

[illegible]

The diagram illustrates the connection of the Raspberry Pi 4B headers to the USB-C connector. The Bottom header (IN) is connected to the USB-C connector (GND) and the Top header (OUT) is connected to the USB-C connector (GND). The connections are as follows:

- Bottom Header (IN):
 - Pin 1: 3.3V
 - Pin 2: PROC_PWR_EN
 - Pin 3: (empty)
 - Pin 4: SCLK
 - Pin 5: C0P1
 - Pin 6: C1P0
 - Pin 7: CS0
 - Pin 8: CS1
 - Pin 9: CS2
 - Pin 10: GP100
 - Pin 11: GP101
 - Pin 12: SDA
 - Pin 13: SCL
 - Pin 14: (empty)
 - Pin 15: V_USB
 - Pin 16: GND
- Top Header (OUT):
 - Pin 1: 3.3V
 - Pin 2: PROC_PWR_EN
 - Pin 3: (empty)
 - Pin 4: SCLK
 - Pin 5: C0P1
 - Pin 6: C1P0
 - Pin 7: CS1
 - Pin 8: CS2
 - Pin 9: (empty)
 - Pin 10: GP101
 - Pin 11: (empty)
 - Pin 12: SDA
 - Pin 13: SCL
 - Pin 14: (empty)
 - Pin 15: V_USB
 - Pin 16: GND

IN OUT
 EN
 GND NC
 1.8V/100mA
 SP6214-1.8V

 Iout (max): 100mA
 Vin (max): 7.0V
 Vdrop (max): 250mV
 Iq: 65uA

Diagram illustrating the pin connections for the STM32F103C8T6 microcontroller:

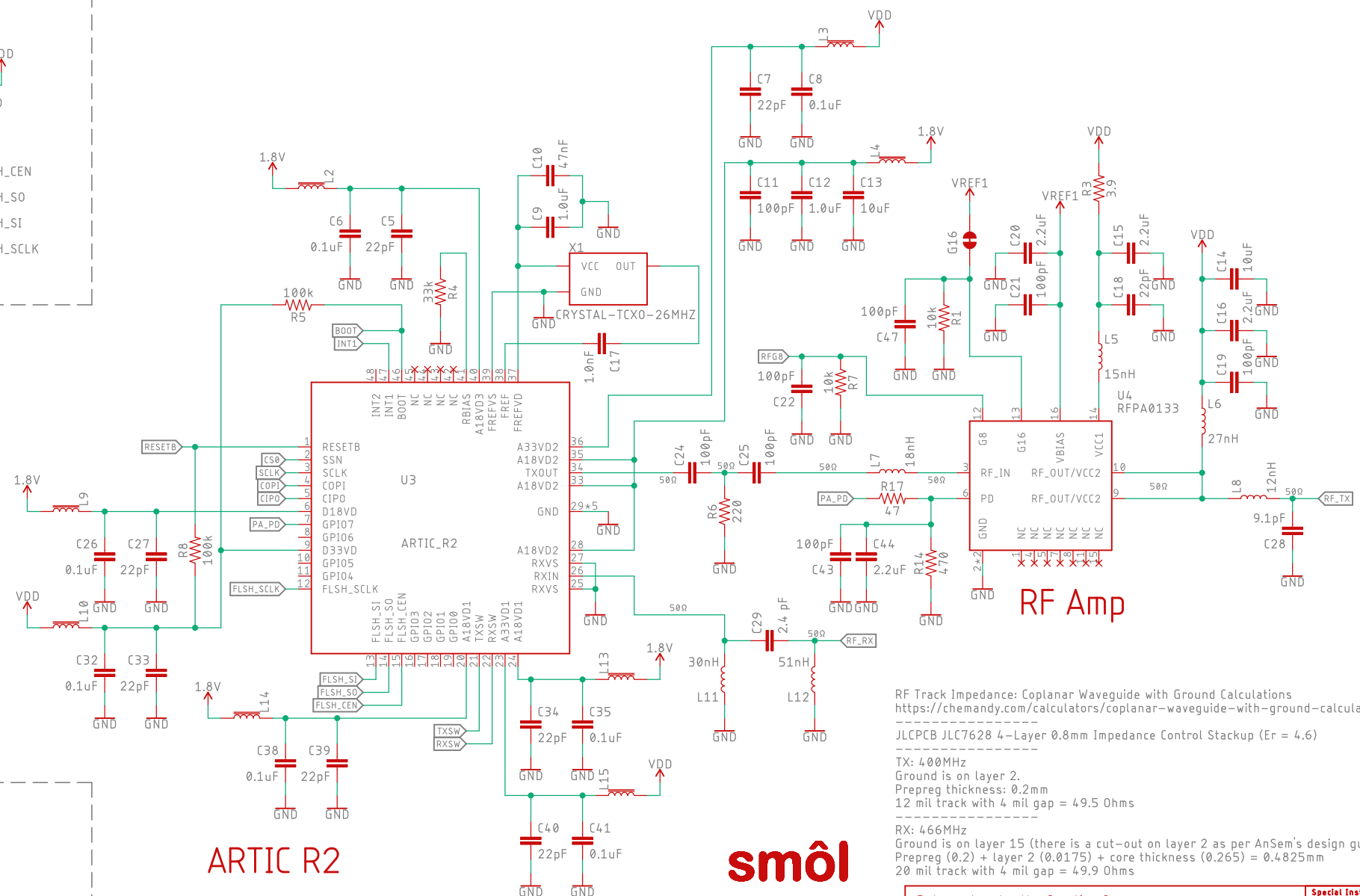
- VREF1** is connected to **3V0**.
- 1.8V** is connected to **1V8**.
- VDD** is connected to **VDD**.
- GPIO0** is connected to **GPIO0**.
- CS0** is connected to **CS0**.
- FLSH_CEN** is connected to **FLSH_CEN**.
- FLSH_SO** is connected to **FLSH_SO**.
- FLSH_SI** is connected to **FLSH_SI**.
- FLSH_SCLK** is connected to **FLSH_SCLK**.

U5
AS179-92LF

RF_TX 50Ω
RF_RX 50Ω
GND
RXSW
TXSW
ANTENNA 50Ω

C31 100pF
C30 100pF
C36 100pF
C42 100pF
C37 100pF

J3 GND J1 V1
J2 V2



RF Track Impedance: Coplanar Waveguide with Ground Calculations
<https://chemandy.com/calculators/coplanar-waveguide-with-ground-calculator.htm>

JLCPCB JLC7628 4-Layer 0.8mm Impedance Control Stackup ($\epsilon_r = 4.6$)

TX: 400MHz
 Ground is on layer 2.
 Prepreg thickness: 0.2mm
 12 mil track with 4 mil gap = 49.5 Ohms

RX: 466MHz
 Ground is on layer 15 (there is a cut-out on layer 2 as per AnSem's design guide).
 Prepreg (0.2) + layer 2 (0.0175) + core thickness (0.265) = 0.4825mm
 20 mil track with 4 mil gap = 49.9 Ohms

smôl

 open hardware
SPARK X

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TITLE: SparkX_smol_ARTIC_R2

Design by: Paul Clark
Based on the Icoteg Reference Design

Date: 19/08/2021 15:32

Sheet: 1/1

Special Instructions

