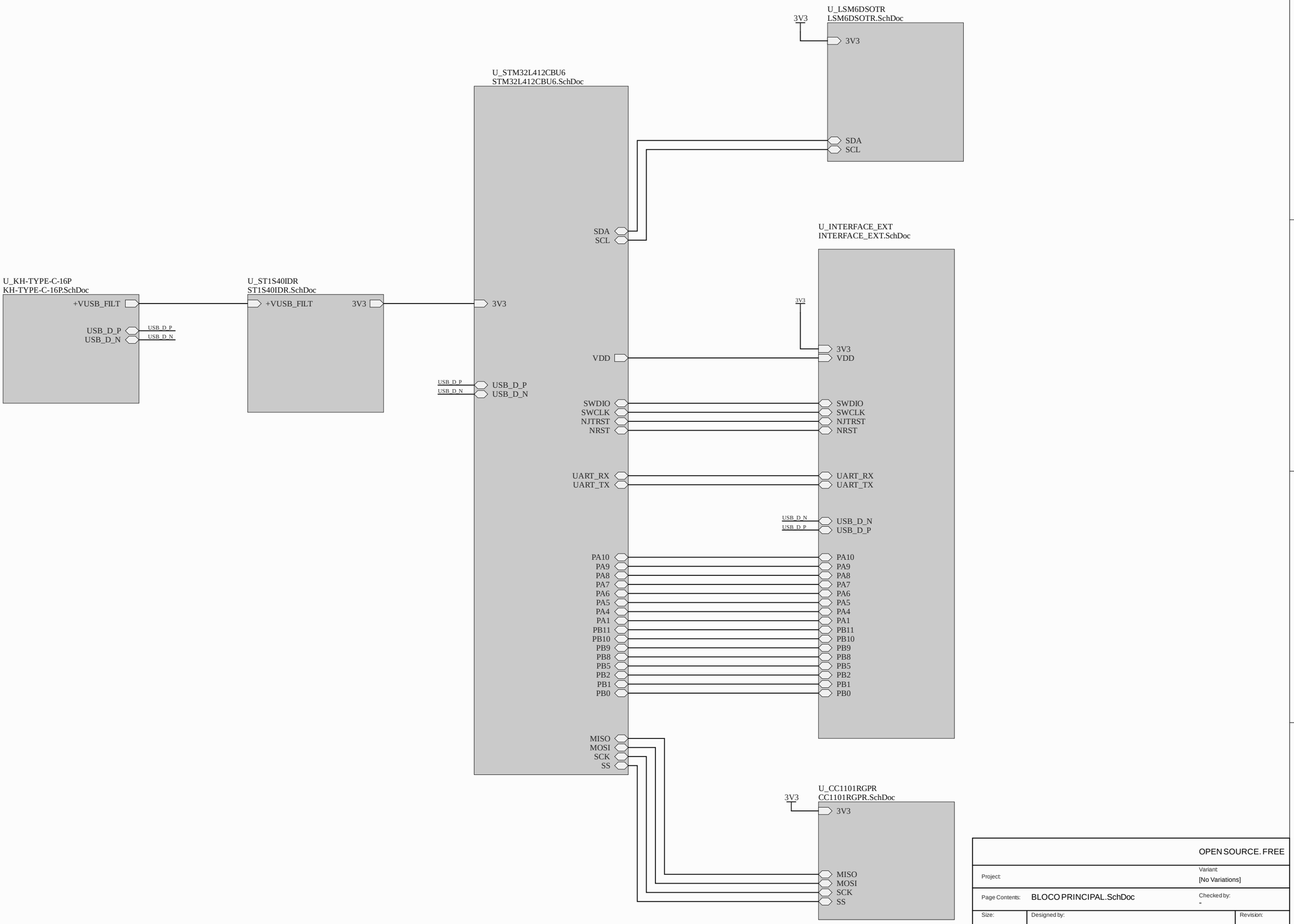

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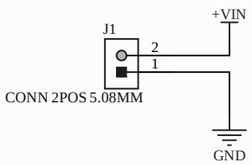

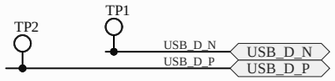

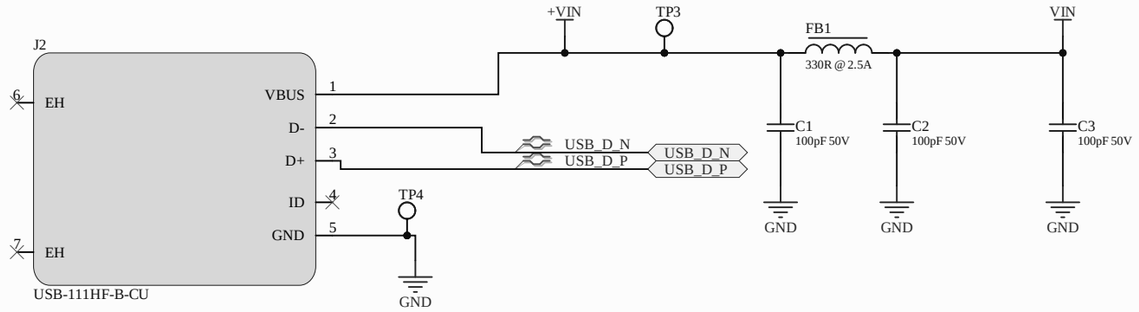

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VARIÁVEIS CAP. IN	
Iout	3
Vin(max)	12
Fsw	850000
Duty Cycle	0,5
Eficiência (n)	1
Eficiência (n)	0,02

CAPACITOR DE ENTRADA		
Cin_min	1,45E-07	
	0,14	uF
Vpp	9,20	V
Cin	1,44E-07	
	0,14	uF

VARIÁVEIS INDUTOR	
Vin	12
Vout	3,3
Ton + Toff	1,18E-06
Ton	5,88E-07
Toff	5,88E-07
ΔI(max)	1,5
ΔI(min)	0,9
Fsw_min	700000

INDUTOR DE SAÍDA		
L_min	1,57143E-06	
	1,57	uH
L_max	2,15686E-06	
	2,16	uH
ΔIL	3,26	A

Indutor escolhid	3,24	maior valor*1,5
	3,3	uH

0,375

$$V_O = V_{FB}\,[1 + R_1 / R_2]$$

VARIÁVEIS CAP. OUT	
Δvout	0,15
ESR	0,02
Δi(max)	1,5
fsw	700000

CAPACITOR DE SAÍDA		
C_out	2,2E-06	
	2,23	uF

TENSÃO DE SAÍDA	
Vout	3,3
Vfb	0,8
R1	62500
R2	20000

VIN

+VUSB_FILT 1[2B], 2[7A]

VOUT

3V3

VIN: 5V 15V

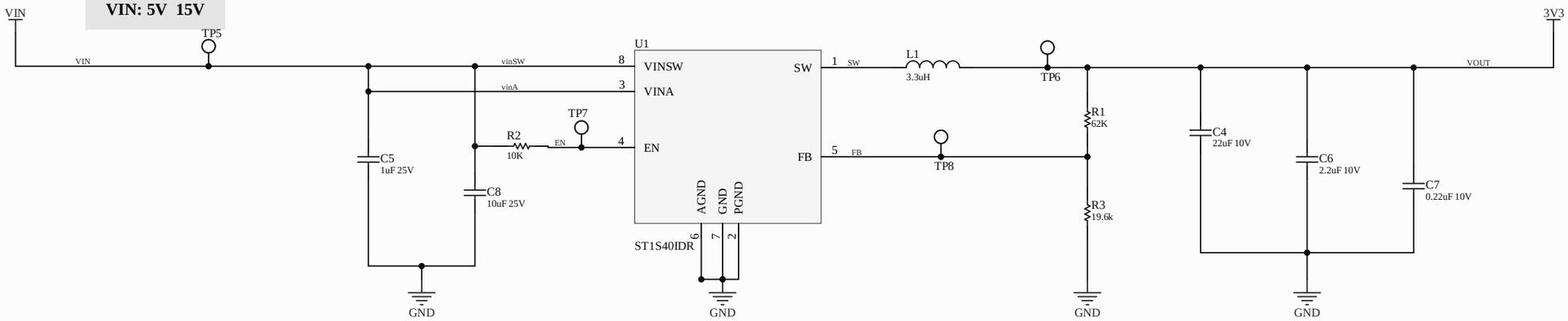
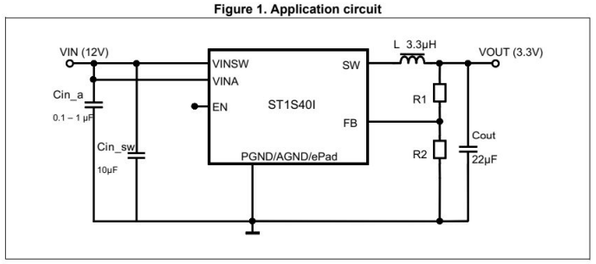
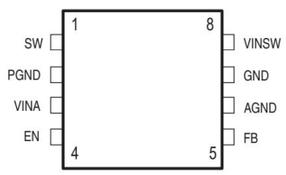


Figure 1. Application circuit





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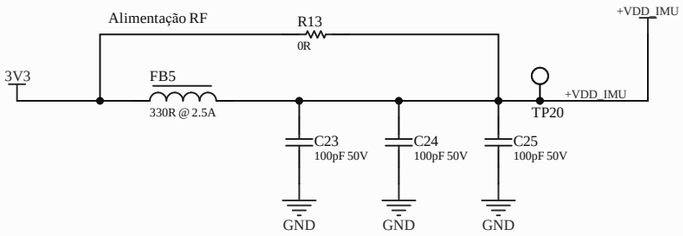
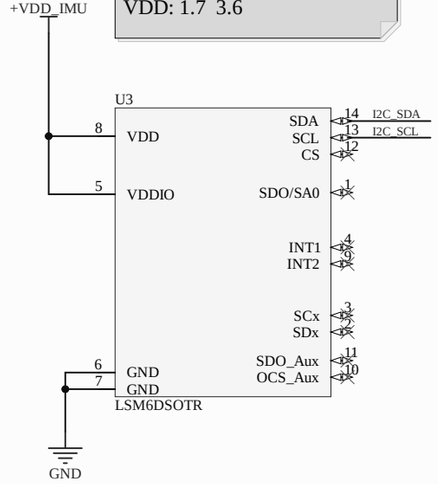
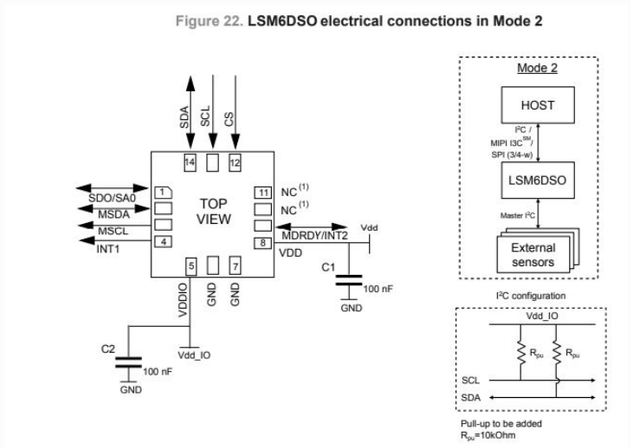
3V3



I2C_SCL — SCL
I2C_SDA — SDA

IMU SENSOR: LSM6DSOTR
6Axis-Orientation
0.55mA in High-Performance
VDD: 1.7 3.6





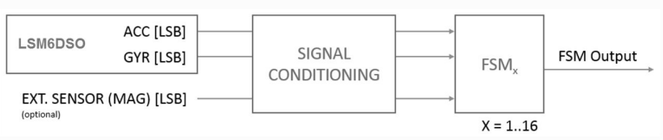
- **Mode 2**: I²C / MIPI I3C^SM slave interface or SPI (3- and 4-wire) serial interface and I²C interface master for external sensor connections are available;

Table 1. **Pin description**

Pin#	Name	Mode 1 function	Mode 2 function	Mode 3 / Mode 4 function
1	SDO/SA0	SPI 4-wire interface serial data output (SDO) I²C least significant bit of the device address (SA0)	SPI 4-wire interface serial data output (SDO) I²C least significant bit of the device address (SA0)	SPI 4-wire interface serial data output (SDO) I²C least significant bit of the device address (SA0)
2	SDx	Connect to VDDIO or GND	I²C serial data master (MSDA)	Auxiliary SPI 3/4-wire interface serial data input (SDI) and SPI 3-wire serial data output (SDO)
3	SCx	Connect to VDDIO or GND	I²C serial clock master (MSCL)	Auxiliary SPI 3/4-wire interface serial port clock (SPC_Aux)
4	INT1	Programmable interrupt in I²C and SPI		
5	VDDIO(1)	Power supply for I/O pins		
6	GND	0 V supply		
7	GND	0 V supply		
8	VDD(1)	Power supply		
9	INT2	Programmable interrupt 2 (INT2) / Data enable (DEN)	Programmable interrupt 2 (INT2)/ Data enable (DEN)/I²C master external synchronization signal (MDRDY)	Programmable interrupt 2 (INT2)/ Data enable (DEN)
10	OCS_Aux	Leave unconnected(2)	Leave unconnected(2)	Auxiliary SPI 3/4-wire interface enable
11	SDO_Aux	Connect to VDD_IO or leave unconnected(2)	Connect to VDD_IO or leave unconnected(2)	Auxiliary SPI 3-wire interface: leave unconnected(2) Auxiliary SPI 4-wire interface: serial data output (SDO_Aux)

Pin#	Name	Mode 1 function	Mode 2 function	Mode 3 / Mode 4 function
12	CS	I²C/MIPI I3C^SM/SPI mode selection (1: SPI idle mode / I²C/MIPI I3C^SM communication enabled; 0: SPI communication mode / I²C/MIPI I3C^SM disabled)	I²C/MIPI I3C^SM/SPI mode selection (1: SPI idle mode / I²C/MIPI I3C^SM communication enabled; 0: SPI communication mode / I²C/MIPI I3C^SM disabled)	I²C/MIPI I3C^SM/SPI mode selection (1: SPI idle mode / I²C/MIPI I3C^SM communication enabled; 0: SPI communication mode / I²C/MIPI I3C^SM disabled)
13	SCL	I²C/MIPI I3C^SM serial clock (SCL) SPI serial port clock (SPC)	I²C/MIPI I3C^SM serial clock (SCL) SPI serial port clock (SPC)	I²C/MIPI I3C^SM serial clock (SCL) SPI serial port clock (SPC)
14	SDA	I²C/MIPI I3C^SM serial data (SDA) SPI serial data input (SDI) 3-wire interface serial data output (SDO)	I²C/MIPI I3C^SM serial data (SDA) SPI serial data input (SDI) 3-wire interface serial data output (SDO)	I²C/MIPI I3C^SM serial data (SDA) SPI serial data input (SDI) 3-wire interface serial data output (SDO)

- SPI / I²C & MIPI I3C^SM serial interface with main processor data synchronization
- Sensor hub
  - Up to 6 total sensors: 2 internal (accelerometer and gyroscope) and 4 external sensors



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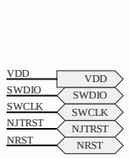

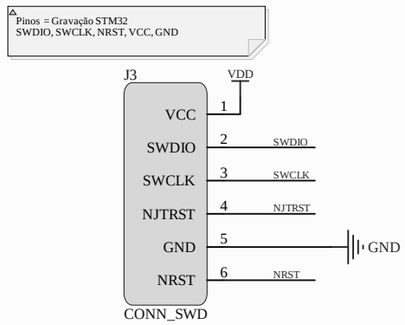

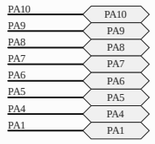

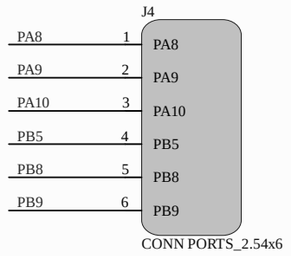

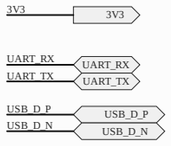

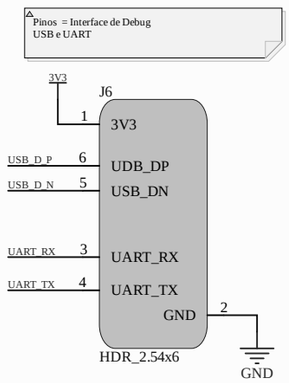

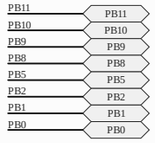

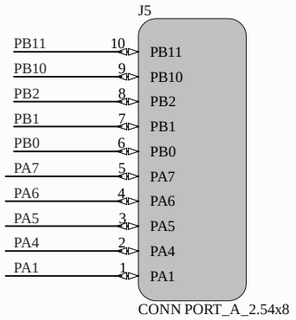

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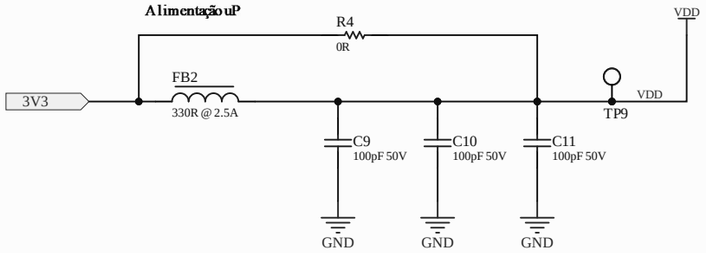
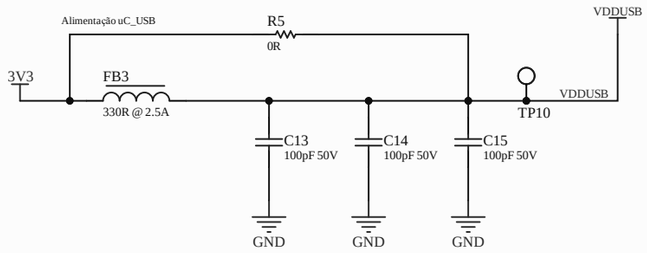
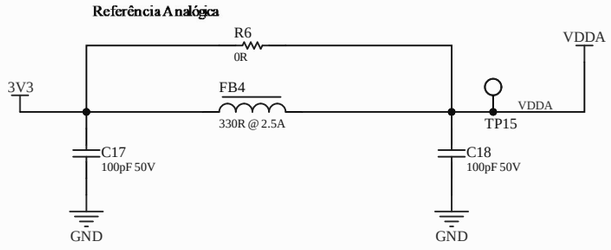
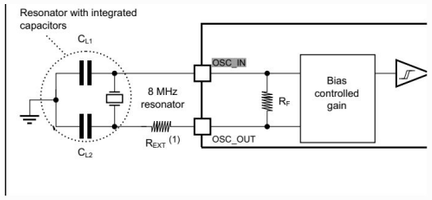








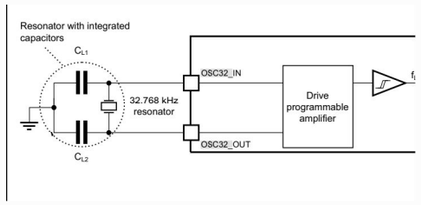
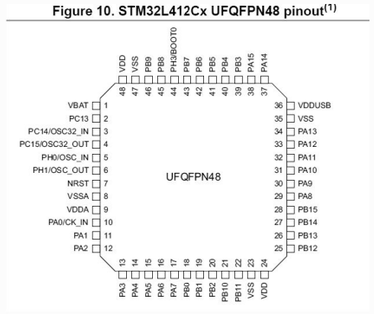
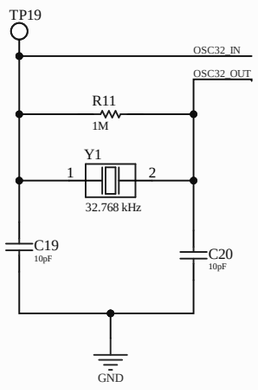
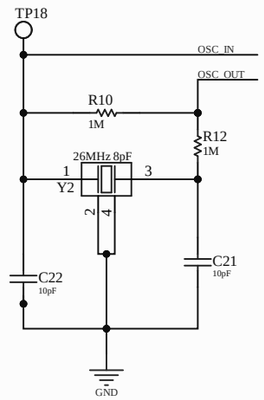
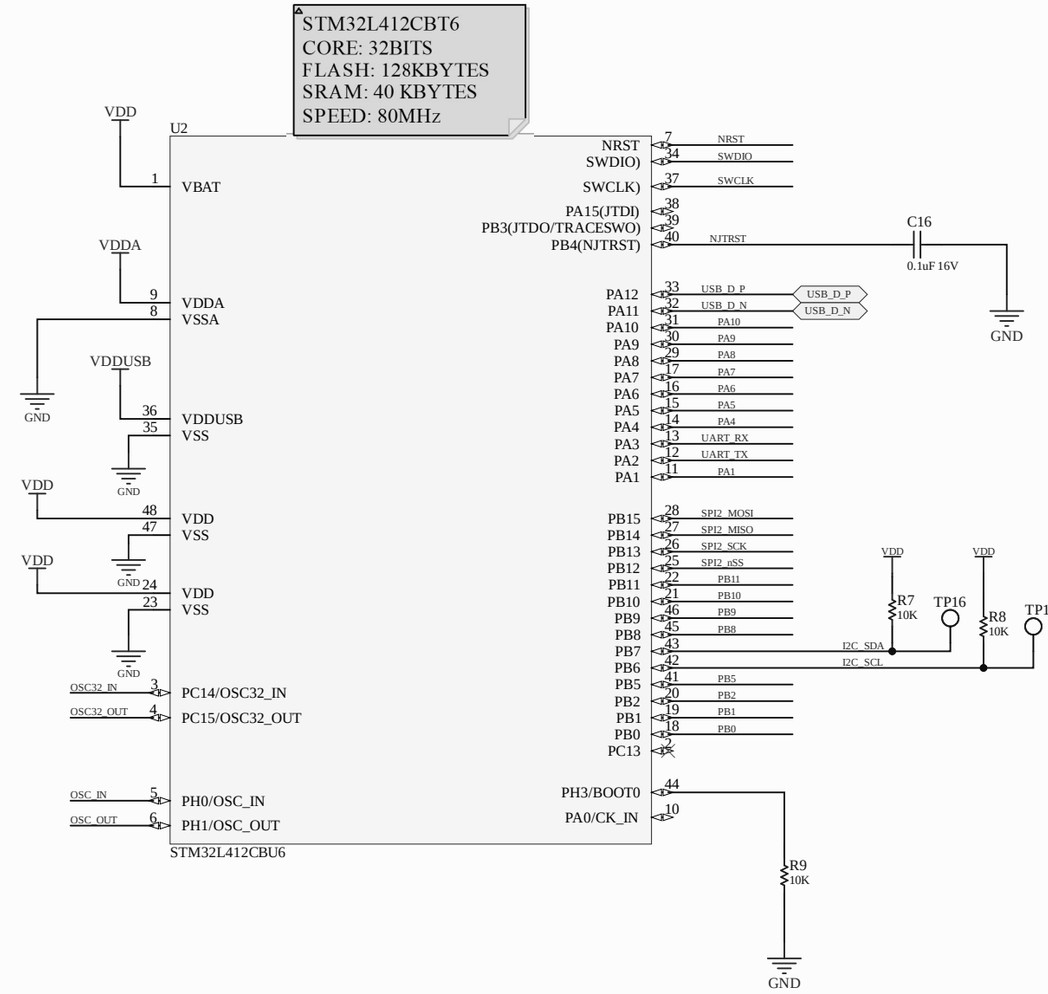


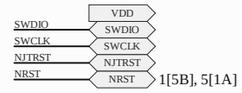
Figure 10. STM32L412Cx UFQFPN48 pinout(1)

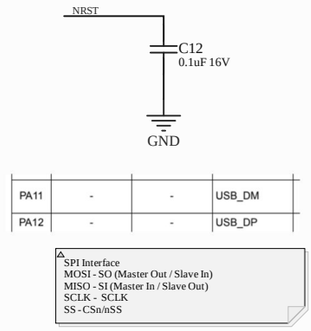












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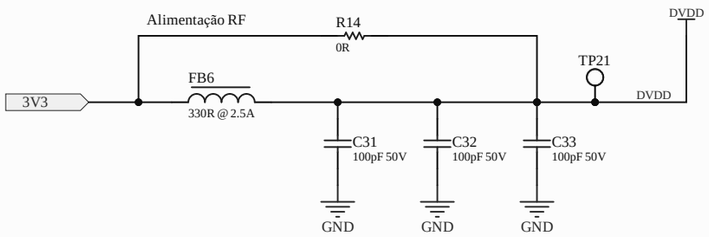

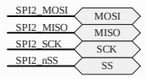

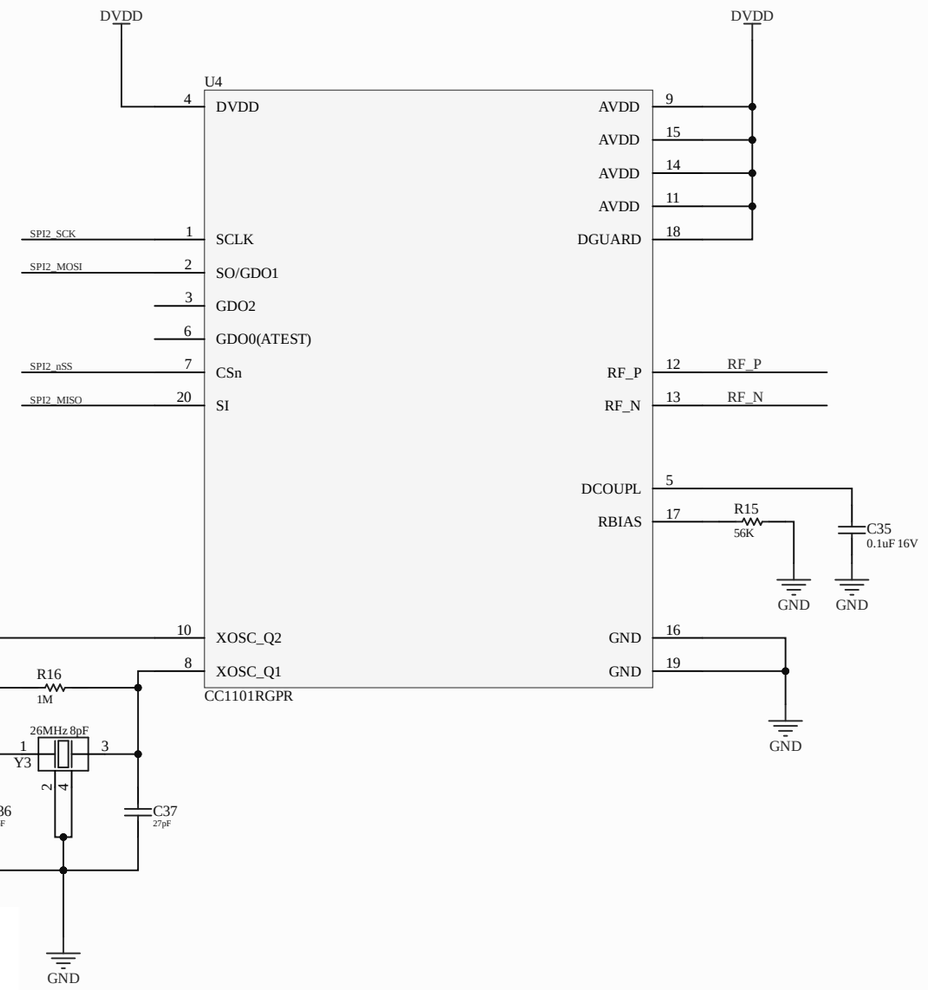

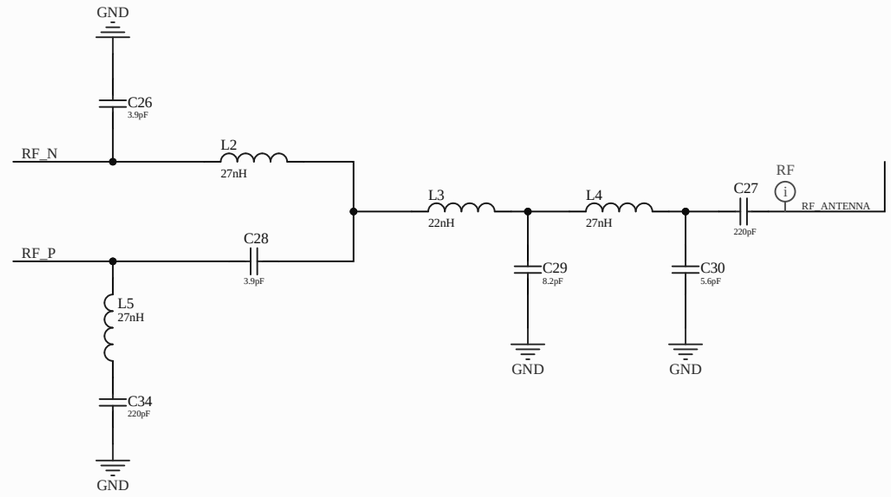

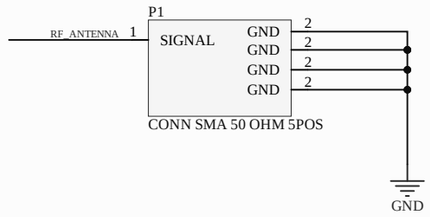

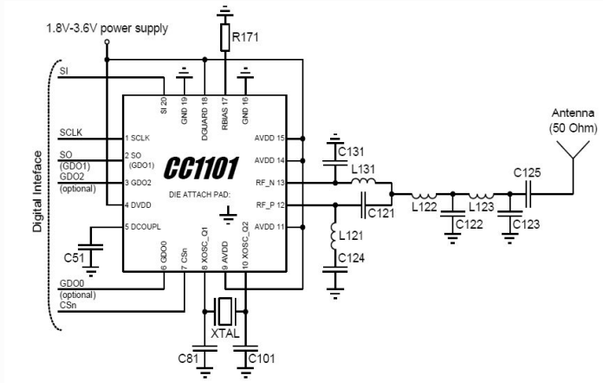

Figure 10: Typical Application and Evaluation Circuit 315/433 MHz (excluding supply decoupling capacitors)

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