Type2AB UWB Module EVB User Manual (Rev5.1)

7th March 2024

UWB Section, muRata/SyChip

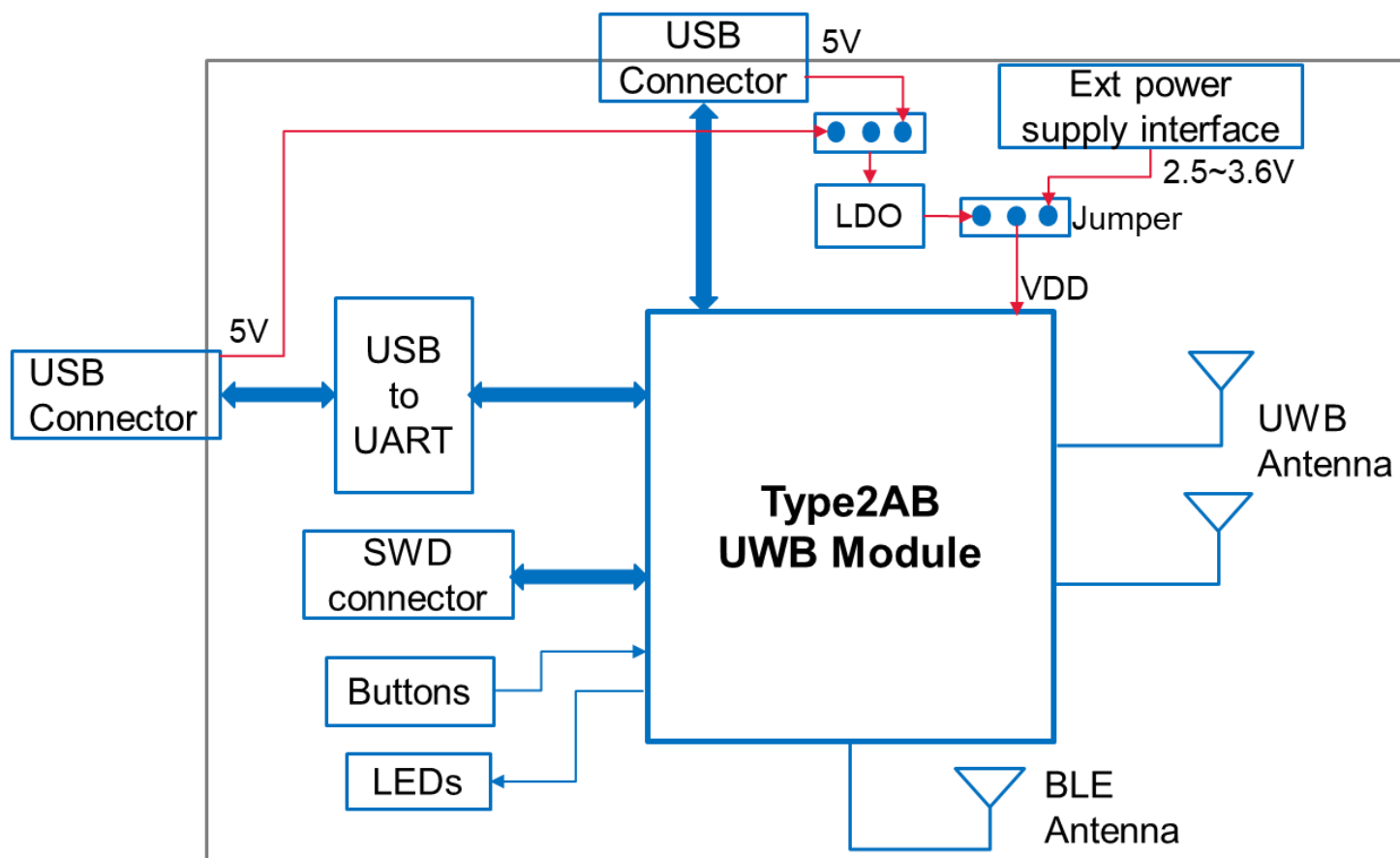# Contents

Introduction

- About this document

    This document provides basic information about Murata Type2AB EVB, mainly including hardware setting and related documents list.
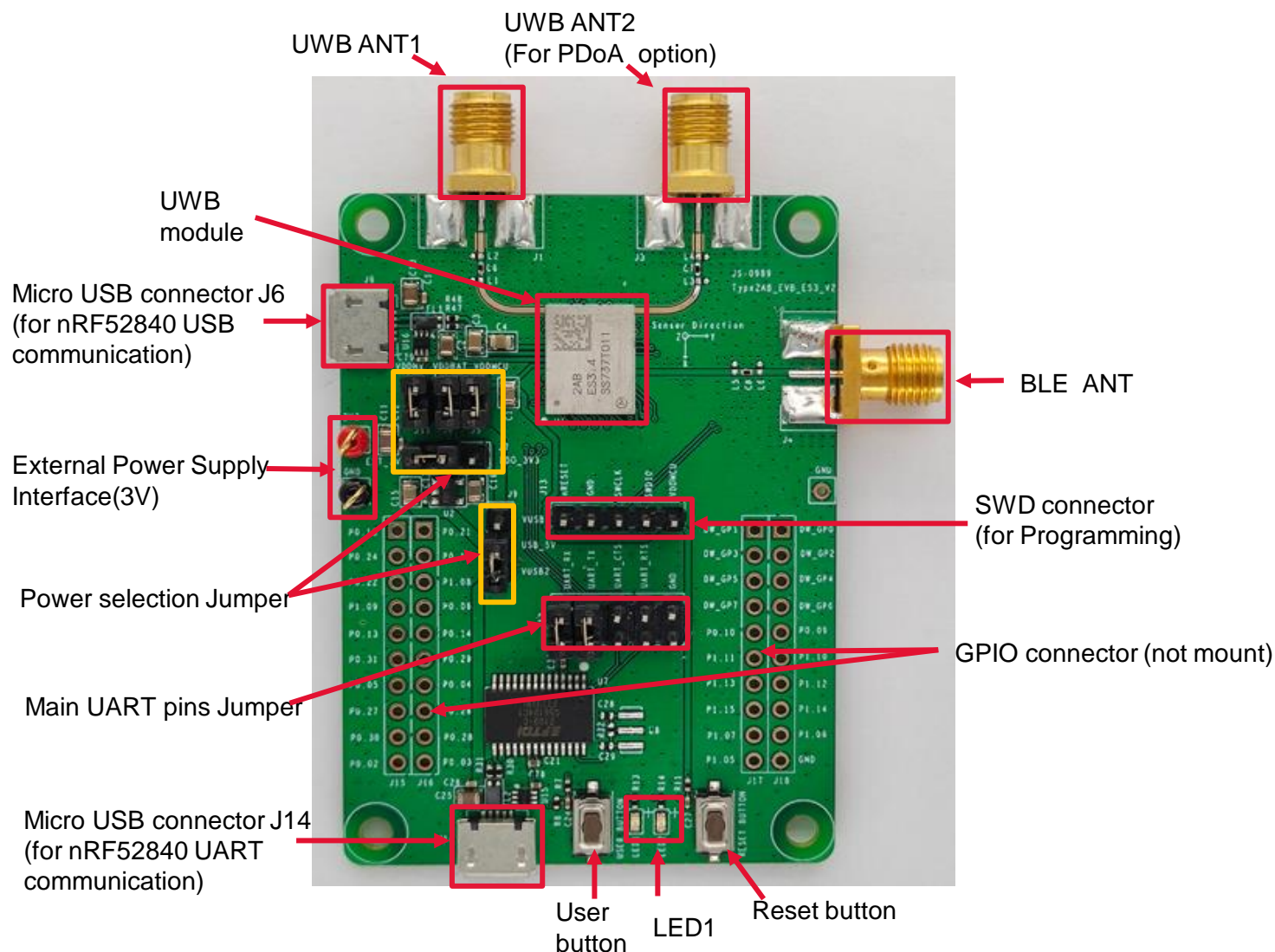
    There are two main versions of Type2AB EVB, the latest one is Rev4.0 (PCB version: JS-1055), old one is Rev3.0 (PCB version: JS-0989), the main difference of two EVB versions is antenna design.

    The legacy Rev3.0 JS-0989 EVB is EOL and will no longer be provided to customers. However, considering that some users may still be using them, we retain the description of the old EVB in this document.

Type2AB Module EVB Block Diagram

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Tyep2AB JS-0989 EVB Description

UWB ANT1

UWB ANT2
(For PDoA option)

UWB module

Micro USB connector J6
(for nRF52840 USB communication)

External Power Supply
Interface(3V)

Power selection Jumper

Main UART pins Jumper

Micro USB connector J14
(for nRF52840 UART communication)

BLE ANT

SWD connector
(for Programming)

GPIO connector (not mount)

User button

LED1

Reset button

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- **Antenna assembly for JS-0989**

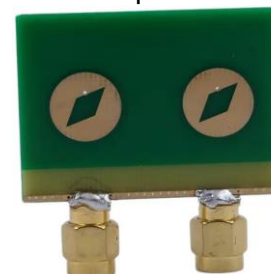UWB PDoA antenna assembly picture
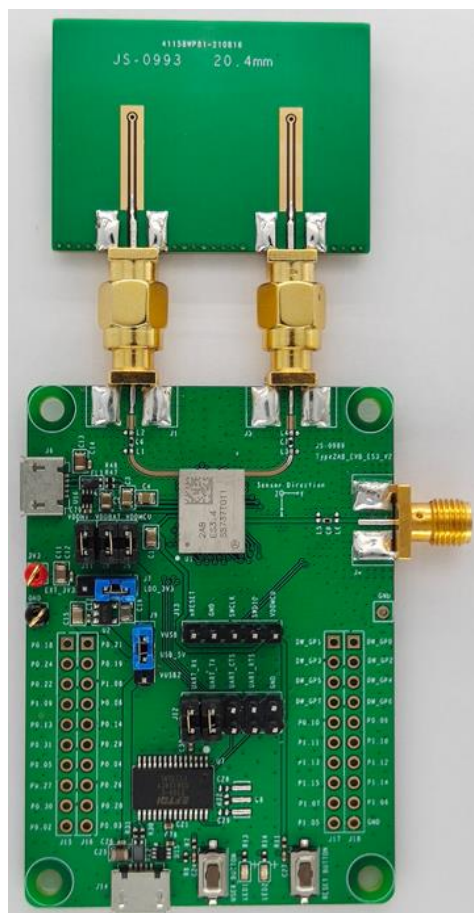
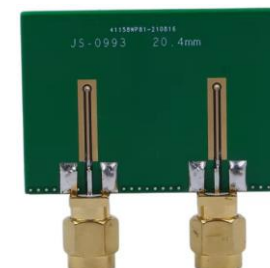

UWB single antenna assembly picture

Note: PDoA antenna for CH5 and CH9 is different.

- CH5 PDoA antenna

Top

Bottom

- CH9 PDoA antenna

Top

Bottom

Type2AB JS-1055 EVB Description

- **PCB antenna is used for JS-1055**

<Component Side>

<UWB Antenna Side>

External Power Supply Interface

Micro-B USB J6 (for nRF52840 USB communication)

SW connector (Murata: MM8030-2610)

Power selection Jumper

USB to UART IC (FT232RL)

Type2AB module

BLE ANT

Micro-B USB J14 (for nRF52840 UART communication)

SWD connector

Reset button

GPIO connector (not mount)

UWB ANT2
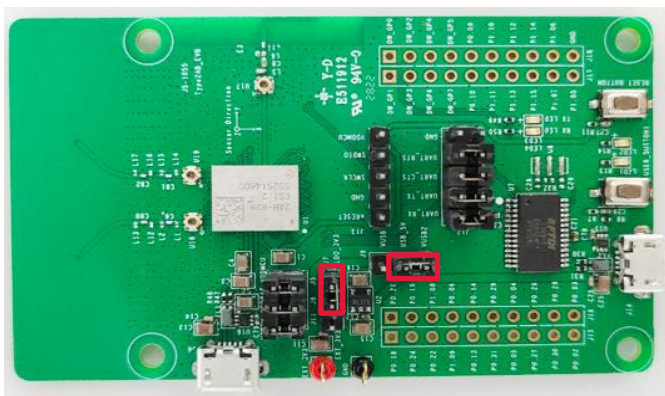
UWB ANT1
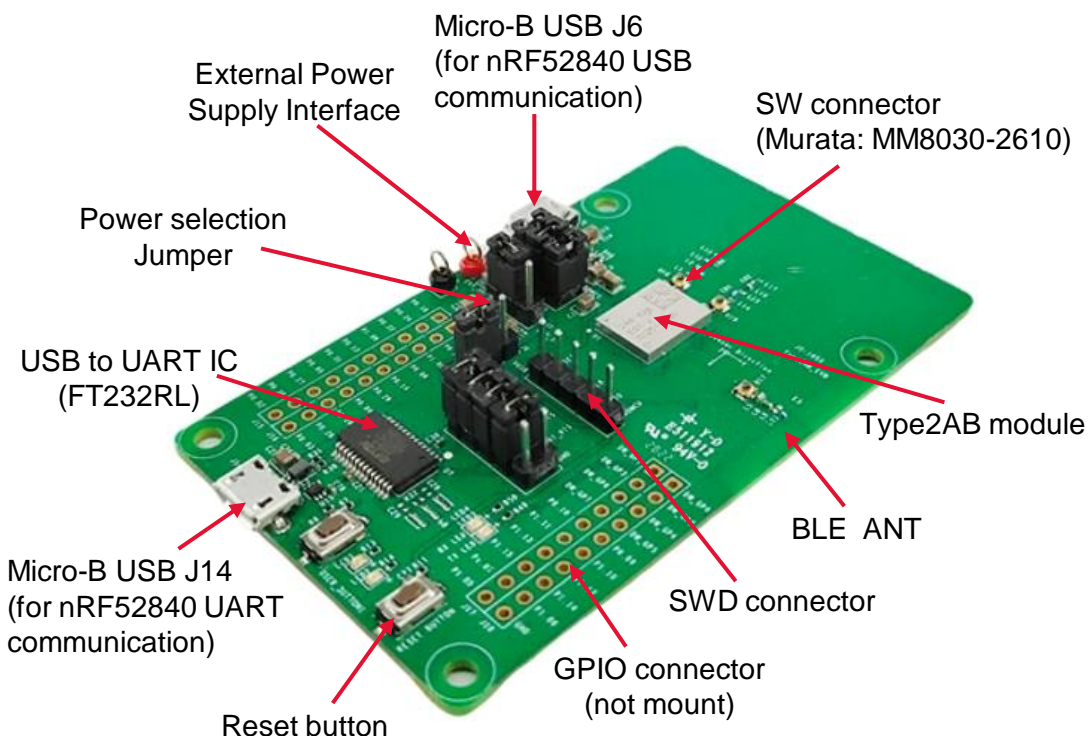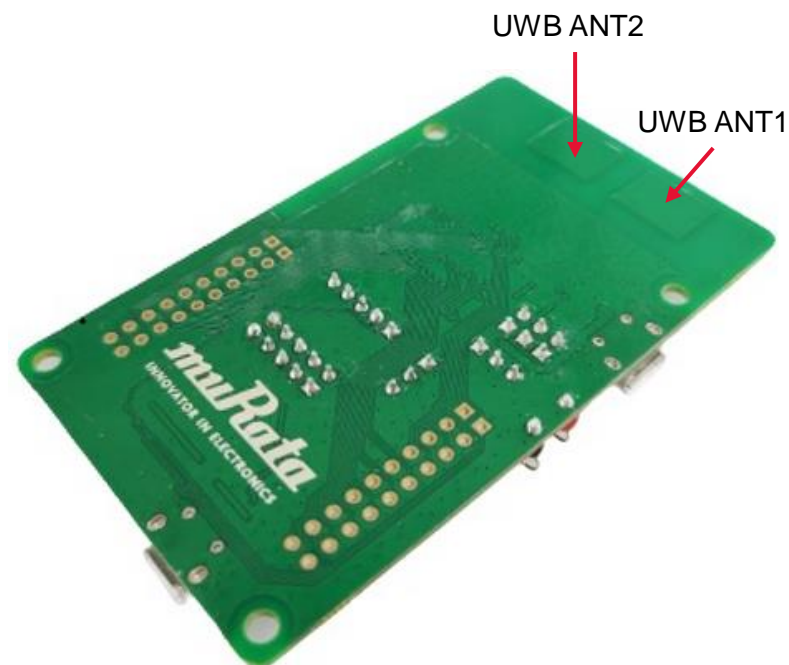
Getting Started With Type2AB Module EVB

1. Make sure the power supply jumper setting is the same as the picture below.

If you plan to choose a different power supply method, pleaser refer to page 10 ~13 for the power supply options.

2. Connect EVB to PC via USB interface J14 and check if the COM port appeared on Device Manager correctly.

The COM port number, e.g. *COM19,* may vary depending on the actual environment. If the COM port doesn't appear correctly, please download the virtual COM port driver from the link below and reinstall it properly.
FTDI VCP driver link: https://ftdichip.com/drivers/vcp-drivers/

3. Open Serial port tool on PC. Set the serial parameter as below.

> Baud rate = 115200
> Data = 8
> Parity = None
> Stop = 1
> Flow control = None

Press reset button, if +EVENT=0,0,0 appear on serial tool, it will be indicated the EVB work correctly.

4. The default preprogrammed firmware in Type2AB EVB is TestFW (v0.6.0). It's mainly used for UWB RF testing and BLE function testing. Please refer to [1] for more details about TestFW.

Please visit myMurata* Type2AB Document site and Software site for more references and firmware.
Refer to [2] for details on how to upgrade the firmware.
Refer to [3] for how to evaluate UWB ranging functions using the demo firmware.
Refer to [4] for how to build the demo firmware with SDK and patch file.

*Note : registration is required to access myMurata Type2AB Document site and Software site. Please refer to myMurata Access Guide for details.

Power supply option1 – 3.0V DC

- **Same configuration for JS-0989 and JS-1055**
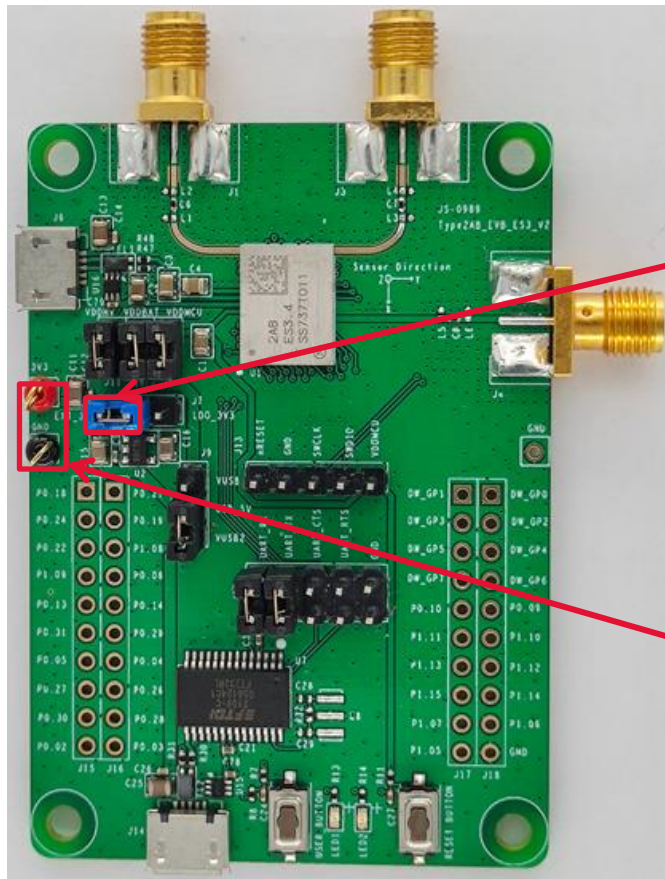
Short this jumper

External Power
Supply Interface :
2.5~3.6V, typ3.0V

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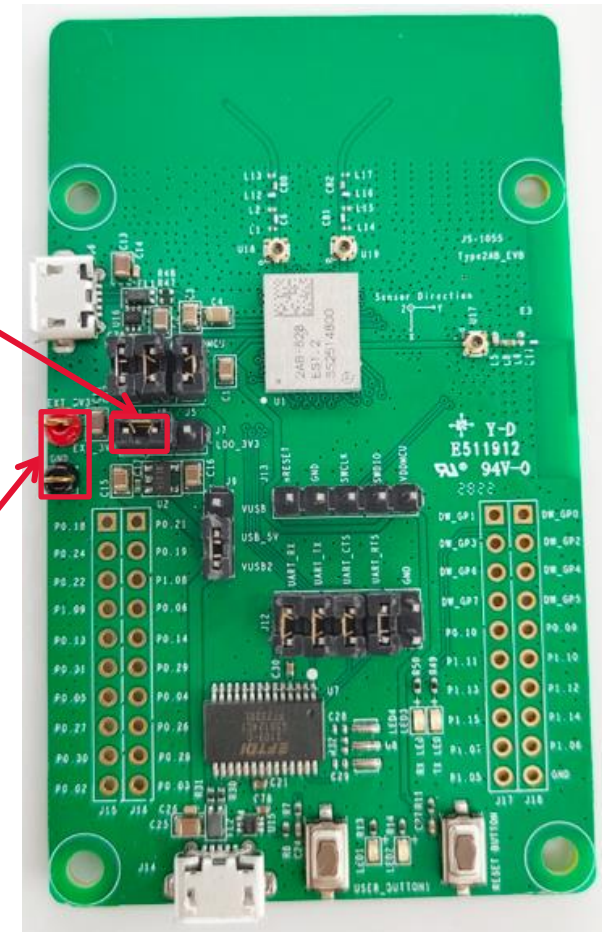
Power supply option2
–5V via USB interface J14

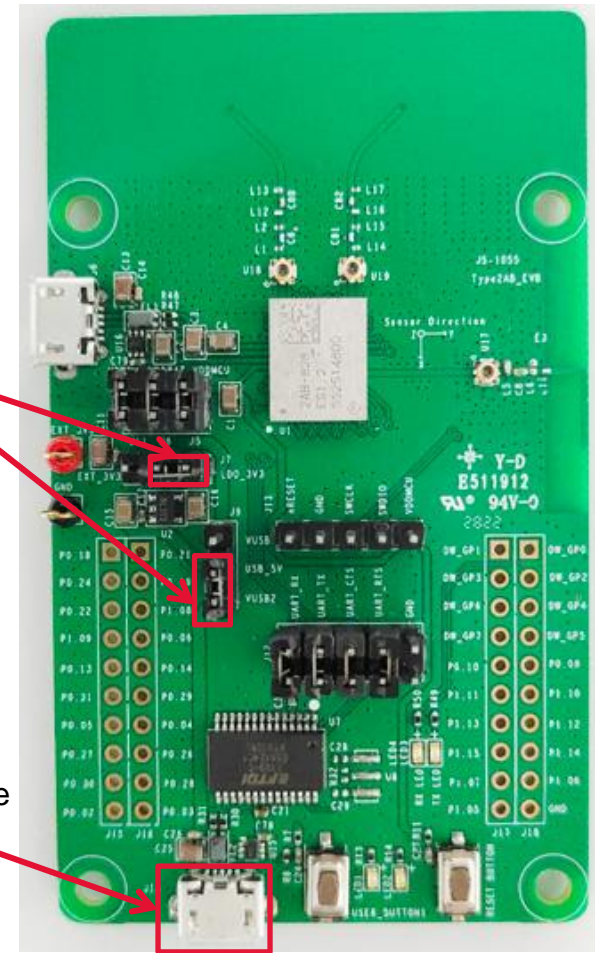- **Same configuration for JS-0989 and JS-1055**
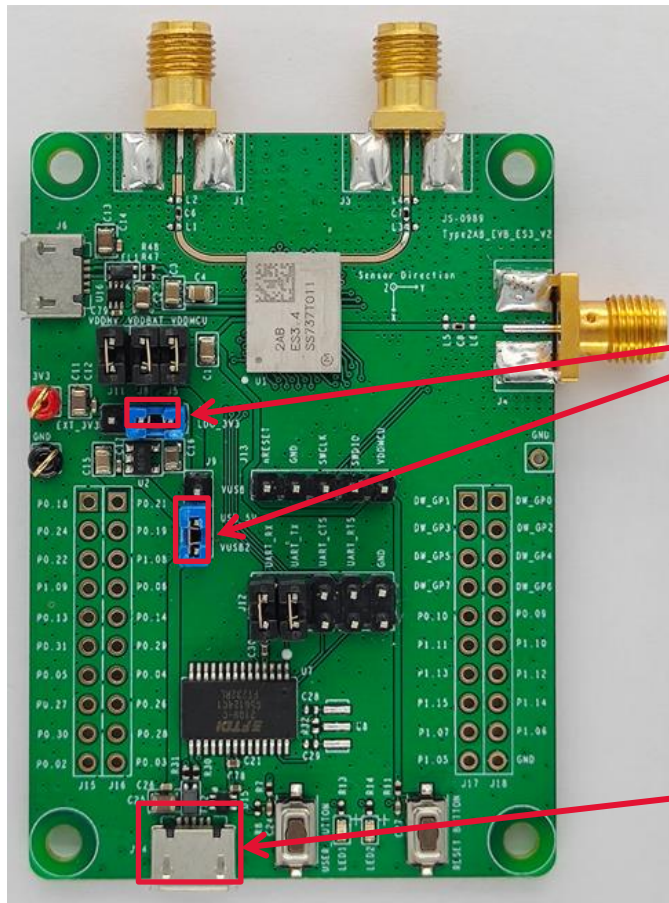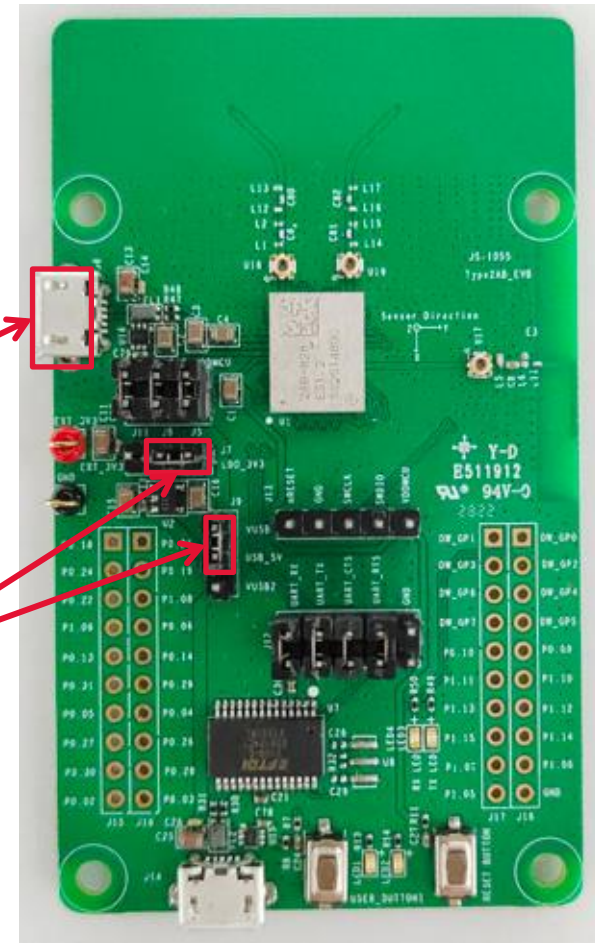

Short the two jumpers

USB Power interface

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- **Same configuration for JS-0989 and JS-1055**
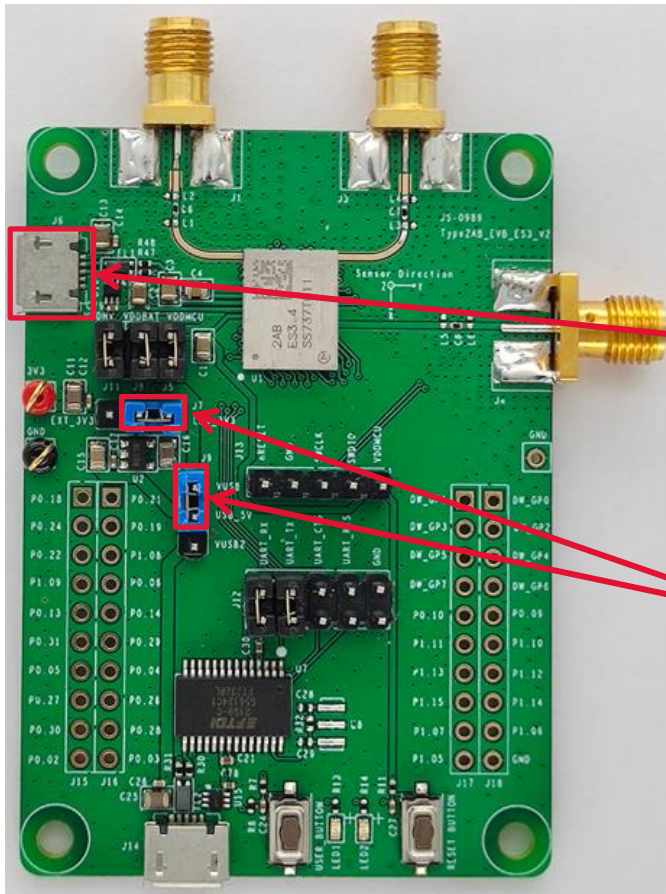
USB Power
interface

Short the
two jumpers

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nRF52840 pin configuration

- EVB used PINs

nRF52840 Pin	Function	Connection	Note
P0.07	2AB UART TX	UART to USB IC FT232RL	main UART for communication
P0.08	2AB UART RX		
P0.11	2AB UART CTS		
P0.12	2AB UART RTS		
P0.18	nRESET	reset button	
P0.30	button	button	
P0.28	LED1	LED1	
P0.21	LED2	LED2	
USB D+	USB D+	USB connector	Depend on FW
USB D-	USB D-		

- PIN assignment for GPIO connectors

J15 J16

P0.18/nRESET	1	1	P0.21
P0.24	2	2	P0.19
P0.22	3	3	P1.08
P1.09	4	4	P0.06
P0.13	5	5	P0.14
P0.31/AIN7	6	6	P0.29/AIN5
P0.05/AIN3	7	7	P0.04/AIN2
P0.27	8	8	P0.26
P0.30/User_Button	9	9	P0.28/READY
P0.02	10	10	P0.03

J17 J18

DW_GPIO1	1	1	DW_GPIO0
DW_GPIO3	2	2	DW_GPIO2
DW_GPIO6	3	3	DW_GPIO4
DW_GPIO7	4	4	DW_GPIO5
P0.10/NFC2	5	5	P0.09/NFC1
P1.11	6	6	P1.10
P1.13	7	7	P1.12
P1.15	8	8	P1.14
P1.07	9	9	P1.06
P1.05	10	10	

Note: please refer to [5] and [6] for more details.

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J-Link connections for flashing firmware

Note:
1. Please make sure the module is powered on during FW programming . Refer to page 10-12 for the power supply options.
2. Please refer to [1] for details on how to upgrade firmware using J-link

J-Link

Power supply

2AB SWD interface

VTref	1	2	NC
Not used	3	4	GND
Not used	5	6	GND
SWDIO	7	8	GND
SWCLK	9	10	GND
Not used	11	12	GND
SWO	13	14	*
RESET	15	16	*
Not used	17	18	*
5V-Supply	19	20	*

VDDMCU
SWDIO
SWCLK
GND
nRESET

J-Link pinout for SWD

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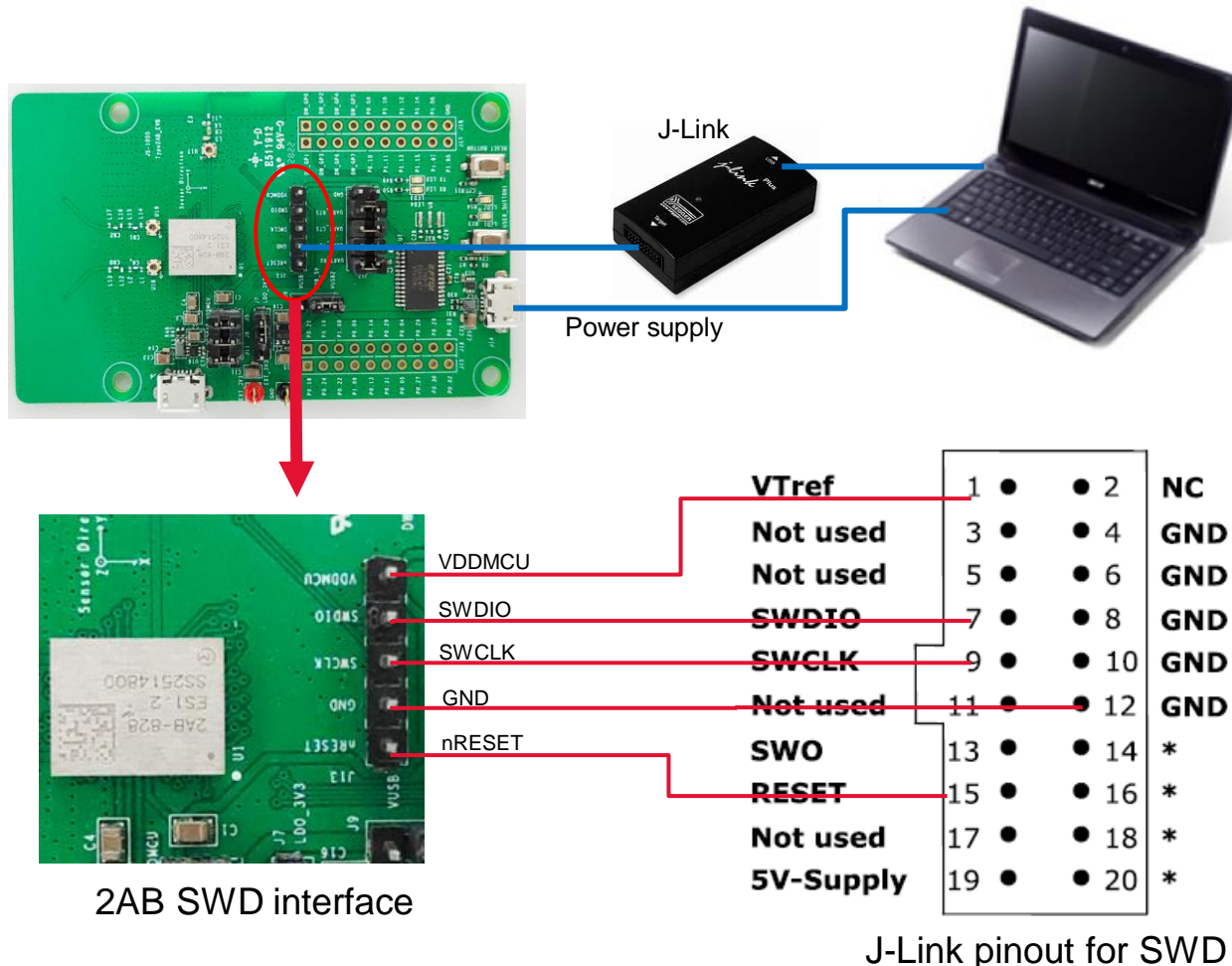
References

References:
[1]   S10210-SP-Type2AB_Test_Firmware_Specification_v0.6.0.pdf
[2]   Type2AB_Firmware_Upgrade_Guide_V0.2.1.pdf
[3]   S10286-Murata-QSG-Type2AB_UCI_CLI_FW_Quick_Start_Guide_Rev1.3-20240202.pdf
[4]   S10285-QSG-Type2AB_DW3-QM33_SDK_Patch_Quick_Start_Guide-V0.1.2-20240202.pdf
[5]   JS-1055_2AB_EVB_Schematic
[6]   Application Note_Type2AB_Hardware Design Guide RevE

Revision History

Revision	Date	Description
V1.0	2020-09-04	Initial release
V2.0	2021-06-09	Update EVB picture for PCB JS-0969
V3.0	2021-10-09	Update EVB picture for PCB JS-0989
V4.0	2022-02-14	Update single antenna assembly direction
V5.0	2022-09-23	Update EVB picture for PCB JS-1055 (with PCB antenna)
V5.1	2024-03-07	• Update some information on page 8 and page9. • Add references on page15. • Add J-Link connections for flashing FW on page14 • Adjust the order of sections.