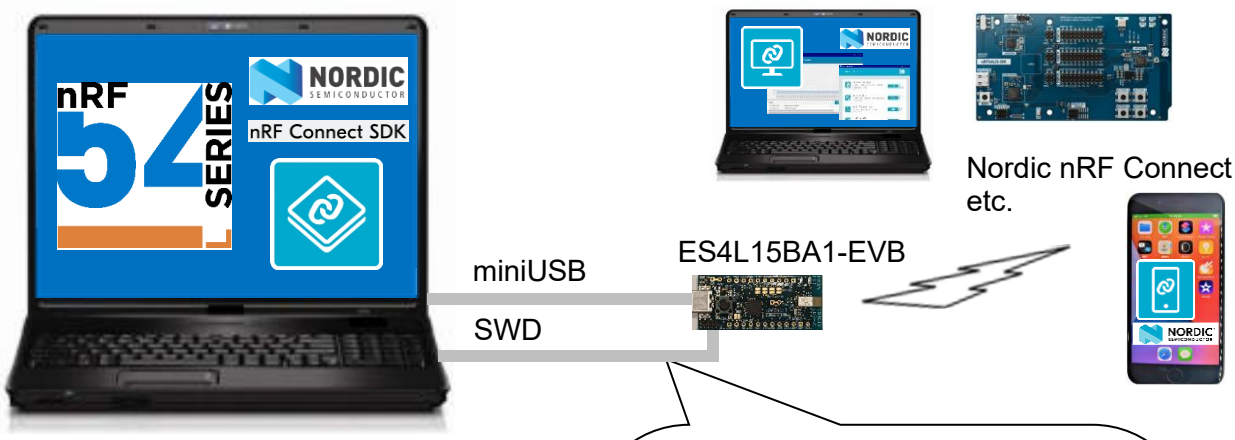
Pin No.	CN3	CN4	CN8
1	P1.03/NFC2	VIO	P0.04
2	P1.02/NFC1	GND	P0.03
3	P1.05/AIN1	P1.01/XL2	-
4	P1.04/AIN0	P1.00/XL1	-
5	P1.07/AIN3	nRESET	-
6	P1.06/AIN2	P1.08/EXTREF	-
7	SWDIO	P2.01	-
8	SWDCLK	P2.05	-
9	GND	P2.02	-
10	VIO	P2.04	-

8.How to use

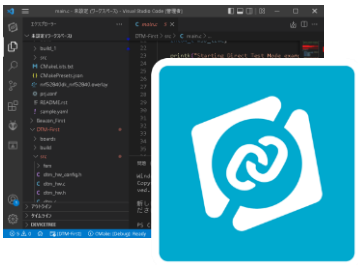
Using this board is very simple-just connect it to a PC using a USB cable. No configuration changes are required. By default, the module is powered with 3.3V supplied from the FT232RQ's 3V3OUT pin.

9.For software development

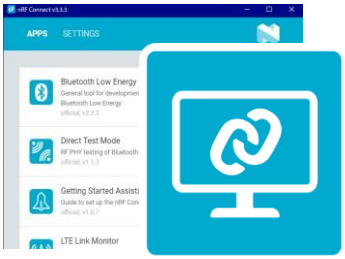
・Nordic-DK and Use case



・Visual Studio Code

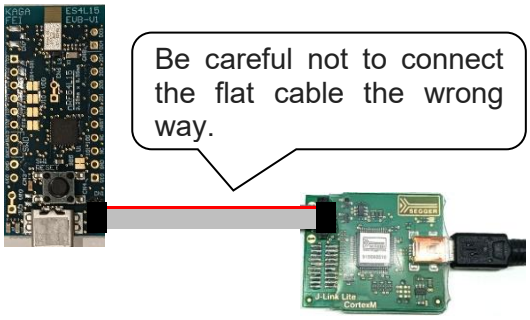


・nRF Connect for Desktop

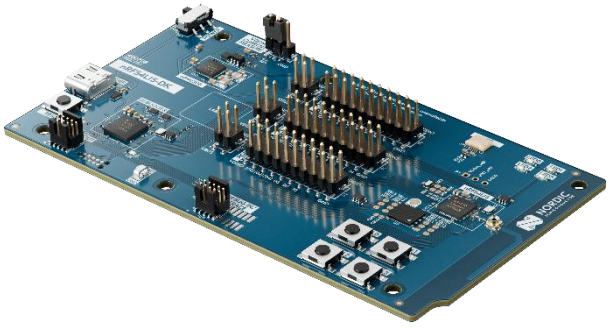


・Serial Wire Debug Interface (SWD)
・SWDIO/SWCLK
・10-pin 1.27mm pitch connector

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



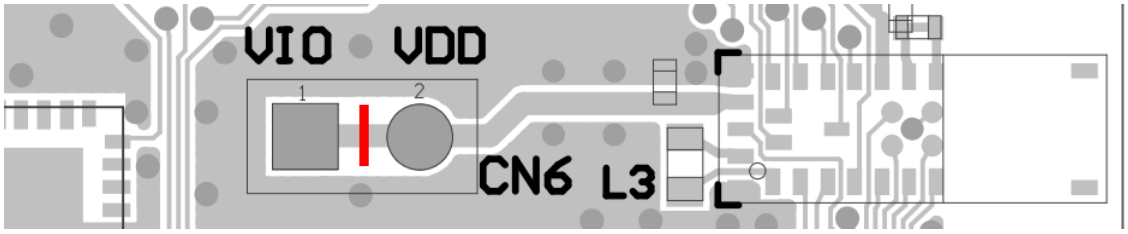
・Nordic-DK
https://www.nordicsemi.com/Products/Development-hardware/nRF54L15-DK



10.MEMO

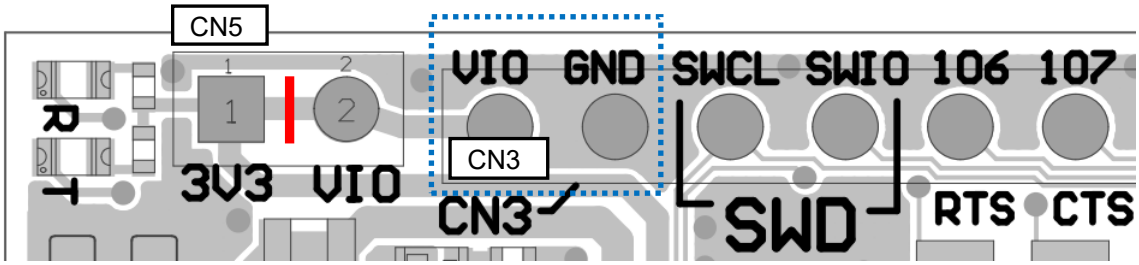
1) **Current consumption measurement**

To measure the current consumption, cut the trace between pin 1 and pin 2 of connector CN6 (as shown in red in the figure). Then connect an ammeter across the two pins of CN6 to monitor the current directly.



2) **Power Supply for the Module**

When using an external power supply, first cut the short between pins 1 and 2 of CN5 to disconnect the 3.3V output from the FT232RQ.
Then, supply power to the module through pins 9 and 10 of connector CN3.



3) **USB to serial UART interface**

It needs to install driver of FT232RQ 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**