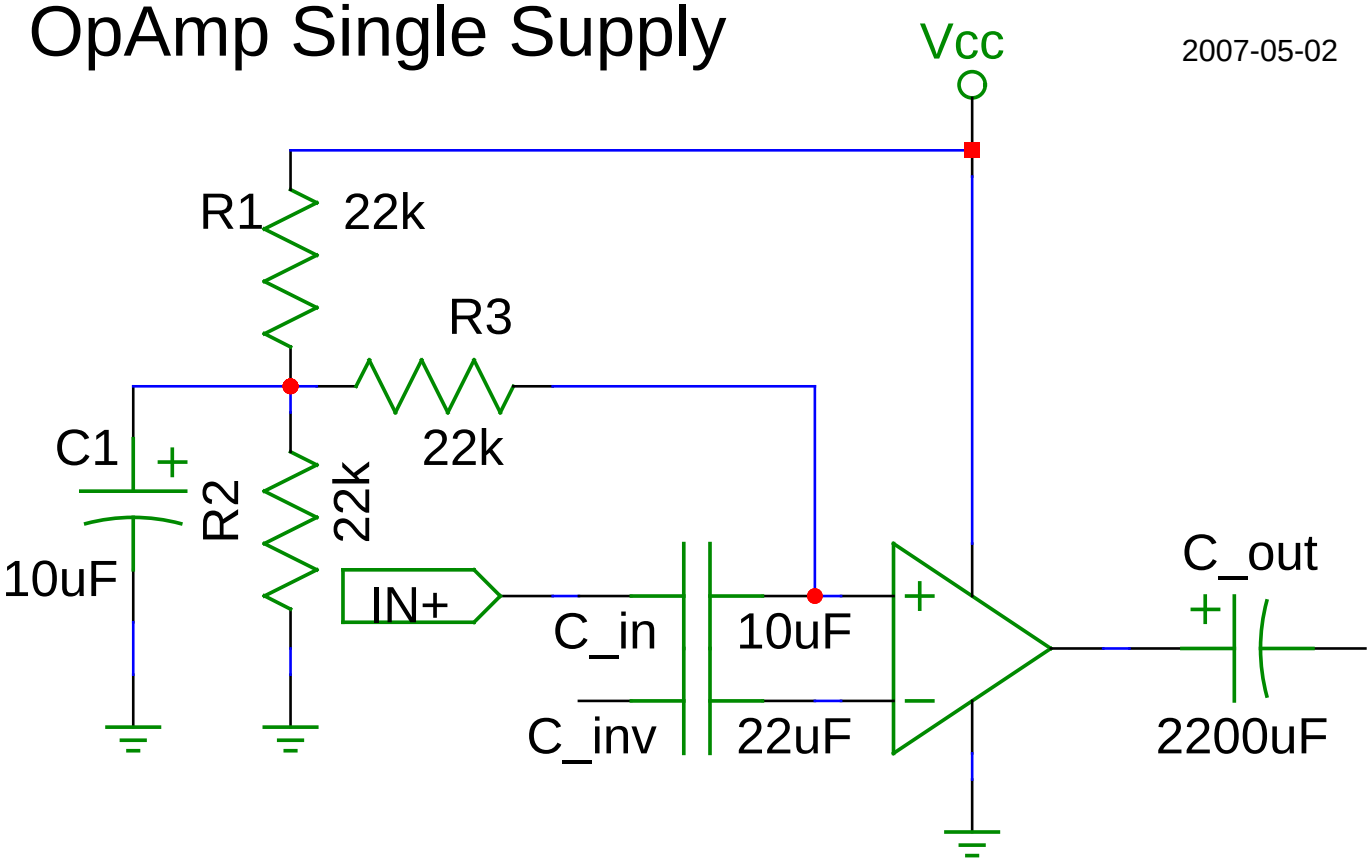
OpAmp Single Supply



This is a voltage divider to raise up the signal input to 1/2 Vcc to allow for the negative signal swing while still keeping the signal positive and above the rail. Be warned that most op-amps cannot go rail to rail.

C_in is intput DC signal decoupling and blocks the DC bias from going backwards into the signal source.

C_inv is inverting input DC feedback decoupling and removes DC offset and prevents the DC bias from being removed by CMRR. If the design allows for it, start the feedback loop after C_out; C_inv may be eliminated.

C_out blocks the DC in the amplified signal and needs to be sufficiently large (1-4.7mF for power amps, 10-47uF for signal) to remove 1/2 Vcc. Large electrolytics aren't the best to pass signals through because of uneven frequency response. BlackGates handle this phasing better.

The power supply must be absolutely quiet and regulated or it will introduce more noise into the amplifier.

The divider forms a low pass filter for the Vss line:

freq = 1 / (2*Pi * C1 * (R1||R2))