RuuviTag

Open Source Bluetooth Smart Sensor Beacon
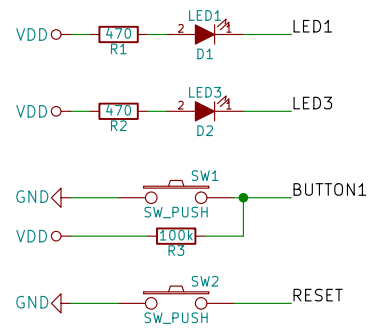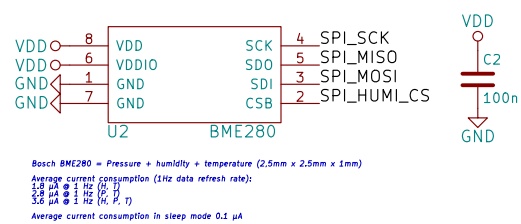
http://ruuvi.com

Power Source

Q_PMOS_GSD
Q1
Efficient reverse polarity protection circuitry.
VDD
PWR_FLAG

Hole +BATT P8
Hole +BATT P9

Hole GND P11
Hole GND P12
PWR_FLAG
GND
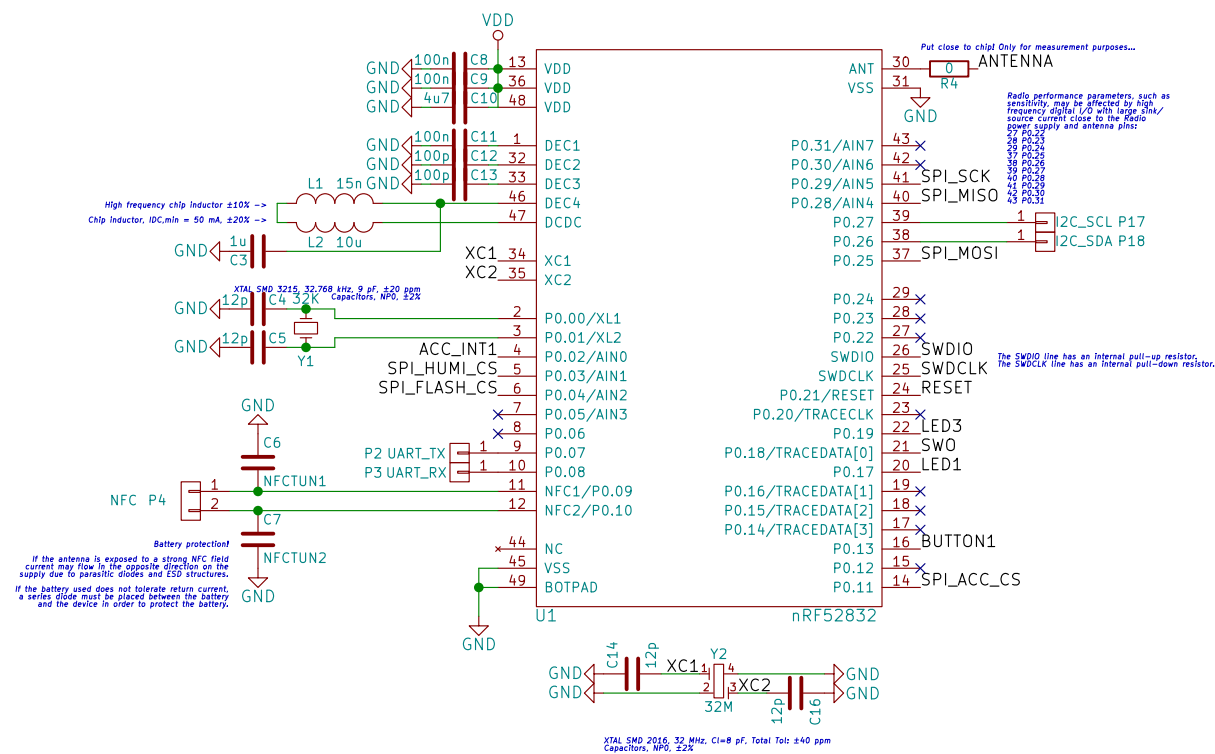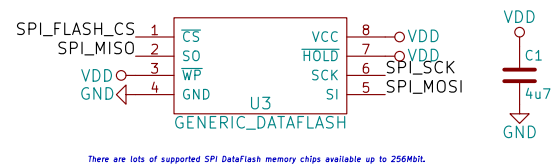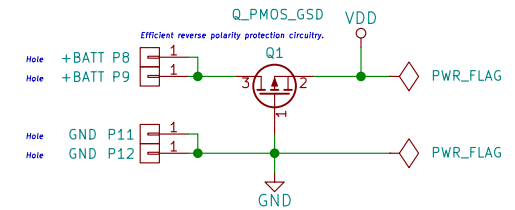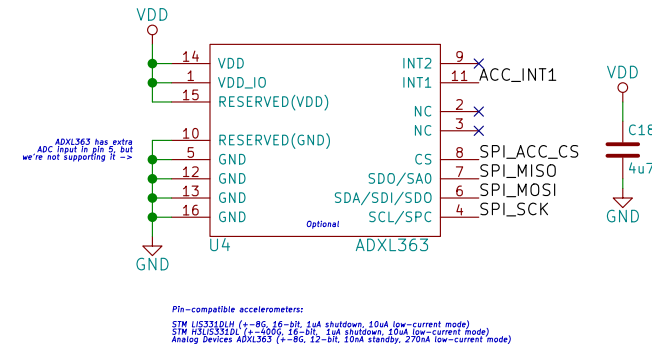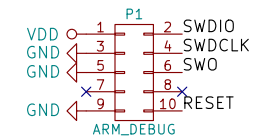
Supply voltage: 1V7 – 3V6
Absolute maximum: 3V6

The standard use case is to use CR2477N Lithium coin cell, but alternative power sources are also supported. Supercapacitor for example.
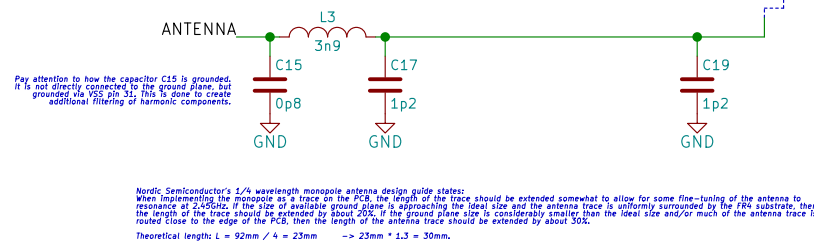
LEDs & Buttons

VDD 470 R1 LED1 D1 LED1
VDD 470 R2 LED3 D2 LED3

GND SW1 SW_PUSH BUTTON1
VDD 100k R3
GND SW2 SW_PUSH RESET

Bluetooth Smart SoC

VDD

GND 100n C8 13 VDD
GND 100n C9 36 VDD
GND 4u7 C10 48 VDD

GND 100n C11 1 DEC1
GND 100p C12 32 DEC2
GND 100p C13 33 DEC3
46 DEC4
47 DCDC

L1 15n L2 10u
GND 1u C3

XC1 34 XC1
XC2 35 XC2

GND 12p C4 32K
GND 12p C5
Y1

ACC_INT1 SPI_HUMI_CS SPI_FLASH_CS

GND C6 2 P0.00/XL1
3 P0.01/XL2
4 P0.02/AIN0
5 P0.03/AIN1
6 P0.04/AIN2
7 P0.05/AIN3
8 P0.06
9 P0.07
10 P0.08

NFC P4 NFCTUN1 11 NFC1/P0.09
C7 12 NFC2/P0.10
NFCTUN2

GND C14 12p XC1 Y2 XC2 12p C16 GND
GND 32M GND

30 ANT R4 0 ANTENNA
31 VSS GND

43 P0.31/AIN7
42 P0.30/AIN6 SPI_SCK
41 P0.29/AIN5 SPI_MISO
40 P0.28/AIN4
39 P0.27
38 P0.26 I2C_SCL P17
37 P0.25 I2C_SDA P18 SPI_MOSI

29 P0.24
28 P0.23
27 P0.22
26 P0.21/RESET SWDIO
25 P0.20/TRACECLK SWDCLK
24 RESET
23 P0.19
22 P0.18/TRACEDATA[0] SWO
21 P0.17 LED3
20 LED1
19 P0.16/TRACEDATA[1]
18 P0.15/TRACEDATA[2]
17 P0.14/TRACEDATA[3]
16 P0.13 BUTTON1
15 P0.12
14 P0.11 SPI_ACC_CS

44 NC
45 VSS GND
49 BOTPAD

U1 nRF52832

XTAL SMD 2016 32 MHz, CI=8 pF, Total Tol± ±40 ppm
Capacitors, NP0, ±2%

P2 UART_TX P3 UART_RX

Accelerometer

VDD
14 VDD 9 INT2
VDD_IO INT1 ACC_INT1
15 11
RESERVED(VDD) NC
10 NC
RESERVED(GND) CS SPI_ACC_CS
5 GND SDO/SA0 SPI_MISO
12 GND SDA/SDI/SDO SPI_MOSI
13 GND SCL/SPC SPI_SCK
16 GND
U4 ADXL363

VDD C18 4u7 GND

GND

Pressure + Humidity + Temperature

8 VDD SCK 4 SPI_SCK
6 VDDIO SDO 3 SPI_MISO
1 GND SDI 2 SPI_MOSI
7 GND CSB 2 SPI_HUMI_CS
U2 BME280

VDD C2 100n GND

Bosch BME280 = Pressure + humidity + temperature (2.5mm x 2.5mm x 1mm)

Debug In

VDD P1 1 2 SWDIO
GND 3 4 SWDCLK
GND 5 6 SWO
7 8
GND 9 10 RESET
ARM_DEBUG

Antenna

ANTENNA L3 3n9
C15 0p8 C17 1p2 C19 1p2
GND GND GND

DataFlash

SPI_FLASH_CS 1 CS VCC 8 VDD
SPI_MISO 2 SO HOLD 7
3 WP SCK 6 SPI_SCK
VDD
GND 4 GND SI 5 SPI_MOSI
U3 GENERIC_DATAFLASH

VDD C1 4u7 GND

There are lots of supported SPI Dataflash memory chips available up to 256Mbit.