Subject: maximum power handling of my 4 pi's
Posted by replay on Mon, 26 Nov 2001 13:11:26 GMT
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hi wayne, i'm using the recommended 10 watt resistors in the tweeter circuit of my premium stage 4 pi's. i wanna hook-up a big ass solid state amp and check out the light show. with this compensation how much power can i safely use.cheers,george

Subject: Re: maximum power handling of my 4 pi's
Posted by Colin Fritzke on Mon, 26 Nov 2001 17:15:05 GMT
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George,Now you've got me curious... What choices are out there and what wattage resistors would be best? Same question with capacitors, can you parallel them to increase their power handling just like resistors?Thanks,Colin

Subject: Re: maximum power handling of my 4 pi's
Posted by Wayne Parham on Mon, 26 Nov 2001 21:42:32 GMT
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The way the circuit is configured, resistors R1 and R2 each get about 75% of the voltage applied to the speaker terminals at frequencies above the crossover point. Their resistances are about twice the impedance as the load, so current through them is reduced. This all results in a limit that's about 1/3rd that of the rated input power. In other words, if there's 100 watts input, the most you'd see at R1 and R2 would be about 30 watts, and that's if the input was a pure sine above 2kHz.The limits are about 4-6 times this high with music, speech and other program material, because of its crest factor. I can easily run 300-400 watts without overheating the resistors. Capacitors rated 250V are fine at those levels. Use caution when running high-power tests with pure sines or swept sines though, because a sine above 2kHz will overheat the resistors within a few minutes at signal levels much beyond 28.3v, which is 100 watts for an 8 ohm load.

Subject: Re: maximum power handling of my 4 pi's
Posted by Wayne Parham on Mon, 26 Nov 2001 21:47:52 GMT
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I prefer to use (4) 10-12 watt components in series/parallel to form a resistance that can handle more current without getting hot. Even at low power levels, this is an advantage because the parts run very cool.As for capacitors, two in parallel adds their capacitance (like series resistors) but the voltage across them remains the same. If you have two caps in parallel, one rated for 250v and the other rated for 400v, the maximum safe voltage is 250v. If you apply 300v across the caps, the one with lower voltage rating will eventually fail.