nRF52840 with Decoupling

Title: CoffeeCaller nRF52840
Size: A4 Date: 2025-05-03 Rev:
KiCad E.D.A. 9.0.3 Id: 1/3
Sheet: /
File: coffeecaller.kicad_sch

Free Pin Header — X1 — PM254-2-08-S-8.5
SWD Debug — SWD1 — HX JN1.27-2X5 TP H4.9
NFC Connector — RF1 — IPEX-01
2,4 GHz Radio — U6 — ANT3216LL00R2400A
32 MHz Crystal — X2 — Q22FA12800025
In-Output — Datei: in_output.kicad_sch
USB-Power — Datei: usb_power.kicad_sch

WS2812 LED Strip

Level Shifting from 3V3 to VBUSnRF

GND — C12 100nF — VBUSnRF — D4 WS2812E-V5 (VDD, DO, DIN, GND) — GND

GND — C11 100nF — VBUSnRF — D3 WS2812E-V5 (VDD, DO, DIN, GND) — GND

GND — C10 100nF — VBUSnRF — D2 WS2812E-V5 (VDD, DO, DIN, GND) — GND

GND — C9 100nF — VBUSnRF — D1 WS2812E-V5 (VDD, DO, DIN, GND) — GND

RGBData — R3 220R — R14 5k1 — +3V3

Q2 2N7002 — R15 5k1 — VBUSnRF

User LEDs

+3V3 — R7 5k1 — LD1 0603White light_C2290 — LD1

R8 5k1 — LD2 0603White light_C2290 — LD2

R5 5k1 — LD3 0603White light_C2290 — LD3

R6 5k1 — LD4 0603White light_C2290 — LD4

Small User Buttons

SW1 — SW1 TS-1088R-02026
SW2 — SW2 TS-1088R-02026
SW3 — SW3 TS-1088R-02026
SW4 — SW4 TS-1088R-02026

GND

Big User Button

KEY1 TS-1003S-07026
GND — KEY1 — GND
SW0 — SW0

Servo Connector

HDR1 PZ254-2-03-S
Servo2 / VBUSnRF / GND — 1,3,5 — 2,4,6 — Servo1 / VBUSnRF / GND

HDR2 PZ254-2-03-S
Servo4 / VBUSnRF / GND — 1,3,5 — 2,4,6 — Servo3 / VBUSnRF / GND

qwIIC Temperature Sensor

GND

+3V3 / SDA_qwIIC / SCL_qwIIC

U5 SHT40-CD1B-R3 (SDA, SCL, EP, VSS, VDD)

CN1 SM04B-SRSS-TB (LF)(SN)

R12 5k1 — R13 5k1

C15 100nF — +3V3

GND

Buzzer

VBUSnRF — D5 SS210 — U3 HYG-8503A-5027

Buzzer — R4 220R — Q1 2N7002 — R10 5k1

GND

USB-C Connector

USBC1
TYPE-C-31-M-12

R1 5k1
R2 5k1

Pin	Signal
1	GND
2	VBUS
3	SBU2
4	CC1
5	DN2
6	DP2
7	DN1
8	DP1
9	SBU1
10	CC2
11	VBUS
12	GND
13	SHELL
14	SHELL

VBUS, USB_N, USB_P, USB_GND

VBUS Filtering

L3 100R@100MHz
L4 100R@100MHz

C5 10nF
C6 100nF

VBUS → VBUSnRF
USB_GND

3V3 Regulator

U4
XC6206P332MR

C19 1µF
C14 1µF
C13 100nF
R9 5k1
LD5 0603White light_C2290

GND, VBUSnRF, Vin, Vout, GND, +3V3

3V3 Power Good

ESD Protection

D0
PRTR5V0U2X,215

Pin	Signal
1	GND
2	IO1
3	IO2
4	VCC

C8 100nF
C7 4.7µF

GND, USB_N, USB_P, VBUS