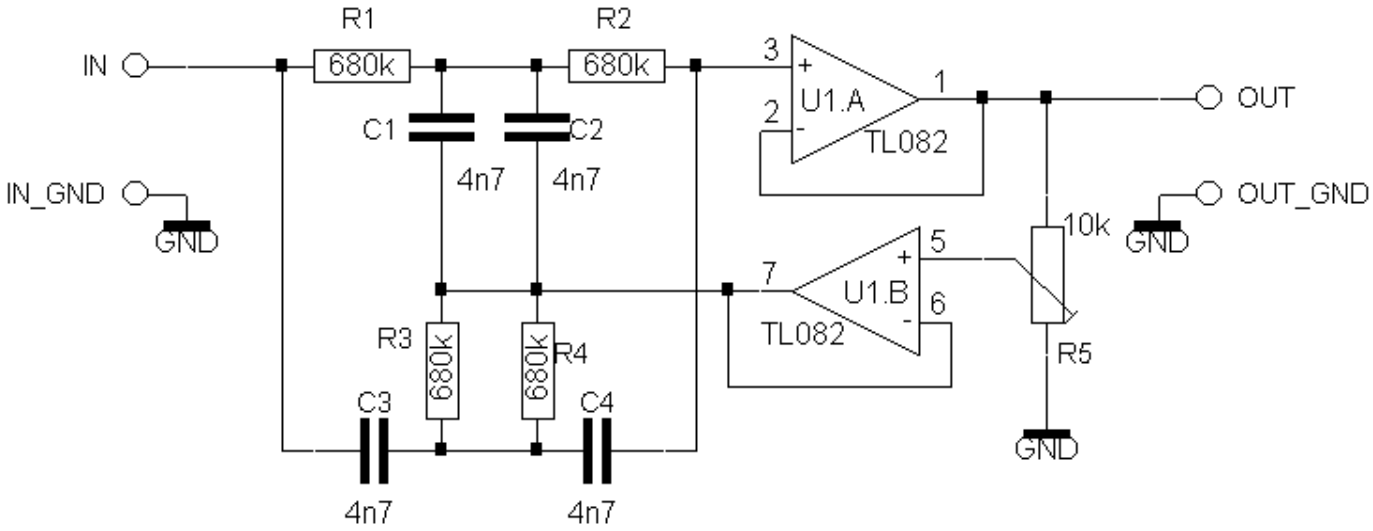
Twin T Notch Filter

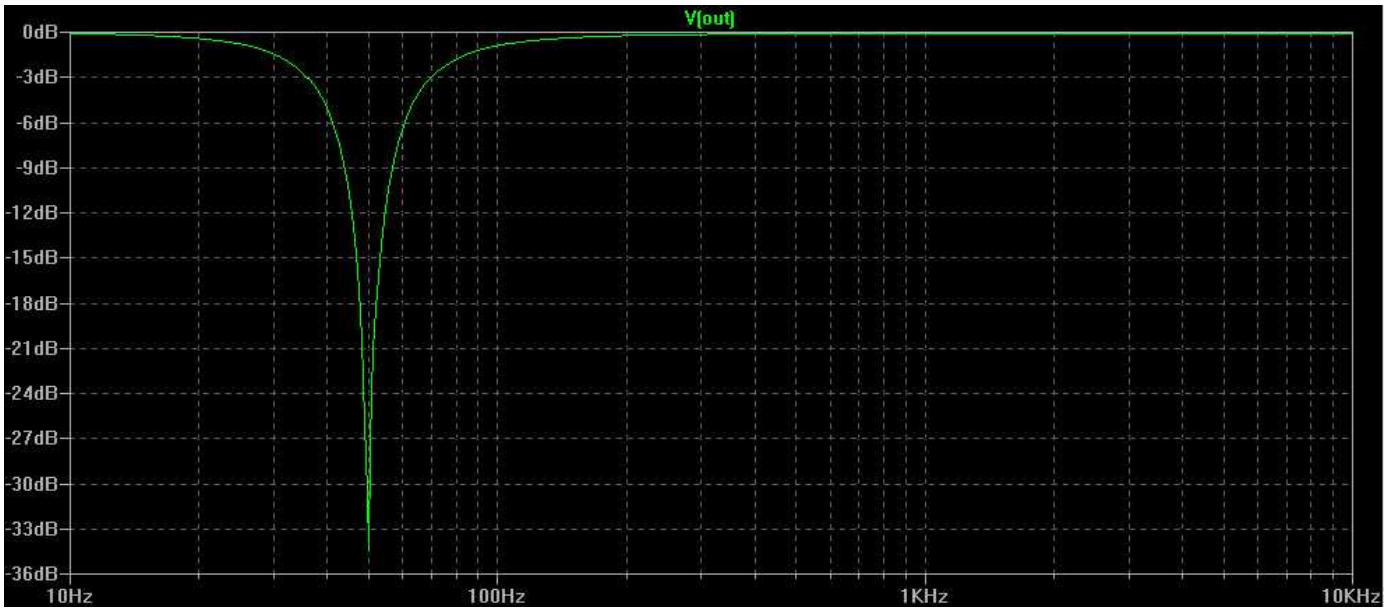
Introduction

This filter allows you to remove frequency band from a signal. In the example below, we'll design a 50Hz notch filter. This allows us to remove the 50Hz hum picked up by, say, a microphone cord. Of course, it can be easily designed for 60Hz as well.

Schematic



The schematic clearly shows why this is called a "Twin T" filter. And a quick look at its frequency response explains why it's called a notch filter:



All resistors and capacitors must have the same value. Variable resistor R5 allows us to adjust the width of the notch.

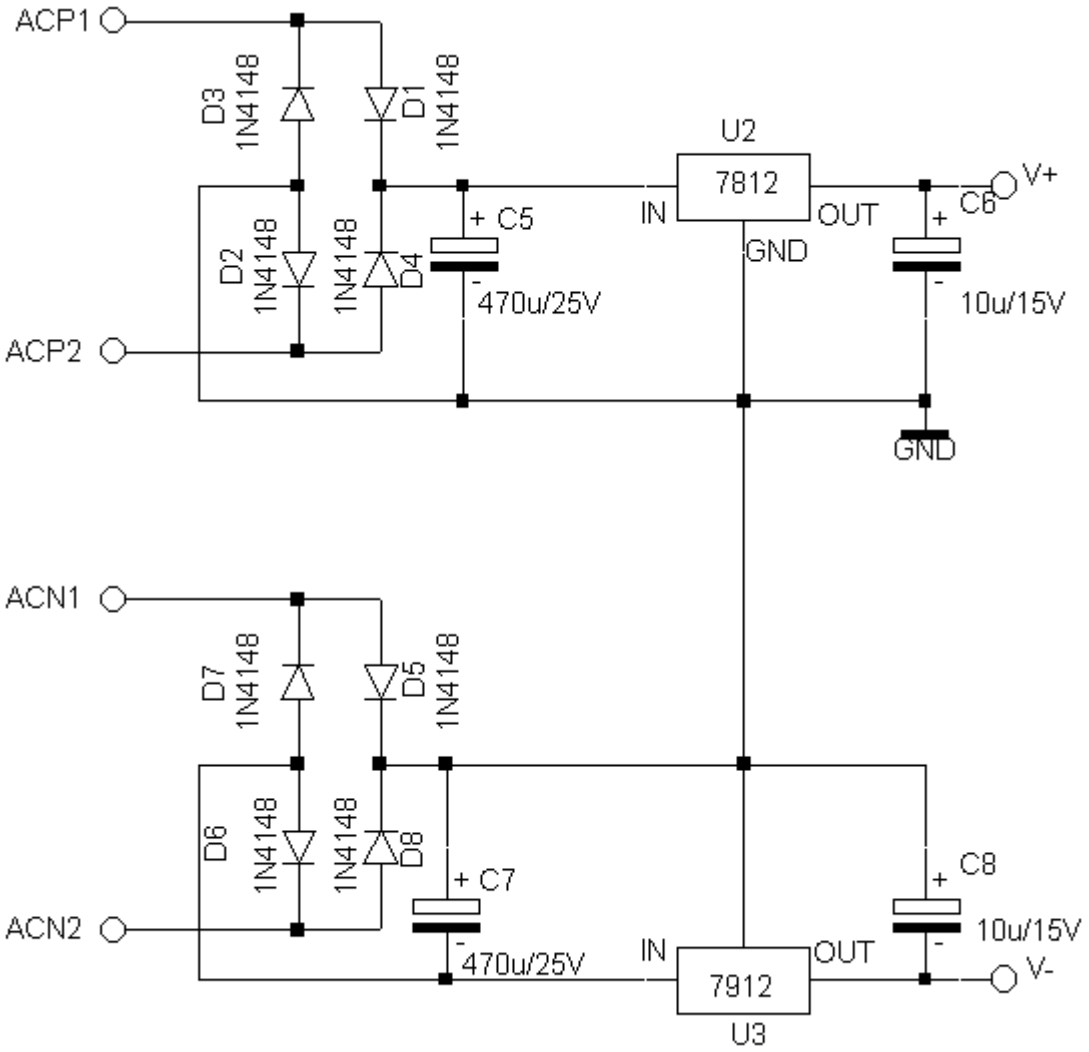
The notch frequency is: f=1/(4pRC), where R=R3//R4 (so R1=R2=2R) and C=C1=C2=C3=C4. In the schematic R=340k and C=4.7n, so f = 50Hz.

Choosing components

The schematic above shows the component values for a 50Hz filter. If you want to build a 60Hz filter, all resistors must be 270k and all capacitors 10n.

Assembly

The circuit is so small that the PCB has enough room for a simple power supply as well:



The component layout looks like this: