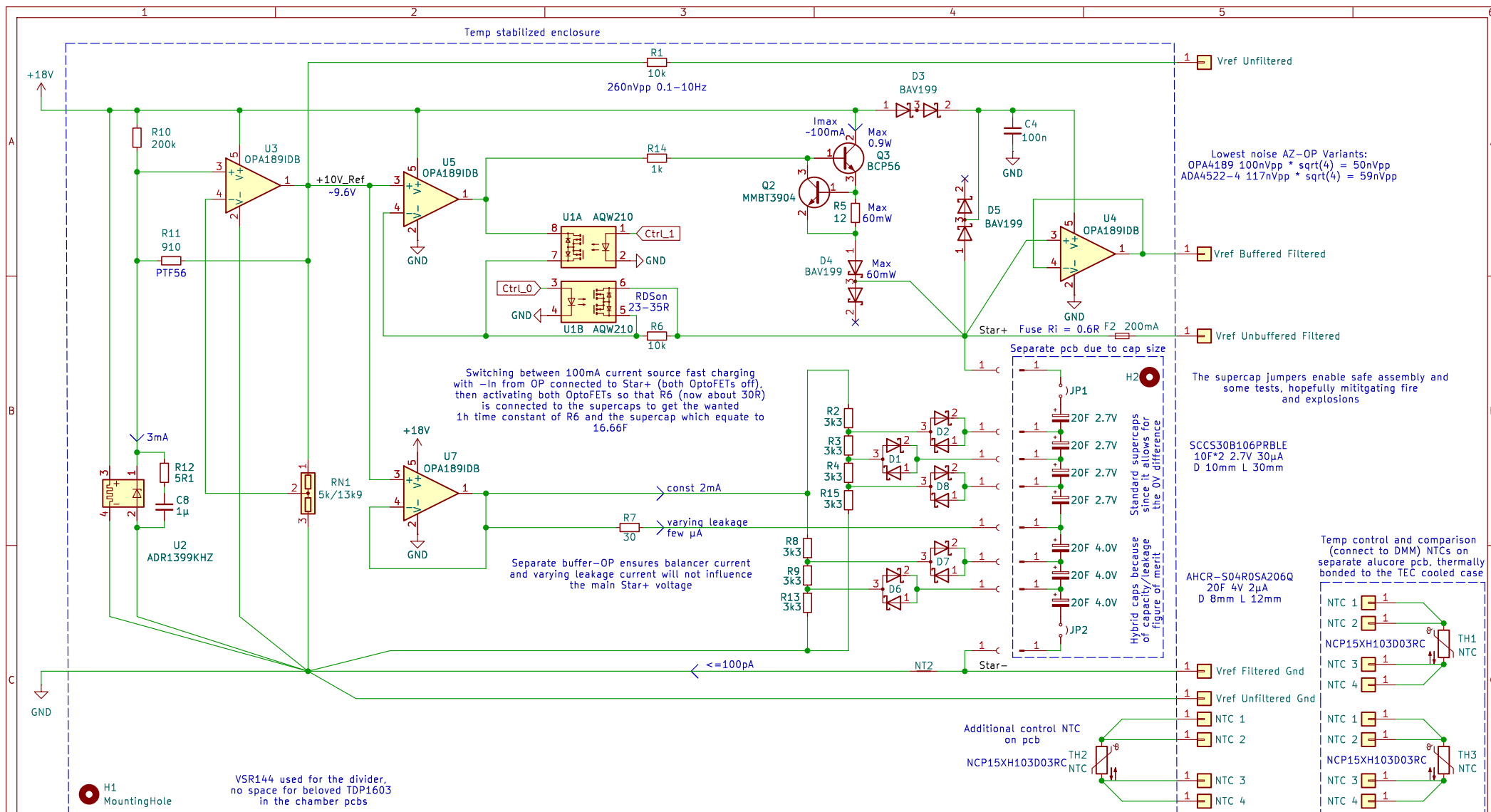


D4 ensures that no leakage flows through R14, Q3 to ensure no erroneous voltage drops over R6 when the slow RC feedback is active



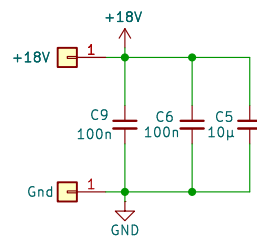
D3,D5 deal against the problem that the supercaps are always at least charged to about 7.5V (Lithium Hybrid), which produces problems when the pcb isnt powered with its 18V supply.
D3 protects against reverse current from the supercaps into U5,U3 and ADR1399 when +18V are missing
D5 allows the supercaps to power U1 (some -6mA) when +18V are missing, since i cant use current limiting resistors in the super cap U1 -In connection due to the introduced resistor thermal noise ($4k = 4nV/\sqrt{\text{Hz}}$)
R17 limits any current into U5 -In when the +-In differential voltage is $> 0.4V$ (shouldnt be relevant for the used OPA189 though, as it isnt using antiparallel input protection diodes)

NTC stability article: <https://tinyurl.com/4j2h8dvk>

OPA140 should be suitable as a replacement for the expensive LT1012 paired with the ADR1399 in this temp stabilized environment

Fuse datasheet: https://www.mouser.de/datasheet/2/54/sf_0402fp_f-1397626.pdf

OPA4189 chosen for its low noise and long term stability (very low 1/f knee):
<https://www.eevblog.com/forum/metrology/low-frequency-noise-of-zero-drift-amplifiers/?action=dlattach;attach=687024>



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