

Wide-tuning-range-Gm-C low pass filter for Biomedical Applications



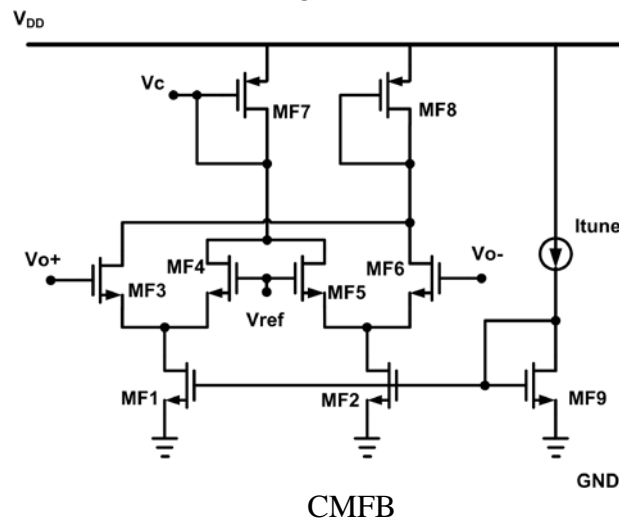
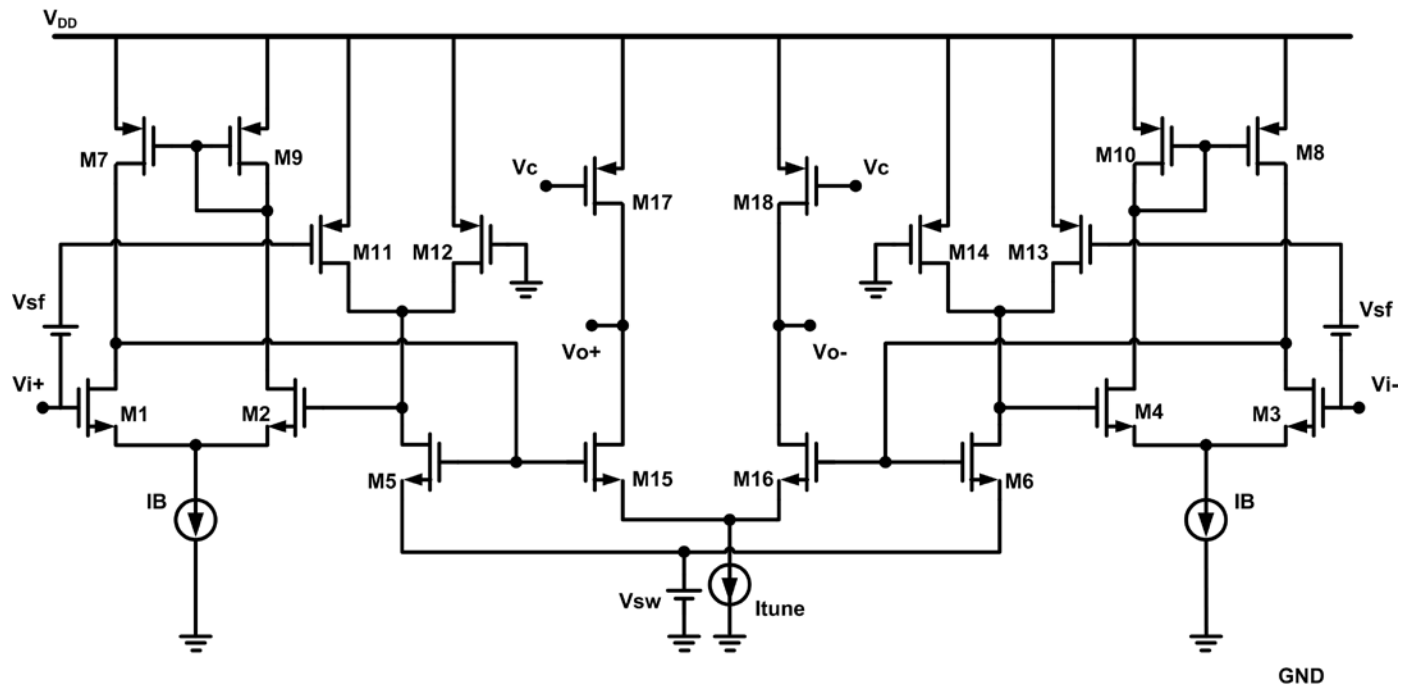
電機工程學系:許百享

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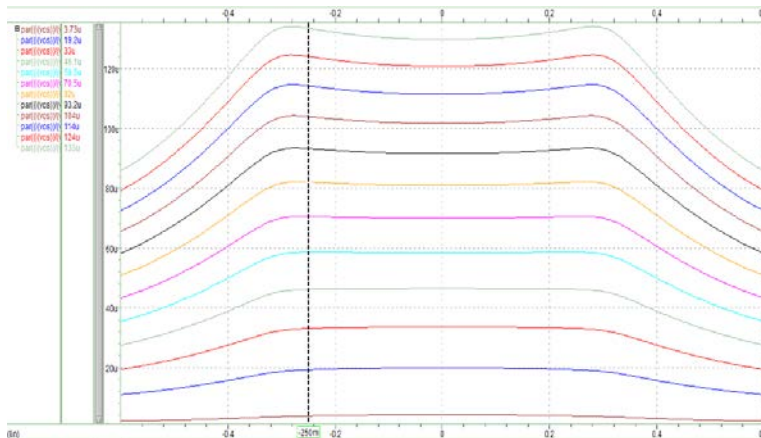
Hsinchu, Taiwan

Operation Transconductance Amplifier

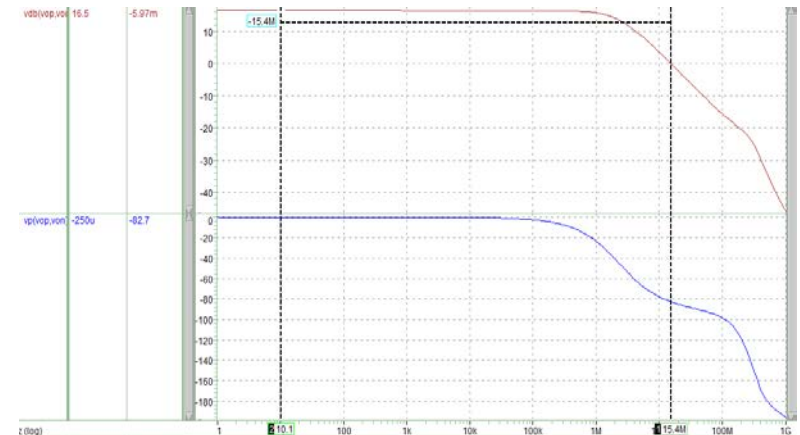


Simulation results of OTA

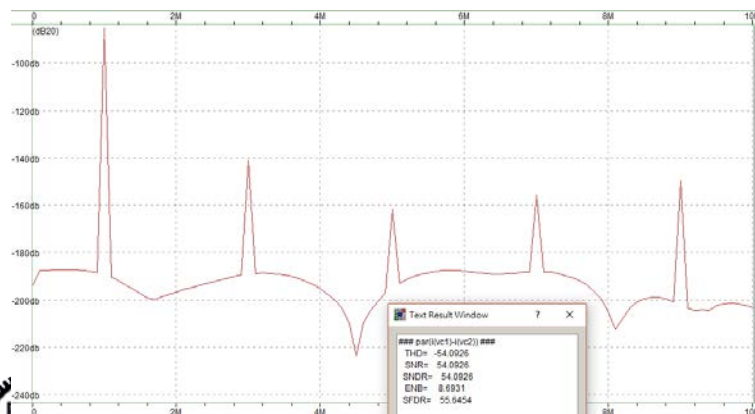
◆ Input swing of OTA



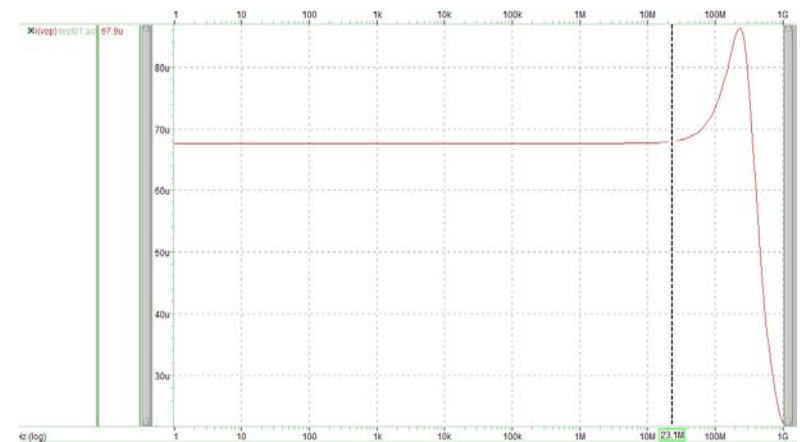
◆ Gain of OTA



◆ THD of OTA

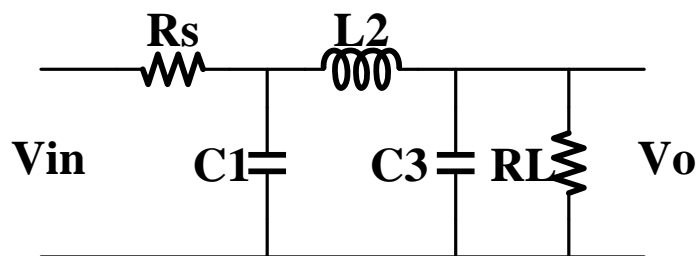


◆ Operation Freq of OTA

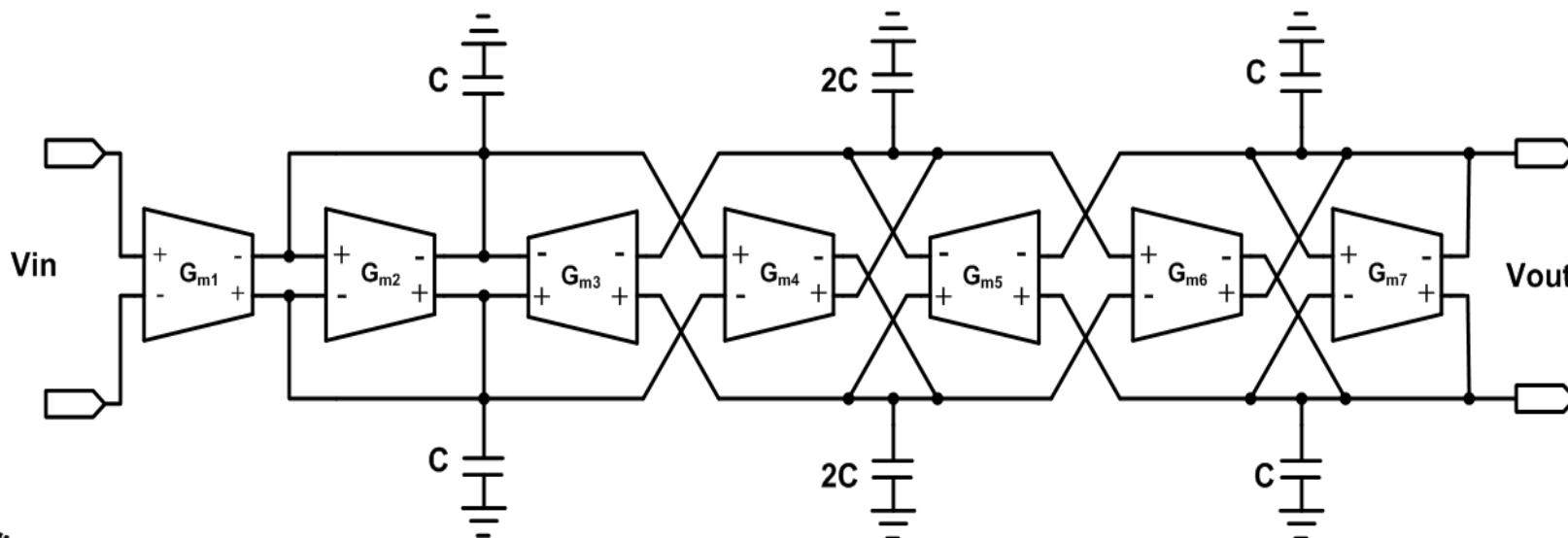


The third order Butterworth low pass filter

- ◆ The third order Butterworth low pass filter



R_s	10k
L_2	159uH
C_1	0.8p
C_3	0.8p
R_L	10k



Conclusion

This work is a programmable trans-conductance amplifier, used to construct a third order Butterworth low pass filter. Since the Butterworth has no ring, we use this advantage to filter, and the input voltage range is $1V_{pp}$ ◦

Since non-intrusive ECG measurement is easily corrupted by environmental noise sources such as electric wires, breathing, other actions or muscle movements. As a result, we can use the third order Butterworth low pass filter to filter the noise outside the bandwidth, being the front-most low noise biomedical signal circuit. And is designed programmable in order to deal with different types of biomedical signals.

