Subject: SPICE parameters
Posted by dB on Thu, 02 Feb 2006 10:05:58 GMT
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A) How to measure Spice parameters? (Hi, Wayne)How to get the parameters for (Spice) speaker mechanical reactance C, L, R? B) Also I would like to know how to introduce a POT. on the x-over circuit.What and Where should I touch (change)? Thanks. Regards.PS. Congratulations for the Best Sub in the World.POT1.CIR - POTENTIOMETER MODEL** WIPER POSITION: 0V=CCW, 1V=CWVPOS 20 0 PWL(0MS 0V 100MS 1V)RPOS 20 0 1MEG** OFFSET VOLTAGE TRIMVS 10 0 10VR1 10 11 9.5KXPOT1 0 12 11 20 0 POT_1KRL 12 0 100K** RESISTANCE VALUE TRIMIS 0 15 1AXPOT2 15 16 16 20 0 POT_1KR2 16 0 19.5K*** POTENTIOMETER SUBCIRCUIT** TERMINALS: 1-CCW , 2-WIPER, 3-CW * WIPER POSITION VOLTAGE: 7-POS,8-NEG*.SUBCKT POT_1K 1 2 3 7 8 E_RA 1 4 VALUE = { V(7,8) * 1K * I(VSENSE1) }VSENSE1 4 5 DC 0VRS 5 2 1E_RB 5 6 VALUE = { (1-V(7,8)) * 1K * I(VSENSE2) }VSENSE2 6 3 DC 0V.ENDS

Subject: Re: SPICE parameters
Posted by Wayne Parham on Thu, 02 Feb 2006 14:52:37 GMT
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You can use an L-Pad in the crossover circuit. It's basically a high-power potentiometer. As for measurement of a driver for Spice, you can use an ohmmmeter for DC resistance and a signal generator and a scope for inductance and resonance measurements. You'll have to check it at various frequencies and plot an impedance curve. Then you'll have to back solve to find the reactance values. At relatively high frequencies, voice coil inductance will dominate, so that part will be easy. The inductance value will change depending on frequency and drive level. I'd be most intersted in the inductance near the crossover point and other points of interest. The resonance(s) will be lower, at the mechanical resonance of the diaphragm and any horns or other acoustic attachments that are installed. You'll have to backsolve a virtual circuit for those by curve fitting. But you may not really need to know those values, unless your crossover frequencies are near and you expect interaction.

Subject: Re: SPICE parameters
Posted by dB on Fri, 03 Feb 2006 11:04:55 GMT
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Thanks, Wayne.I am looking at a Protek 506,(http://www.protektest.com/ProdInfo.asp?prodId=506)with 'DB Readings' and 'RS-232 interface & software'.Do you think the spec. ranges: -31.6 to + 59.71dB, is enough for 90+ dB speakers? I sent an email and I got no answer from them. Also I will use the computer as I sine

wave generator.Regards

Subject: Re: SPICE parameters
Posted by Wayne Parham on Fri, 03 Feb 2006 18:25:55 GMT
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I think it will probably work just fine. In this case, you'll be measuring impedance. The sensitivity of the speaker won't affect your tests. The main thing is the accuracy of the meter at different frequencies. Hand-held multimeters didn't do such a good job at measuring AC outside of a narrow range in the past, because they were really designed only for AC line voltage. But all the DVM's I've seen lately are pretty accurate across the audio band, at least the frequencies of interest for a test like this (bass to midbass). Be sure to get an accurate measurement of your test resistor, because it will set the reference.