

Active filter and ADC drive

OPA192

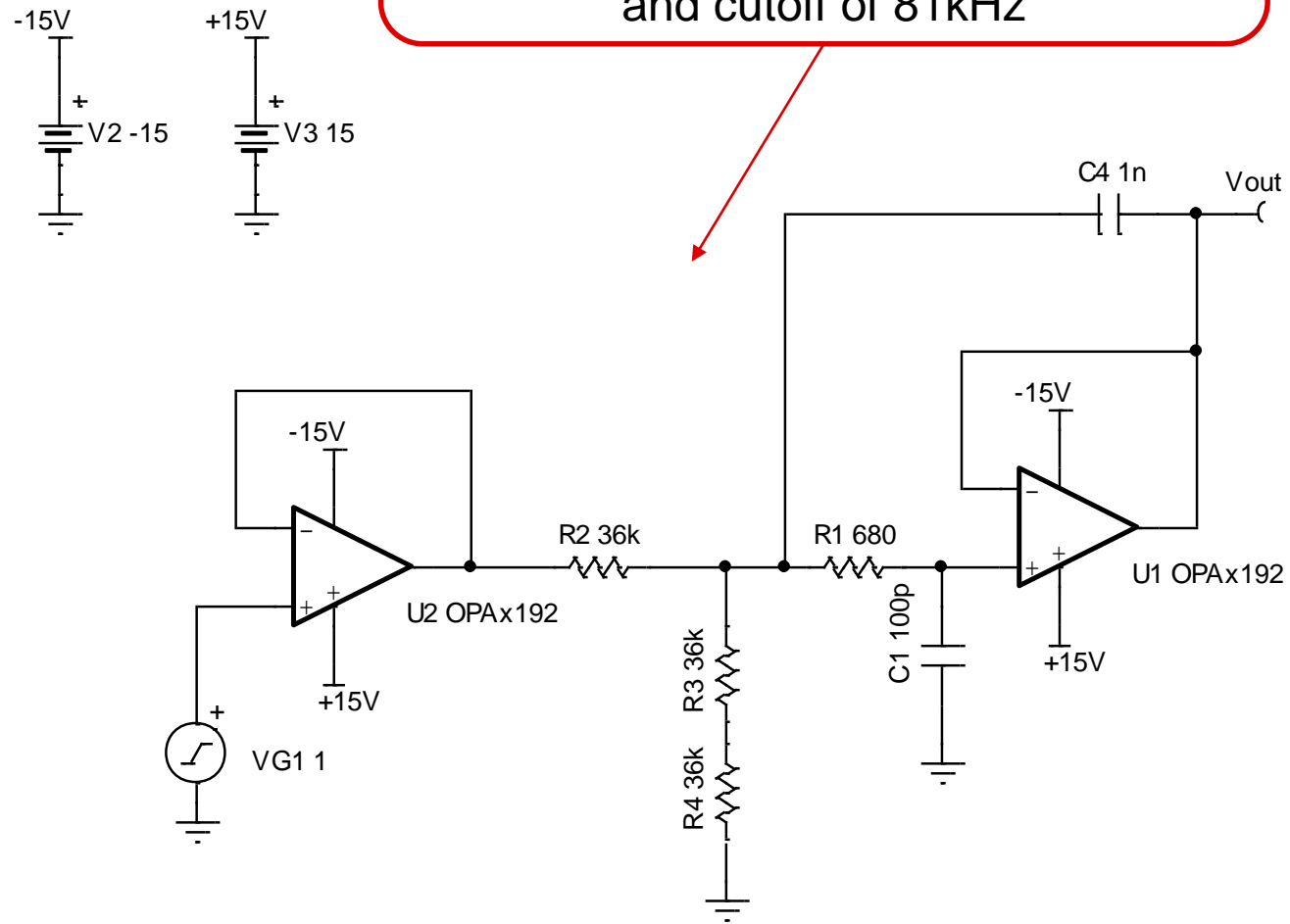
Art Kay

2-16-2024



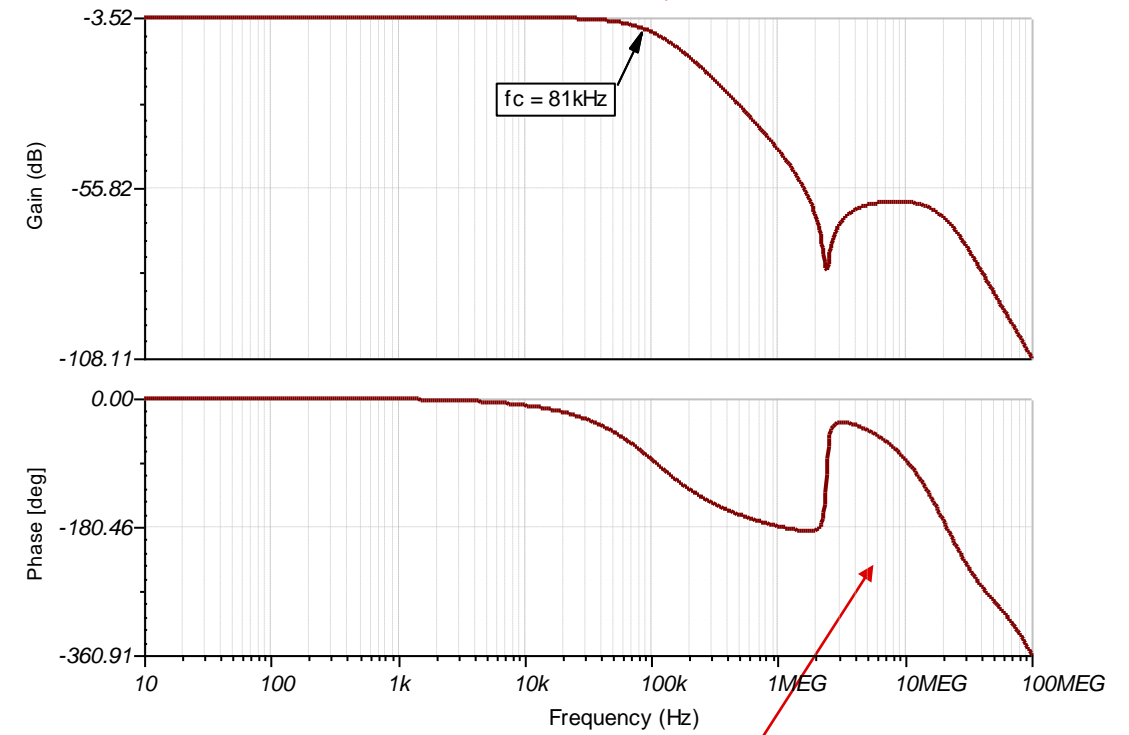
Original circuit

This topology is not familiar to me. I think you are trying to implement an active filter with an attenuation of 0.667 and cutoff of 81kHz



DC attenuation of -3.52dB or 0.667

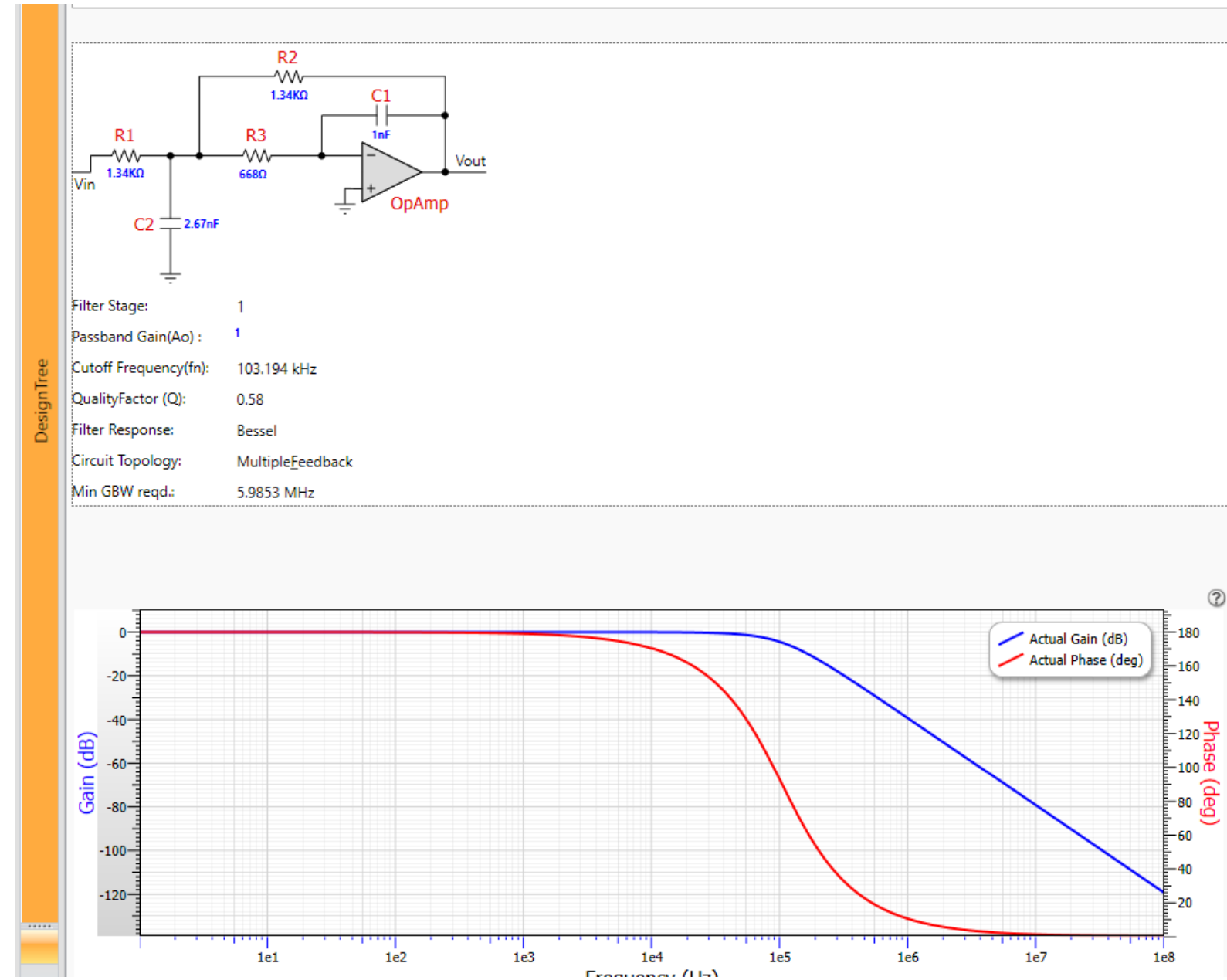
Fc = 81kHz



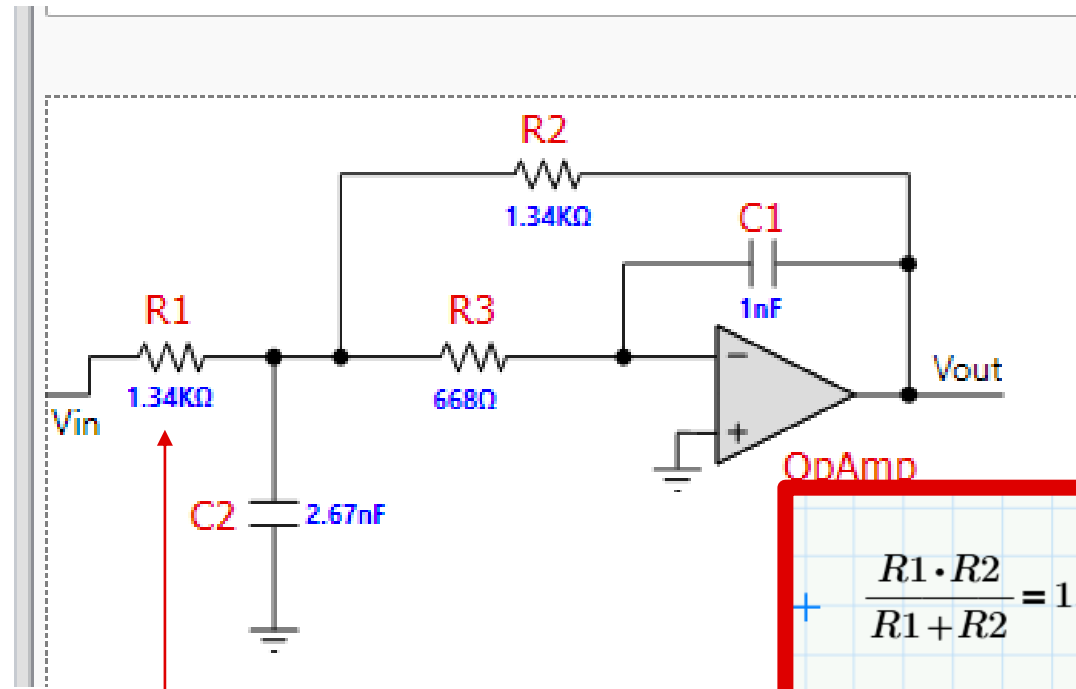
The abrupt change in phase indicates Instability / resonance

Use filter designer (on TI.com)

- 2nd order
- Multiple feedback
- Low pass filter
- Bessel
- $F_c = 81\text{kHz}$

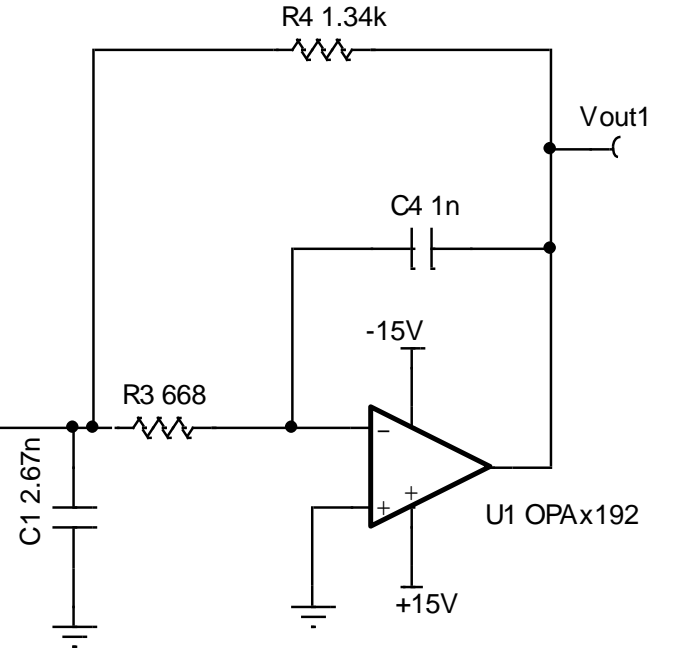
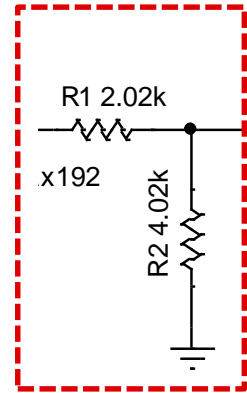


Implement in TINA



$$\frac{R1 \cdot R2}{R1 + R2} = 1.34$$
$$R2 = 2 \cdot R1$$
$$\frac{R1 \cdot 2 \cdot R1}{R1 + 2 \cdot R1} = 1.34 \xrightarrow{\text{solve, } R1} 2.01$$
$$R1 := 2.01$$
$$R2 := 2 \cdot R1 = 4.02$$

Need to turn this into a voltage divider



Simulate TINA

The cutoff is correct, the gain is correct, and the phase does not show a rapid transition so it looks stable.

