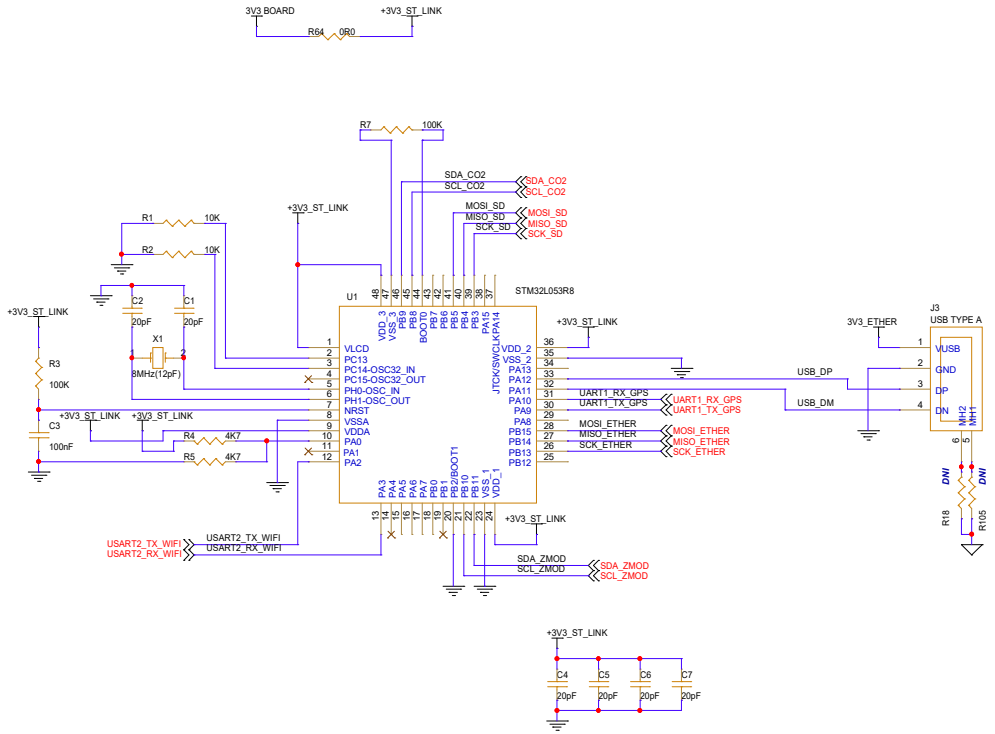
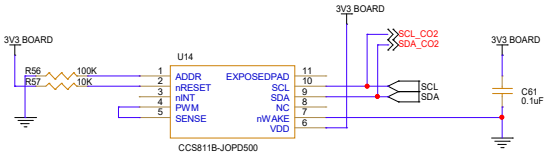
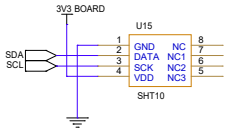
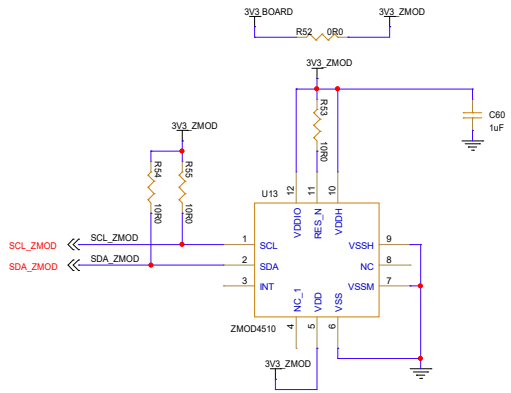
REVISION HISTORY	REVISION HISTORY
0.1	The microcontroller circuit begins to be made
0.2	The circuit for the solar panel is added
0.3	The circuit for the CO2, Humidity & temperature sensors is added
0.4	Zmod sensor circuit added
0.5	The ethernet circuit and SD module are added
0.6	GPS + GPRS + BT circuit is added
0.7	WIFI circuit and SD module are added
0.8	The voltage sources circuits are added to power the PCB
0.9	Properties and footprints are added to make the Bill of materials
1.0	Mechanical parts are added

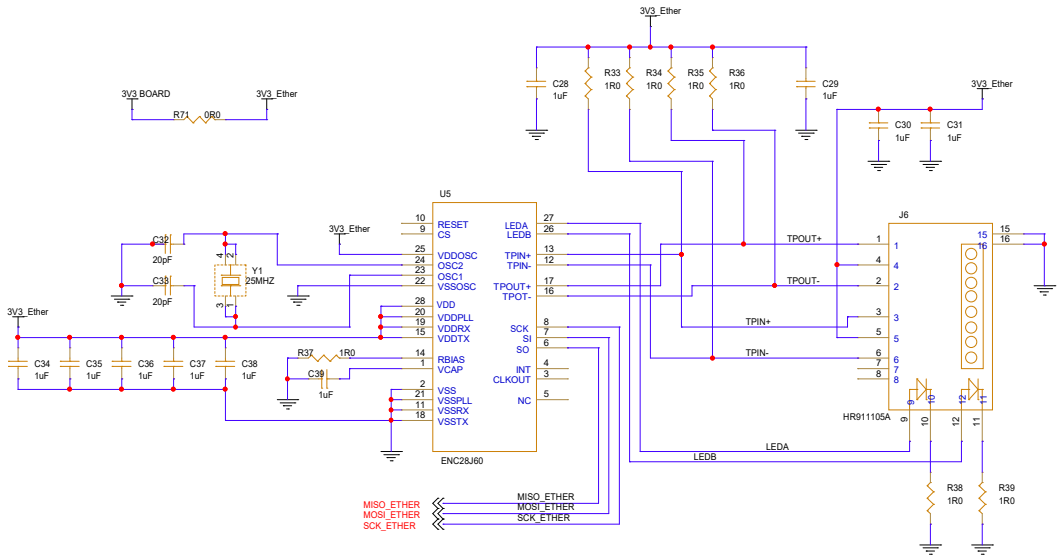
Title: Project Respire		
Size: C	Document Number: <Doc>	Rev: <RevCode>
Date: Sunday, October 1, 2023	Sheet 1 of 11	

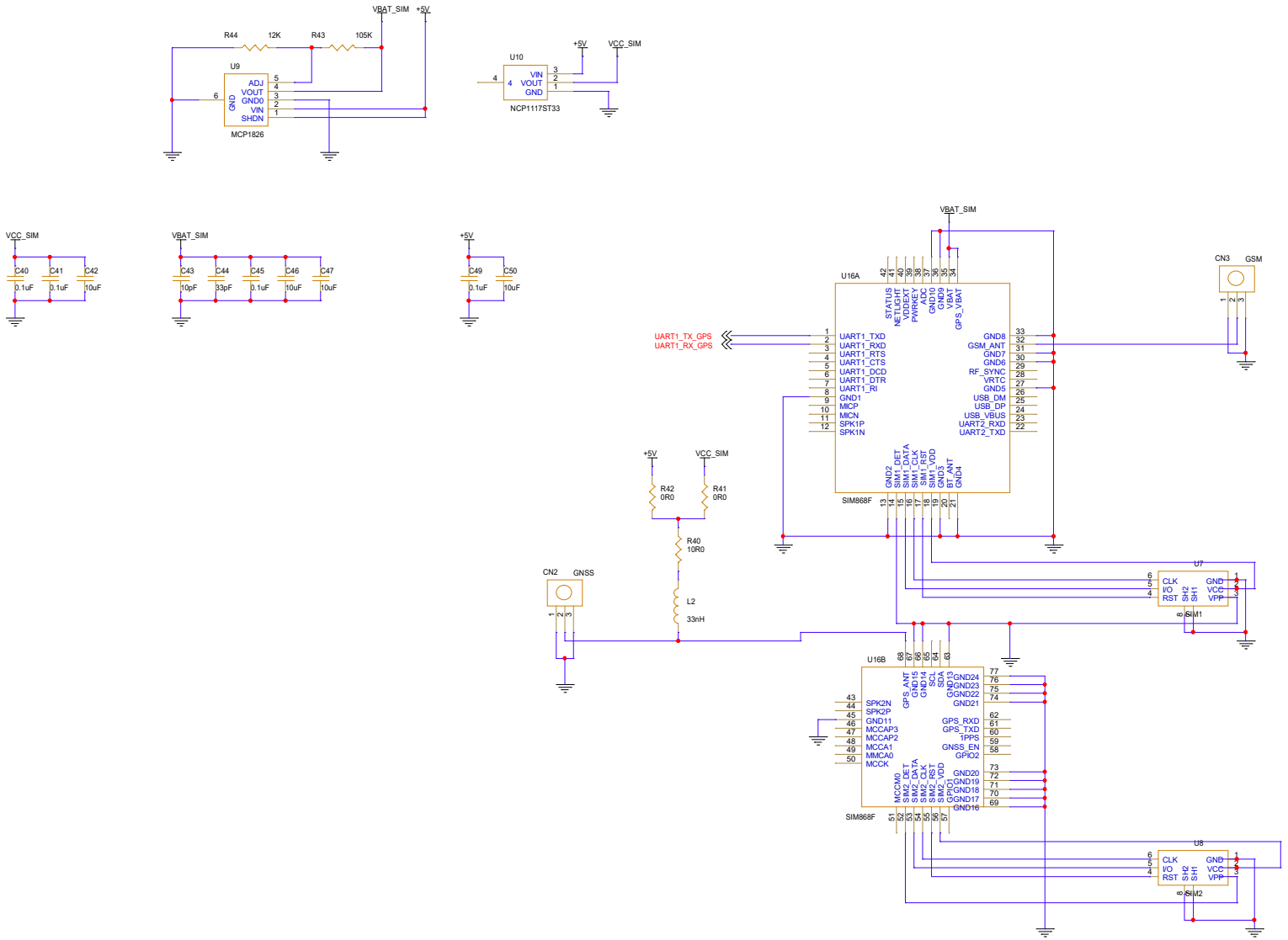

3V3_BOARD
+3V3_ST_LINK
R64
0R0
R7
100K
SDA_CO2
SCL_CO2
MOSI_SD
MISO_SD
SCK_SD
R1
10K
R2
10K
+3V3_ST_LINK
C2
20pF
C1
20pF
X1
8MHz(12pF)
R3
100K
C3
100nF
R4
4K7
R5
4K7
U1
STM32L053R8
VLCD
PC13
PC14-OSC32_IN
PC15-OSC32_OUT
PH0-OSC_IN
PH1-OSC_OUT
NRST
VSSA
VDDA
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PB0
PB1
PB2/BOOT1
PB10
PB11
VSS_1
VDD_1
VDD_2
VSS_2
PA13
PA12
PA11
PA10
PA9
PA8
PB15
PB14
PB13
PB12
JTCK/SWCLK
PA14
UART1_RX_GPS
UART1_TX_GPS
MOSI_ETHER
MISO_ETHER
SCK_ETHER
USB_DP
USB_DM
3V3_ETHER
J3
USB TYPE A
VUSB
GND
DP
DN
MH2
MH1
DNI
R18
R105
USART2_TX_WIFI
USART2_RX_WIFI
SDA_ZMOD
SCL_ZMOD
C4
C5
C6
C7
20pF

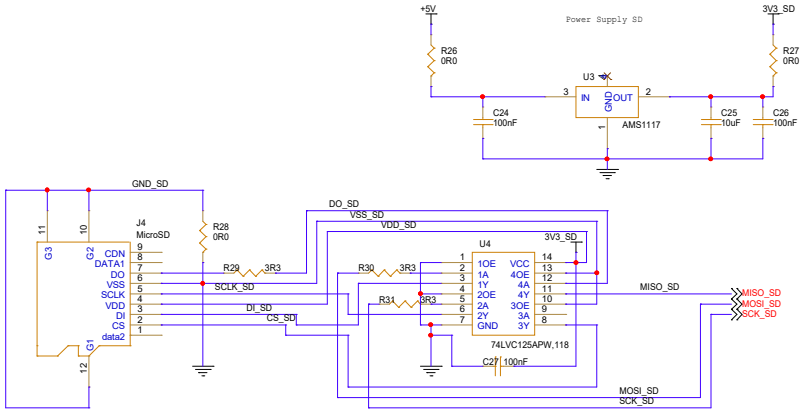

3V3 BOARD
R56
R57
100K
10K
U14
ADDR
nRESET
nINT
PWM
SENSE
EXPOSEDPAD
SCL
SDA
NC
nWAKE
VDD
CCS811B-JOPD500
3V3 BOARD
SCL_CO2
SDA_CO2
SCL
SDA
3V3 BOARD
C61
0.1uF

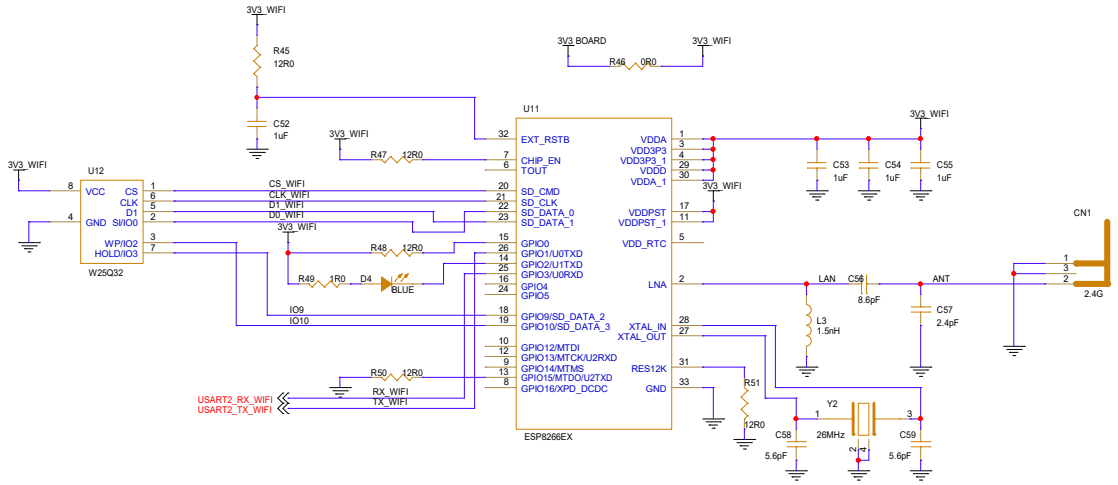

3V3 BOARD
SDA
SCL
U15
GND
DATA
SCK
VDD
NC
NC1
NC2
NC3
SHT10


3V3_BOARD
R52
0R0
3V3_ZMOD
C60
1uF
R53
100R
R54
10R0
R55
10R0
U13
SCL_ZMOD
SDA_ZMOD
SCL
SDA
INT
VDDIO
RES_N
VDDH
NC_1
VDD
VSS
VSSH
NC
VSSM
ZMOD4510


3V3_Ether
3V3_BOARD
R71 0R0
C28 1uF
R33 1R0
R34 1R0
R35 1R0
R36 1R0
C29 1uF
C30 1uF
C31 1uF
U5
RESET
CS
VDDOSC
OSC2
OSC1
VSSOSC
VDD
VDDPLL
VDDRX
VDDTX
RBIAS
VCAP
VSS
VSSPLL
VSSRX
VSSTX
LEDA
LEDB
TPIN+
TPIN-
TPOUT+
TPOT-
SCK
SI
SO
INT
CLKOUT
NC
ENC28J60
C32 20pF
C33 20pF
Y1 25MHZ
C34 1uF
C35 1uF
C36 1uF
C37 1uF
C38 1uF
R37 1R0
C39 1uF
J6
HR911105A
TPOUT+
TPOUT-
TPIN+
TPIN-
LEDA
LEDB
R38 1R0
R39 1R0
MISO_ETHER
MOSI_ETHER
SCK_ETHER

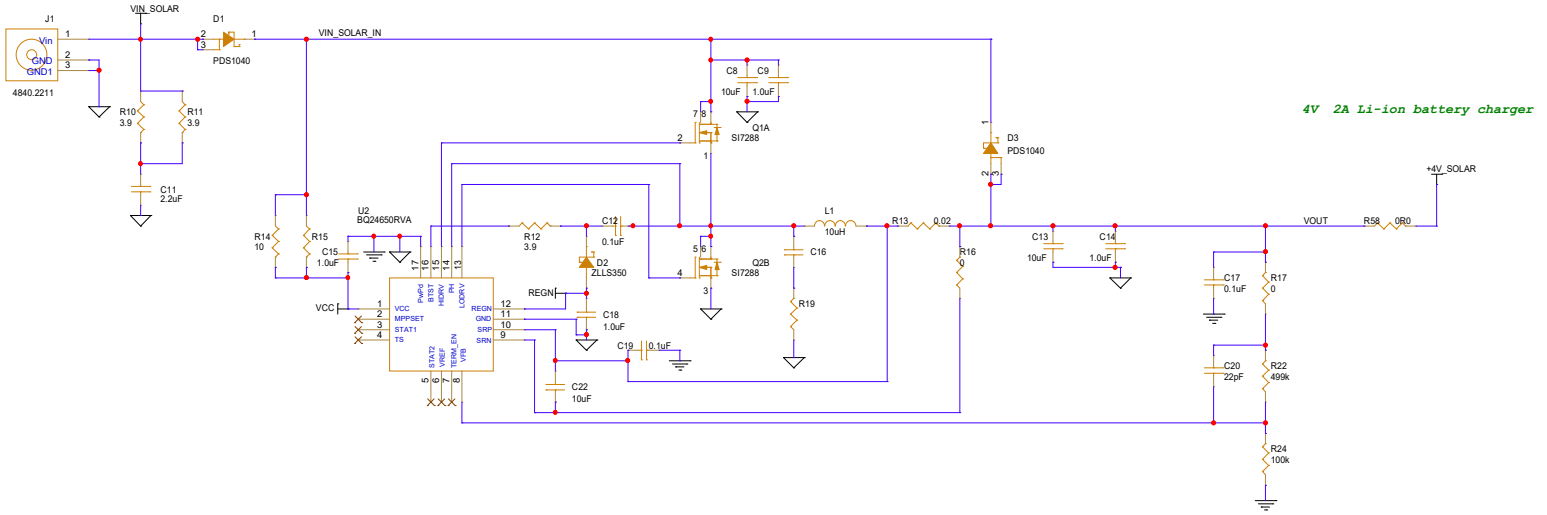

VBAT_SIM
+5V
R44
12K
R43
105K
U9
ADJ
VOUT
GND0
VIN
SHDN
GND
MCP1826
U10
VIN
VOUT
GND
NCP1117ST33
VCC_SIM
C40
C41
C42
0.1uF
10uF
C43
C44
C45
C46
C47
10pF
33pF
C49
C50
U16A
STATUS
NETLIGHT
VDDEXT
PWRKEY
ADC
GND10
GND9
VBAT
GPS_VBAT
UART1_TXD
UART1_RXD
UART1_RTS
UART1_CTS
UART1_DCD
UART1_DTR
UART1_RI
GND1
MICP
MICN
SPK1P
SPK1N
GND8
GSM_ANT
GND7
GND6
RF_SYNC
VRTC
GND5
USB_DM
USB_DP
USB_VBUS
UART2_RXD
UART2_TXD
UART1_TX_GPS
UART1_RX_GPS
GND2
SIM1_DET
SIM1_CLK
SIM1_RST
SIM1_VDD
GND3
BT_ANT
GND4
SIM868F
CN3
GSM
R42
0R0
R41
0R0
R40
10R0
L2
33nH
CN2
GNSS
U16B
GPS_ANT
GND15
GND14
SCL
SDA
GND13
GND24
GND23
GND22
GND21
SPK2N
SPK2P
GND11
MCCAP3
MCCAP2
MCCA1
MMCA0
MCCK
GPS_RXD
GPS_TXD
1PPS
GNSS_EN
GPIO2
MCCM0
SIM2_DET
SIM2_DATA
SIM2_CLK
SIM2_RST
SIM2_VDD
GND20
GND19
GND18
GND17
GND16
U7
U8
CLK
I/O
RST
SIM1
SIM2
GND
VCC
VPP

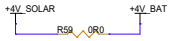

Power Supply SD
+5V
3V3_SD
R26
0R0
R27
0R0
U3
IN
GND
OUT
AMS1117
C24
100nF
C25
10uF
C26
100nF
GND_SD
J4
MicroSD
R28
0R0
CDN
DATA1
DO
VSS
SCLK
VDD
DI
CS
data2
R29
3R3
SCLK_SD
DO_SD
VSS_SD
VDD_SD
DI_SD
CS_SD
R30
3R3
R31
3R3
U4
74LVC125APW,118
C27
100nF
MISO_SD
MOSI_SD
SCK_SD


3V3_WIFI
R45
12R0
C52
1uF
3V3_BOARD
R46
0R0
3V3_WIFI
U11
EXT_RSTB
CHIP_EN
TOUT
SD_CMD
SD_CLK
SD_DATA_0
SD_DATA_1
GPIO0
GPIO1/U0TXD
GPIO2/U1TXD
GPIO3/U0RXD
GPIO4
GPIO5
GPIO9/SD_DATA_2
GPIO10/SD_DATA_3
GPIO12/MTDI
GPIO13/MTCK/U2RXD
GPIO14/MTMS
GPIO15/MTDO/U2TXD
GPIO16/XPD_DCDC
VDDA
VDD3P3
VDD3P3_1
VDDD
VDDA_1
VDDPST
VDDPST_1
VDD_RTC
LNA
XTAL_IN
XTAL_OUT
RES12K
GND
ESP8266EX
3V3_WIFI
R47
12R0
3V3_WIFI
C53
1uF
C54
1uF
C55
1uF
3V3_WIFI
U12
VCC
GND
CS
CLK
D1
SWIO0
WP/IO2
HOLD/IO3
W25Q32
CS_WIFI
CLK_WIFI
D1_WIFI
D0_WIFI
3V3_WIFI
R48
12R0
R49
1R0
D4
BLUE
IO9
IO10
R50
12R0
RX_WIFI
TX_WIFI
USART2_RX_WIFI
USART2_TX_WIFI
3V3_WIFI
R51
12R0
Y2
26MHz
C58
5.6pF
C59
5.6pF
LAN
C56
8.6pF
ANT
C57
2.4pF
L3
1.5nH
CN1
2.4G

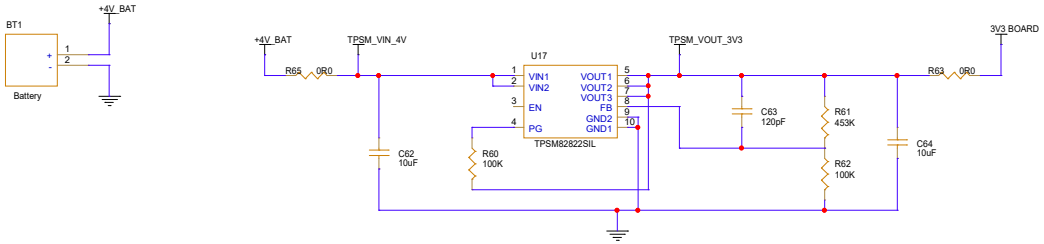
Input voltage range: 21V Solar Panel

4V 2A Li-ion battery charger

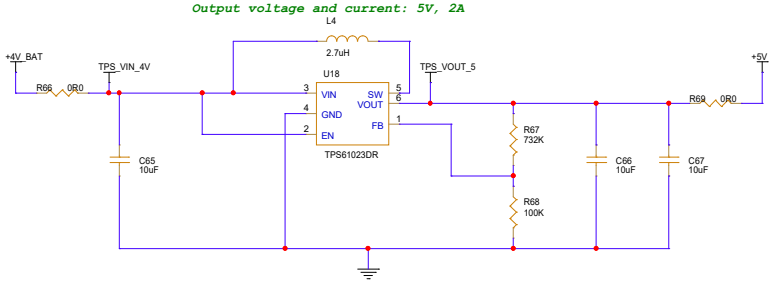


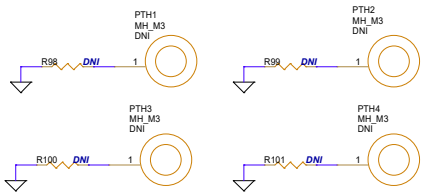


Input voltage range: 4V
Output voltage and current: 3.3V, 2A



Input voltage range: 4V
Output voltage and current: 5V, 2A




PTH1
MH_M3
DNI
R98
DNI
1
PTH2
MH_M3
DNI
R99
DNI
1
PTH3
MH_M3
DNI
R100
DNI
1
PTH4
MH_M3
DNI
R101
DNI
1