Rhino - MCU

DIAGRAM

CONTENTS:

MCU.SchDoc - MCU and power supply
SENSORS.SchDoc - Accelerometer,
Light sensor and reed switch

Version Revision:

V1   - 24.05.2019
V2   - 11.06.2019
V2.1 - 20.06.2019
V2.2 - 26.07.2019

DESIGN CONSIDERATIONS

DESIGN NOTE:
Example text for informational
design notes.

DESIGN NOTE:
Example text for critical
design notes.

LAYOUT NOTE:
Example text for critical
layout guidelines.
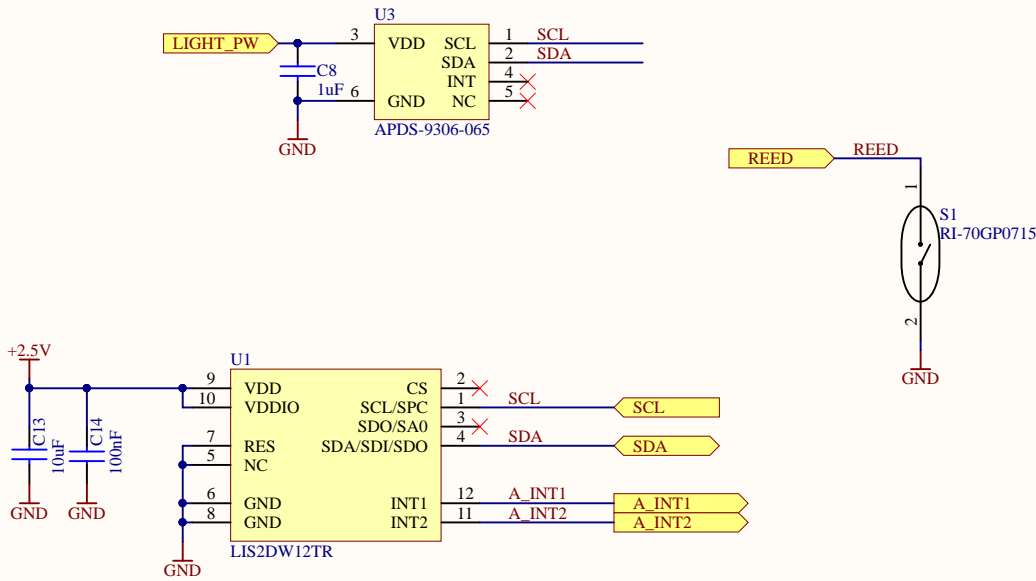

IRNAS   URL

Rhino - MCU

Size: A3

Revision: V2.2

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R3
10k
GND

REED
SWCLK
SWDIO
A_INT2
A_INT1

REED
BOOT0
SWCLK
SWDIO
A_INT2
A_INT1

U2
CMWX1ZZABZ

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

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

54 GND
55 GND
56 GND
57 GND

VBAT
U4
MCP1810T

7 VIN OUT 2
8 SHDN FB 6
GND GND
1   0

4u7/16V
C15

GND GND GND

R6 0R

+2.5V

C16
2.2uF 6V3
GND

+2.5V

C5   C6   C4
1uF   100nF 10uF

GND   GND   GND

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

GND

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

+2.5V   +2.5V
SDA   R4
SCL   10k
RESET
LED

SDA
SCL

RESET

LED

C7
1uF

C3
100nF

GND   GND

GND

DBG_SX1276_DIO0
PB15/SP2_MOSI
PB14/SP2_MISO
PB13/SP2_SCK
PB12/SP2_NSS
PA10/USART1_RX
PA9/USART1_TX
PA8/MCO
PA5/ADC5/DAC2
PA4/ADC4/DAC1
PA3/ADC3
PA2/ADC2

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

LIGHT_PW
GPS_EN
VSWR_EN
BAT_MON_EN
GPS_RX
GPS_TX
VBKP
ADC
BAT_AN
VSWR_AN
UART2_TX

LIGHT_PW
GPS_EN
BAT_MON_EN
GPS_RX
GPS_TX
VBKP
BAT_AN
VSWR_AN
UART2_TX

C10
10nF

GND

U5
3 OUT IN 1
6 CP   TR
5 GND GND 4
2
HHM22106C1
LORA_ANT

R20
50R
GND

GND   GND GND

+2.5V

R7
100k

T1B

VSWR_EN R8   T1A
100R

R9
100k

C11
100nF

GND GND GND

U6
A1 VDD OUT A2
C2 EN   GND
B1 RFIN GND B2
C1
LMH2110TMX
VSWR_AN

GND

IRNAS   URL

Rhino - MCU

Size: A3   Revision: V2.2

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Ambient Light Sensor

U3

LIGHT_PW

3	VDD	SCL	1	SCL
		SDA	2	SDA
		INT	4
6	GND	NC	5

C8
1uF

GND

APDS-9306-065

REED   REED

S1
RI-70GP0715

GND

+2.5V

U1

9	VDD	CS	2
10	VDDIO	SCL/SPC	1	SCL	SCL
		SDO/SA0	3
7	RES	SDA/SDI/SDO	4	SDA	SDA
5	NC			
6	GND	INT1	12	A_INT1	A_INT1
8	GND	INT2	11	A_INT2	A_INT2

C13
10uF

C14
100nF

GND   GND

GND

LIS2DW12TR