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Subject: Crossover Electronics 101

Posted by [Wayne Parham](#) on Wed, 23 Mar 2005 18:41:37 GMT

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For this application, I'd go first-order but always be aware that a speaker's voice coil is an inductor. When you use a series capacitor for a first-order high-pass crossover, that in itself forms a two-pole system. It becomes a resonator. It is damped by the resistance in the system, and sometimes it isn't too bad. But sometimes it is. Add to this the mechanical resonance of the diaphragm and the impedance peaks of a horn, if used, and the single cap crossover merits a closer look.

I almost always prefer to put a resistance in shunt across the driver, usually 2 to 3 times the impedance of the driver, to damp the system and prevent peaking. This isn't usually needed on a low-pass filter, since it is a coil in series with the voice coil. But if you're going to use a capacitor in series with a loudspeaker, it is best to consider the peaking from crossover capacitance, voice coil inductance, horn impedance and mechanical resonance of the diaphragm.

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