


## nRF9160 Development Kit (PCA10090)

The block diagram illustrates the internal connections of the PCA10090 module, organized into several functional blocks:

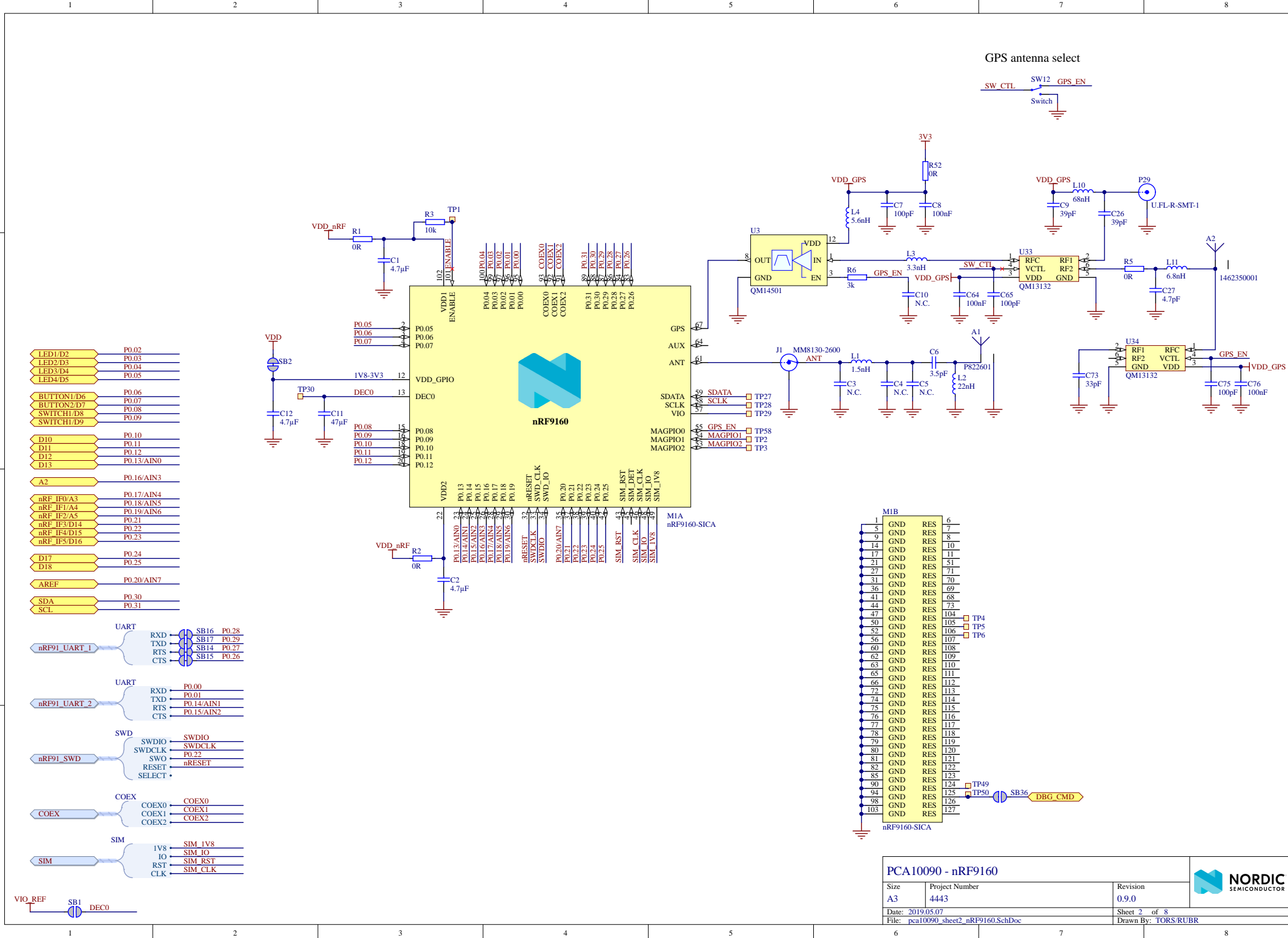
- Left Column (Peripheral Interfaces):**
  - pca10090\_sheet7\_sim\_connectors.SchDoc:** Contains pins for nRF91\_SWD, SIM, DBG\_CMD, SHIELD\_DETECT, NFC, nRF52\_SWD, USB, SWD1, and SWD0.
  - pca10090\_sheet4\_interface\_mcu.SchDoc:** Contains pins for SWD0, SWD1, USB, SWD2, VCOM1, VCOM0, VCOM2, and VCOM3.
  - pca10090\_sheet8\_power\_supply.SchDoc:** Contains pins for IF\_MCU\_DISCONNECT and USB\_DETECT.
  - pca10090\_sheet3\_nrf52840.SchDoc:** Contains pins for VCOM1, nRF52\_SWD, NFC, SHIELD\_DETECT, nRF52\_IF, nRF91\_UART1\_CTRL, nRF91\_UART2\_CTRL, LED1\_CTRL, LED2\_CTRL, LED3\_CTRL, LED4\_CTRL, BUTTON1\_CTRL, BUTTON2\_CTRL, SWITCH1\_CTRL, SWITCH2\_CTRL, nRF\_IF0-2\_CTRL, nRF\_IF3-5\_CTRL, and nRF\_IF6-8\_CTRL.
- Middle Column (Internal Module Connections):**
  - pca10090\_sheet5\_signal\_switches.SchDoc:** Contains pins for GPIO\_IF0 through GPIO\_IF3, COEX\_PH, TRACE, RESET\_CONN, USB\_DETECT, VCOM0, VCOM2, SMD3, IF\_MCU\_DISCONNECT, IMCU\_BOOT, nRF52\_IF, nRF91\_UART1\_CTRL, nRF91\_UART2\_CTRL, LED1\_CTRL, LED2\_CTRL, LED3\_CTRL, LED4\_CTRL, BUTTON1\_CTRL, BUTTON2\_CTRL, SWITCH1\_CTRL, SWITCH2\_CTRL, nRF\_IF0-2\_CTRL, nRF\_IF3-5\_CTRL, and nRF\_IF6-8\_CTRL.
- Right Column (User Interface and LEDs):**
  - pca10090\_sheet2\_nRF9160.SchDoc:** Contains pins for nRF91\_UART\_1, nRF91\_UART\_2, SIM, DBG\_CMD, LED1/D2, LED2/D3, LED3/D4, LED4/D5, BUTTON1/D6, BUTTON2/D7, SWITCH1/D8, SWITCH1/D9, D10, D11, D12, D13, AREF, SDA, SCL, A2, nRF\_IF0/A3, nRF\_IF1/A4, nRF\_IF2/A5, nRF\_IF3/D14, nRF\_IF4/D15, nRF\_IF5/D16, D17, D18, COEX, and nRF91\_SWD.
  - pca10090\_sheet6\_buttons\_and\_leds.SchDoc:** Contains pins for BUTTONS, LEDS, and RESET\_BTN.

Connections are shown as lines between corresponding pins across the different sheets, indicating the internal wiring of the module.

PCA10090 - Connections

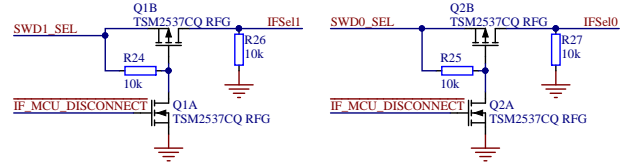
Size A3	Project Number 4443	Revision 0.9.0	
Date: 2019.04.15		Sheet 1 of 8	
File: nca10090_sheet1_connections.SchDoc		Drawn By: TORS/RUBR	



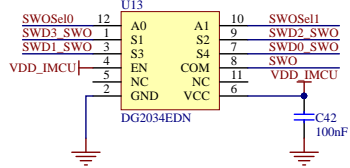




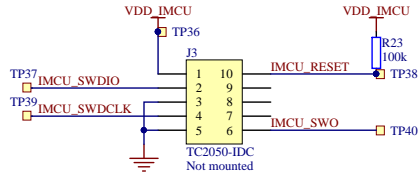
## SWD0/1 SEL reverse drive protection



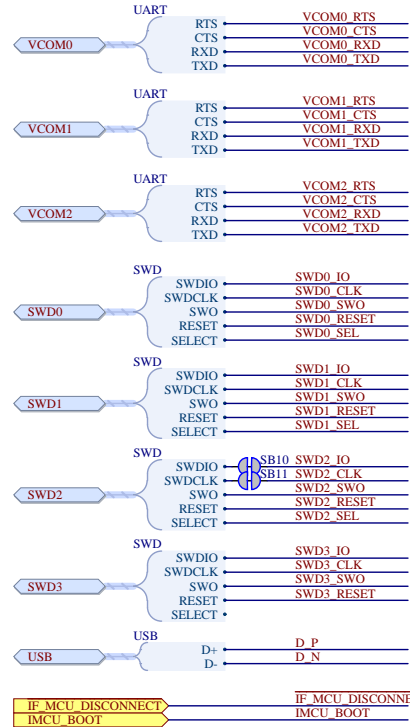
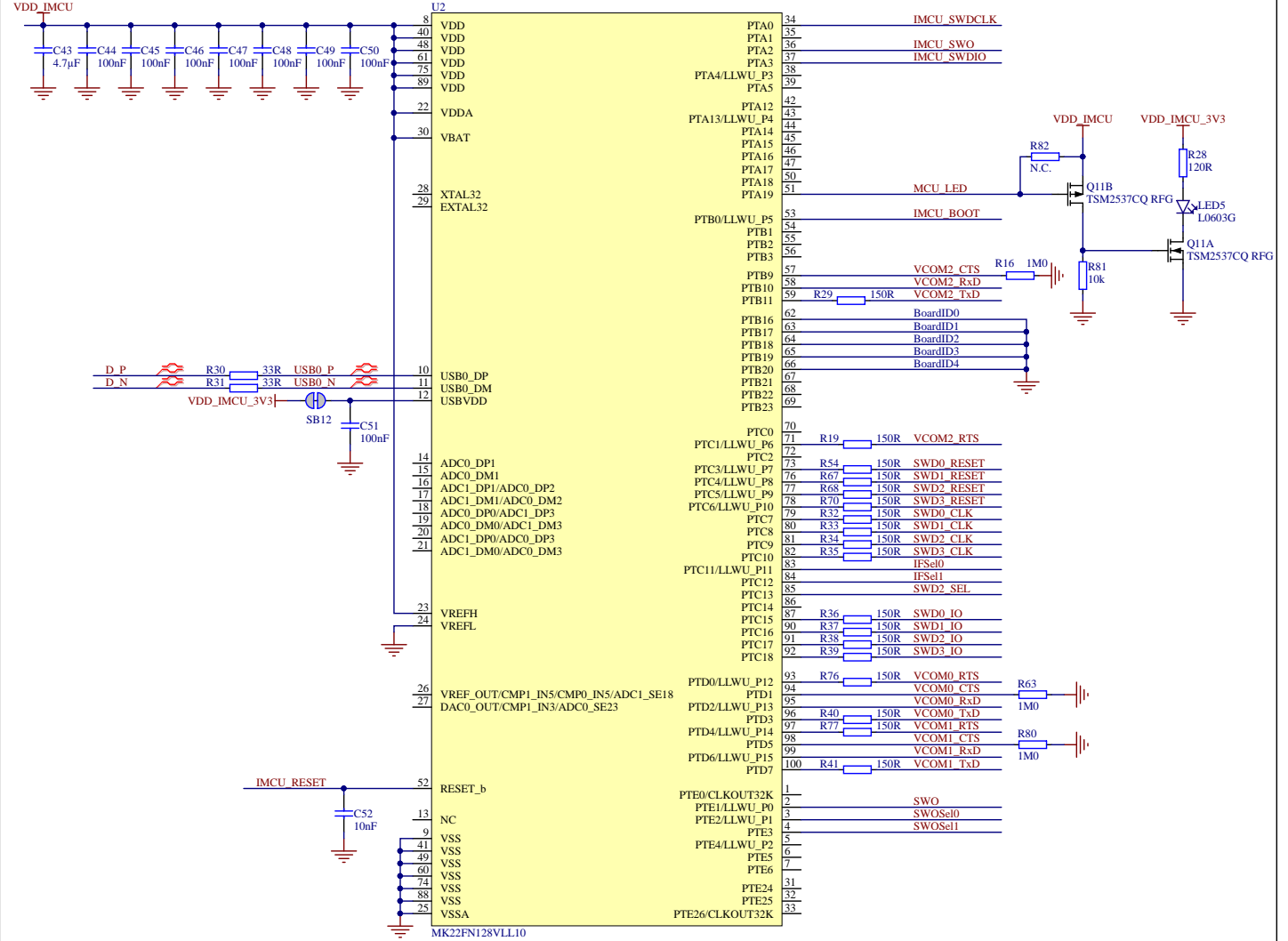
## SWO MUX



## Interface MCU programming connector



## Interface MCU

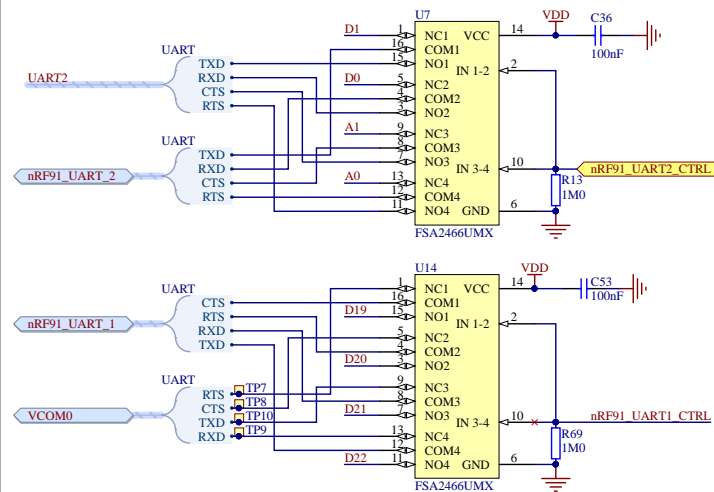


## PCA10090 - Interface MCU

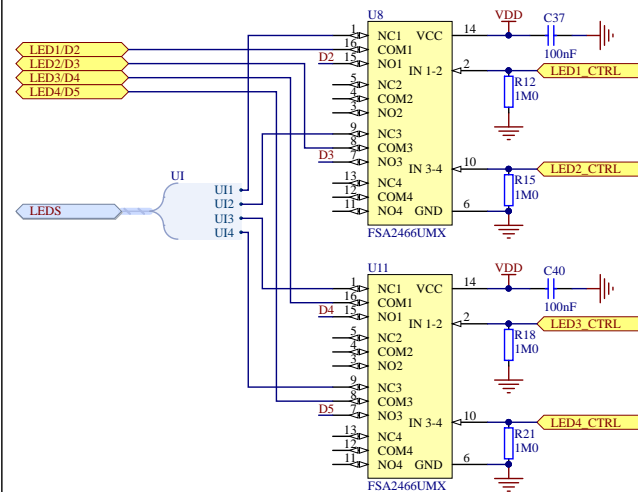
Size	Project Number	Revision	
A3	4443	0.9.0	
Date: 2019.04.15	File: pca10090_sheet4_interface_mcu.SchDoc	Sheet 4 of 8	
		Drawn By: TORS/RUBR	



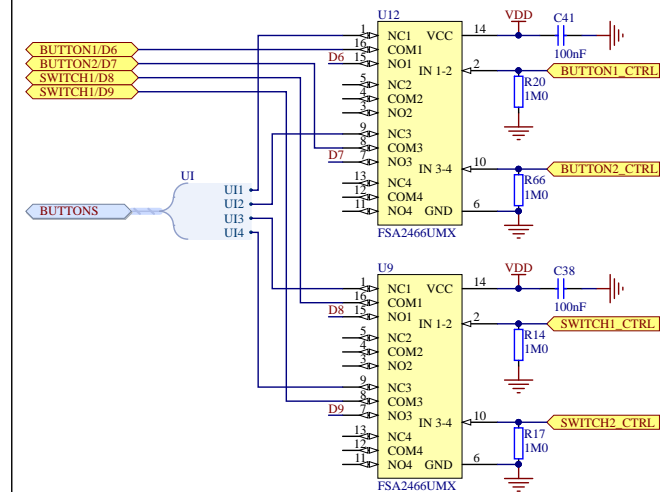
## UART control



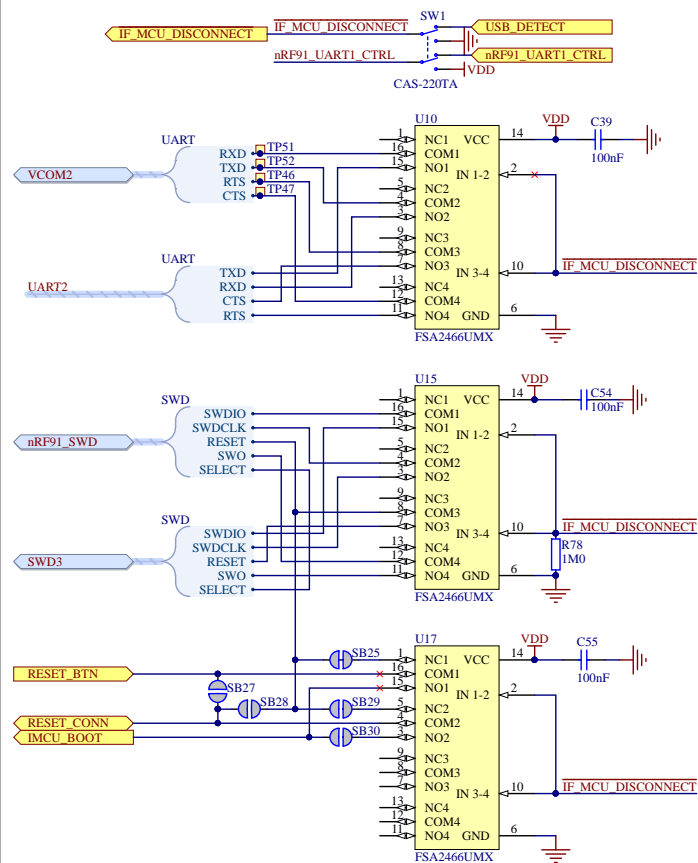
## LED control



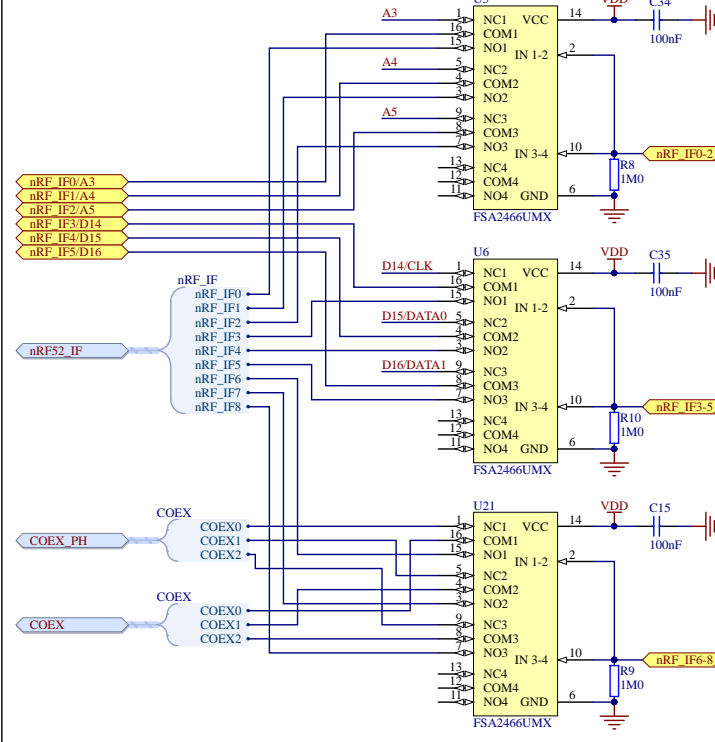
## Button and switch control



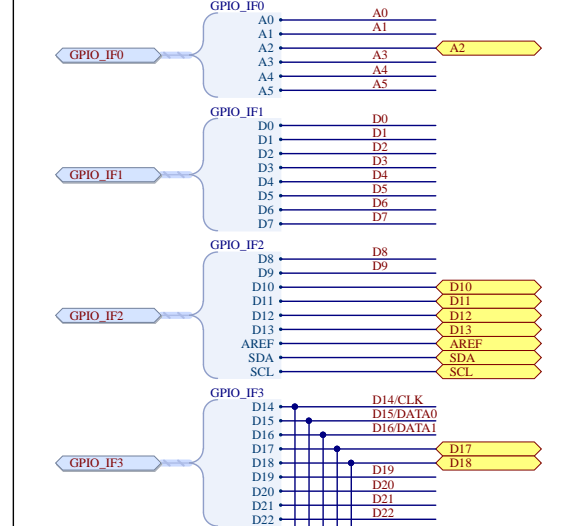
## Interface MCU disconnect switches



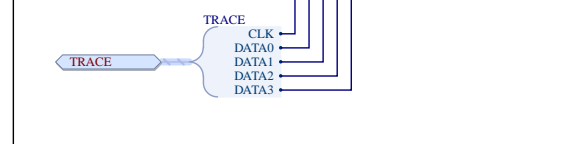
## nRF interface and COEX control



## GPIO interface

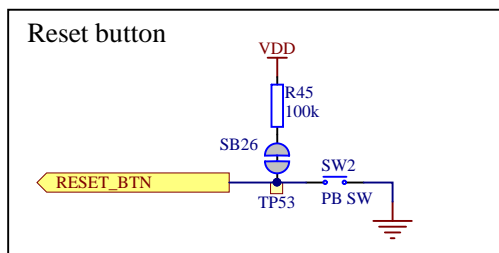
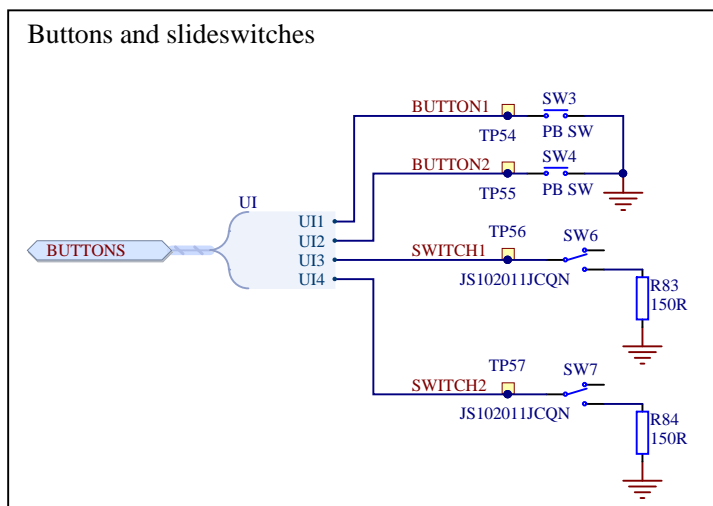
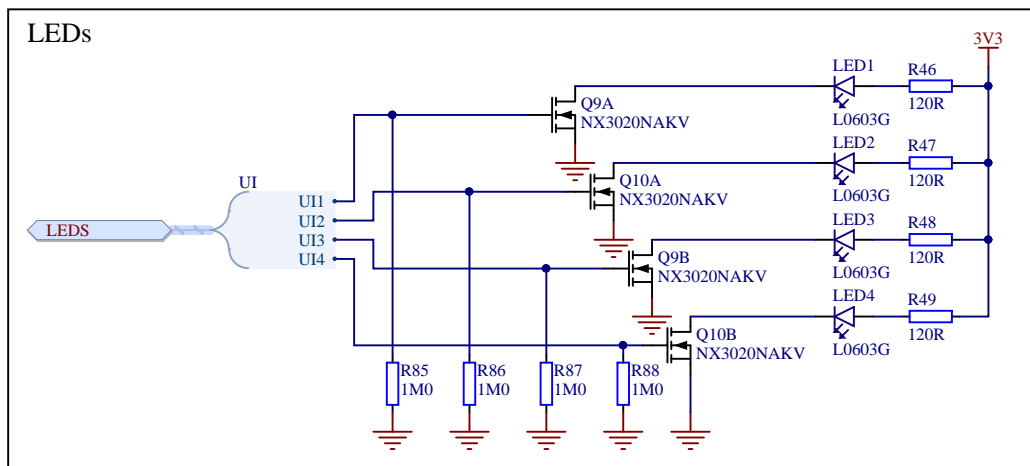



## TRACE interface



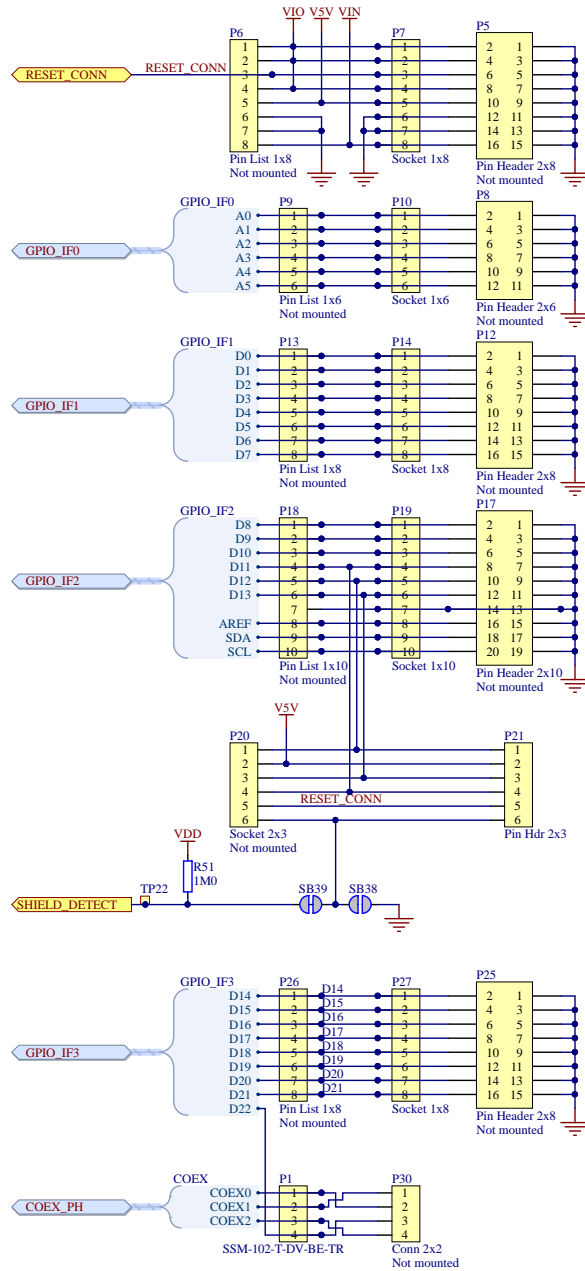
## PCA10090 - Signal switches

Size	Project Number	Revision	
A3	4443	0.9.0	
Date: 2019.04.15	Sheet 5 of 8	Drawn By: TORS/RUBR	
File: pca10090_sheet5_signal_switches.SchDoc			

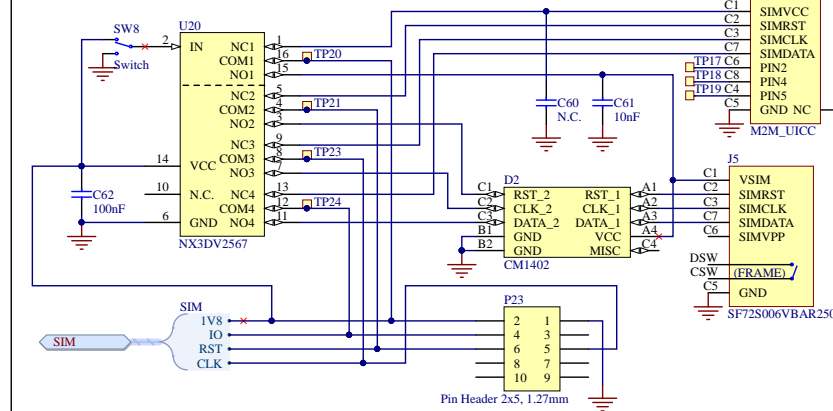


Title PCA10090 - Buttons and LEDs			
Size A4	Project Number 4443	Revision 0.9.0	
Date: 2019.04.15			Sheet 6 of 8
File: pca10090_sheet6_buttons_and_leds.SchDoc			Drawn By: TORS/RUBR

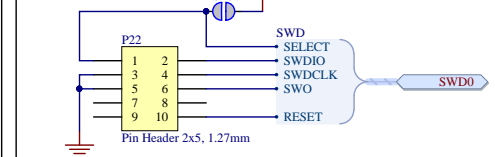
## Interface connectors



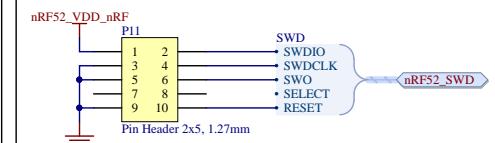
## SIM card connector, eSIM and selection switch



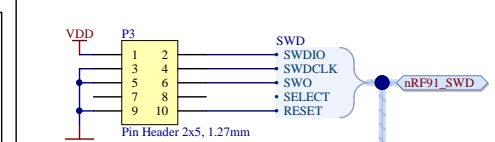
## Debug OUT connector



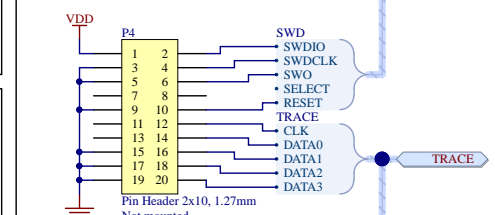
## nRF52 debug IN connector



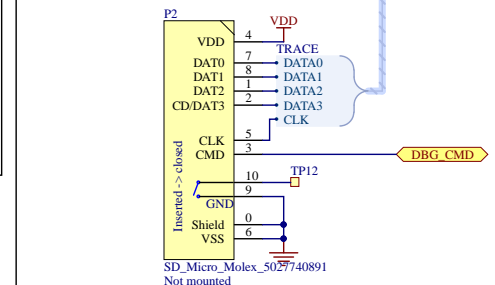
## nRF91 debug IN connector



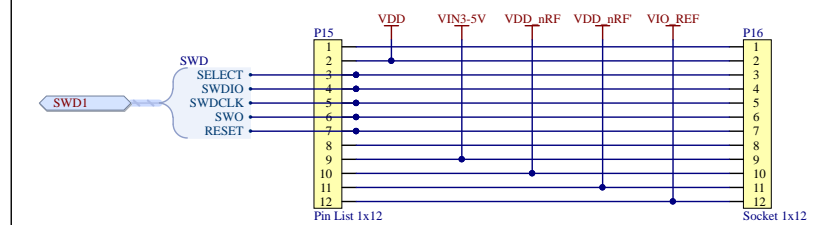
## Trace connector



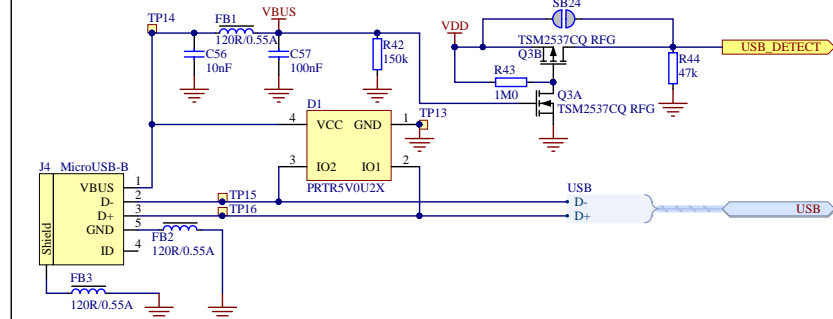
## Nordic internal debugging interface



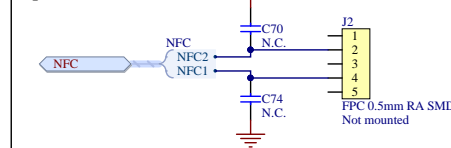
## Shield debug and current measurement connector



## USB connector and USB detect



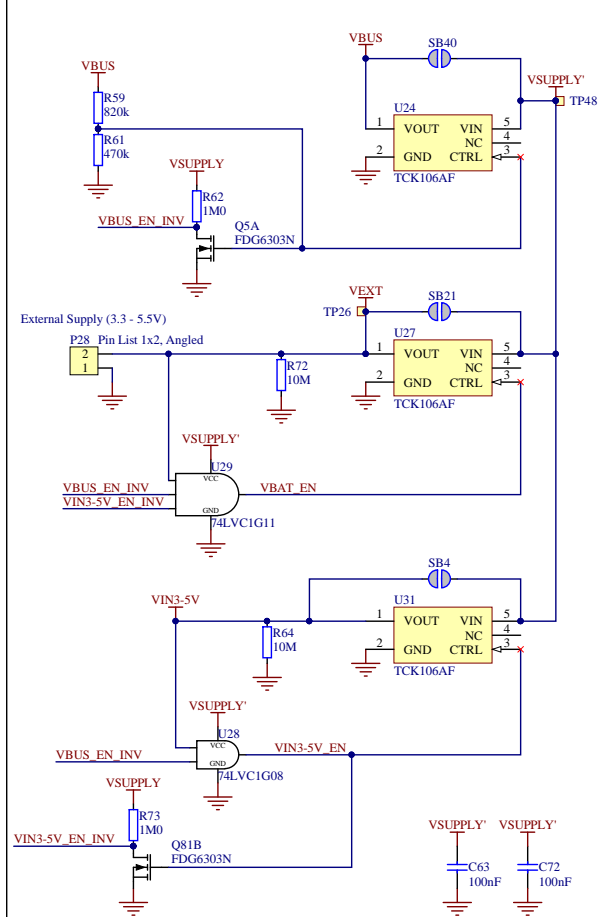
## Optional NFC connector



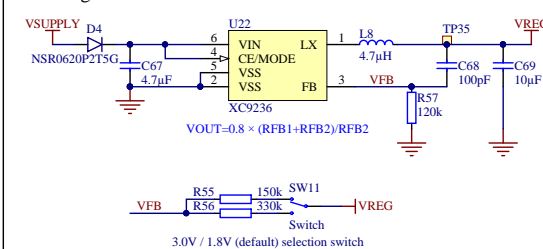
## PCA10090 - SIM & Connectors

Size A3	Project Number 4443	Revision 0.9.0	
Date: 2019.04.15	Sheet 7 of 8	Drawn By: TORS/RUBR	
File: pca10090_sheet7_sim_connectors.SchDoc			

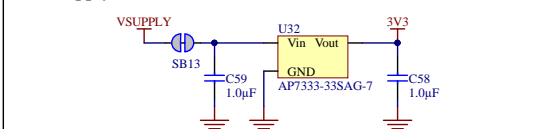
### Power sources and switches



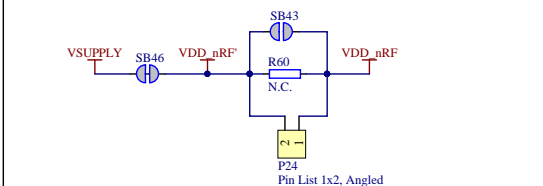
## Buck regulator for VDD



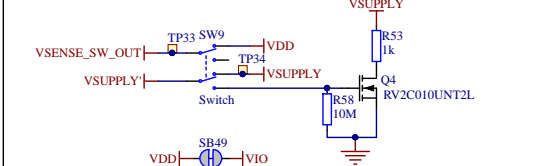
## 3V3 supply



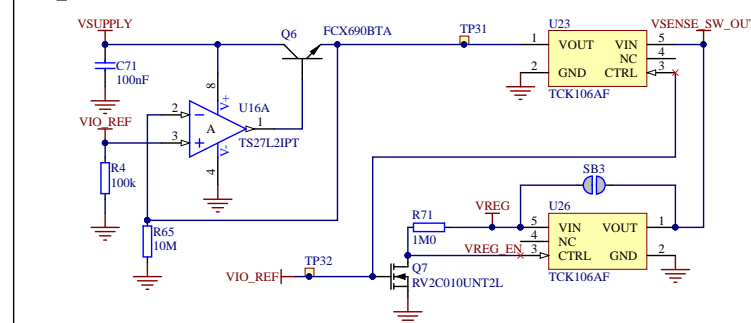
## nRF91 current measurement



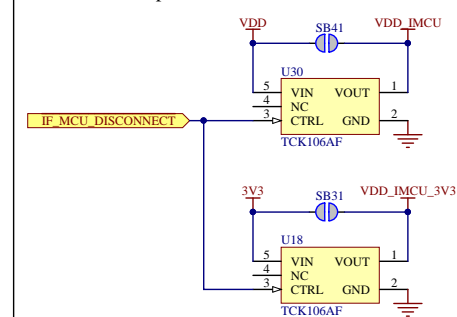
Power switch



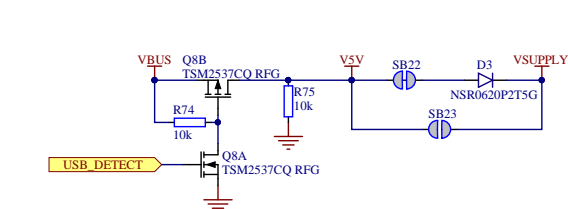
## VIO\_REF sense buffer and switch



## Interface MCU power switch




### VSUPPLY & V5V interface

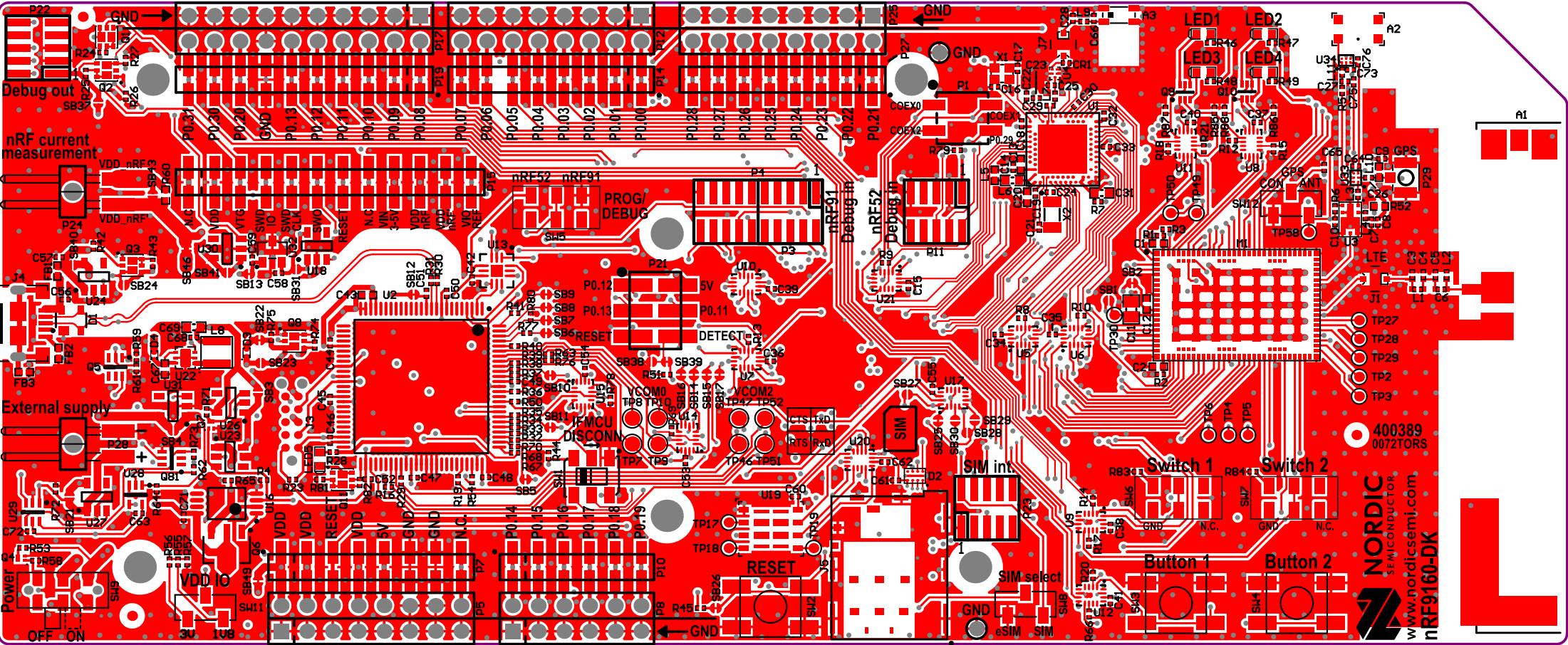


Instrument ground

PCA10090 - Power Supply

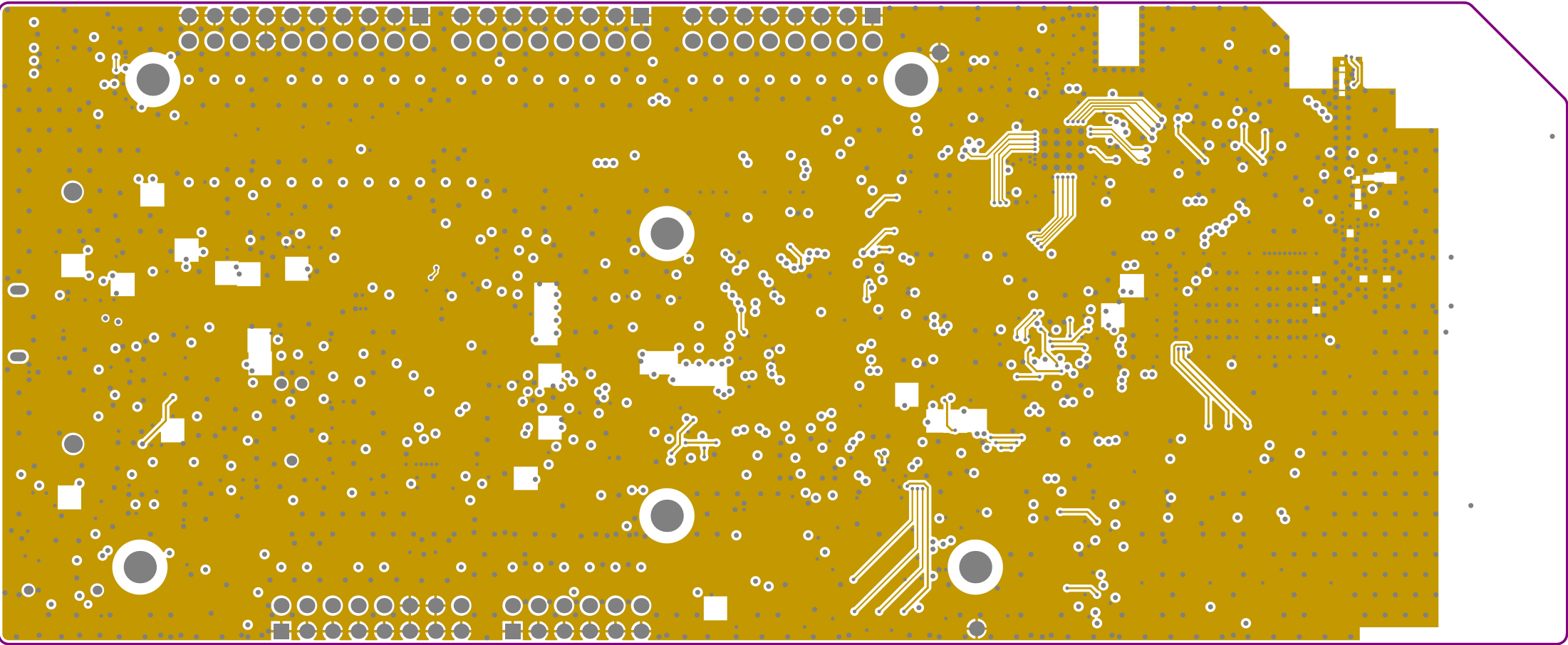
Size A3	Project Number 4443	Revision 0.9.0	
Date: 2019.04.15		Sheet 8 of 8	
File: pca10900_sheet8_power_supply.SchDoc		Drawn By: TORS/RUBR	

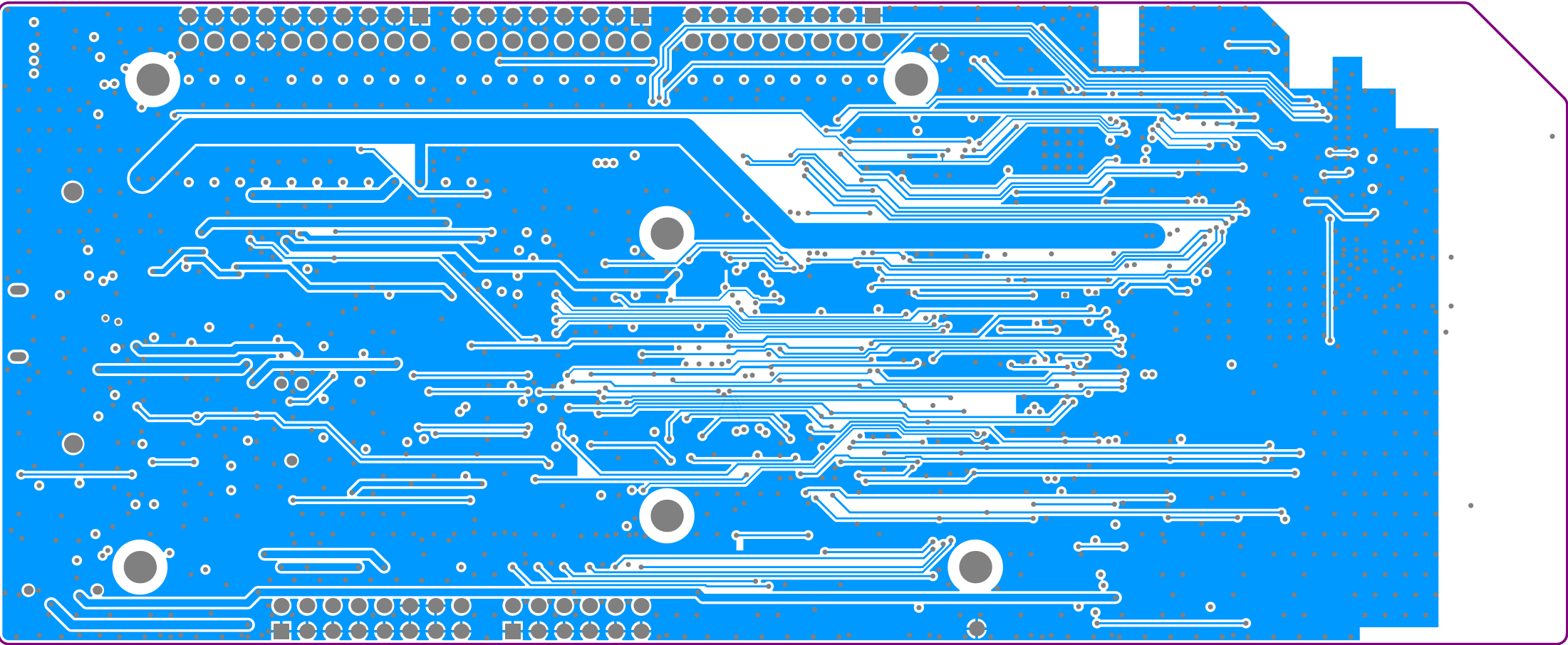




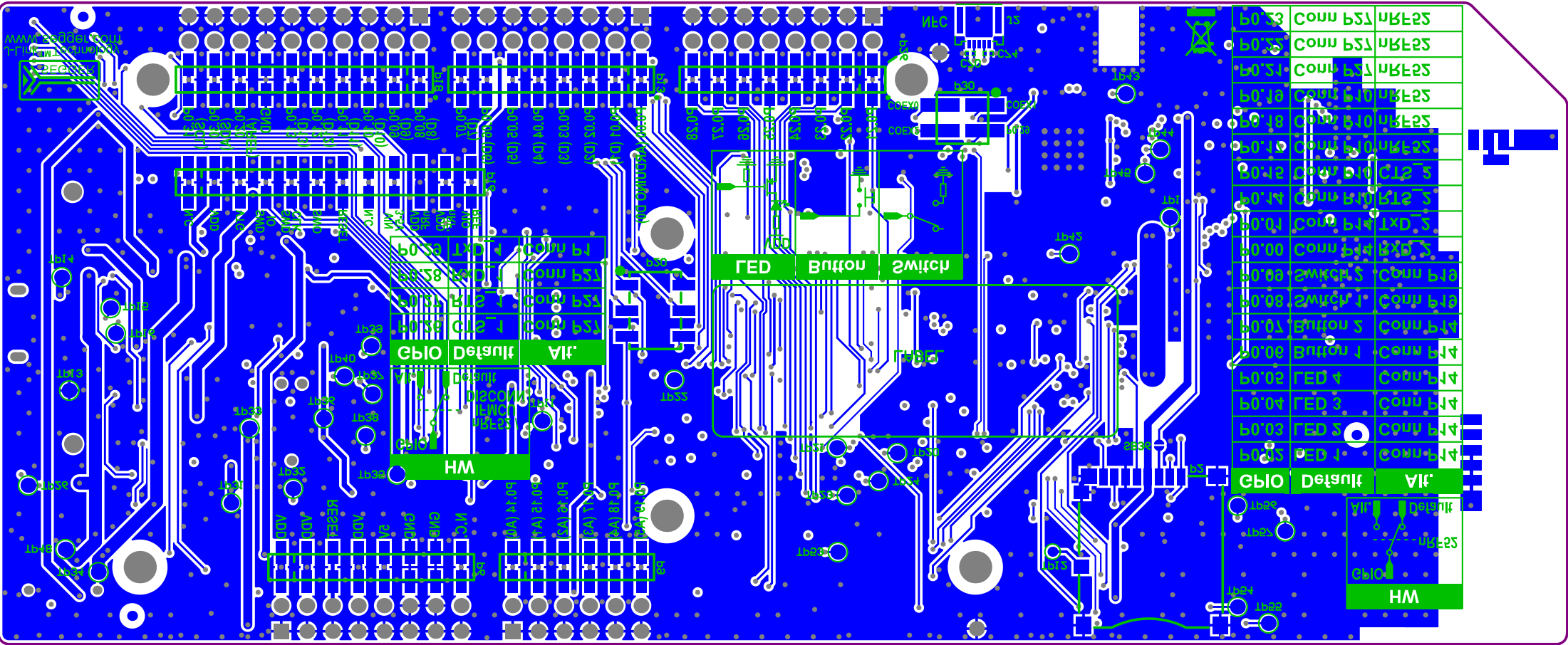
400389  
007210RS

**NORDIC**  
SEMICONDUCTOR  
www.nordicsemi.com  
**nRF9160-DK**









60'53	CONN B31	MBE25
60'55	CONN B31	MBE25
60'54	CONN B31	MBE25
60'18	CONN B10	MBE25
60'18	CONN B10	MBE25
60'10	CONN B10	MBE25
60'42	CONN B10	CL2 5
60'14	CONN B10	CL2 5
60'01	CONN B10	TXD 5
60'00	CONN B10	TXD 5
60'08	SWITCH 5	CONN B10
60'08	SWITCH 5	CONN B10
60'01	SWITCH 5	CONN B10
60'08	SWITCH 5	CONN B10
60'02	LED 1	CONN B14
60'04	LED 3	CONN B14
60'03	LED 3	CONN B14
60'05	LED 1	CONN B14
GPIO Definit	VI	
HM		



