EnviromentalBoard

New version of enviromenal board with MCP25625

CONTENTS:

Version Revision:

v0.1   - 09.08.2018.
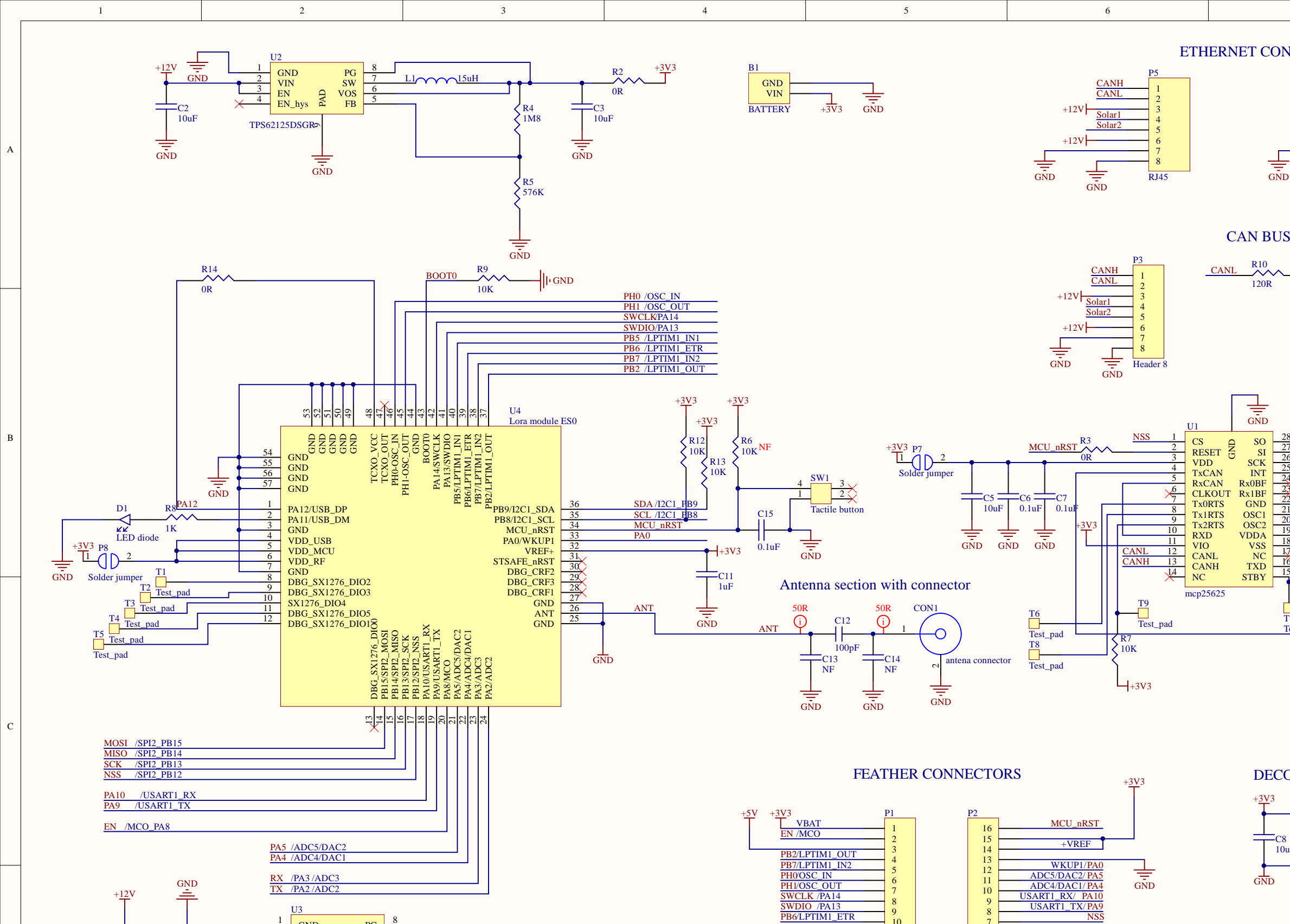
v0.2   - 15.08.2018.

v0.3   - 07.09.2018.

ISSUES CLOSED:

1. STBY pin to GND

2. 0R resistor on 3V3 murata and mcp25625 pins

3. R1 and R16 not needed

4. Set trace width for solar atleast 30mil

5. CHanged N.C. label on feather pins to 5V

DESIGN CONSIDERATIONS

DESIGN NOTE:
Example text for informational
design notes.

A
B
C

ETHERNET CON

U2
1 GND
2 VIN
3 EN
4 EN_hys
PAD
PG 8
SW 7
VOS 6
FB 5
TPS62125DSGR

+12V
GND
C2 10uF
GND
GND

L1 15uH
R4 1M8
R5 576K
GND

R2 0R
+3V3
C3 10uF
GND

B1
GND
VIN
BATTERY
+3V3 GND

P5
CANH 1
CANL 2
3
Solar1 4
Solar2 5
6
+12V 7
+12V 8
RJ45
GND GND GND

CAN BUS

R14 0R
BOOT0
R9 10K
GND

PH0 /OSC_IN
PH1 /OSC_OUT
SWCLK/PA14
SWDIO/PA13
PB5 /LPTIM1_IN1
PB6 /LPTIM1_ETR
PB7 /LPTIM1_IN2
PB2 /LPTIM1_OUT

P3
CANH 1
CANL 2
3
Solar1 4
Solar2 5
6
+12V 7
+12V 8
Header 8
GND GND

CANL R10 120R

U4
Lora module ES0

GND 54
GND 55
GND 56
GND 57

GND
GND GND GND GND GND
TCXO_VCC
TCXO_OUT
PH0-OSC_IN
PH1-OSC_OUT
GND
BOOT0
PA14/SWCLK
PA13/SWDIO
PB5/LPTIM1_IN1
PB6/LPTIM1_ETR
PB7/LPTIM1_IN2
PB2/LPTIM1_OUT

53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37

D1
LED diode
R8 1K
PA12

PA12/USB_DP 1
PA11/USB_DM 2
GND 3
VDD_USB 4
VDD_MCU 5
VDD_RF 6
GND 7
DBG_SX1276_DIO2 8
DBG_SX1276_DIO3 9
SX1276_DIO4 10
DBG_SX1276_DIO5 11
DBG_SX1276_DIO0 12

PB9/I2C1_SDA 36
PB8/I2C1_SCL 35
MCU_nRST 34
PA0/WKUP1 33
VREF+ 32
STSAFE_nRST 31
DBG_CRF2 30
DBG_CRF3 29
DBG_CRF1 28
GND 27
ANT 26
GND 25

SDA /I2C1_PB9
SCL /I2C1_PB8
MCU_nRST
PA0
+3V3

+3V3
+3V3
+3V3
R12 10K
R13 10K
R6 10K NF

SW1
Tactile button
C15 0.1uF
GND

C11 1uF
GND

ANT

Antenna section with connector

ANT
50R
C12 100pF
50R
CON1
antena connector
C13 NF
C14 NF
GND GND GND

+3V3 P7
Solder jumper
MCU_nRST
R3 0R

C5 10uF
C6 0.1uF
C7 0.1uF
GND GND GND

NSS

U1
CS 1
RESET 2
VDD 3
TxCAN 4
RxCAN 5
CLKOUT 6
Tx0RTS 7
Tx1RTS 8
Tx2RTS 9
RXD 10
VIO 11
CANL 12
CANH 13
NC 14

SO 28
SI 27
GND 26
SCK 25
INT 24
Rx0BF 23
Rx1BF 22
GND 21
OSC1 20
OSC2 19
VDDA 18
VSS 17
NC 16
TXD 15
STBY

mcp25625
GND
+3V3

CANL
CANH
R7 10K
+3V3

T6 Test_pad
T8 Test_pad
T9 Test_pad

P8
+3V3 1
2
GND
Solder jumper

T1
T2 Test_pad
T3 Test_pad
T4 Test_pad
T5 Test_pad
Test_pad

13 14 15 16 17 18 19 20 21 22 23 24

DBG_SX1276_DIO0
PB15/SPI2_MOSI
PB14/SPI2_MISO
PB13/SPI2_SCK
PB12/SPI2_NSS
PA10/USART1_RX
PA9/USART1_TX
PA8/MCO
PA5/ADC5/DAC2
PA4/ADC4/DAC1
PA3/ADC3
PA2/ADC2

MOSI /SPI2_PB15
MISO /SPI2_PB14
SCK /SPI2_PB13
NSS /SPI2_PB12

PA10 /USART1_RX
PA9 /USART1_TX

EN /MCO_PA8

PA5 /ADC5/DAC2
PA4 /ADC4/DAC1

RX /PA3 /ADC3
TX /PA2 /ADC2

+12V
GND

U3
GND PG
8

FEATHER CONNECTORS

+5V +3V3
VBAT
EN /MCO
PB2/LPTIM1_OUT
PB7/LPTIM1_IN2
PH0/OSC_IN
PH1/OSC_OUT
SWCLK /PA14
SWDIO /PA13
PB6/LPTIM1_ETR

P1
1
2
3
4
5
6
7
8
9
10

P2
16
15
14
13
12
11
10
9
8
7

MCU_nRST
+VREF
WKUP1/PA0
ADC5/DAC2/PA5
ADC4/DAC1/PA4
USART1_RX/ PA10
USART1_TX/PA9
NSS

+3V3

DECO

+3V3
C8
10u
GND

ERRATA:

1. Crystall X1 wrong wiring

2. Crystall X1 wrong footprint

3. Crystall X1 needs repositioning closer to MCP25625

4. Ethernet connector PIN 1 not marked