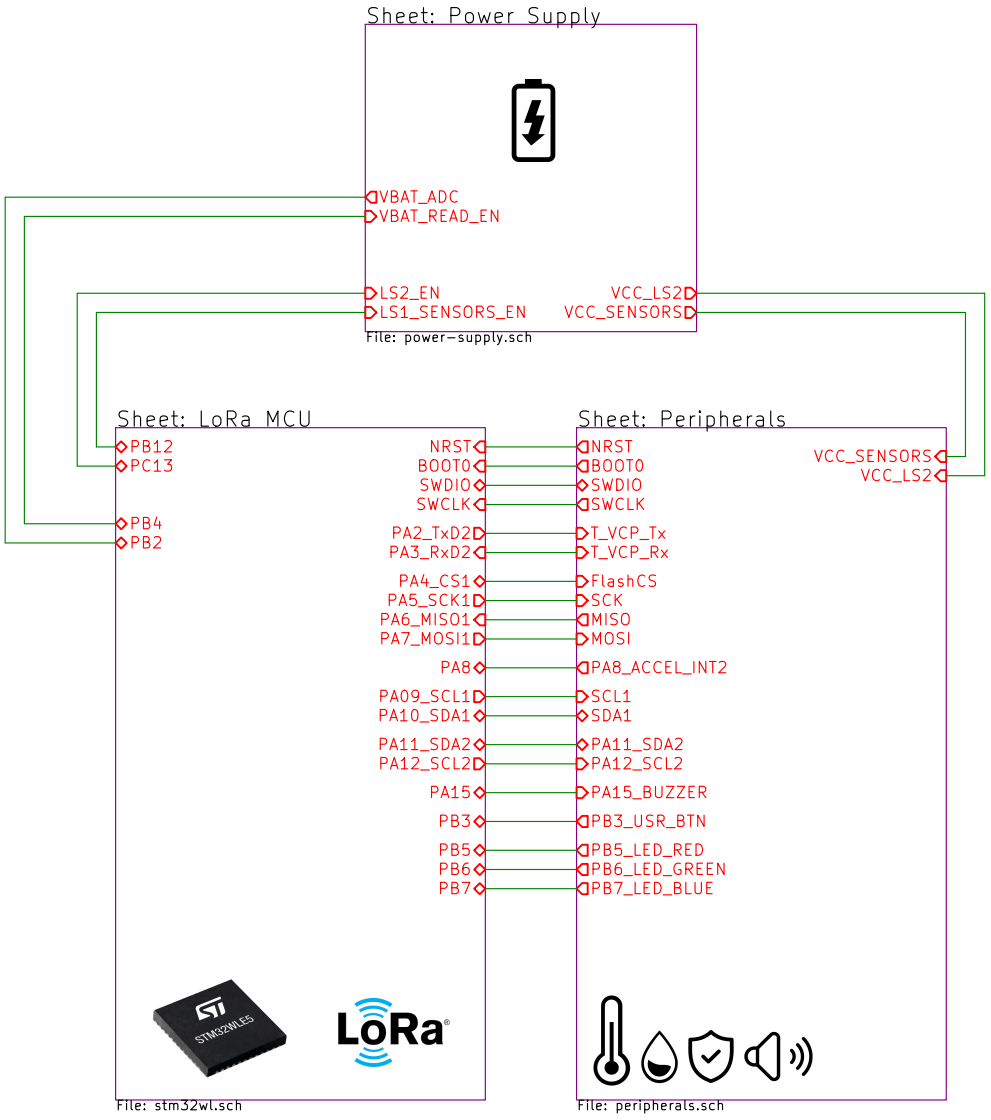

*Pin attributions are subject to change for layout optimization

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Sheet: /
File: generic_node.sch

Title: Generic Node

Size: A4	Date: 2020-09-25	**Rev: 2.0.2**
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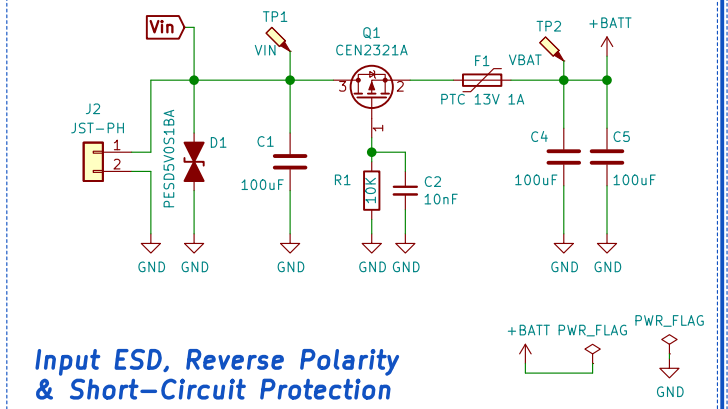
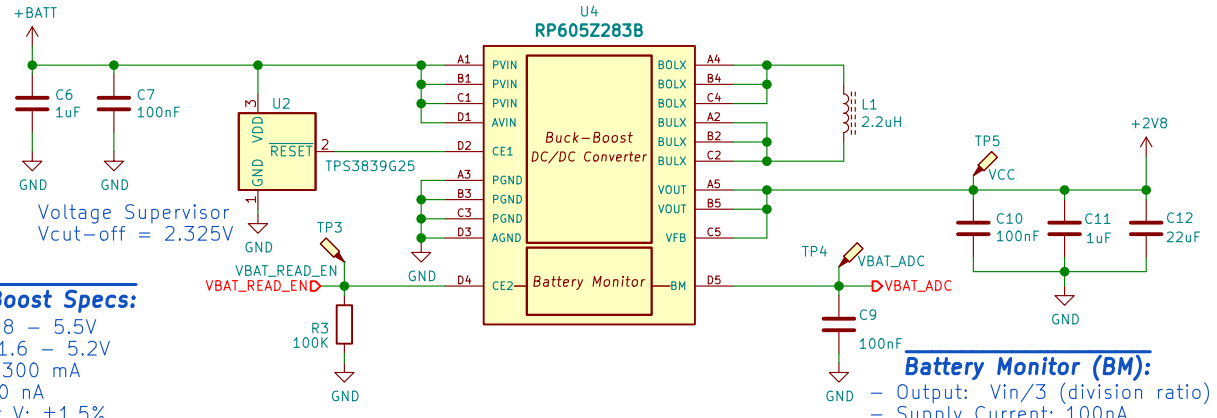


Input ESD, Reverse Polarity & Short-Circuit Protection



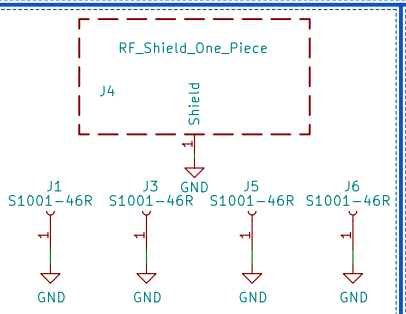
Buck-Boost Specs:

- Vin: 1.8 – 5.5V
- Vout: 1.6 – 5.2V
- Iout: 300 mA
- Iq: 300 nA
- Output V: ±1.5%
- w/ auto-discharge

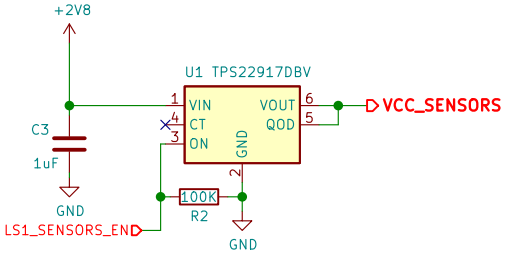
Buck-Boost Converter

Battery Monitor (BM):

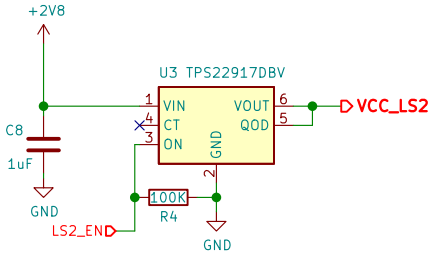
- Output: Vin/3 (division ratio)
- Supply Current: 100nA
- Settling time: ≥ 10ms



EMI Shield Can & Clips



Load Switch 1 Sensors & Secure Element



Load Switch 2 – Flash

Enclosure & Logos

Mounting Holes & Fiducials

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Sheet: /Power Supply/
File: power-supply.sch

Title: Power Supply & Load Switches

Size: A4	Date: 2020-09-25	**Rev: 2.0.2**
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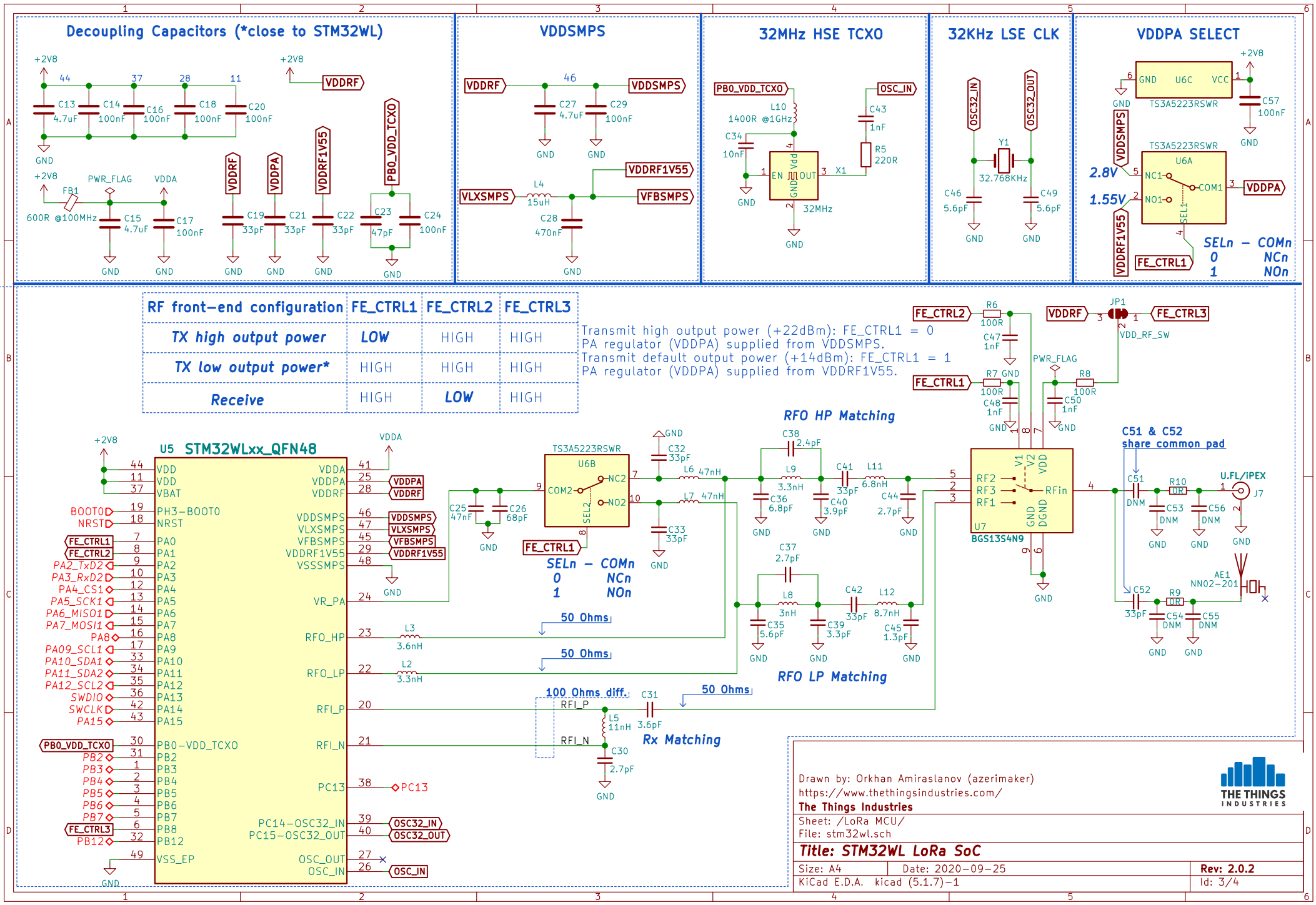
Decoupling Capacitors (*close to STM32WL)
VDDSMPS
32MHz HSE TCXO
32KHz LSE CLK
VDDPA SELECT
RF front-end configuration | FE_CTRL1 | FE_CTRL2 | FE_CTRL3
TX high output power | LOW | HIGH | HIGH
TX low output power* | HIGH | HIGH | HIGH
Receive | HIGH | LOW | HIGH
Transmit high output power (+22dBm): FE_CTRL1 = 0
PA regulator (VDDPA) supplied from VDDSMPS.
Transmit default output power (+14dBm): FE_CTRL1 = 1
PA regulator (VDDPA) supplied from VDDRF1V55.
U5 STM32WLxx_QFN48
RFO HP Matching
RFO LP Matching
Rx Matching
C51 & C52
share common pad
SELn – COMn
0 NCn
1 NOn
50 Ohms
100 Ohms diff.
U.FL/IPEX
BGS13S4N9
TS3A5223RSWR
VDD_RF_SW
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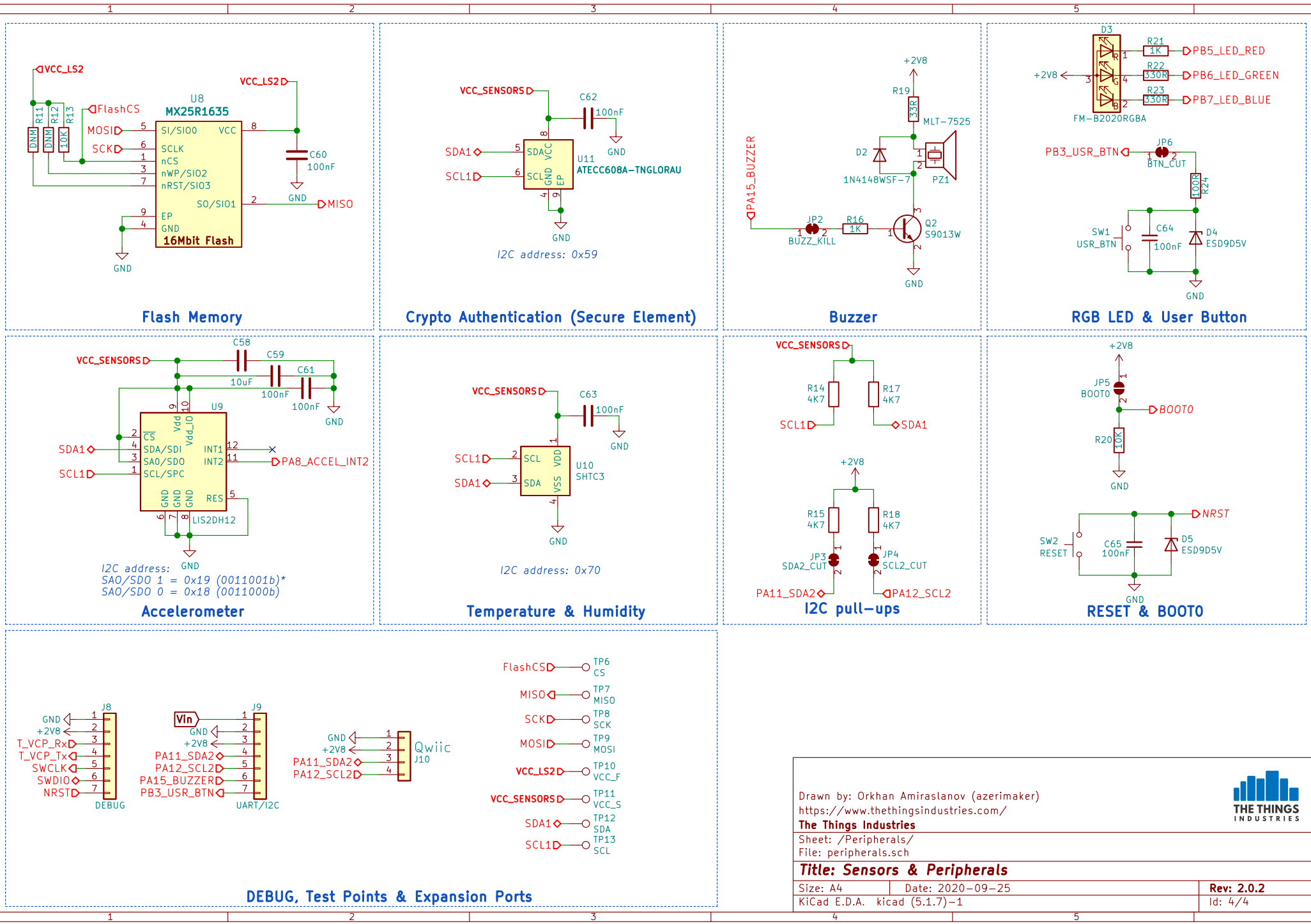
Sheet: /LoRa MCU/
File: stm32wl.sch
Title: STM32WL LoRa SoC
Size: A4
Date: 2020-09-25
Rev: 2.0.2
KiCad E.D.A. kicad (5.1.7)-1
Id: 3/4


VCC_LS2
R11
R12
R13
DNM
DNM
10K
FlashCS
MOSI
SCK
U8
MX25R1635
SI/SIO0
SCLK
nCS
nWP/SIO2
nRST/SIO3
SO/SIO1
EP
GND
VCC
16Mbit Flash
C60
100nF
MISO
Flash Memory
VCC_SENSORS
C62
100nF
SDA1
SCL1
U11
ATECC608A-TNGLORAU
I2C address: 0x59
Crypto Authentication (Secure Element)
+2V8
R19
33R
MLT-7525
D2
1N4148WSF-7
PZ1
PA15_BUZZER
JP2
BUZZ_KILL
R16
1K
Q2
S9013W
Buzzer
D3
R21
1K
PB5_LED_RED
R22
330R
PB6_LED_GREEN
R23
330R
PB7_LED_BLUE
FM-B2020RGBA
PB3_USR_BTN
JP6
BTN_CUT
100R
R24
SW1
USR_BTN
C64
100nF
D4
ESD9D5V
RGB LED & User Button
C58
C59
C61
10uF
100nF
100nF
U9
Vdd
Vdd_IO
CS
SDA/SDI
SA0/SDO
SCL/SPC
INT1
INT2
RES
LIS2DH12
PA8_ACCEL_INT2
I2C address:
SAO/SDO 1 = 0x19 (0011001b)*
SAO/SDO 0 = 0x18 (0011000b)
Accelerometer
C63
100nF
U10
SHTC3
SCL
SDA
VDD
VSS
I2C address: 0x70
Temperature & Humidity
R14
4K7
R17
4K7
R15
4K7
R18
4K7
JP3
SDA2_CUT
JP4
SCL2_CUT
PA11_SDA2
PA12_SCL2
I2C pull-ups
JP5
BOOT0
R20
10K
NRST
SW2
RESET
C65
100nF
D5
ESD9D5V
RESET & BOOT0
J8
GND
+2V8
T_VCP_Rx
T_VCP_Tx
SWCLK
SWDIO
NRST
DEBUG
J9
Vin
PA15_BUZZER
PB3_USR_BTN
UART/I2C
Qwiic
J10
TP6
CS
TP7
MISO
TP8
SCK
TP9
MOSI
TP10
VCC_F
TP11
VCC_S
TP12
SDA
TP13
SCL
DEBUG, Test Points & Expansion Ports
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Sheet: /Peripherals/
File: peripherals.sch
Title: Sensors & Peripherals
Size: A4
Date: 2020-09-25
Rev: 2.0.2
KiCad E.D.A. kicad (5.1.7)-1
Id: 4/4
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