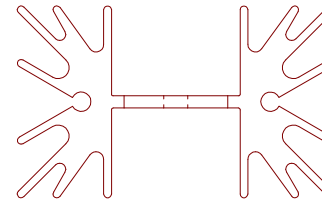
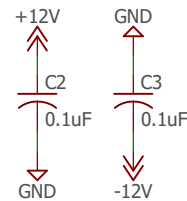


Ref Board Output: R3=R4=261k 1% for 52 Vpp, 18.455 VAC RMS
 Ctrl Board Output: R3=R4=120k 1% for 24 Vpp, 8.4853 VAC RMS

26V:11.8V = 2.20, this config is 18.455:8.4853 = 2.1749



HS1
 530002B025006
 shorter version of heatsink:
 529802B025006
 mounting kit:
 Aavid 48806

Case: MCP4802 8-bit DAC, DAC VDD = 3.3V, and gain = 1:

Code 0x00 = 1 * 2.048 * hex2dec('00') / hex2dec ('100') = 0.000 U
 Code 0x01 = 1 * 2.048 * hex2dec('01') / hex2dec ('100') = 0.008 U
 Code 0x80 = 1 * 2.048 * hex2dec('80') / hex2dec ('100') = 1.024 U
 Code 0xFF = 1 * 2.048 * hex2dec('FF') / hex2dec ('100') = 2.040 U

set dac_outa to 0x80 for 1.024 volt offset
 use dac_outb range from 0x01 to 0xff for output voltage range from 0.008 to 2.040 volts
 that should cause an output from 0.008-1.024 = -1.016 volts to 2.040-1.025 = +1.016 volts

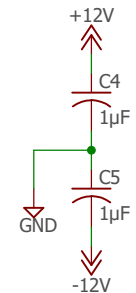
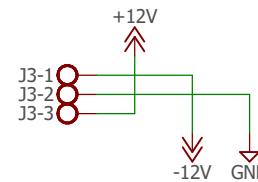
R3 and R4 can be increased to increase gain and thus output voltage. For example:
 R3=R4=220k, R1=R2=10k: output range increases to 22 * +/-1.016 = -22.352 to 22.352.
 This is 22.352/sqrt(2) = 15.805 RMS VAC.

Use SPI Mode 0:
 CPOL = 0
 CPHA = 0
 DAC will run from 3.3 or 5 V
 VIH is 0.7 V x VDD

At 5V with MCP4822 12-bit DAC:
 Vref = 2.048V, Gain = 2
 Voutmax = 2 * 2.048 * 0xFFF / 0x1000 =
 2 * 2.048 * 4095 / 4096 = 4.0950V

At 3.3V with MCP4822 12-bit DAC:
 Vref = 2.048V, Gain = 1
 Voutmax = 1 * 2.048 * 0xFFF / 0x1000 =
 1 * 2.048 * 4095 / 4096 = 2.0475V

heat sink outline from <https://grabcad.com/library/heat-sink-22>
 modified to have correct spacing between pins per aavid datasheet



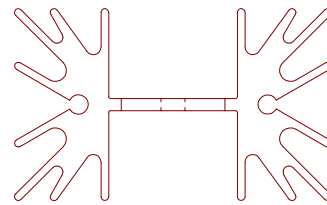
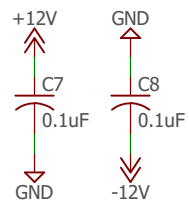
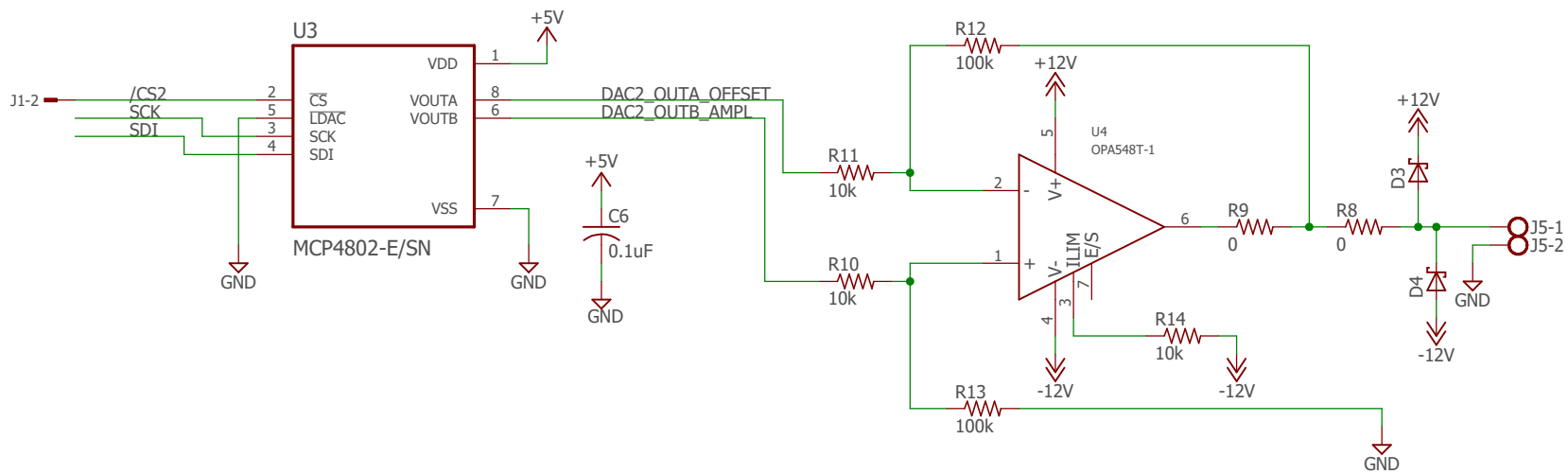
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HS2
 530002B02500G
 shorter version of heatsink:
 529002B02500G

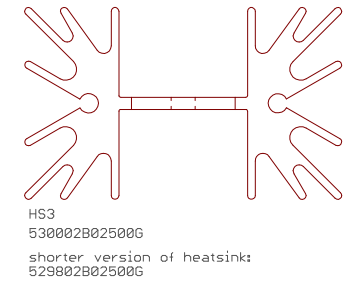
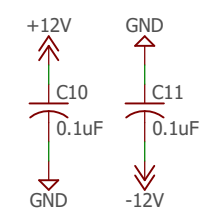
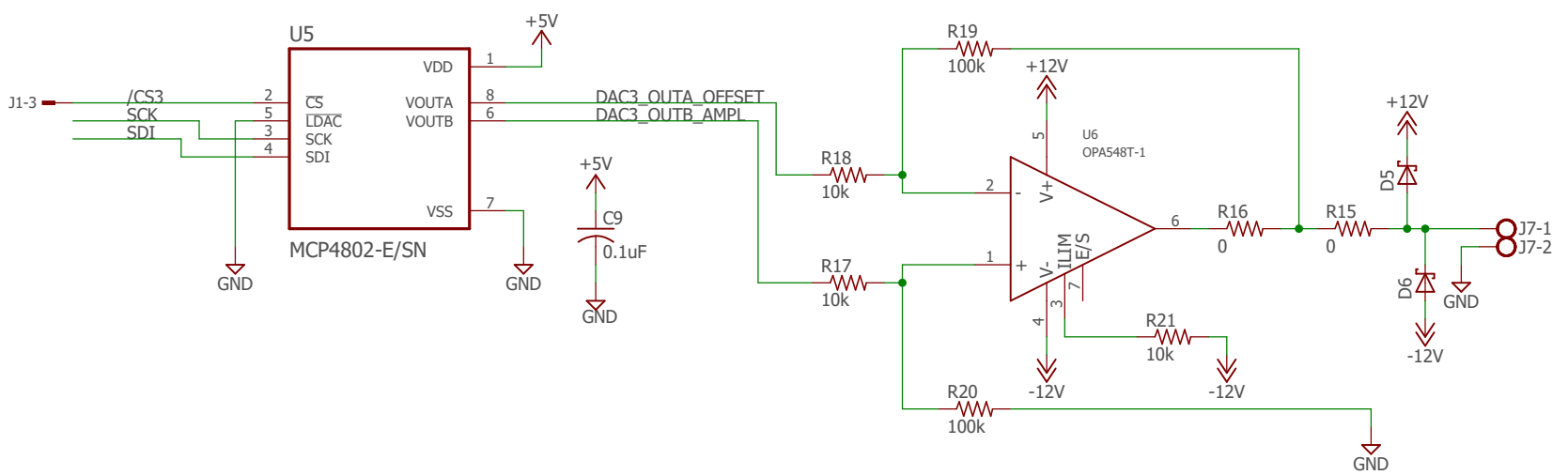
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