Subject: SPICE and Piezo Questions
Posted by JohnB on Sat, 28 Sep 2002 11:20:09 GMT
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Hello:I've been interested in modelling the Pi designs that use the piezo tweeters (using AIM-Spice), and have a couple or so questions:Using what data I can find regarding the CTS piezo, the model is: "...like a lossy capacitor to the amplifier...". The circuit is basically a capacitor in series with a resistor, with the resistor representing the dissipation loss. The question is - would the resistance actually take part in an AC analysis model? If so, does anybody have any idea of an appropriate value for this resistance given 2.83V across the terminals?How are the Vin and source impedance values chosen in the models provided in the Pi Crossover Spice circuits? Am I wrong in thinking that the series impedance would actually be quite low, and an input voltage of 2.83V is the reference standard?A question regarding the mechanical Q of the 2 Pi Tower speaker, I calculate an Fr of 45 and a Q of around 7. Is that correct?Thanks for any info.John B.

Subject: SPICE and Piezo Answers
Posted by Wayne Parham on Sat, 28 Sep 2002 17:27:56 GMT
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If you put resistance in series with a primarily capacitive load such as a piezoeletric tweeter, the resistance will definitely have an effect on the AC behavior of the circuit. It forms a low-pass filter that will show up in Spice in the AC analysis. To make the model even more complete, you might want to add tank circuits that emulate its resonances. You'll notice one at 5khz, for example.About the source voltage and impedance in Spice models, you can set this to whatever values you prefer. Source voltage is whatever you want it to be, and source impedance can be

is 4.5ft3 and the Helmholtz frequency is 40Hz.