Subject: 4 pi series/ parallel resistor headache
Posted by tdc on Sun, 10 Feb 2002 14:16:20 GMT
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I am building the the 16 ohm 40 watt resistors all from 16 ohm 12 watt parts. I did read all the Gilmore does the Kama Sutra posts below and remain a little confused. But then the Kama Sutra lost me after the 40th or so position. Maybe a drawing would help the math challenged?? Do you combine two 16 ohms resistors in parallel and then hook the ends of the two parallel sets in series or do you hook two 16 ohms in series and then fuse the ends to make a parallel??

Subject: same question here
Posted by trancemitr on Sun, 10 Feb 2002 14:50:09 GMT
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I was just looking at all the parts sitting on the floor wondering the same thing. I'm actually drawing up a picture right now to send to Wayne to (hopefully) get some confirmation. Wayne, I'll have a picture off to you shortly. Please watch your e-mail. Thanks.Kevin

Subject: here we go, since it's wayne's day off
Posted by Sam P. on Sun, 10 Feb 2002 15:21:13 GMT
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Ok, take TWO of your 16 ohm resistors, and lay them side by side. Twist the very ends of their leads together, just a turn or two. It helps to hold the two wires near the ends, and use a second pair of needlenose to gently twist the exposed ends together. Solder the ends. Take a second pair, and repeat the above steps. Now take the first pair, and place it end to end with the second pair. One end of each pair will get soldered together. Measure the two free ends left...eureka, a 16 ohm,48 watt resistor. Yes, feel free to connect them as two 16 ohm resistors in series first, then you are effectively now combining two 32 ohm ones in parallel to get back to 16 ohms. Same result either way. Sammaybe I need to mention some guidelines?1) two resistors in series will add, ie two 10 ohm resistors in series equals 20 ohms.2) two resistors in parallel(sidexside) will be less, oversimplified, two 10 ohms in parallel will equal 5 ohms. easy to figure AS LONG AS the two R's are the same.

Subject: Re: here we go, since it's wayne's day off
Posted by Adam on Sun, 10 Feb 2002 16:05:05 GMT
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Just connect all four leads on one side of the resistors together and connect all four leads on the other side together. It's just four resistors in parallel. The result is one collective resistor with four times the power handling and 1/4 the rating of a single resistor.Adam

Subject: Re: here we go, since it's wayne's day off
Posted by tdc on Sun, 10 Feb 2002 16:52:04 GMT
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I quess either of the two ideas works. I understood the fact that the resistance came out but was wondering if the power capacity is the same either way. Sounds like it is. Thanks to you both. tdc

Subject: four 64 ohm resistors in parallel
Posted by Sam P. on Sun, 10 Feb 2002 16:56:20 GMT
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will also equal 16 ohms, Yep, if you are using regular wirewound power resistors, vs. the NON INDUCTIVE mills brand he mentioned. Building a 16 ohm part with the values available means they need to use the four 16 ohm ones, arranged as specified previously.resistors in series Rt = R1 + R2 + R3+...resistors in parallel 1/Rt = 1/R1 + 1/R2 +...Hope the formulas make this clearer. Sam

Subject: Us dummies need to stick together!
Posted by BillEpstein on Sun, 10 Feb 2002 19:56:50 GMT
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My network only looks a little like Waynes, but it works. The key to making it go was measuring the Ohms (Ohmage?) as I went along. Then making the hook-up to the PXBJR4XXII.6 crossover was a little tougher.Take 4 resistors and make a 4 pack so they're parallel, touching and all 4 leads pointing straight out at each end of the group. Put a wire tie around all 4. Now twist together ANY 2 pair of leads at one end of the 4 pack. Go to the other end and twist together the OPPOSITE pairs of leads from those you did first. If you twisted A to B and C to D at one end, you twist A to C and B to D at the other. You should be able to measure 16 ohms + or - 10% at any point ON THE SAME END.From end to end you should measure 12 ohms. And no, I don't know why except E=IR, which means that the hypotenuse can be squared.Make another bundle the same way EXCEPT leave the twists at the A-B, C-D end twisted in such a way as they stick out parallel to the bundle.Set both bundles on the window sill to cool.Now we get to the dangerous part. Attach a wire to each connection A-B and C-D, on one of the bundles. Make'm long enough so one can reach from the tweeter + to the resting place of the crossover and the other long enough to reach the tweeter, errr horn. At the other end of this same bundle attach one lead from the capacitor thingy to each of the twisted pairs A-C and B-D, and solder. That would be one lead to one pair only. That guy Faraday, what a monster! His Farads were so big we only use 47 TRILLIONTHS of one for this job! And of course, as we all know, his cousin, Abner Faraday invented Baseball. How cool is that?Now you take the other bundle, you haven't soldered anything yet, right?, and solder the A-C, B-D ends. The A-B pair of leads becomes a sorta kinda wire you put through the tweeter + of the X-over and the C-B leads go through the - terminal. Put the wire from the C-D of the first block through the + terminal. Put a wire that only goes to the horn negative through the Tweeter - . Measure 16 Ohms from the + X-over terminal to the end of the wire running to the horn +.Measure 0 ohms from the - X-over terminal to the end of the wire that goes to the - horn connection.Measure 16 ohms from + to - tweeter terminals. (Your meter may jump a bit 'cause of the capacitor)Now you can solder all the terminal connections.Solder wires to the = and - woofer terminals of your Eminence PXBII-1K6 X-over and you're done.You know not what awaits you, unless you're Tom Brennan and he didn't read this far. BTW, if there's anything wrong with this construction you only have yourselves to blame for following an admitted moron over the precipice and you can certainly disregard anything I've had to say about the Truth and Beauty of Pi Speakers.

Subject: by george, I think he's got it!(nt)
Posted by Sam P. on Sun, 10 Feb 2002 20:03:49 GMT
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nt

Subject: Re: four 64 ohm resistors in parallel
Posted by Adam on Sun, 10 Feb 2002 20:23:18 GMT
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One problem is wirewound resistors are inductive. Don't use them in speaker crossovers. The other problem is no one makes 64 ohm resistors. Might be better to do a series/parallel network instead.Adam

Subject: other problem is no one makes 64 ohm
Posted by Sam P. on Sun, 10 Feb 2002 20:35:37 GMT
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resistors, I refered to them w/o looking at a chart. 68 is a real value, but four of them gives 17 ohms when you are done! Sam

Subject: Re: other problem is no one makes 64 ohm
Posted by Adam on Sun, 10 Feb 2002 21:48:03 GMT
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I would hardly nit-pick over a 1 ohm difference in the network. That's just a little over within 5%

tolerance which is better then most resistors anyway. It would make no difference at all 17 ohms or 16 ohms. By the way, power handling is increased with parallel resistors but not with series wired ones. You don't get a power handling gain from a series wiring, exactly the same as inductors.Adam

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Subject: power handling
Posted by Sam P. on Sun, 10 Feb 2002 22:19:38 GMT
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"You don't get a power handling gain from a series wiring, exactly the same as inductors".They sure do in the universe where I got my electronics training. Maybe there still is a misunderstanding here. Each part will dissipate power depending on it's share of the load. When building networks using resistors of all identical values, each will be dissipating an equal amount of power, up to it's individual limit, say 12 watts. Each will handle 12, so if 4 resistors, 48 watts. 16 resistors, 192 watts. Sam

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Subject: Re: power handling: Try this .....
Posted by BillEpstein on Sun, 10 Feb 2002 22:33:25 GMT
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One resistor: Mills non-inductive wire-woundOne cap: AuricapOf course you need a 2.5watt 2A3 or 300B amp

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Subject: Re: Us dummies need to stick together!
Posted by tdc on Mon, 11 Feb 2002 12:51:27 GMT

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Danke, Herr Eugenspiel!

Subject: Re: power handling
Posted by Adam on Mon, 11 Feb 2002 14:54:58 GMT
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I'm curious if I wire two 10 watt resistors in series, how the first one dissipates 10 watts, and then somehow magically manages to transmitt *another* 10 watts through itself so the second resistor can dissipate it. Each resistor will dissipate power in relation to its resistance if wired in series. If four 12 watt resistors are wired in series, the first would have to take 48 watts, the second 36 watts, the third 24 watts and the last one 12 watts for your model to be correct.Adam

Subject: power handling is a
Posted by Sam P. on Mon, 11 Feb 2002 15:38:47 GMT
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function of current. Raise resistance and you lower current. That's why total power handling of the network goes up. Sam

Subject: Re: power handling is a
Posted by Adam on Mon, 11 Feb 2002 16:40:34 GMT
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I'll take your word for it about the power handling.Adam

Subject: That's Eulenspiegel, Eulenspiegel! Dumkopf!!!!!! (nt)
Posted by BillEpstein on Mon, 11 Feb 2002 20:59:50 GMT
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nt

Subject: Re: That's Eulenspiegel, Eulenspiegel! Dumkopf!!!!!! (nt)
Posted by tdc on Tue, 12 Feb 2002 15:40:37 GMT
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Well, yes and no. Either spelling is used. (See Vienna, Karajan, London 80078 and USSR Symphony, Melodia 40065R which spell it Till Eugenspiel) while other use Till Eulenspiegel. Till lived a very long time ago and spelling may very, he probably couldn't write or spell anyway. But its your moniker take your pick. tdc

Subject: And they HUNG me! Ackkkk! (nt)
Posted by BillEpstein on Tue, 12 Feb 2002 17:02:15 GMT
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nt