01 Descriptions

File: 01 Descriptions.kicad_sch

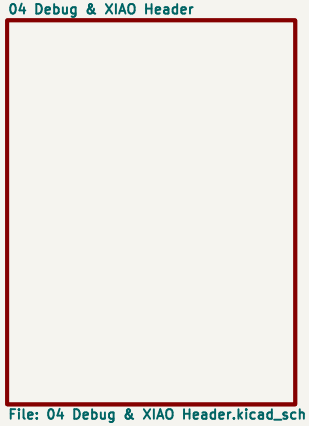
02 Block Diagram

File: 02 Block Diagram.kicad_sch

03 Power

File: 03 Power.kicad_sch

04 Debug & XIAO Header



File: 04 Debug & XIAO Header.kicad_sch

05 nRF54L15-CAAA-R

File: 05 nRF54L15-CAAA-R.kicad_sch

06 Peripherals

File: 06 Peripherals.kicad_sch

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Sheet: /
File: XIAO nRF54l15.kicad_sch

Title: XIAO nRF54L15			CC BY-SA 4.0
Size: A4	Date: 2025-05-29	Design: Wenkang.Liu	**Rev: V0.9**
KiCad E.D.A. 9.0.0			Id: 1/7

Version	Descriptions	Data	Name
v1.0	First Release	4/16/2024	wenkang.liu

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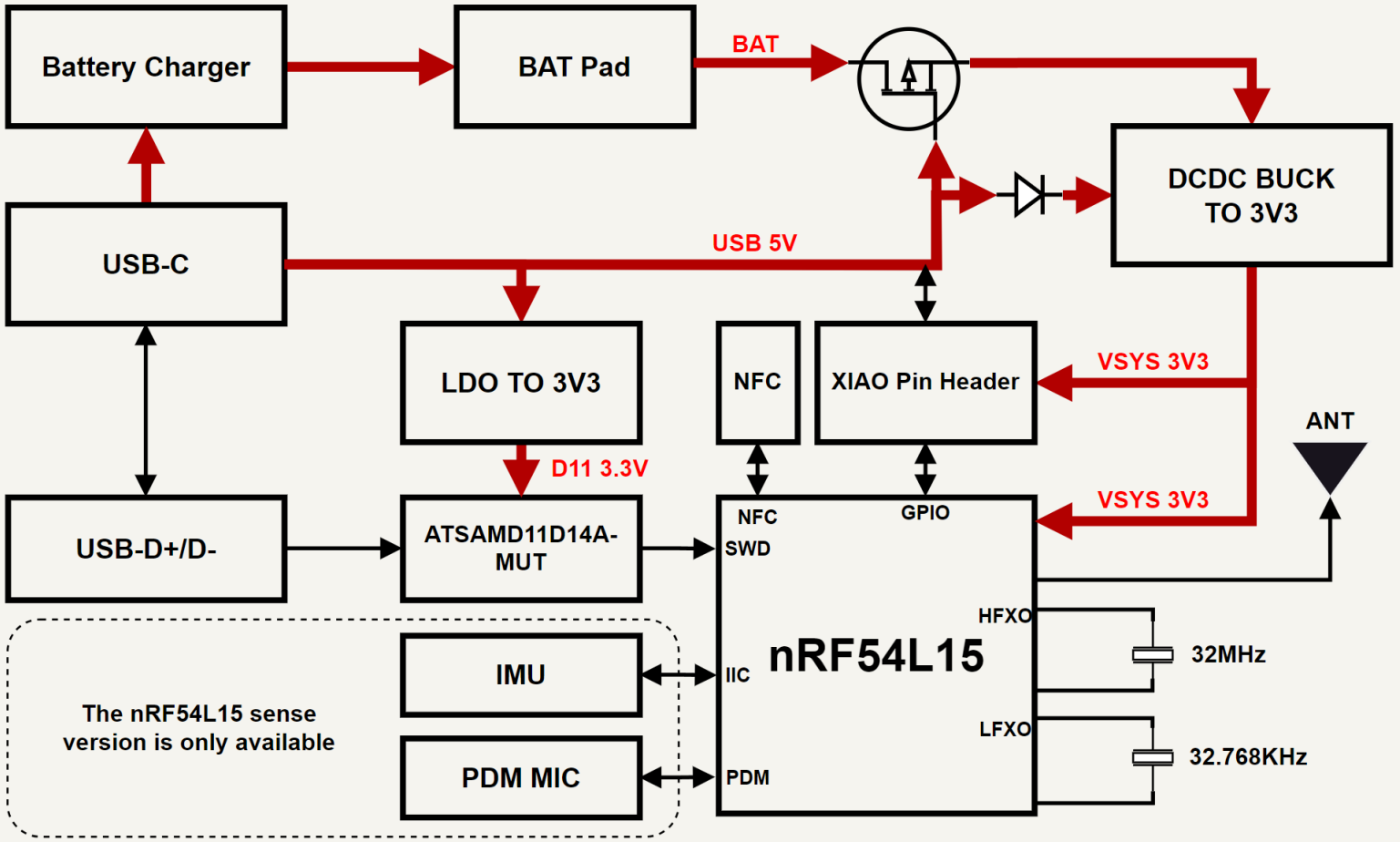
Sheet: /01 Descriptions/
File: 01 Descriptions.kicad_sch

Title: XIAO nRF54L15			CC BY-SA 4.0
Size: A4	Date: 2025-05-29	Design: Wenkang.Liu	Rev: V0.9
KiCad E.D.A. 9.0.0			Id: 2/7



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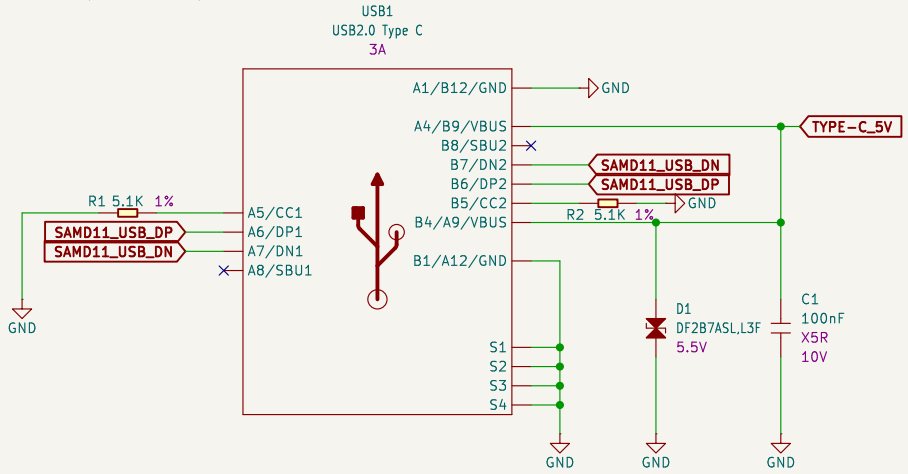
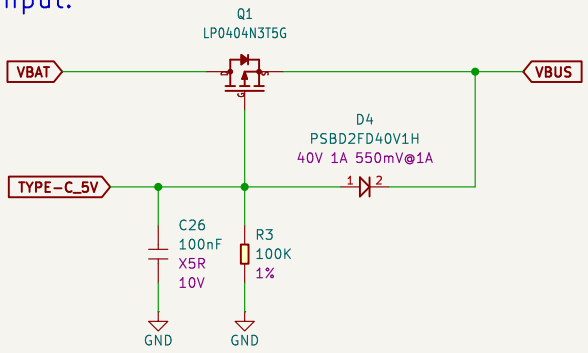
Title: XIAO nRF54L15			CC BY-SA 4.0
Size: A4	Date: 2025-05-29	Design: Wenkang.Liu	Rev: V0.9
KiCad E.D.A. 9.0.0			Id: 3/7

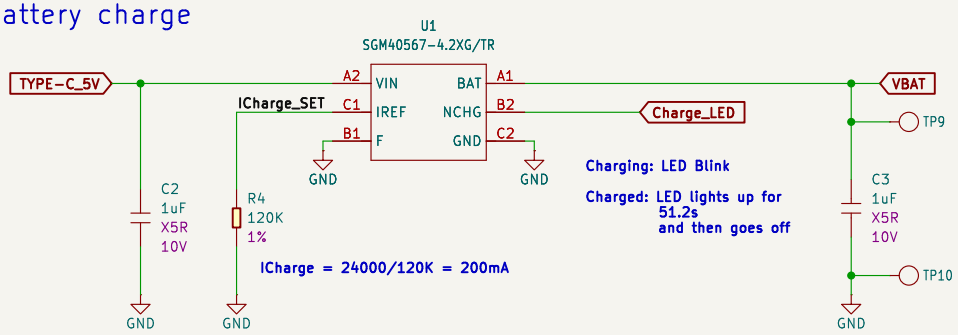
TYPE C input/output:



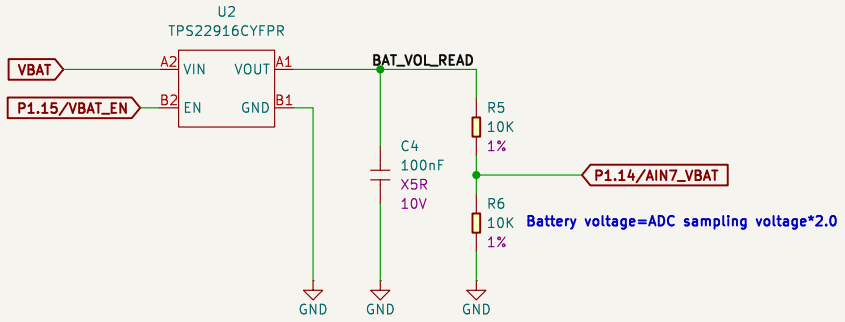
User Power input:



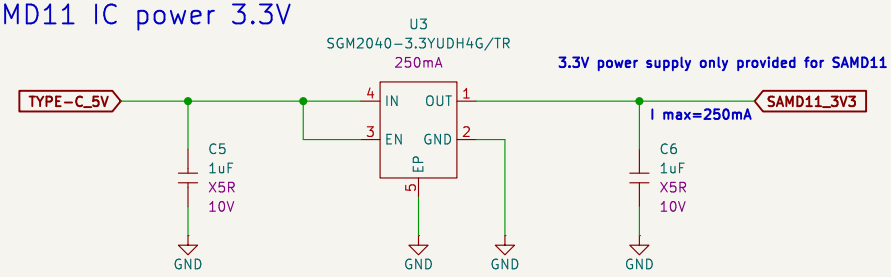
Battery charge



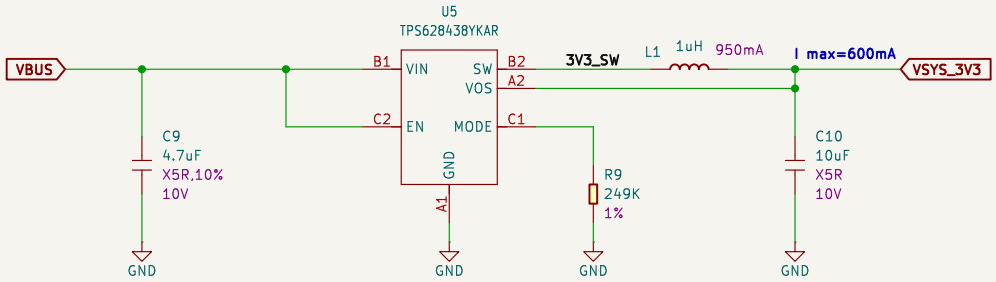
Battery voltage detection



SAMD11 IC power 3.3V



System 3.3V



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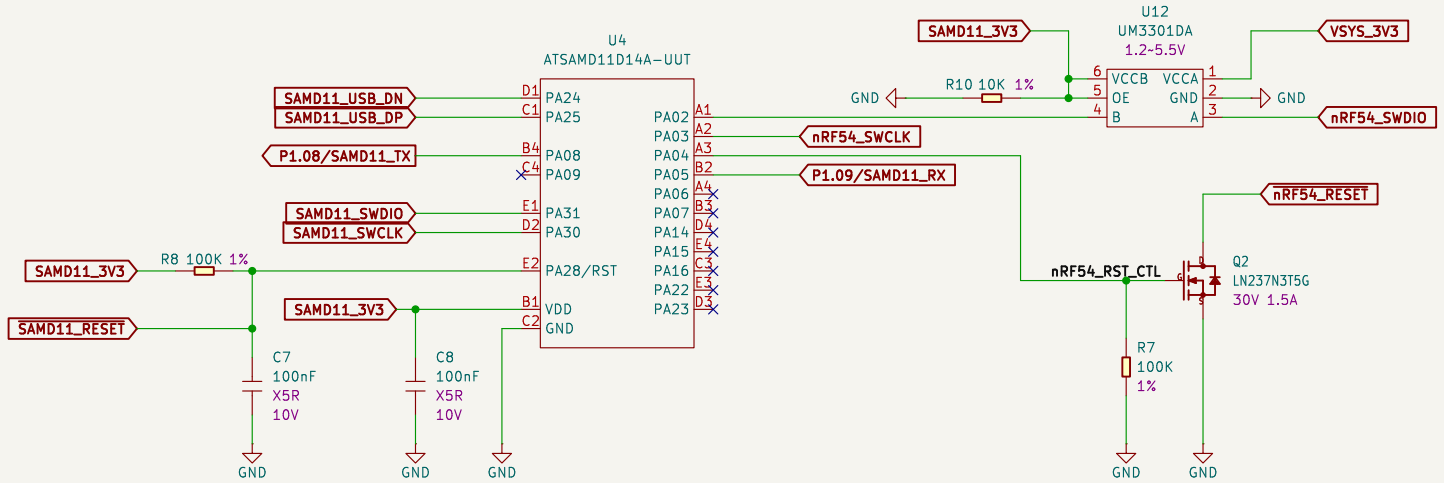
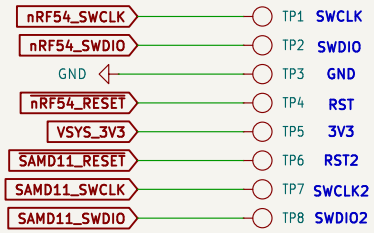
Size: A4	Date: 2025-05-29	Design: Wenkang.Liu	**Rev: V0.9**
KiCad E.D.A. 9.0.0			Id: 4/7

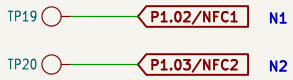
SWD Debug IC (ATSAMD11D14A)



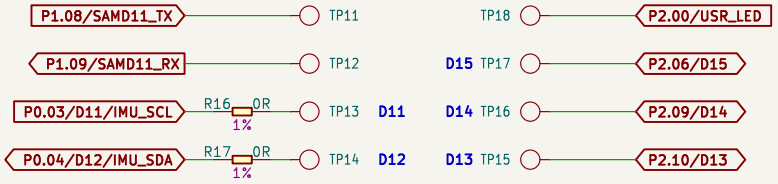
Back debugging function points



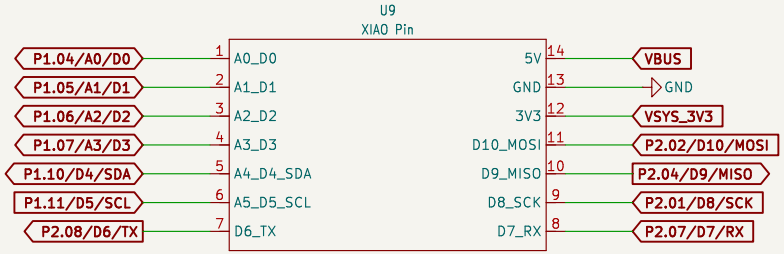
NFC Function Points



Back functional points



XIAO Header



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Sheet: /04 Debug & XIAO Header/
File: 04 Debug & XIAO Header.kicad_sch

Title: XIAO nRF54L15			CC BY-SA 4.0
Size: A4	Date: 2025-05-29	Design: Wenkang.Liu	**Rev: V0.9**
KiCad E.D.A. 9.0.0			Id: 5/7

nRF54L15 GPIO

U6B
nRF54L15-CAAA-R

P0.00 G1 P0.00/USR_KEY
P0.01 F1 P0.01/IMU&MIC_3V3_EN
P0.02 E2 P0.02/IMU_INT1
P0.03/CK E1 P0.03/D11/IMU_SCL
P0.04/CK D3 P0.04/D12/IMU_SDA
IIC30

U6C
nRF54L15-CAAA-R

X2 32.768KHZ-7PF-20ppm 7PF-20ppm
P1.00/XL1 C5 XL1
P1.01/XL2 C6 XL2
P1.02/NFC1 C7 P1.02/NFC1
P1.03/NFC2/CK D5 P1.03/NFC2
P1.04/AIN0/CK D6 P1.04/A0/D0
P1.05/AIN1 E6 P1.05/A1/D1
P1.06/AIN2 D7 P1.06/A2/D2
P1.07/AIN3 E7 P1.07/A3/D3
P1.08/EXTREF/CLK16M/CK F7 P1.08/SAMD11_TX
P1.09 B3 P1.09/SAMD11_RX
P1.10 C3 P1.10/D4/SDA
P1.11/AIN4/CK C4 P1.11/D5/SCL
P1.12/AIN5/CK A3 P1.12/MIC_CLK
P1.13/AIN6 B4 P1.13/MIC_DAT
P1.14/AIN7 B5 P1.14/AIN7_VBAT
P1.15 B6 P1.15/VBAT_EN
UART20
IIC22
PDM20

U6D
nRF54L15-CAAA-R

P2.00 G6 P2.00/USR_LED
P2.01/CK G7 P2.01/D8/SCK
P2.02 F6 P2.02/D10/MOSI
P2.03 E5 P2.03/RF_SW_PWR
P2.04 F5 P2.04/D9/MISO
P2.05 G5 P2.05/RF_SW_CTL
P2.06/CK F4 P2.06/D15
P2.07/SWO E4 P2.07/D7/RX
P2.08 D4 P2.08/D6/TX
P2.09 F3 P2.09/D14
P2.10 G2 P2.10/D13
SPIM00
UART21

nRF54L15

U6A
nRF54L15-CAAA-R

VSYS_3V3
C11 10uF X5R 10V
C12 100nF X5R 10V
C13 100nF X5R 10V
nRF54_DCC
L2 4.7uH 620mA
nRF54_DECD
FB1 120R 200mA
C14 2.2uF X5R 6.3V
nRF54_DEC
C15 2.2uF X5R 6.3V
C16 10nF X7R 16V
C17 3.9pF NOP 50V
B7 VDD
A7 DCC
A5 DECD
A4 DECA
B1 DECRF
A6 VSS
G4 VSS
G3 VDD
A1 XC1
A2 XC2
D1 ANT_PIN
C2 VSS_PA
D2 RESET
E3 SWDCLK
F2 SWDIO
nRF54_RESET
nRF54_SWCLK
nRF54_SWDIO
X1 10ppm
X1 GND1 X2 GND2 32MHz-8pF-10ppm-70R
L3 3.6nH 400mA
L4 4.7nH 350mA
L5 2nH 600mA
ANT
C18 1.2pF C0G 50V
C19 1.2pF C0G 50V
GND

P2.03/RF_SW_PWR
U10
FM8625H
RF Switch
VDD RF1
ANT GND
VCTL RF2
ANT
P2.05/RF_SW_CTL
C27 100pF NPO 50V
C29 100pF NPO 50V
RF Switch Port Selection
0: RF1
1: RF2
L6 6.8nH 3%-300mA
C20 VALUE
C31 1pf NPO 50V
ANT1 KH5220-A36
ANT2 ECT818000500
R21 0R 1%

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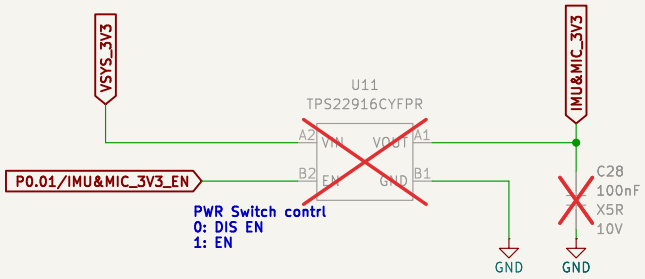
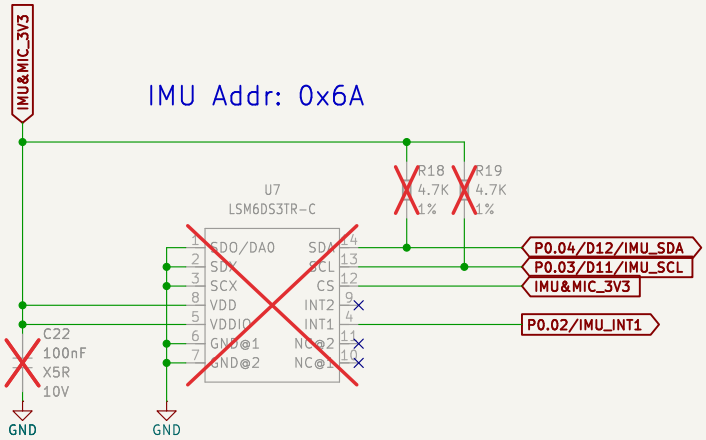
Sheet: /05 nRF54L15-CAAA-R/
File: 05 nRF54L15-CAAA-R.kicad_sch

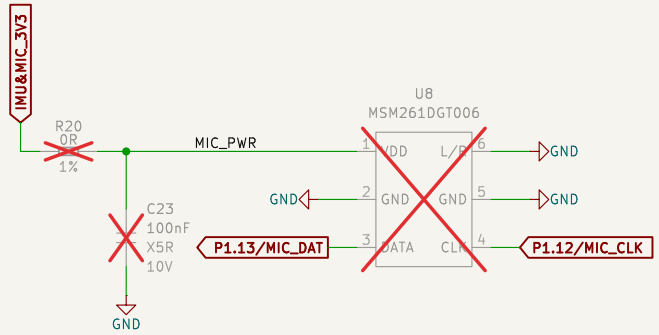
Title: XIAO nRF54L15		CC BY-SA 4.0
Size: A4	Date: 2025-05-29	Design: Wenkang.Liu
KiCad E.D.A. 9.0.0		Rev: V0.9
		Id: 6/7

IMU

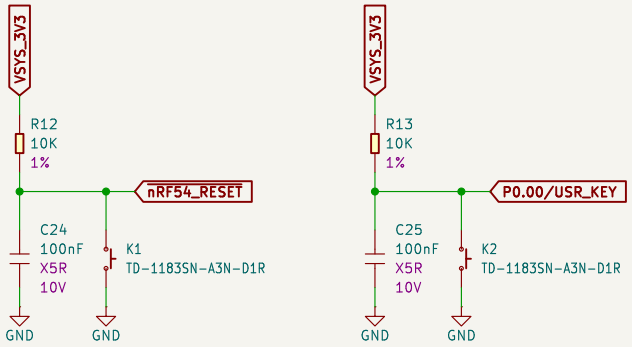




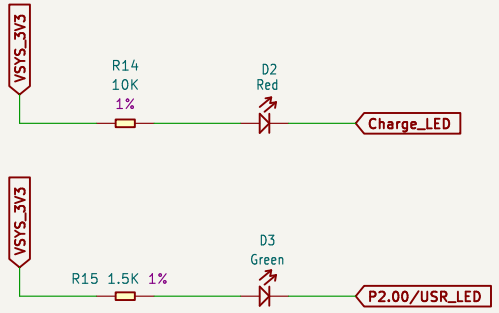
MIC



KEY



LED



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Sheet: /06 Peripherals/
File: 06 Peripherals.kicad_sch

Title: XIAO nRF54L15			CC BY-SA 4.0
Size: A4	Date: 2025-05-29	Design: Wenkang.Liu	**Rev: V0.9**
KiCad E.D.A. 9.0.0			Id: 7/7