
Subject: 8 Pi Crossover questions
Posted by [svinzant](#) on Sun, 27 Nov 2011 00:26:29 GMT
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Wayne,

I have been studying the 8Pi plans and have a few questions about the crossover.

- 1/ I see that you have L1 listed as 1.0uF. Should it be 1.0 mH?
 - 2/ Based on the layout of your circuit board, I don't see how L4 can connect to the junction of R4, R5 and the Mid-Woofer "+". (I sposed it could connect to the top of C5a. Comments?
 - 3/ I see you spec the wattage of R2 at 10 Watts non inductive, but did not spec out the wattage for R1, R4 and R5, what should they be?
 - 4/ Does the 8 Pi use a Zobel circuit?
 - 5/ The schematic lists L2, but that is no inductor in the drawing. Is it just shorted with a jumper?
- Thanks and sorry for all the noob questions.
Scott

Subject: Re: 8 Pi Crossover questions
Posted by [Wayne Parham](#) on Sun, 27 Nov 2011 03:38:31 GMT
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Answers by numbers:

1. L1 is 1.0mH.
2. We jumper the 3+ pad to the 2+ pad. The L4 coil essentially bypasses the R4/R5 divider circuit that feeds the midwoofer.
3. All resistors are 10 watt non-inductive parts.
4. R4 and R5 provide the proper amount of damping, which is also what zobel does.
5. L2 is a jumper. Note also that there is no L3. The L3 and R4 positions are shared. Some crossovers use L3 and others use R4 but none use both.

Subject: [More] 8 Pi Crossover questions
Posted by [svinzant](#) on Sun, 27 Nov 2011 16:53:31 GMT
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Wayne,

Thanks for the quick reply.

This has generated a few more questions...

I have read thru parts of the "Speaker Crossover Document" and based on my limited understanding (at this point) it seems like the crossover for the 8 Pi is a "Pseudo First Order" filter

for the mid-woofer. I am basing that on the fact that I don't see a capacitor in the schematic for the woofer section.

The tweeter filter section seems to be a set up as a Third Order Butterworth filter.

If I am off base on these, please straighten me out a bit.

Additionally, based on other things I have gathered from reading here and at other sites, should the value of L4 be .5mH?

You have it shown on the schematic as 5mH (no decimal point).

Thanks again for the great resources!

Scott

Subject: Re: [More] 8 Pi Crossover questions

Posted by [Wayne Parham](#) on Sun, 27 Nov 2011 23:02:33 GMT

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No, it should be 5mH. It's a gentle filter that does have approximately a first-order slope, but it isn't a crossover, it's essentially EQ. The midhorn increases efficiency at midrange frequencies, but not bass. So the whole L1/R4/R5 network is a response shapong network.

As an aside, pseudo-first-order is just a name I gave to single-component crossovers without a Zobel. I sometimes also refer to them as pseudo-Butterworth networks. All I really mean by that is a reminder that the filter isn't pure first-order unless the load is resistive - which it isn't. So it looks like a first-order filter, but isn't really. It usually forms a first-order slope down low, but more of a shelved response up high. It cannot maintain 6dB/octave through the whole band because the load impedance changes with frequency.

Subject: Re: 8 Pi Crossover questions

Posted by [jhovis](#) on Sun, 18 Dec 2011 00:01:30 GMT

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so the 8Pi now has a crossover? I bought a kit 5-6 yrs ago and it has been in my basement. It only came with the drivers and a horn and maybe a capacitor. I was thinking about putting it together, but I know I don't have crossover parts.

Subject: Re: 8 Pi Crossover questions

Posted by [Wayne Parham](#) on Sun, 18 Dec 2011 01:25:20 GMT

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It definitely came with a crossover. Look closely, as it would have come with a printed circuit board and some cable assemblies.

Back then, the tweeter cable assemblies had the R1/R2/C1 components built into the cable. All the other parts were on the printed circuit board.

Now days, all the parts are in the crossover board, and the cable assemblies are just wire.

Subject: Re: 8 Pi Crossover questions
Posted by [jhovis](#) on Fri, 23 Dec 2011 21:41:36 GMT
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My apologies Wayne, you were correct. I dug out the box-o-parts and there is a crossover in there. Someday, I'll get around to building it.
