



### Bi-quad Audio Notch Filter

This notch filter provides good predictability and better noise performance than the state-space approach. Three op-amps from a quad package are employed. For a notch of 3 kHz, R1 is 270k, R2-R3-R5 are 20k, R4 is 27k, R6-R8 are 10k, R7 is 100k, C1-C2 are 1n (use good quality poly or mica capacitors).

$$Q = \sqrt{\frac{R8}{R7}} \times \frac{R1C1}{\sqrt{R3C2R2C1}}, \quad f_o = \frac{1}{2\pi} \sqrt{\frac{R8}{R7}} \times \frac{1}{\sqrt{R2R3C1C2}}, \quad f_{\text{NOTCH}} = \frac{1}{2\pi} \sqrt{\frac{R6}{R3R5R7C1C2}}$$

Necessary condition for notch:  $\frac{1}{R6} = \frac{R1}{R4R7}$