




Active Speakers and Amplifiers

COMPONENTS

-  Amplifiers
-  Active Crossover
-  Control Circuits

Active Speakers and Amplifiers

Most people own an active speaker system

 Subwoofer

 Computer Speakers

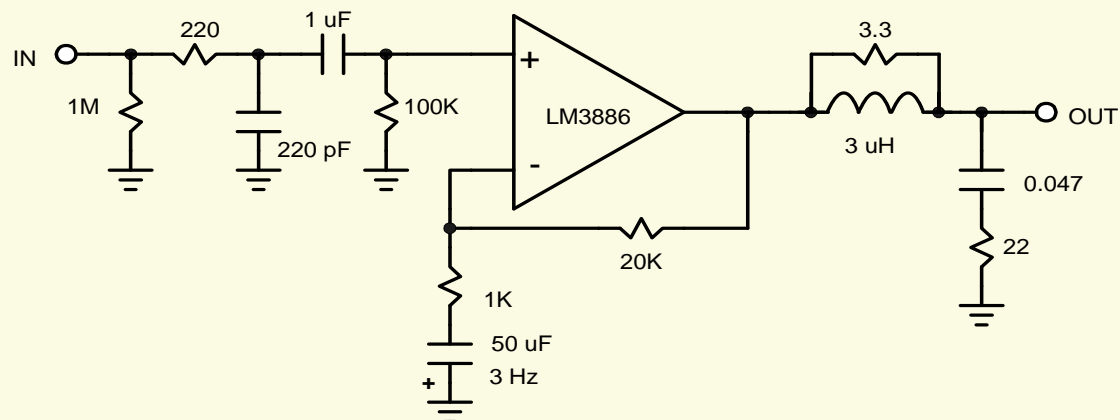
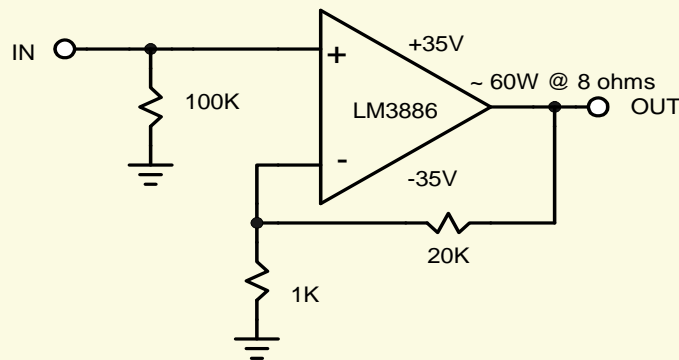
Active Speakers and Amplifiers

ADVANTAGES

- ☞ Too many to list
- ☞ Dynamic range, peak power
- ☞ Efficiency
- ☞ Small, inexpensive XO components
- ☞ Greater control of driver dynamics
- ☞ No speaker cables
- ☞ Absence of XO interactions

Active Speakers and Amplifiers

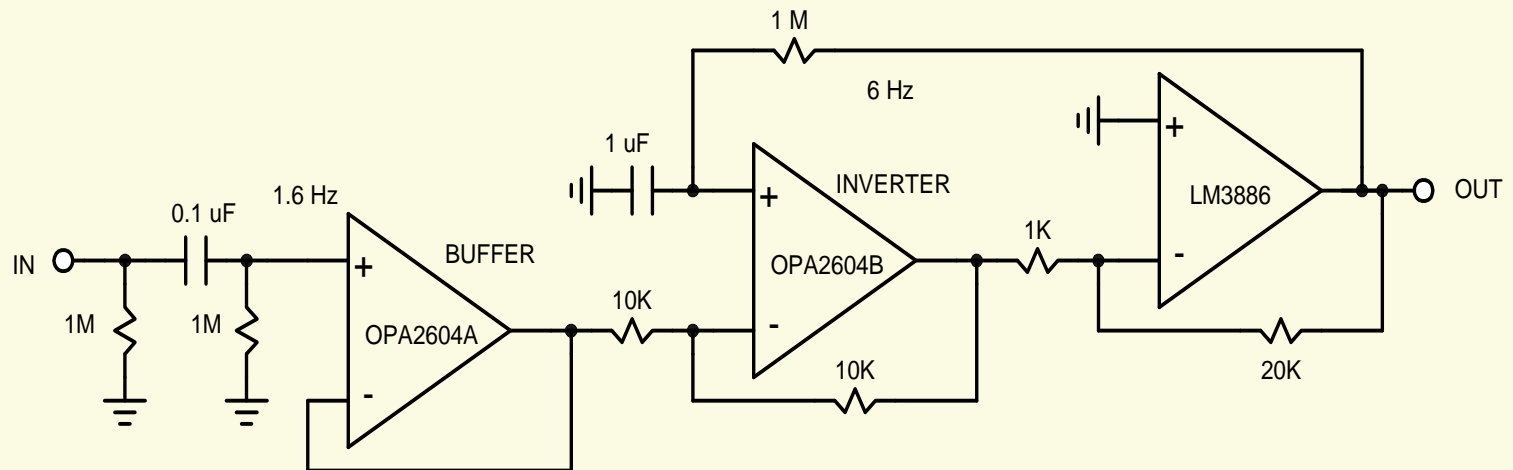
The Gain Clone



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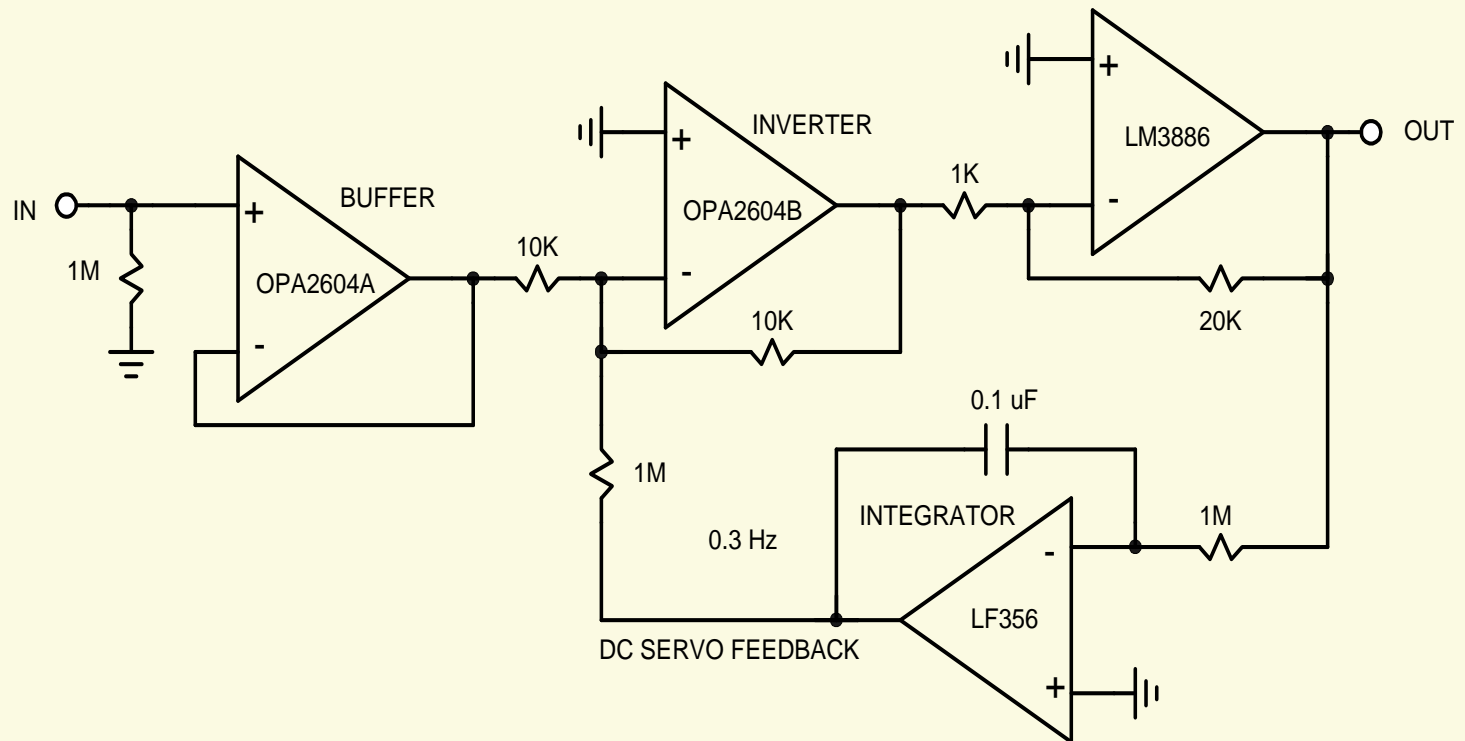
Active Speakers and Amplifiers

INVERTING GAIN CLONE WITH SMALL CAPS



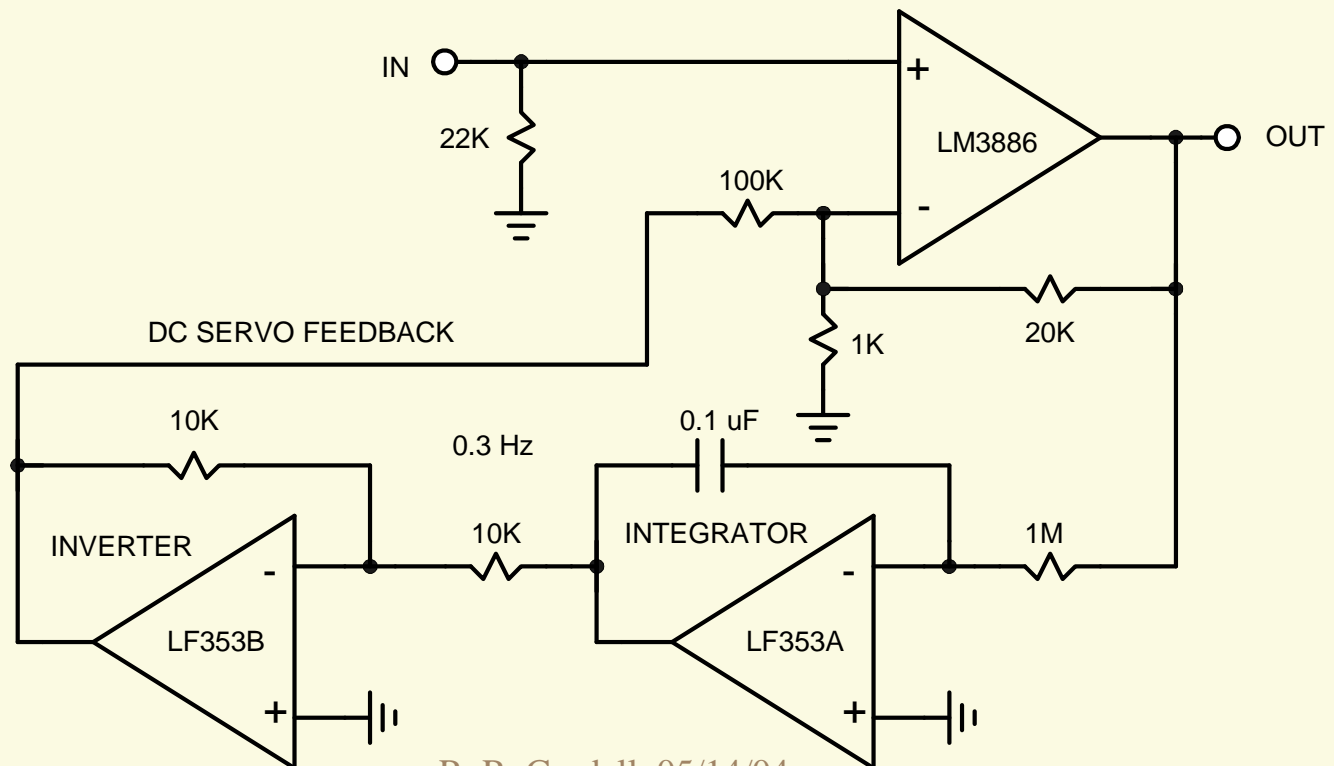
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INVERTING SUPER GAIN CLONE



Active Speakers and Amplifiers

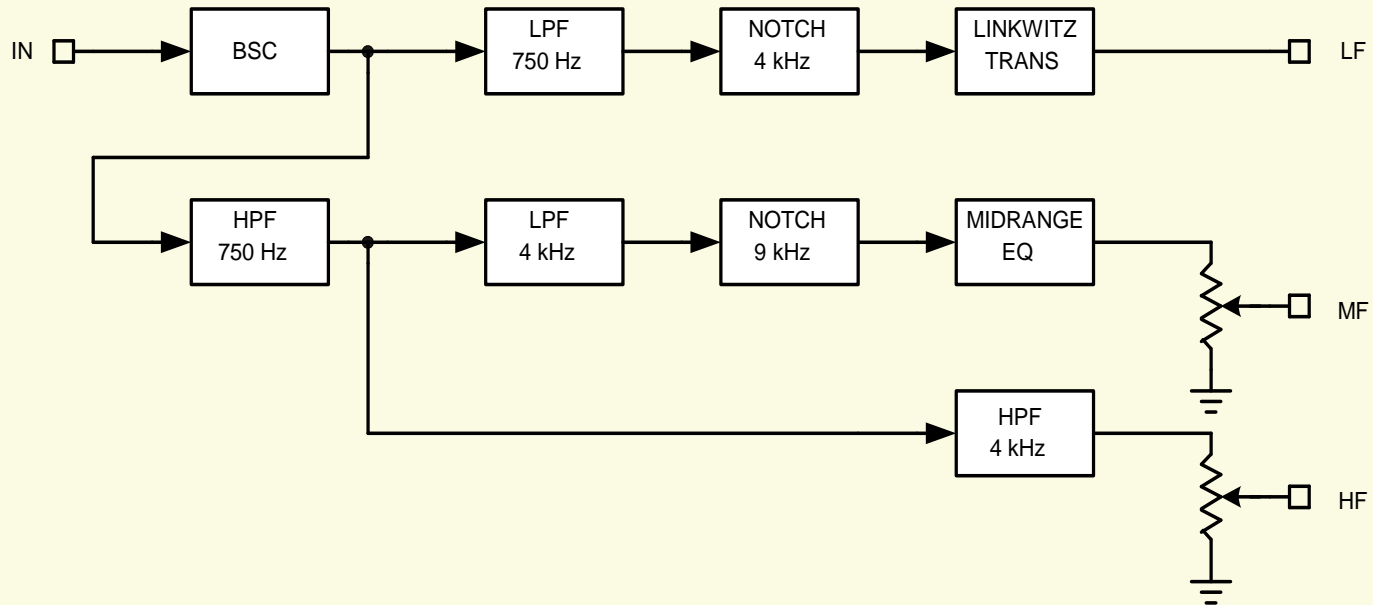
NON-INVERTING SUPER GAIN CLONE



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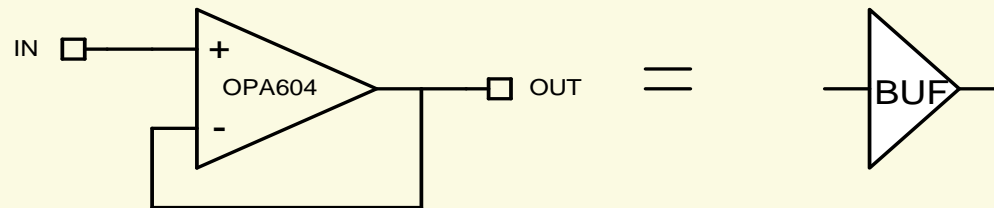
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ACTIVE CROSSOVER

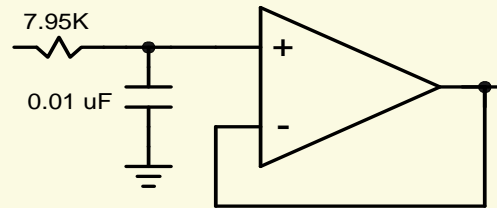


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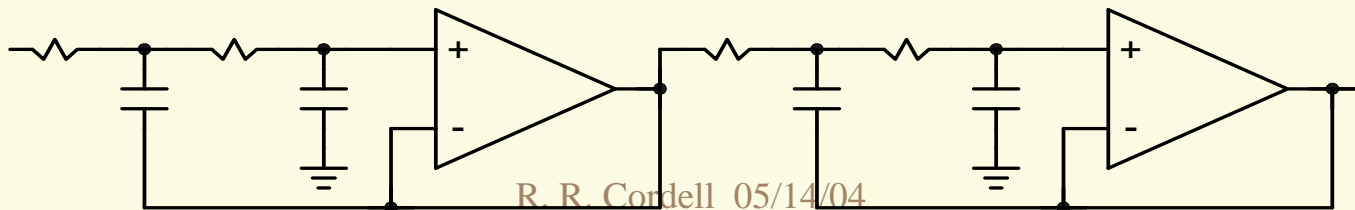
Voltage Follower Filters



2 kHz First-Order LPF



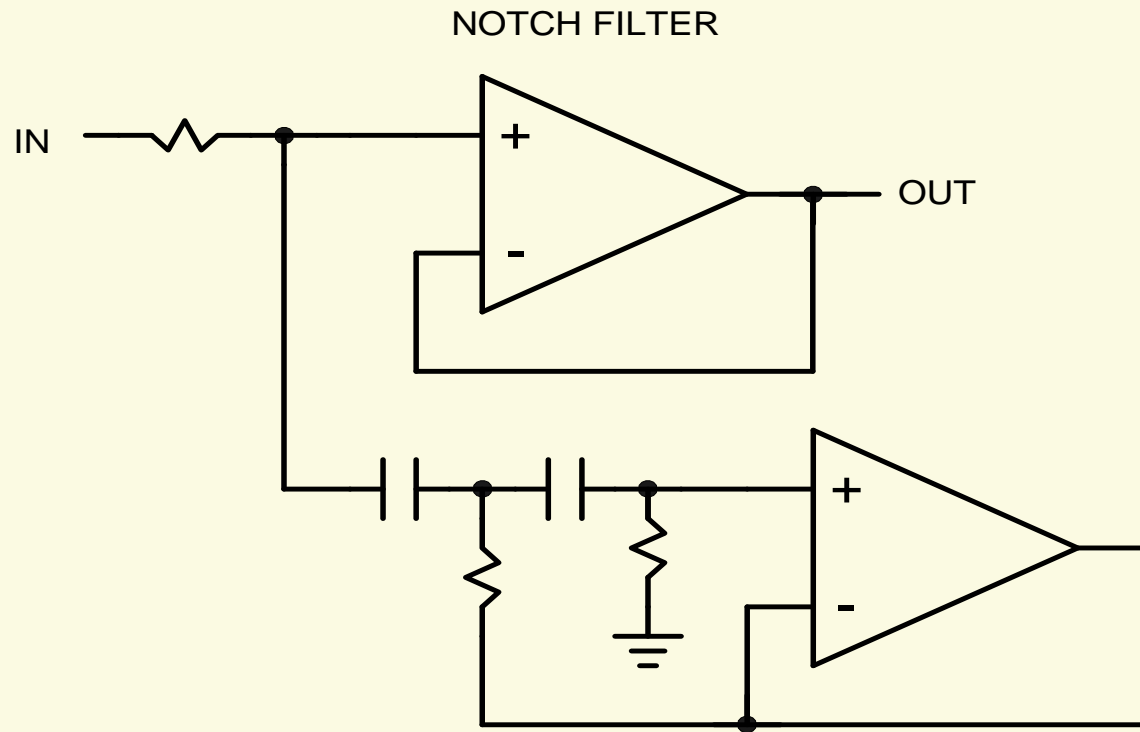
Fourth-Order L-R LPF



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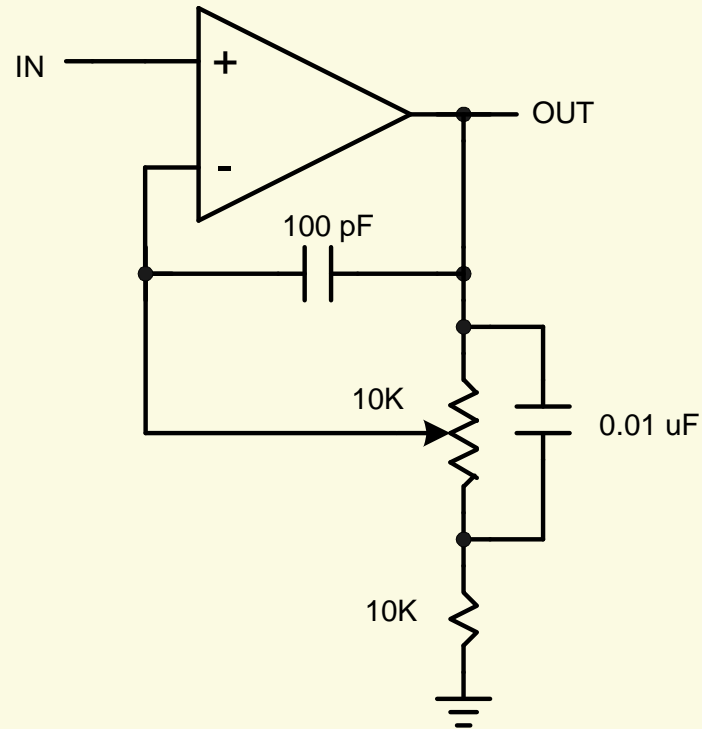
Active Speakers and Amplifiers

Voltage Follower Filters



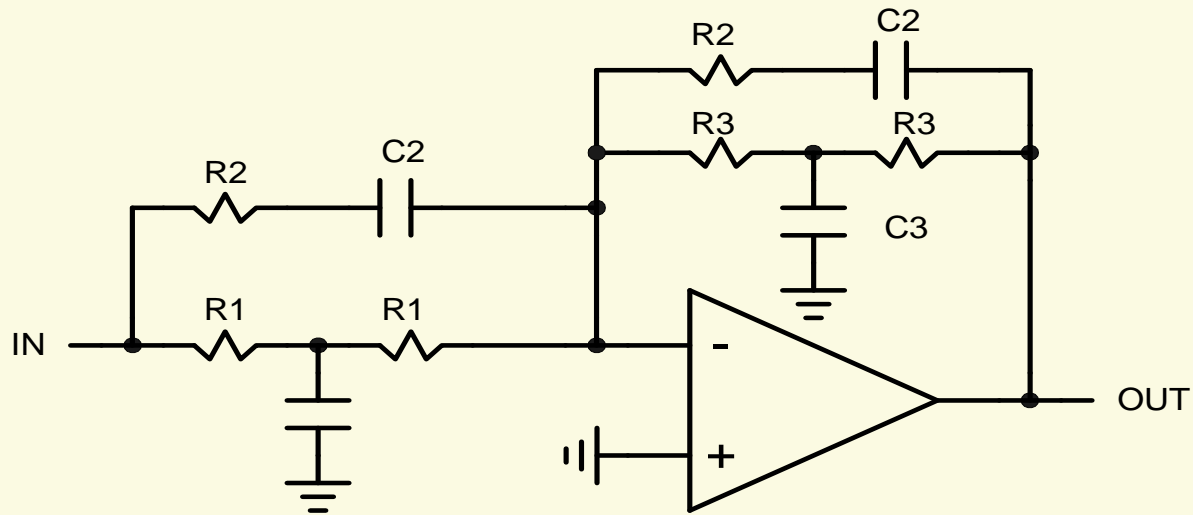
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ACTIVE BAFFLE STEP COMPENSATION



Active Speakers and Amplifiers

Linkwitz Transform



47 Hz, 0.56 \rightarrow 20 Hz, 0.6

R1 = 14K C1 = 1.0 μ F

R2 = 79K C2 = 0.056 μ F

R3 = 79K C3 = 0.18 μ F

79K R. Corden 05/14/04