

EE4306 Tutorial

Low Noise Audio Amplifier

For a land-mine detector, a detector coil with an impedance of 60Ω in series with a $463 \mu\text{H}$ is used. That coil produces a typical output voltage of 1 mV . It is required to amplify this with a gain of approximately 1000. The circuit is to operate at 1 kHz .

To minimise costs, it has been suggested that a cheap LF356 operational amplifier be used. Firstly design a suitable amplifier circuit and calculate the resulting output noise and SNR. Secondly investigate if another amplifier will give a better performance and hence calculate the output noise and SNR for that amplifier.

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5 Nov 2005