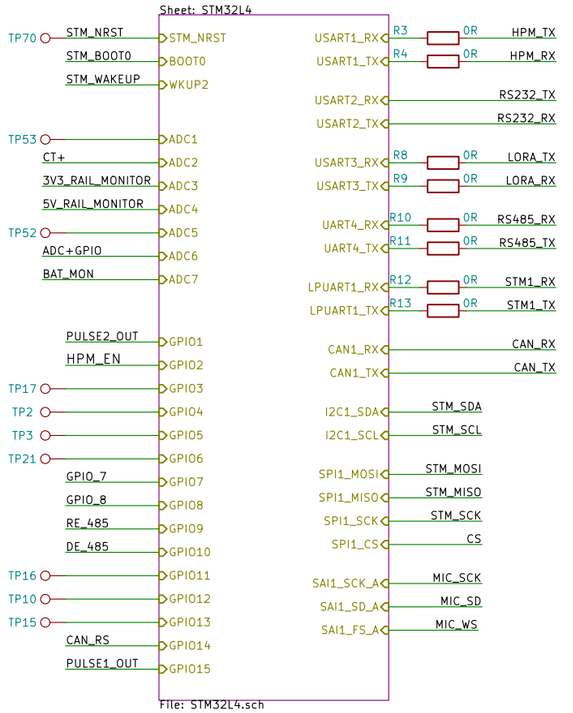
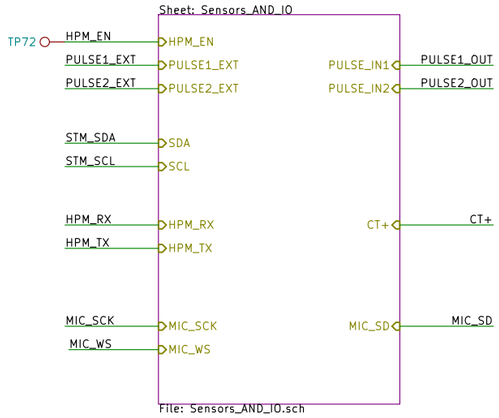
STM

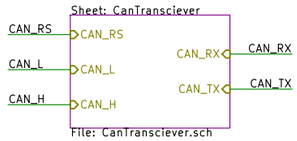


Sensors and IO



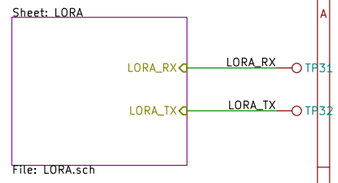
Communication

CAN Transciever

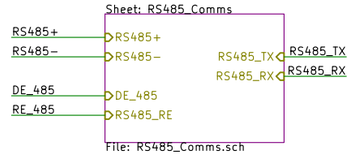


Note: Low power mode selected through RS

LORA

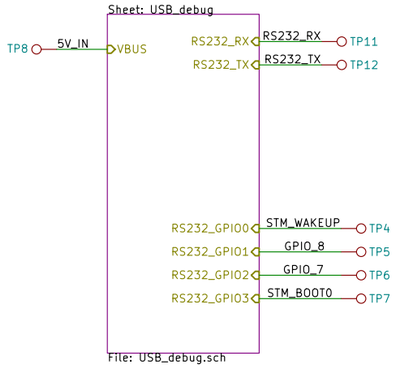


RS485 Transciever



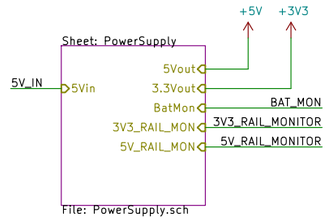
Note: Low power mode selected through DE along with RE

USB Debug

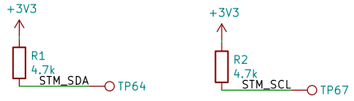


Easy access gnd pins for debug

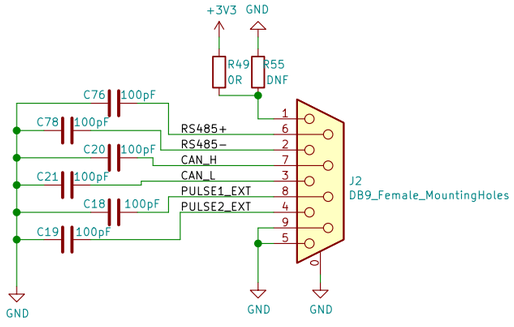
Power Supply and Battery



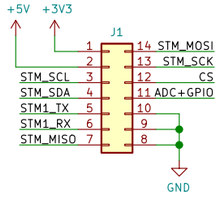
STM I2C Pullup



External Connector



Optional module



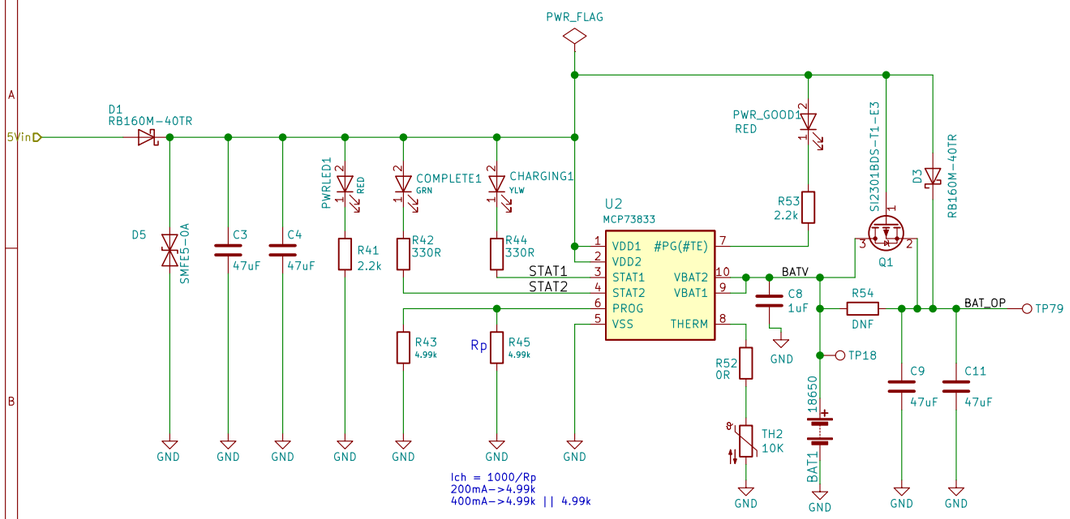
Fiducials

AB
Devtank LTD
Sheet: /
File: OSM_env01.sch

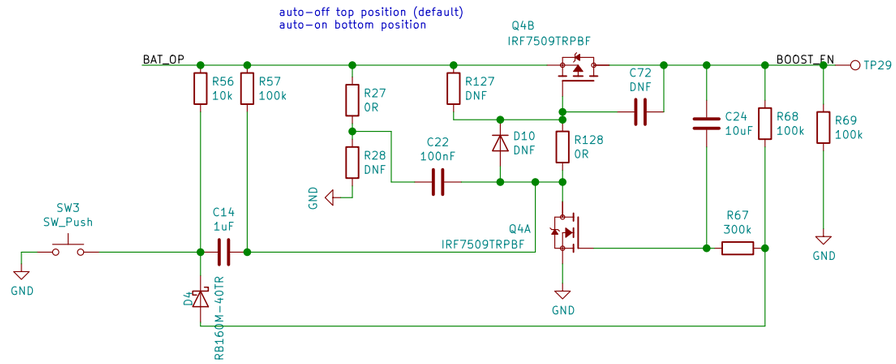
Title: Open Smart Monitor

Size: A3	Date: 2021-09-22	**Rev: B**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 1/9

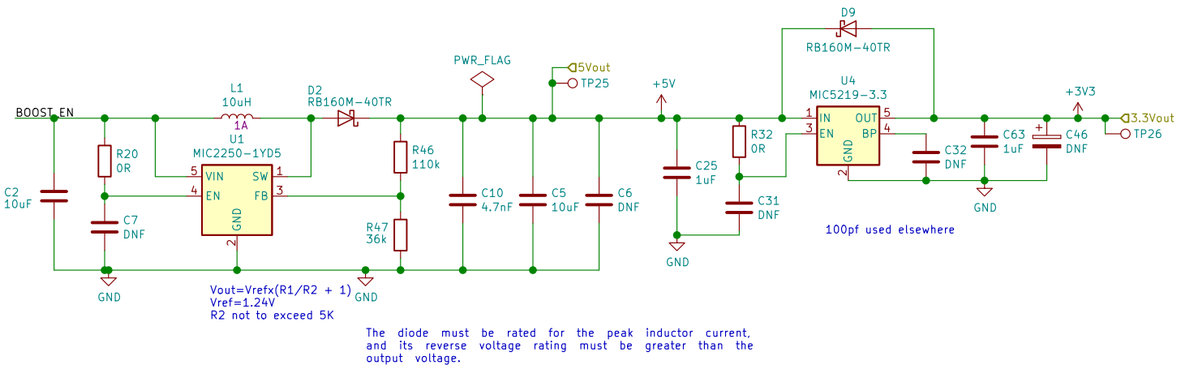
Li_Ion Battery Charge Controller



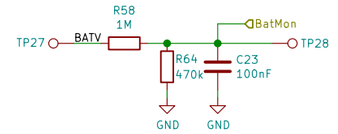
Latched powerbutton Circuit



5V and 3V3 Power Supplies

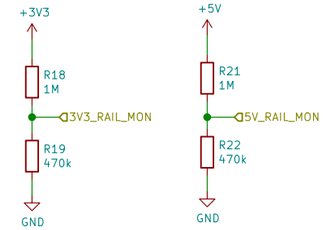


Battery Voltage Monitor



divider ratio=47/147=31.97
5/1024=1adc=4.88mm
(4.2/4.88m)*0.3197=275.15adc=fully charged and above

Voltage Rail Monitor



AB
Devtank LTD

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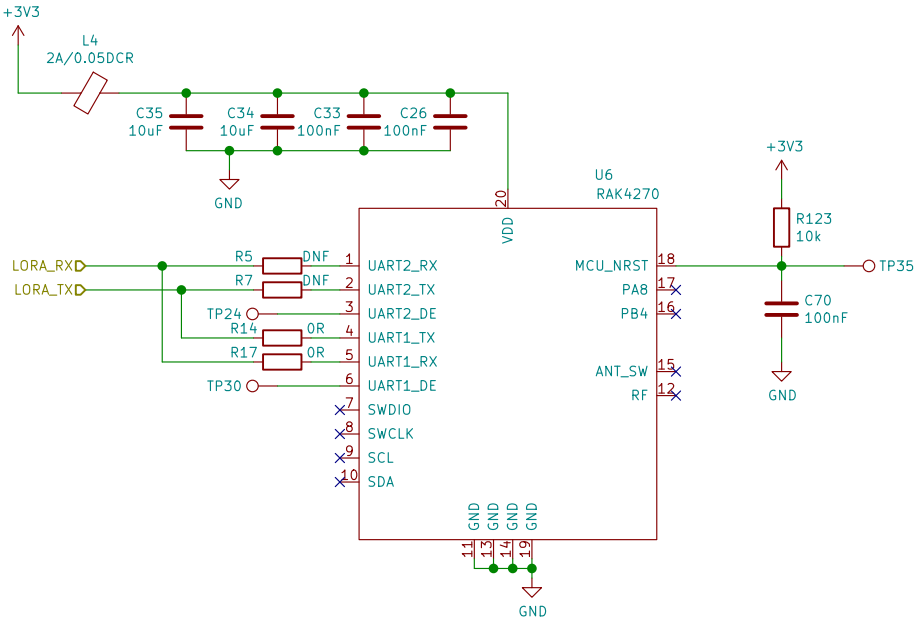
File: PowerSupply.sch

Title: Open Smart Monitor

Size: A3	Date: 2021-09-22	**Rev: B**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 2/9



Devtank LTD		
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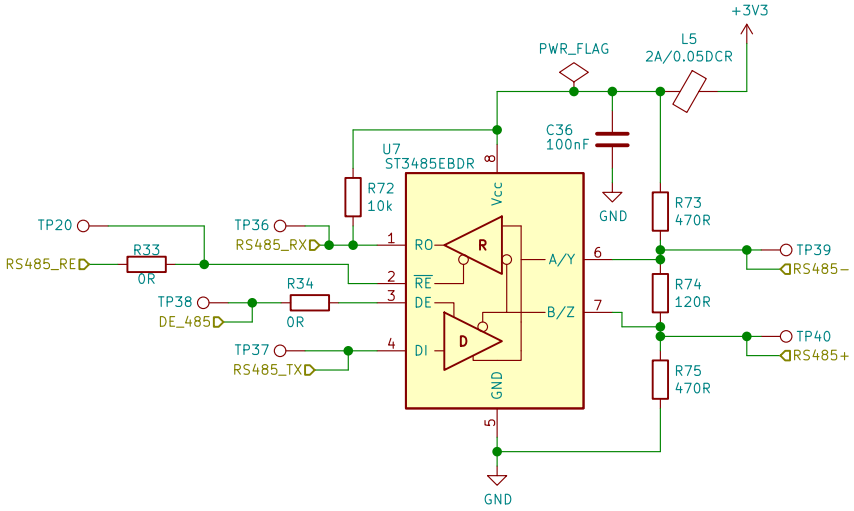
File: LORA.sch		
Title: Open Smart Monitor		
Size: A4	Date: 2021-09-22	**Rev: B**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 3/9



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Devtank LTD

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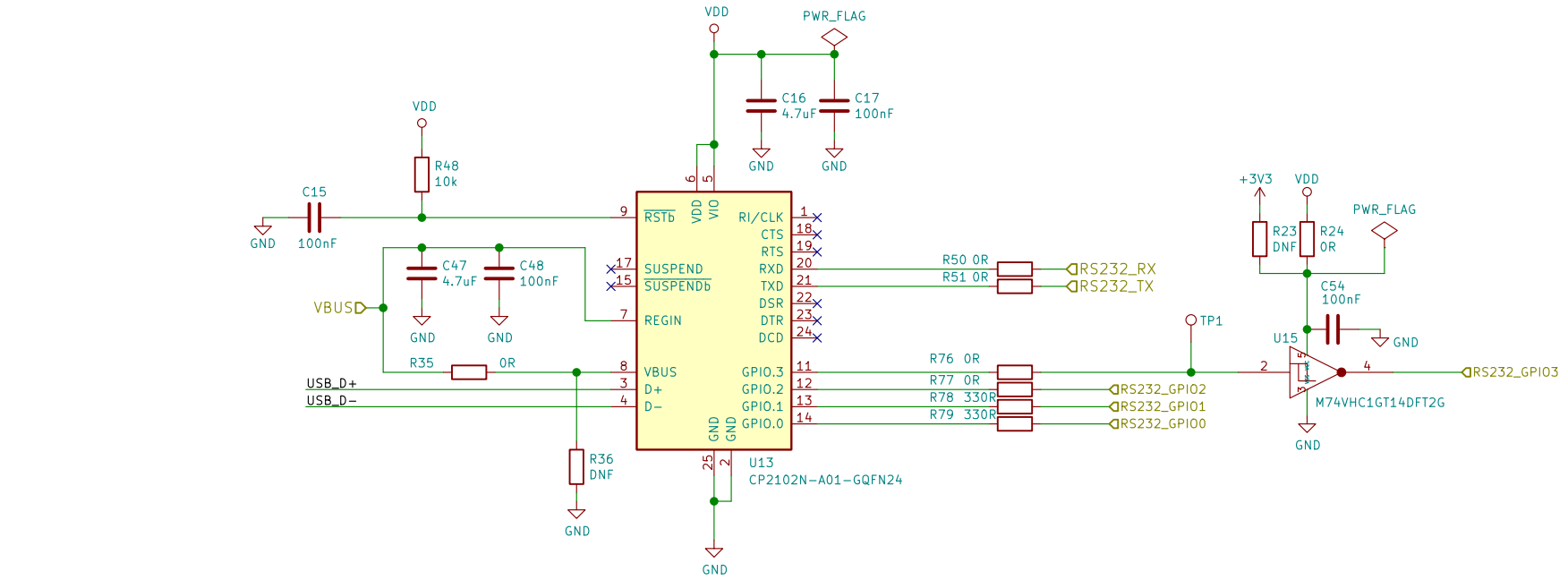
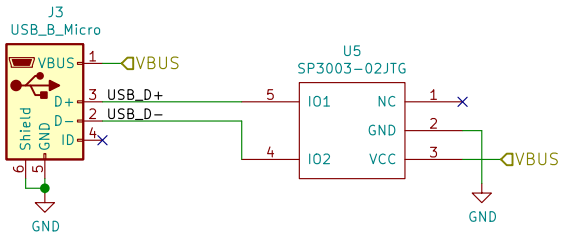
File: RS485_Comms.sch

Title: Open Smart Monitor

Size: A4	Date: 2021-09-22	**Rev: B**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 4/9

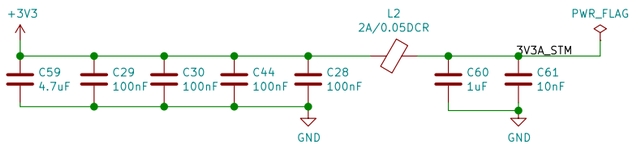


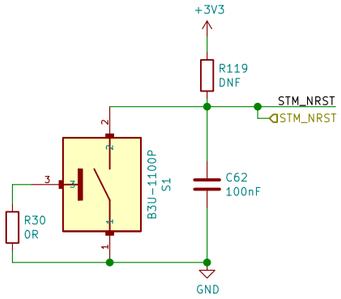


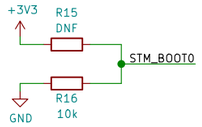
AB
Devtank LTD
Sheet: /USB_debug/
File: USB_debug.sch

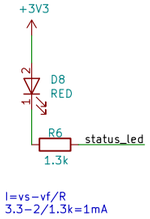
Title: Open Smart Monitor

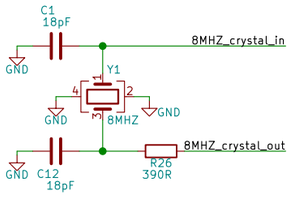
Size: A4	Date: 2021-09-22	**Rev: B**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 5/9

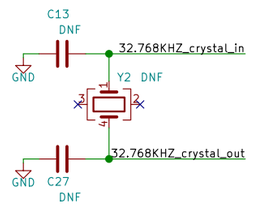


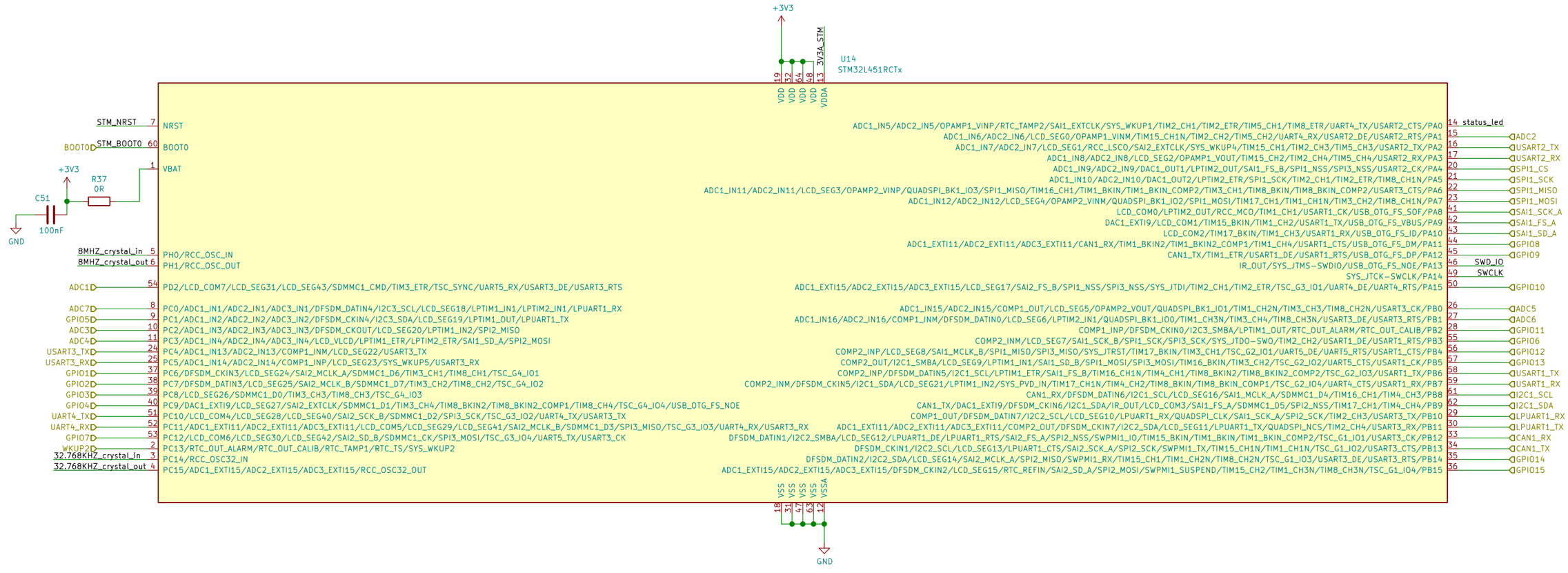




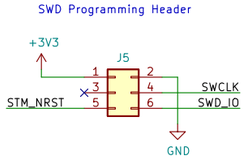








Note: For comfirmation of pin functions refer to datasheet. Symbol may not be correct
– wkup pins 2,14,16,25
–pa13, pa15, pb4 avoid as after reset internal pull up and pull down activated

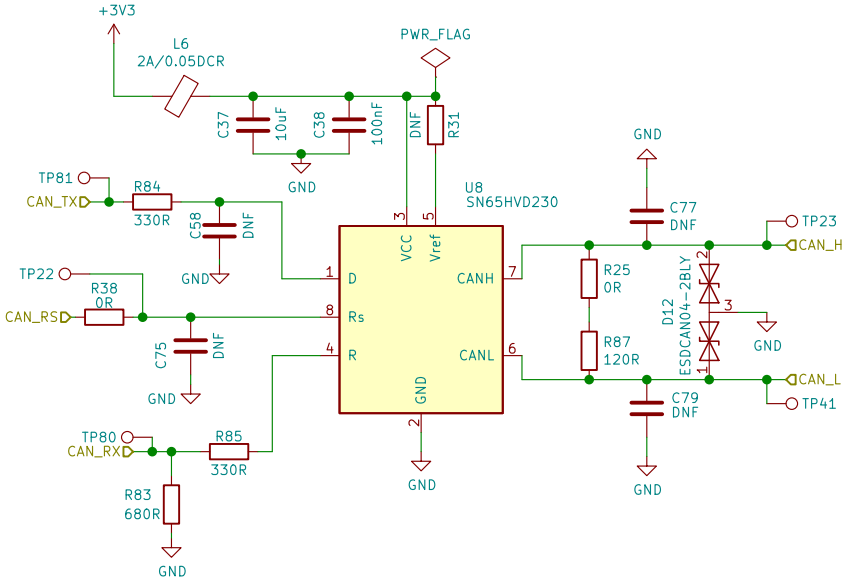


AB
Devtank LTD

Sheet: /STM32L4/
File: STM32L4.sch

Title: Open Smart Monitor

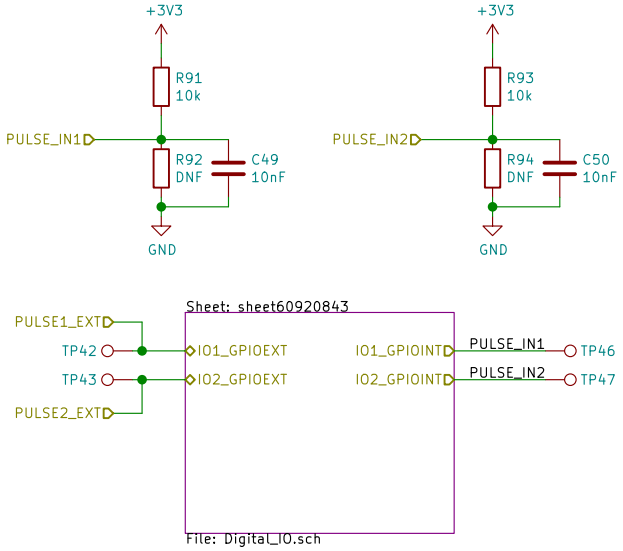
Size: A3	Date: 2021-09-22	**Rev: B**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 6/9



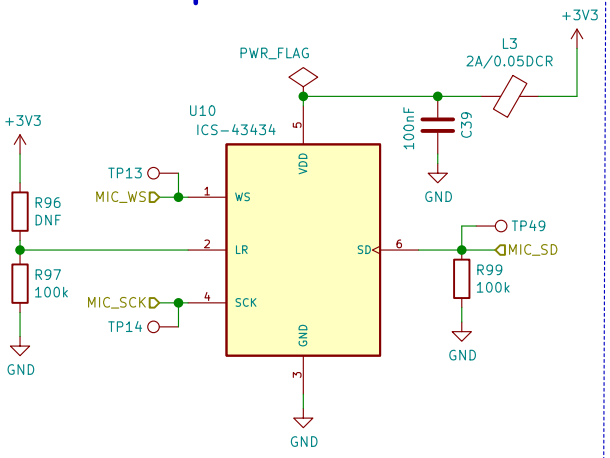
Note: C58 and 75 are filtering caps

AB		
Devtank LTD		
Sheet: /CanTransciever/		
File: CanTransciever.sch		
Title: Open Smart Monitor		
Size: A4	Date: 2021-09-22	**Rev: B**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 7/9

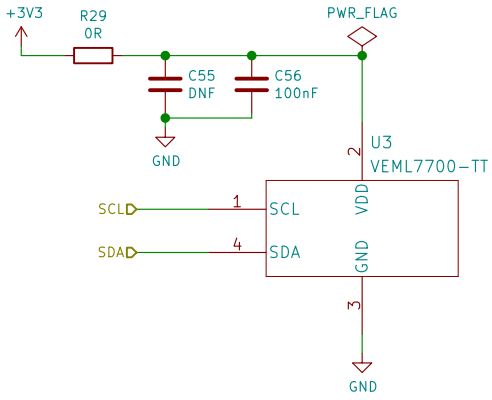
Pulse Inputs



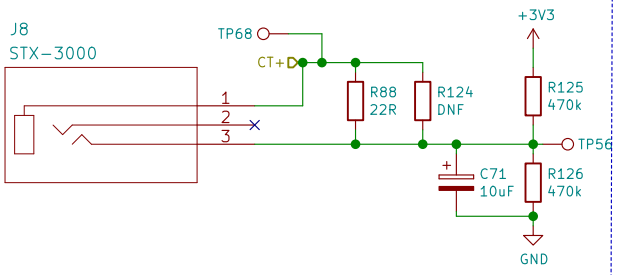
Microphone module



Light Sensor

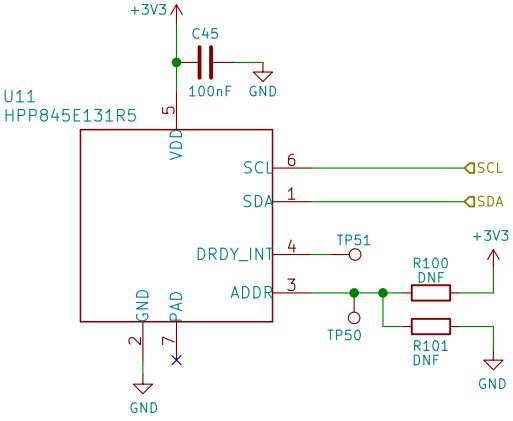


CT Clamp



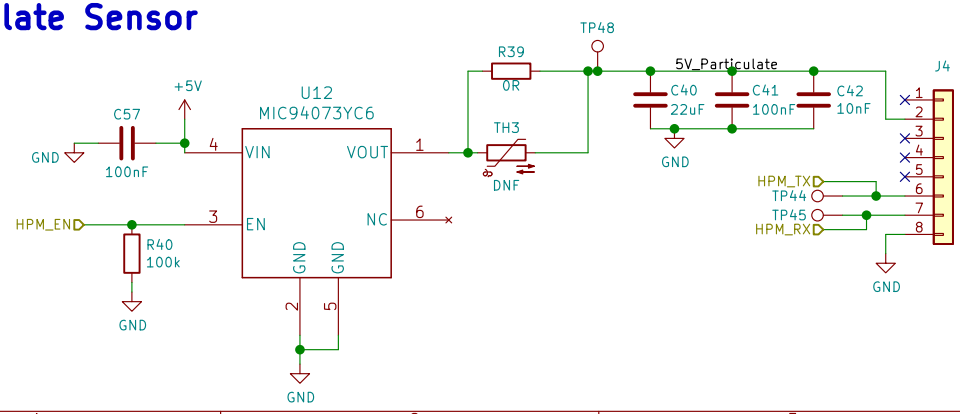
bypass capacitor few hundred ohms
https://learn.openenergymonitor.org/electricity-monitoring/ct-sensors/interface-with-arduino

Temp and Humidity



Note: Can use HDC1080/2080. For HTU21D leave pad 3,4 and ep unconnected

Particulate Sensor



AB
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Sheet: /Sensors_AND_IO/		
File: Sensors_AND_IO.sch		
Title: Open Smart Monitor		
Size: A4	Date: 2021-09-22	**Rev: B**
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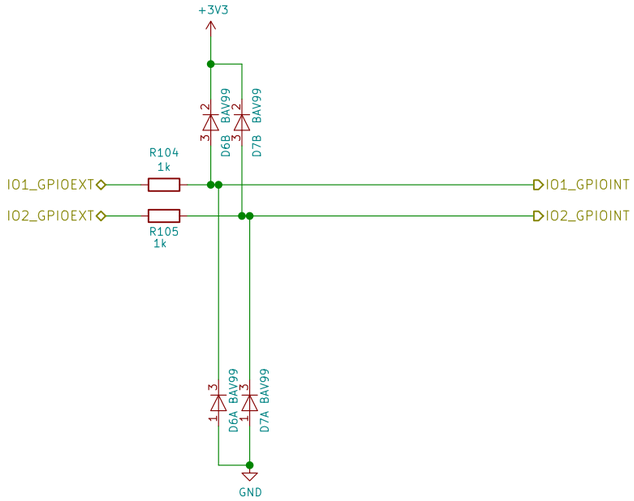
3V3 BI-DIRECTIONAL IO (5V TOLERANT)

Max 3mA per GPIO



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Sheet: /Sensors_AND_IO/sheet60920843/
File: Digital_IO.sch

Title: Open Smart Monitor

Size: A3	Date: 2021-09-22	**Rev: B**
KiCad E.D.A. kicad 5.1.5+dfsg1-2build2		Id: 9/9