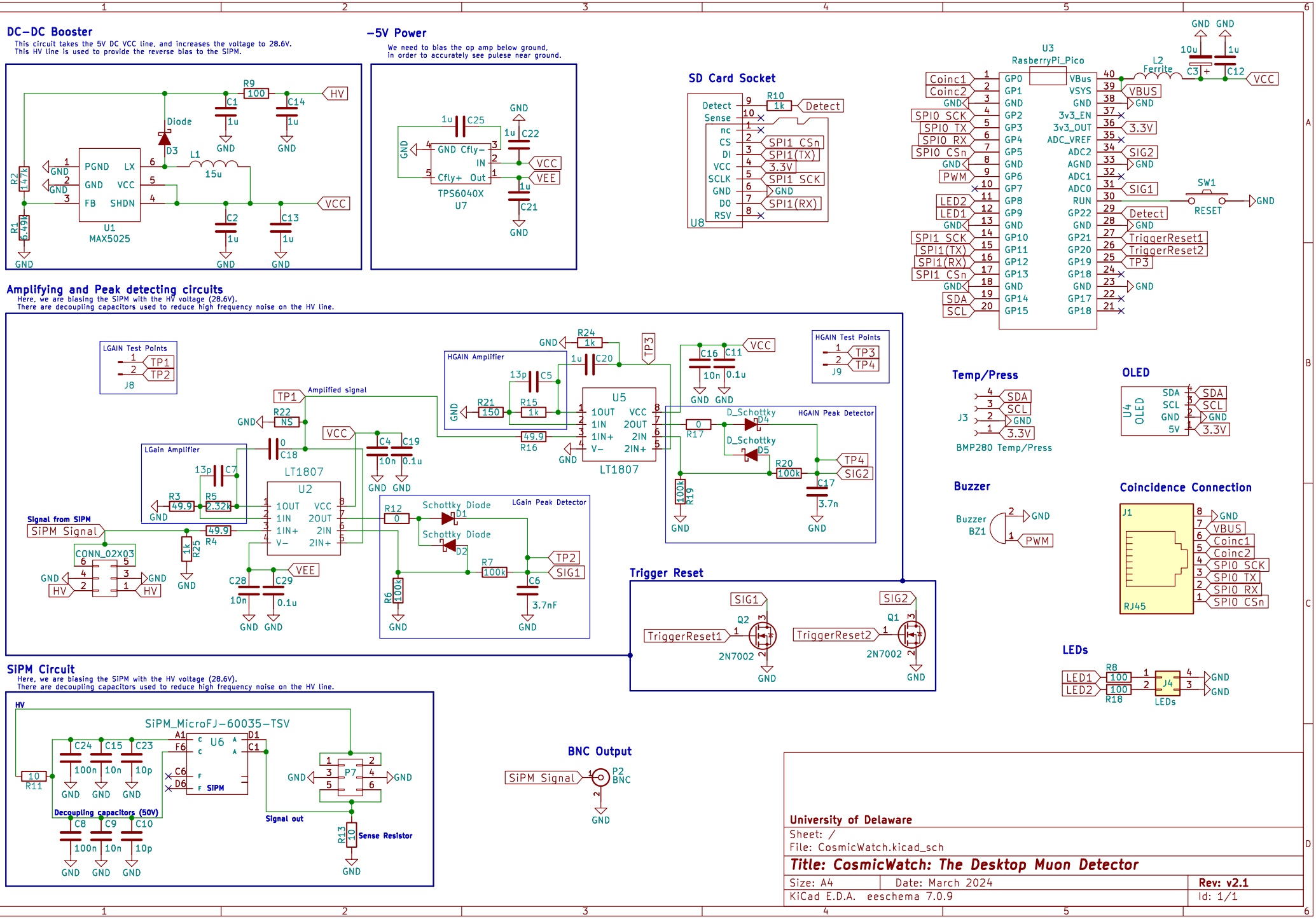
DC–DC Booster
This circuit takes the 5V DC VCC line, and increases the voltage to 28.6V.
This HV line is used to provide the reverse bias to the SiPM.
U1
MAX5025
–5V Power
We need to bias the op amp below ground,
in order to accurately see pulese near ground.
TPS6040X
U7
SD Card Socket
U8
U3
RasberryPi_Pico
L2
Ferrite
SW1
RESET
Amplifying and Peak detecting circuits
Here, we are biasing the SiPM with the HV voltage (28.6V).
There are decoupling capacitors used to reduce high frequency noise on the HV line.
LGAIN Test Points
HGAIN Test Points
HGAIN Amplifier
HGAIN Peak Detector
LGain Amplifier
LGain Peak Detector
LT1807
Amplified signal
Signal from SiPM
Schottky Diode
Temp/Press
BMP280 Temp/Press
OLED
Buzzer
Coincidence Connection
RJ45
Trigger Reset
2N7002
LEDs
SiPM Circuit
Here, we are biasing the SiPM with the HV voltage (28.6V).
There are decoupling capacitors used to reduce high frequency noise on the HV line.
SiPM_MicroFJ–60035–TSV
Decoupling capacitors (50V)
Signal out
Sense Resistor
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. eeschema 7.0.9
Id: 1/1