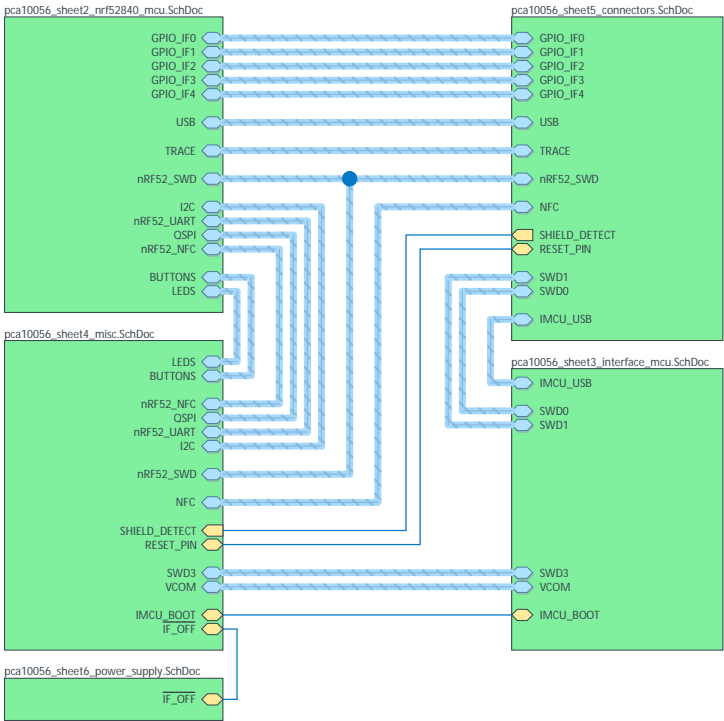



Nordic Semiconductor ASA

nRF52840 Bluetooth Low Energy/ANT/802.15.4/2.4GHz RF Development Board (PCA10056)

Sheet 1:	Cover
Sheet 2:	nRF52840 MCU
Sheet 3:	Interface MCU
Sheet 4:	Miscellaneous
Sheet 5:	Connectors
Sheet 6:	Power Supply



✖ The No ERC object is a design directive.
This directive is placed on a node in the circuit to suppress harmless warnings and/or error violation conditions that are detected when the schematic project is compiled.

Title nRF52840 Development Board - Cover			
Size A3	PCB Assembly Number PCA10056	Revision 3.0.3	
Date: 2024.05.07	Sheet 1 of 6		Drawn By: MASI/RUBR/STL1/RSK
File: pca10056_sheet1_cover.SchDoc	Classification: Public		

A

B

C

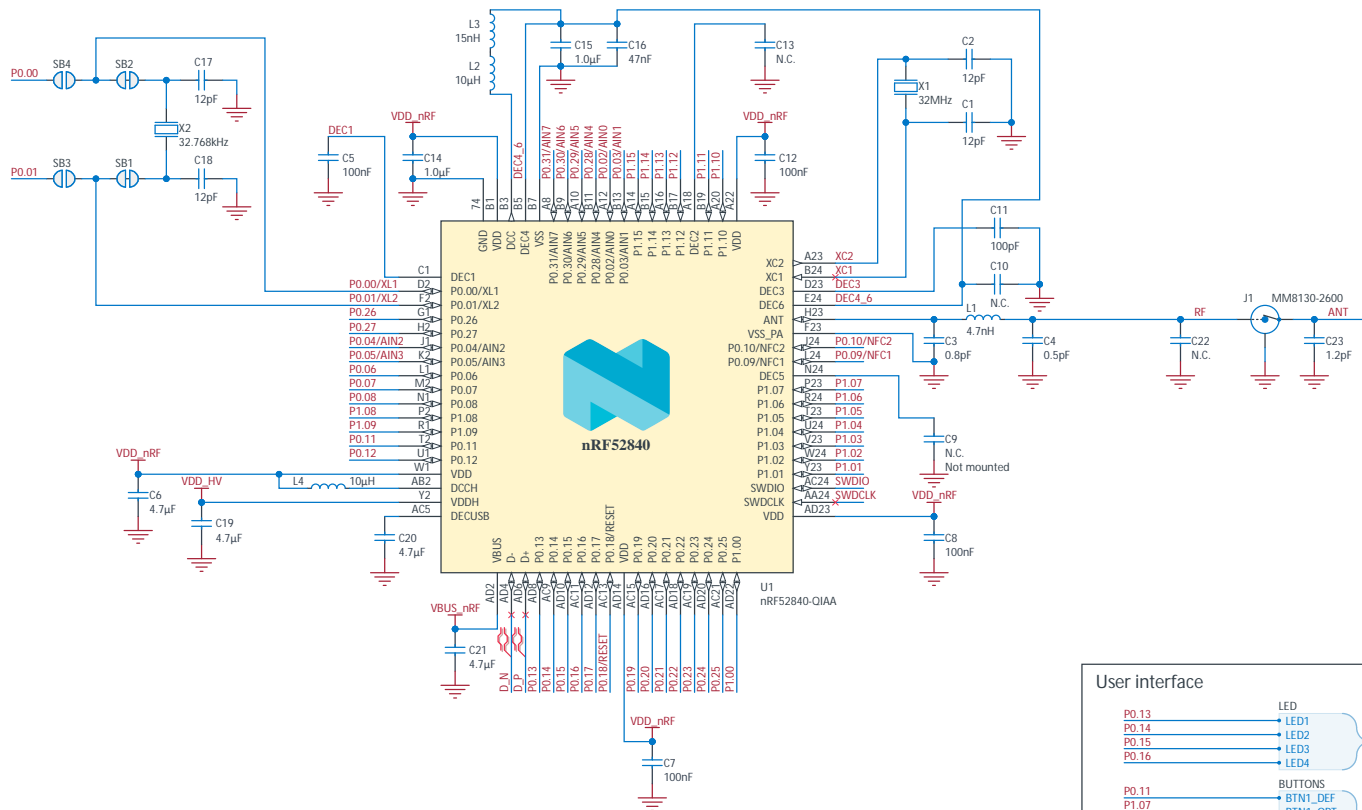
D

A

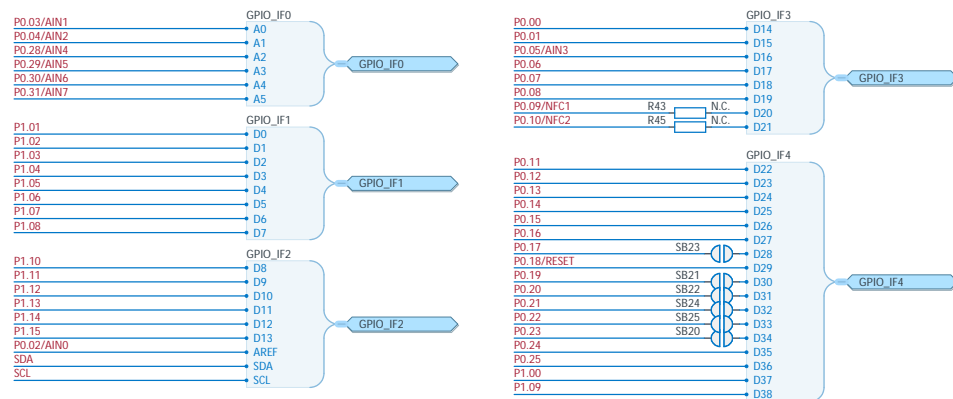
B

C

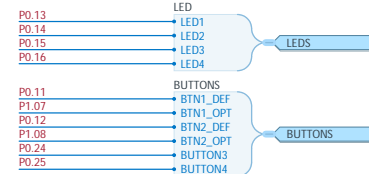
D



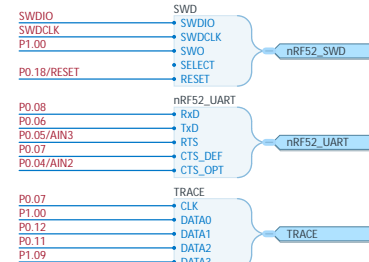
GPIO interface



User interface



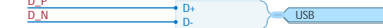
Debug interface



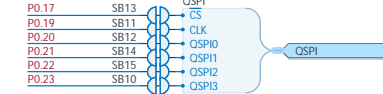
NFC



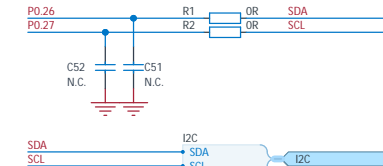
USB



External memory



I2C



Title
nRF52840 Development Board - nRF52840 MCU

Size
A3

PCB Assembly Number
PCA10056

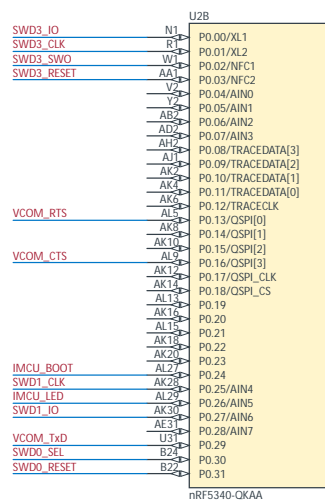
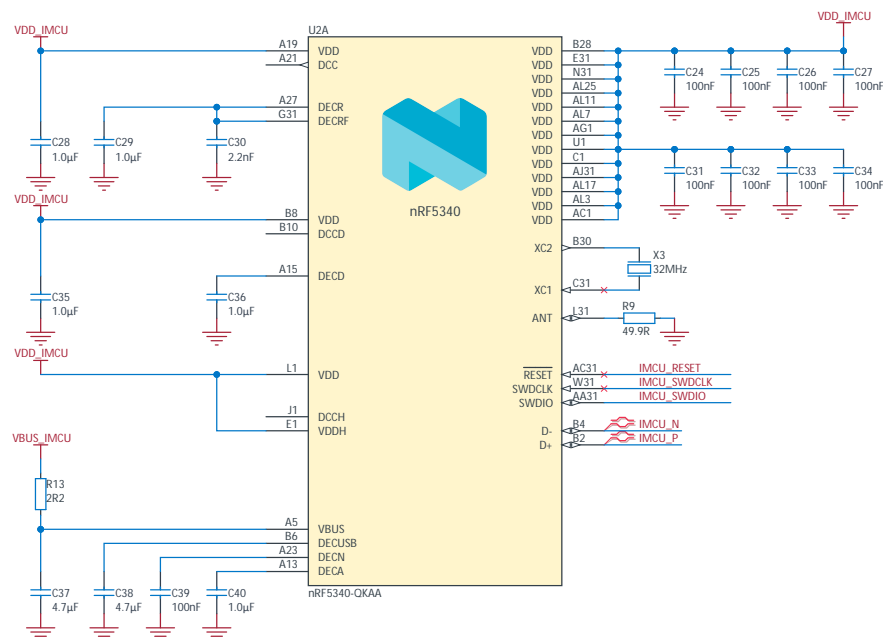
Revision
3.0.3

Date: 2024.05.24
File: pca10056_sheet2_nrf52840_mcu_SchDoc
Classification: Public

Sheet 2 of 6
Drawn By: MASI/RUBR/STL1/RSK



Interface MCU



The diagram illustrates the signal switches for the FSA2466UMX microcontroller, showing connections to various external components and internal pins.

U6: FSA2466UMX

- SWDIO:** Connected to SB54 (TP5) and SWD3_IO.
- SWDCLK:** Connected to SB55 (TP6) and SWD3_CLK.
- P0.18/RESET:** Connected to SB56 (TP7) and SWD3_RESET.
- P1.00:** Connected to SB57 (TP8) and SWD3_SWO.
- BOOT/RESET:** Connected to SB42, SB43, and SB44.
- IMCU_BOOT:** Connected to SB46.
- I2C:** Connected to SB42, SB43, and SB44.
- SDA:** Connected to SB42, SB43, and SB44.
- SCL:** Connected to SB42, SB43, and SB44.
- VCOM_RTS:** Connected to TP3 and VCOM_RTS.
- VCOM_CTS:** Connected to TP1 and VCOM_CTS.
- VCOM_TxD:** Connected to TP4 and VCOM_TxD.
- VCOM_RxD:** Connected to TP2 and VCOM_RxD.
- Buttons:** Connected to TP20, TP21, and TP22.

U7: FSA2466UMX

- SWDIO:** Connected to SB54 (TP5) and SWD3_IO.
- SWDCLK:** Connected to SB55 (TP6) and SWD3_CLK.
- P0.18/RESET:** Connected to SB56 (TP7) and SWD3_RESET.
- P1.00:** Connected to SB57 (TP8) and SWD3_SWO.
- BOOT/RESET:** Connected to SB42, SB43, and SB44.
- IMCU_BOOT:** Connected to SB46.
- I2C:** Connected to SB42, SB43, and SB44.
- SDA:** Connected to SB42, SB43, and SB44.
- SCL:** Connected to SB42, SB43, and SB44.
- VCOM_RTS:** Connected to TP3 and VCOM_RTS.
- VCOM_CTS:** Connected to TP1 and VCOM_CTS.
- VCOM_TxD:** Connected to TP4 and VCOM_TxD.
- VCOM_RxD:** Connected to TP2 and VCOM_RxD.
- Buttons:** Connected to TP20, TP21, and TP22.

U5: nRF52_UART

- RxD:** Connected to TP3 and VCOM_RTS.
- TxD:** Connected to TP1 and VCOM_CTS.
- CTS_Def:** Connected to TP4 and VCOM_TxD.
- CTS_Opt:** Connected to TP2 and VCOM_RxD.
- Buttons:** Connected to TP20, TP21, and TP22.

U8: nRF52_UART

- RxD:** Connected to TP3 and VCOM_RTS.
- TxD:** Connected to TP1 and VCOM_CTS.
- CTS_Def:** Connected to TP4 and VCOM_TxD.
- CTS_Opt:** Connected to TP2 and VCOM_RxD.
- Buttons:** Connected to TP20, TP21, and TP22.

The diagram also shows various external components like capacitors (C45, C48, C42, C50), resistors (R3, R52, R53, R4), and switches (SW6, SW7, SW11).

[illegible]

NFC pin configuration

The diagram illustrates the NFC pin configuration for the nRF52_NFC component. It shows two signal paths, NFC1 and NFC2, each consisting of an OR gate. The inputs to the OR gates are labeled PO_09/NFC1 and PO_10/NFC2. The outputs of the OR gates are connected to the NFC1 and NFC2 pins of the nRF52_NFC component. The NFC1 output is connected to a 300pF capacitor (C46) to ground, and the NFC2 output is connected to a 300pF capacitor (C47) to ground. The nRF52_NFC component is shown with pins nRF52_NFC, NFC1, and NFC2.

Flash memory

The diagram shows the connection of an OSPI flash memory to the MX25R6435F. The flash's CS pin is connected to pin 1 (CS), CLK to pin 6 (CLK), and SIO0/SI to pin 2 (SIO0/SI). The flash's SIO1/SO pin is connected to pin 3 (SIO1/SO), SIO2/WP to pin 4 (SIO2/WP), and SIO3/RESET to pin 7 (SIO3/RESET). The flash's VCC pin is connected to pin 8 (VCC) and GND to pin 4 (GND). The flash's SB16 pin is connected to pin 8 (SB16), SB17 to pin 4 (SB17), and SB18 to pin 4 (SB18). The flash's VDD_PER pin is connected to pin 8 (VDD_PER), VDD to pin 4 (VDD), and VDD_nRF to pin 4 (VDD_nRF).

Boot/Reset button

The diagram shows a circuit for a Boot/Reset button. A red line labeled 'VDD' is connected to a blue line labeled 'BOOT/RESET'. A resistor labeled 'R54' and 'N.C.' is connected between the 'VDD' line and the 'BOOT/RESET' line. A switch labeled 'SW5' and 'PB SW' is connected between the 'BOOT/RESET' line and a ground symbol.

Buttons

The diagram shows four buttons, labeled BUTTON1 through BUTTON4, connected to a common ground. Each button is represented by a switch (SW1, SW2, SW3, SW4) with a pull-up resistor (PB SW) connected to a common line. The buttons are connected to a common ground line.

Extra Op-amp


U19B
TS27L2IPT

Pin List 1x3	
1	
2	
3	

Not mounted

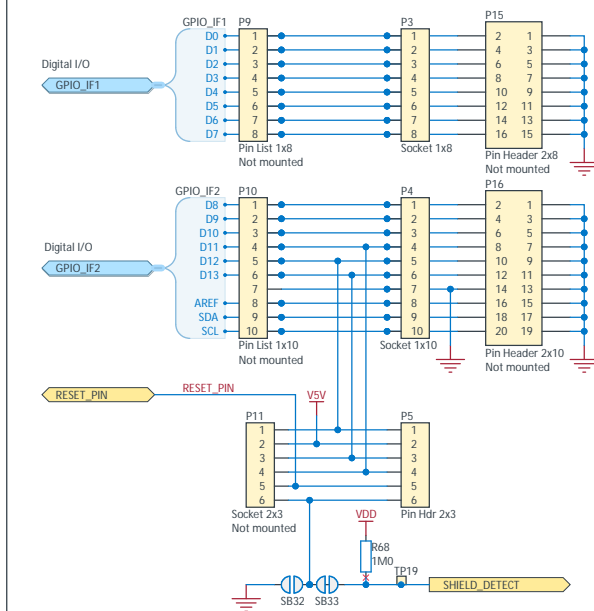
Debug interfaces

The diagram illustrates the debug interfaces for the nRF52_SWD and VCOM components. The nRF52_SWD interface is connected to the SWDIO, SWDCLK, SWO, and RESET pins, which are mapped to SWD3_IO, SWD3_CLK, SWD3_SWO, and SWD3_RESET respectively. The VCOM interface is connected to the RXD, TXD, RTS, and CTS pins, which are mapped to VCOM_RxD, VCOM_TxD, VCOM_RTS, and VCOM_CTS respectively.

Title nRF52840 Development Board - Miscellaneous		
Size A3	Revision 3.0.3	
Date: 2024.05.07 File: pca10056_sheet4_misc_SchDoc Classification: Public		Sheet 4 of 6 Drawn By: MASI/RUBR/STL1/RSK

The diagram illustrates the bottom connectors of the Raspberry Pi 4B. It includes the following components:

- Pin List 1x8:** A vertical connector with pins 1 through 8. Pins 1, 2, 3, and 4 are connected to VIO, V5V, VIN, and a common ground line, respectively. Pins 5, 6, 7, and 8 are connected to a common ground line. A red label "RESET_PIN" is placed near the common ground line.
- Socket 1x8:** A vertical connector with pins 1 through 8. Pins 1, 2, 3, and 4 are connected to a common ground line. Pins 5, 6, 7, and 8 are connected to a common ground line.
- Pin Header 2x8:** A vertical connector with pins 1 through 16. Pins 1, 2, 3, 4, 5, 6, 7, and 8 are connected to a common ground line. Pins 9, 10, 11, 12, 13, 14, 15, and 16 are connected to a common ground line.
- Pin List 1x6:** A vertical connector with pins 1 through 6. Pins 1, 2, 3, and 4 are connected to a common ground line. Pins 5 and 6 are connected to a common ground line.
- Socket 1x6:** A vertical connector with pins 1 through 6. Pins 1, 2, 3, and 4 are connected to a common ground line. Pins 5 and 6 are connected to a common ground line.
- Pin Header 2x6:** A vertical connector with pins 1 through 12. Pins 1, 2, 3, 4, 5, 6, 7, and 8 are connected to a common ground line. Pins 9, 10, 11, and 12 are connected to a common ground line.



Bottom Connectors

Top connectors

GPIO_IF3

GPIO_IF4

Pin List 1x8 Not mounted

Socket 1x8

Pin Header 2x8 Not mounted

Socket 2x5

[illegible]


The diagram shows a 2x5 pin header labeled P19. The pins are numbered 1 through 10. The connections are as follows:

- Pin 1: SWDIO
- Pin 2: SWDCLK
- Pin 3: SWDIO
- Pin 4: SWDCLK
- Pin 5: SWDIO
- Pin 6: SWDIO
- Pin 7: SWDIO
- Pin 8: SWDIO
- Pin 9: SWDIO
- Pin 10: SWDIO

External connections shown:

- SB47 (VDD) is connected to Pin 1.
- SB19 (VIO_REF) is connected to Pin 2.
- SWDIO_SEL is connected to Pin 3.
- SWDIO is connected to Pin 4.
- SWDIO is connected to Pin 5.
- SWDIO is connected to Pin 6.
- SWDIO is connected to Pin 7.
- SWDIO is connected to Pin 8.
- SWDIO is connected to Pin 9.
- SWDIO is connected to Pin 10.

Pin Header 2x5, 1.27mm

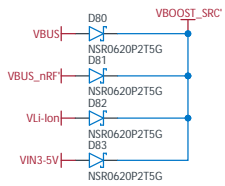
Title nRF52840 Development Board - Connectors		
Size A3	PCB Assembly Number PCA10056	
Revision 3.0.3		
Date: 2024-09-16		Sheet 5 of 6
File: pca10056_sheet5_connectors.SchDoc		Drawn By: MASI/RUBR/ST11/RSK
Classification: Public		



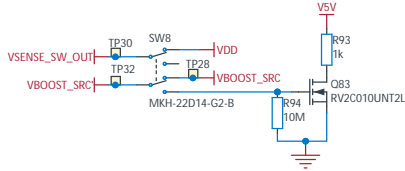
A

A

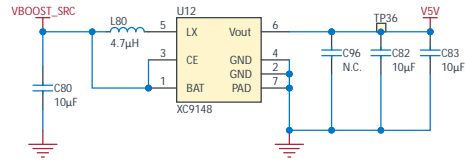
Power input, reverse protection



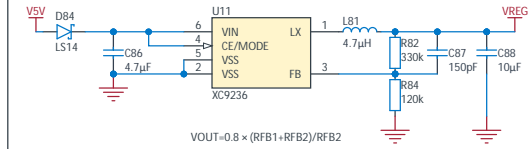
Power switch



5V Boost regulator



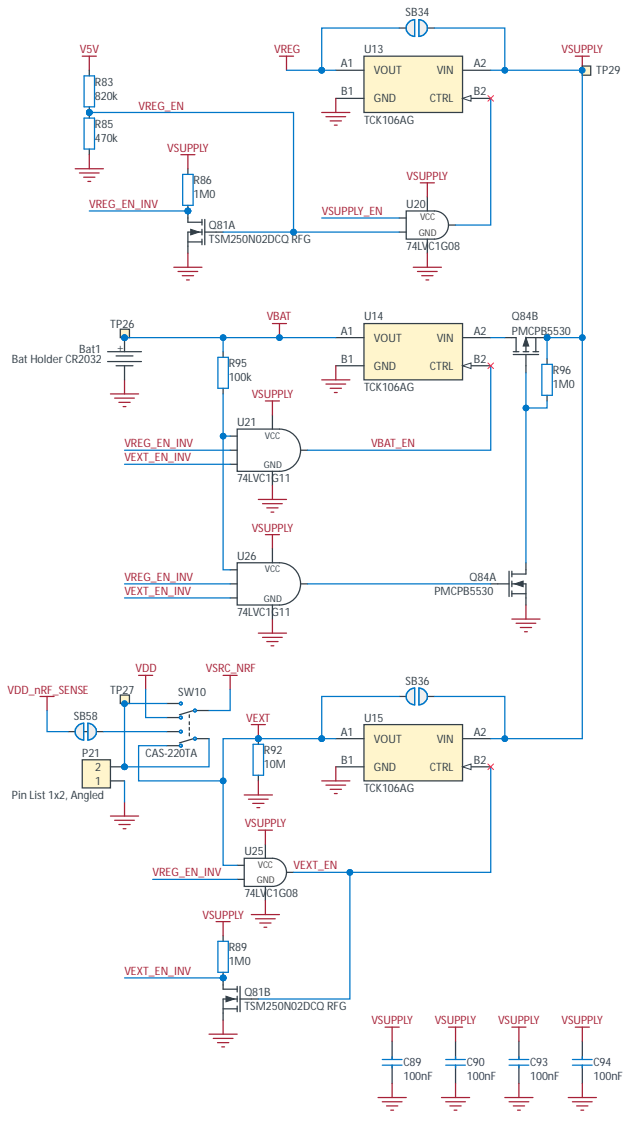
Buck regulator for VDD



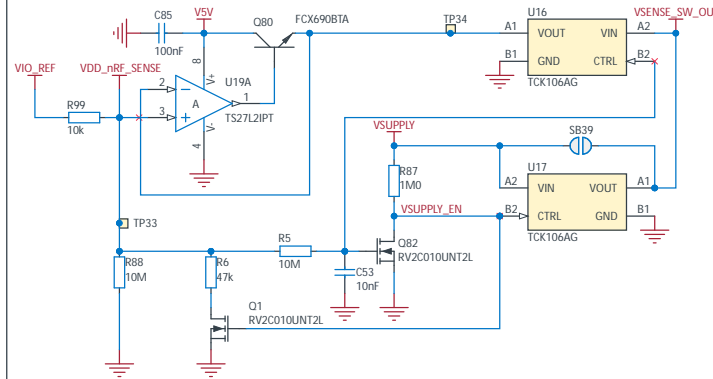
B

B

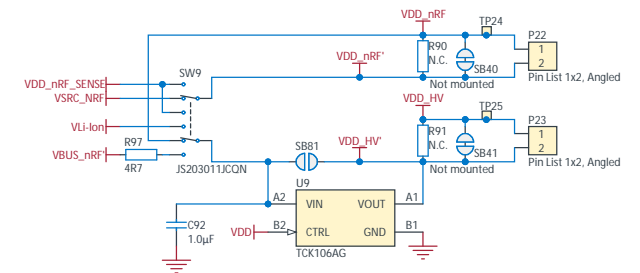
Power sources and switches



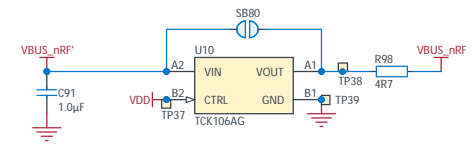
VDD_nRF sense buffer and switch



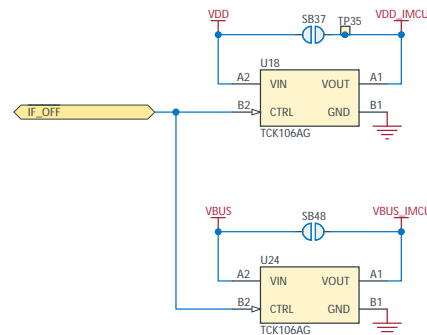
nRF power source select and current measurement



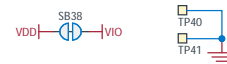
VBUS_nRF switch




Interface MCU power switch



Instrument ground



Title nRF52840 Development Board - Power Supply			
Size A3	PCB Assembly Number PCA10056	Revision 3.0.3	
Date: 2024.05.07		Sheet 6 of 6	
File: pca10056_sheet6_power_supply.SchDoc		Drawn By: MASI/RUBR/STL1/RSK	
Classification: Public			





