

ACTIVE CROSSOVER CIRCUIT

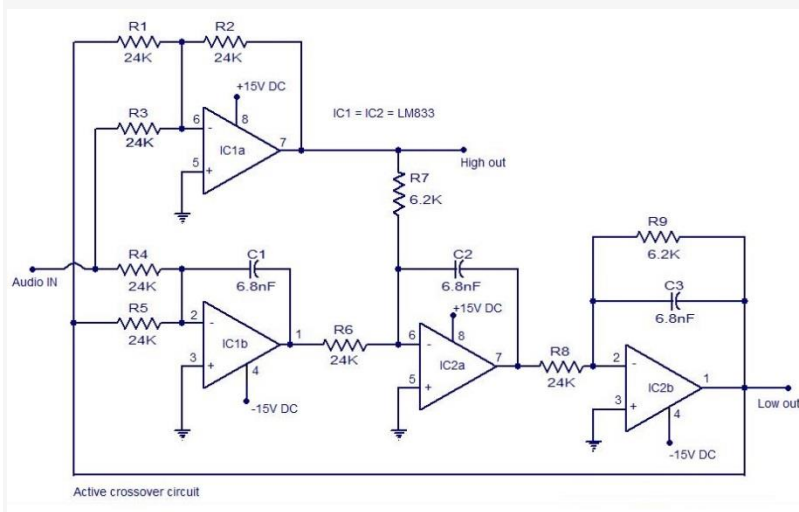
Given below is an Active crossover circuit suitable for HiFi audio systems using LM833, the dual operational amplifier.

Description:

Crossover circuits are of two types, active and passive. Passive crossover circuit uses passive components only and they are very simple, but they waste a considerable amount of energy and also induce distortion. Active crossovers does not have the above said draw backs and they are a better option for HiFi audio systems. Active crossovers split the incoming complex audio signal into to two bands, a low frequency out and a high frequency out. These two bands a separately amplified by two power amplifier stages, one tuned to the low frequency band and the other tuned to high frequency stage respectively (bi-amping).

The cross over circuit given here uses LM833 National Semiconductors. LM833 is a dual operational amplifier especially designed for audio applications. The circuit requires four opamps and so two LM833 ICs are used here. The circuit can be divided into two parts, a high pass filter section and a low pass filter section. IC2b forms a first order Butterworth low pass filter circuitry and the low frequency out is available at its output pin (pin1). The high frequency out is available at pin 7 of IC1a. For the given components crossover frequency is 1KHz and it is according to the equation $F_c = 1/(2\pi RC)$.

Active Crossover Circuit Diagram:



Notes:

- Assemble the circuit on a good quality PCB.
- The circuit can be powered using a +15/-15 V DC dual supply.
- LM833s must be mounted on holders.
- R and C can be changed for getting different crossover frequencies.

Source : <http://todayscircuits.blogspot.com/2011/06/active-crossover-circuit.html#.VUCIKdKqqko>