

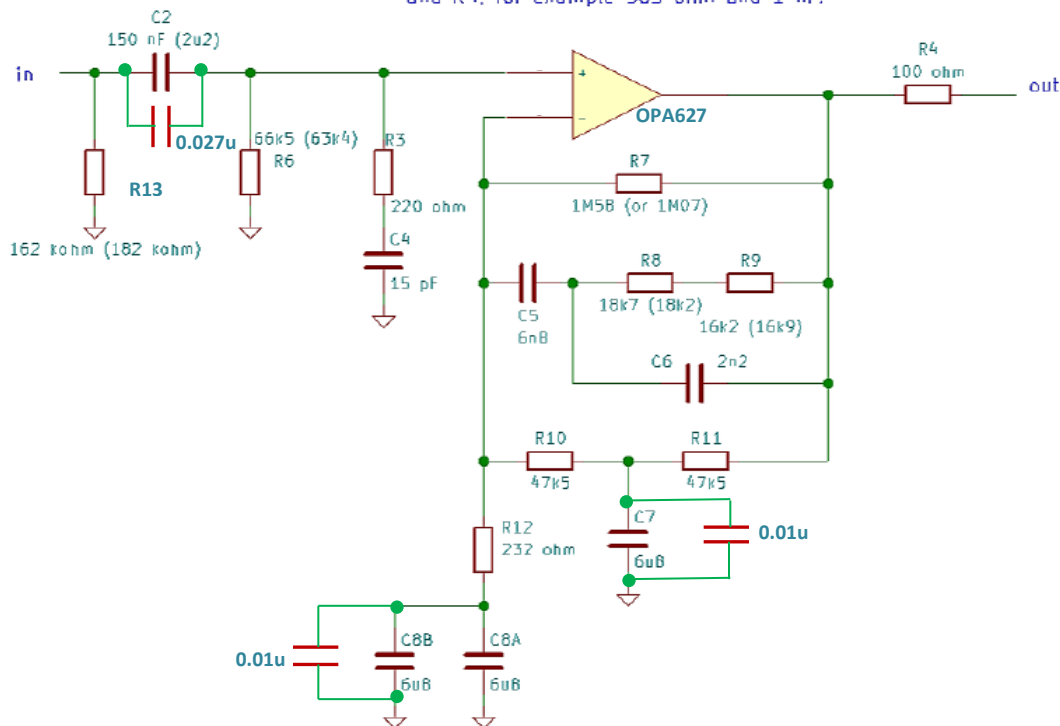
Copyright Marcel vdG 3/2025: Novel RIAA phono EQ design for 4 – 5mV moving magnet cartridge with choice of 2nd or 3rd order, 16Hz high-pass sub-sonic filter requiring one single op-amp stage.

R3 and C4: damper for OPA1656 with a cartridge that requires a low load capacitance and a turntable with a shorting switch, see <https://www.diyaudio.com/community/threads/opa1656-phono-preamp-split-from-opa1656-thread.377331/> particularly posts 1, 16, 140 and 141.

R0, C2, R6, R7, R8 and R9:
values in parenthesis for a second-order roll-off below 16 Hz,
values outside parenthesis for third-order roll-off below 16 Hz

For the third-order version, the response below 1.1 Hz can be made a little closer to an ideal third-order Butterworth response by adding an AC coupling with a time constant of roughly 141.9 ms at the output.

The response above 416 kHz can be improved with an extra first-order low-pass with 382.3 ns time constant between the op-amp output and R4, for example 383 ohm and 1 nF.



Theoretical ideal value for R12, rounded to 10 digits: 233.8235294 ohm

NOTE: 46dB gain and small bypasses for MKS2 - C2 (PolyS), C7 (FKP2) and C8A and B (PolyS) added for and by JRA, resp. for personal prototype.