mikoto
revision 5.14

reference configuration 4

https://devzone.nordicsemi.com/f/nordic-q-a
/37758/dec5-decoupling-capacitor-value

=> C12 can be 1nF

U1 nRF52840

VBUS
C14 4.7uF
GND
C15 1uF
GND
C16 47nF
GND

C13 4.7uF
VDD_NRF
VDDH
C12 1nF
C11 100pF
C10 100nF
GND
L2 15nH
L3 10uH
L4 10uH

C17 15pF
Y2 CL = 12.5pF 32.768 kHz
C18 15pF
GND

AE1 Antenna
R11 0R
L1 3.9nH
ANT
C22 1.5pF
C5 1pF
C9 1pF
GND

C6 15pF
XC1
CL = 12pF
Y1 32MHz
XC2
C7 15pF
GND

DEC1 DEC2 DEC3 DEC4 DEC5 DEC6 DECUSB
VDD VDDH VBUS DCC DCCH

XL1/P0.00
XL2/P0.01
AIN0/P0.02
AIN1/P0.03
AIN2/P0.04
AIN3/P0.05
P0.06
TRACECLK/P0.07
P0.08
NFC1/P0.09
NFC2/P0.10
TRACEDATA2/P0.11
TRACEDATA1/P0.12
P0.13
P0.14
P0.15
P0.16
P0.17
P0.19
P0.20
P0.21
P0.22
P0.23
P0.24
P0.25
P0.26
P0.27
AIN4/P0.28
AIN5/P0.29
AIN6/P0.30
AIN7/P0.31

TRACEDATA0/P1.00
P1.01
P1.02
P1.03
P1.04
P1.05
P1.06
P1.07
P1.08
P1.09
TRACEDATA3/P1.10
P1.11
P1.12
P1.13
P1.14
P1.15

D-
D+

P0.02
P0.04
P0.06
P0.08
P0.09
P0.11
PPH_VCC_CTRL
RESET
BLUE_LED
RESET
P0.17
P0.20
P0.22
P0.24
P0.25
CHARGE_CTRL_1
BAT_VOLT
P1.00
P1.02
P1.04
P1.06
P1.11
CHARGE_CTRL_2
USB_D-
USB_D+

RESET
SWC
SWD
P0.18/~RESET
SWDCLK
SWDIO

VSS VSS_PA
VSS_PA
NT1 Net-Tie_2
GND GND

Decoupling Capacitors
GND VDDH
C25 4.7uF
GND
C8 1uF
C4 100nF
GND
C3 100nF
C2 100nF
C1 4.7uF
VDD_NRF

Status LED
D1 BLUE
R5 1.5k
BLUE_LED
Vf < 3.0V
GND

Battery Voltage Divider
VBAT
R12 2M
R3 2M
NM resistors are literally rarer than unicorns.
https://devzone.nordicsemi.com/nordic/nordic-blog
/b/blog/posts/measuring-lithium-battery-voltage-with-nrf52
R4 10M
C19 10nF
BAT_VOLT
GND

Battery Charger
VBUS
D5 SBR130S3
EXT_5V
GND
C23 1uF
F1 500mA hold
U2 BQ24075/9
SYSOFF
~CE
TMR
EN1
EN2
GND
R7 10k
ILIM
ISET
IN
OUT
OUT
BAT
BAT
TS
PAD
VSS
~PGOOD
~CHG
VDDH
C24 4.7uF
VBAT
C26 4.7uF
R8 10k
GND
D3 ORANGE
R6 10k
R1 3.9k
CHARGE_CTRL_2
Z, Z: 0mA (off)
0, Z: 100mA
Z, 0: 250mA
0, 0: 350mA
GND

Power
U3 XC6220B331MR
VDDH
C21 10uF
GND
VIN
CE
VOUT
GND
PPH_VCC
C20 4.7uF
GND
PPH_VCC_CTRL
R2 2M
GND

USB Connector + TVS
J1 USB_C_Receptacle_USB2.0
VBUS
A4
VBUS
A5 CC1
B5 CC2
R9 5.1k
CC1
CC2
R10 5.1k
A7 D-
B7
A6 D+
B6
SHIELD
SHIELD
SHIELD
SHIELD
USB_D-
USB_D+
GND

ESDR0502NMUTAG
U5
USB_D+
USB_D-
VBUS
D+
D-
VBUS
NC
NC
GND
PWR_FLAG
VBUS

Pinout
U4 mikoto-pins
EXT_5V
P0.06
P0.04
GND
GND
P0.15
P0.20
P0.22
P1.00
P1.02
P1.04
P1.06
EXT_5V
GND
GND
VBUS
RAW
GND
RST
VCC
VBUS
VBAT
GND
RESET
PPH_VCC
P0.11
P0.25
P0.31
P0.09
P0.17
P0.18

TP7 PAD
TP5 PAD
VDD_NRF
USB_D-
USB_D+
VBAT
J5 PTH
TP3 PAD
TP2 PAD
TP1 PAD
TP4 PAD
TP6 PAD
J4 PTH
GND

DUMMY1 logo_front
DUMMY2 logo_back