Subject: Capacitors
Posted by AlexB on Thu, 09 Aug 2001 23:18:54 GMT
View Forum Message <> Reply to Message

I am considering a 3rd-order subwoofer design, which requires 2500uf of capacitors. Where can 500uf or larger capacitors be found?

Subject: Re: Capacitors
Posted by Wayne_Parham on Fri, 10 Aug 2001 01:29:22 GMT
View Forum Message <> Reply to Message

You can get large value non-polarized electrolytics. The best ones in my opinion are Black Gates. But you won't find them in values anywhere close to 2500uF. You'll have to put several in parallel to get that much capacitance.

Subject: Re: Capacitors
Posted by Paul C. on Fri, 10 Aug 2001 02:27:32 GMT
View Forum Message <> Reply to Message

Wayne: I had written you about active crossovers recently... what kind of caps are best for this purpose... more likely to be close to marked value, etc? Are 5% resistors close enough?As you know, I was looking at xover freq in 800 hz range, for a two way system. So, my questions are:Is 12 db/oct rolloffs enough, or should I go for 18 or 24 db/oct?If I cascade two 12 db/oct filters, the Fx point will be -6 db instead of -3 db. Should I overlap the hi pass and low pass a little more?I had sent you active filter topologies I had gotten from two different sources... one from a Radio Shack op amp book, where all C = C and all R = R. Values were computed from Fx = 1/(2piRC). The second was the same topology, but values were not equal, and it was described as "Butterworth". I am more the KISS type, and was leaning toward the former equal value circuit.As op amps, resistors and caps are cheap these days, I am leaning toward 24db/oct. (I remember as a kid paying $1.50 for a diode for a "crystal radio". Oh, I could pick up two stations with mine!) Suggestions?

Subject: Re: Capacitors
Posted by Wayne Parham on Fri, 10 Aug 2001 12:23:48 GMT

View Forum Message <> Reply to Message

I prefer metal foil caps, with a good dialectric such as some of the plastics, ceramics or oil. Those are only available in small values. Next best are the metalized films. Non polarized electrolytics aren't usually very good, with Black Gates being a notable exception.

Subject: Re: Capacitors
Posted by AlexB on Sat, 11 Aug 2001 18:23:07 GMT
View Forum Message <> Reply to Message

Thanks for the commentary. I found some large value (500uf and 1000uf) Bennic bipolar caps on the Madisound site. If I pursue my small 3rd order box subwoofer project I will probably have a few more questions.

Subject: Active Filters
Posted by Paul C. on Sun, 12 Aug 2001 03:26:42 GMT
View Forum Message <> Reply to Message

Wayne: I found this link:http://www.linkwitzlab.com/filters.htm#3and it is to a page with info on Linkwitz-Reilly filters. This one shows a 24 db/oct two way. The topology and values are the same as those I sent you from the old Spkr Builder article. The formula is slightly different, but the results end up being the same. For example, in one, caps might me C and C/2, and the other 2C and C, but once you ran all the numbers, the values ended up the same.For those interested, there is a schematic at that link.There is a link under the schematic to a plot of the xover.Also, check out the subsonic filter at the top of that page.

Subject: Re: Active Filters
Posted by Wayne Parham on Sun, 12 Aug 2001 04:16:19 GMT
View Forum Message <> Reply to Message

Another thing to look at is Sallen Key filters. Sallen Key filters provide adjustable crossover frequency, slope and filter Q. It provides an almost unlimited number of parametric EQ functions, from overdamped to underdamped - having a "suck out" or a huge peak at the desired frequency. All these things are adjustable with this kind of circuit.

Subject: Sallen Key modeling formula
Posted by Wayne_Parham on Sun, 12 Aug 2001 04:38:04 GMT
View Forum Message <> Reply to Message

Here's an interesting link for Sallen Key filters. It shows how to set them up, complete with formulas to determine what components to use.

Subject: Thanks Wayne!
Posted by Paul C. on Sun, 12 Aug 2001 21:46:32 GMT
View Forum Message <> Reply to Message

Just what I needed to know!