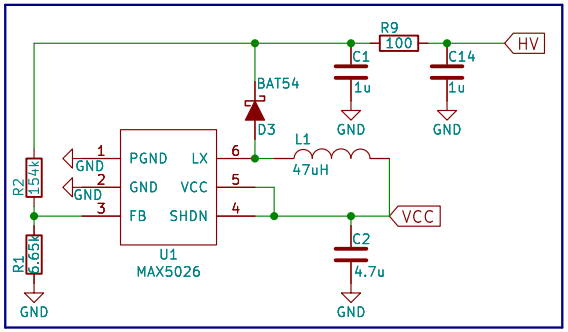
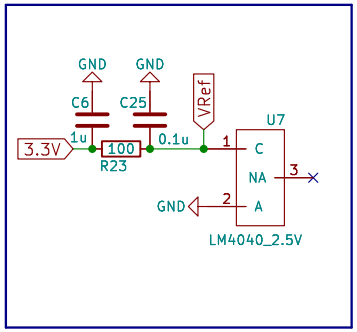
DC–DC Booster

This circuit takes the VCC line, and increases the voltage to +30V.
This HV line is used to provide the reverse bias to the SiPM.

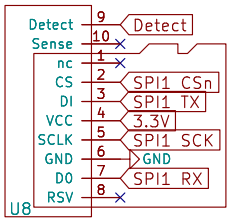


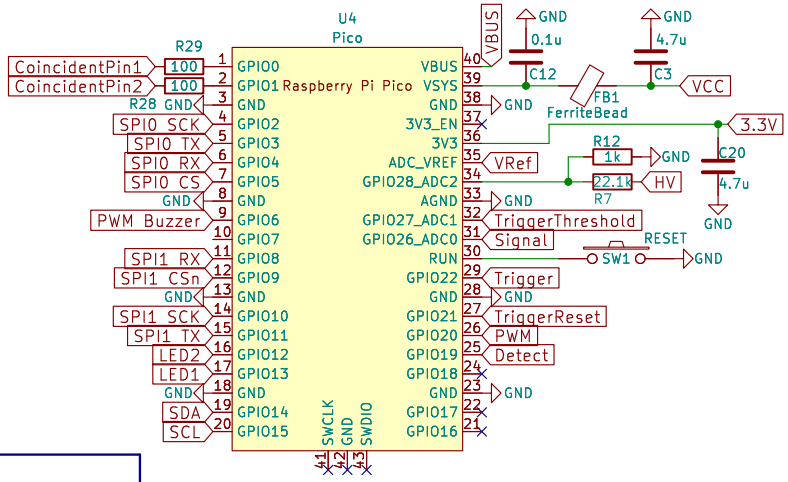
Biasing and reference circuit

Voltage bias for ADC reference and op amp inputs.



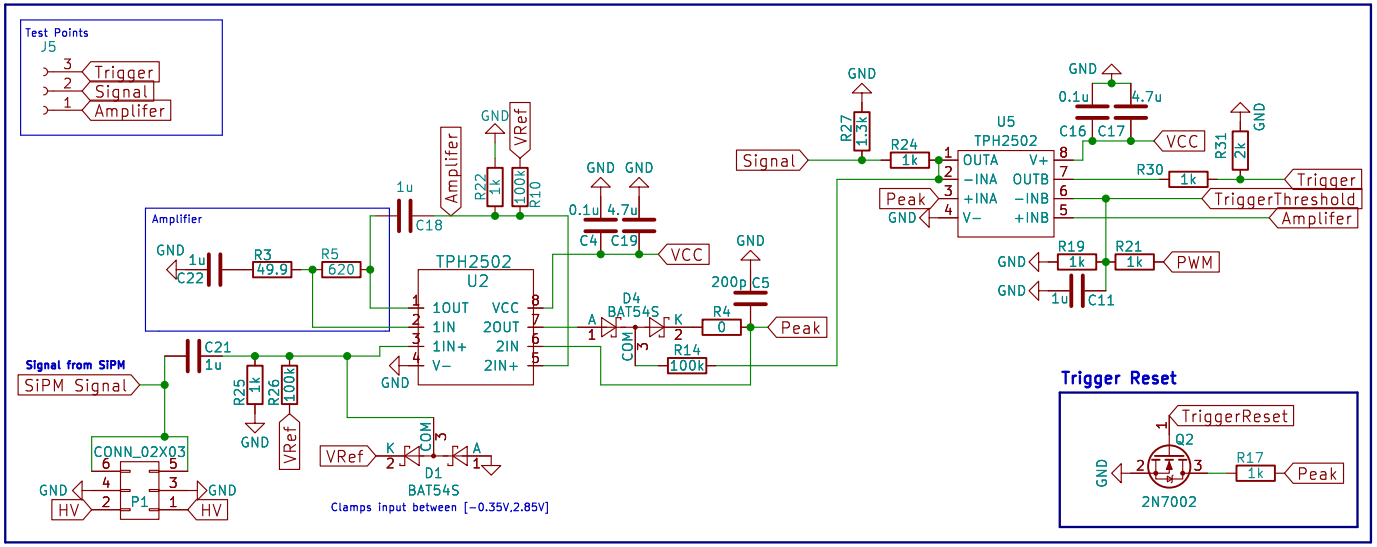
SD Card Socket





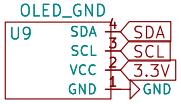
Amplifying, Triggering, and Peak Detecting circuits

The SiPM pulse is amplified and then peak detected. The amplified pulse also feeds a comparator circuit to trigger the detector readout.

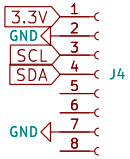


Trigger Reset

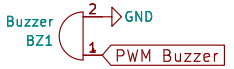
OLED



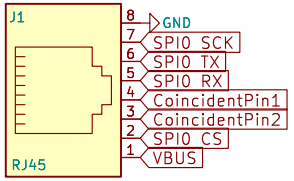
BMP280 Temp/Press & MPU–6050 Accel/Gyro



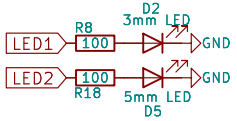
Buzzer



Coincidence Connection

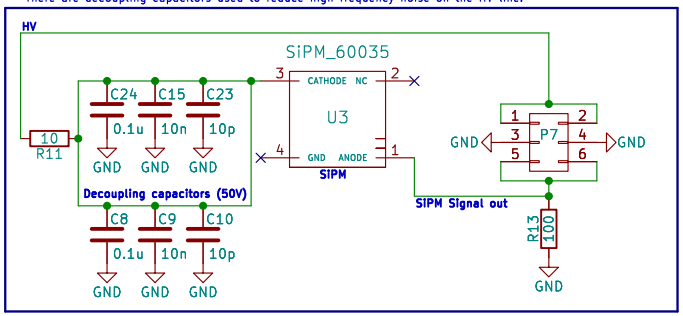


LEDs

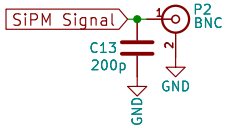


SiPM Circuit

Here, we are biasing the SiPM with the HV voltage (30V).
There are decoupling capacitors used to reduce high frequency noise on the HV line.



BNC Output



University of Delaware

Sheet: /
File: CosmicWatch.kicad_sch

Title: CosmicWatch: The Desktop Muon Detector

Size: A4	Date: March 2024	**Rev: v2.1**
KiCad E.D.A. 9.0.2		Id: 1/1