Subject: Pi implementations of quartz piezoelectric tweeters
Posted by Wayne_Parham on Thu, 17 May 2001 08:27:17 GMT
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My implementations of the KSN 1038 and compatible quartz tweeters are described in a handful of threads, namely "Variable x-o for motorola KSN1142", "Are all screw-on piezo horn drivers similar?" and "Piezo's." These are all dialog threads - and not just single posts - so one might want to "wade through" entire threads to gain all of what's there. Lots of questions were posted concerning their performance, impedance, suitable crossovers and electronic filter techniques - all of which were discussed in some detail.The KSN 1038 tweeter acts like a 0.1uF capacitance in series with a 10 ohm resistance, and production runs do not vary from these figures by any significant amount. I try to emphasize this fact, because I find many who do not accurately describe the device. The tweeter will be attenuated 3dB by use of a 0.33uF capacitor in series.There is quite a bit of information on the 1038/1041/1056 family of components available on this forum. You will find Motorola's original specification sheet and all the formula and methodology required to successfully implement these drivers in a suitable loudspeaker system.There is no "guesswork," because we're working directly from the specification sheets. So I felt it might be helpful to redirect some of the readers of our recent piezo threads, to those earlier and perhaps overlooked. And thanks to Paul C for sharing experience with the larger piezo devices.

Subject: Re: Pi implementations of quartz piezoelectric tweeters
Posted by colinfritzke on Thu, 17 May 2001 18:14:57 GMT
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Wayne,Thanks for the above post. The recent discussions about the piezo tweeters has piqued my interest, if for no other reason than to experiment. One further question - which other Motorola tweeters besides the 1038/1041/1056 use the same motor? From what I've found the 38 and the 41 are just different in colour, and I can't find anything on the 56. I don't care much for the horn flare on the 1038, so I was wondering what other variations could be substituted if I should ever decide to put together some One Pi's.Thanks,Colin

Subject: Re: Pi implementations of quartz piezoelectric tweeters
Posted by Paul C. on Thu, 17 May 2001 19:36:31 GMT
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First, I am a musician, and that leads to playing with MI and PA equipment. Many good quality, moderately priced speakers use these piezo tweeters. I have used both commercially built, and DIY speaker cabs with these CTS/Motorola piezos for many years. The KSN1005 and KSN1001 (same thing but with a different, offset flange for rear mounting) were the first of the piezo drivers that I saw when they were introduced years ago. These, and the KSN1038, all respond from 3.5Khz on up (I don't worry about range reproduced I can't hear!). You can look at the CTS site

(link below). All the 3.5 Khz and 4 Khz tweeters use the same motor. (Motor--I like that term, it accurately describes what we are talking about.) There is a horn with a double driver, KSN1177a, molded into one double case, but inside it is the same.All of the 1.8 Khz horns use the same motor. I have the most experience with KSN1025a, and the KSN1141a high power version (but more recently the KSN1165a in my home stereo gear), mostly in musical instrument and PA gear.It is rare to find a MI or PA woofer that will not go up to 1800 hz, so these 1.8 khz piezos work very well.The KSN1188a uses a larger motor, and responds down to 800 hz. This is a screw in driver that requires a horn lens. I have just recently started using these. It was previously labeled as the KSN1086, and I have no ideal what changes were made. So far, these are very promising, I should have used them years ago! Several of these are what CTS calls their "Powerline" series. These have internal protection circuits that provide soft clipping. They can be used up to 400 wts. These include the 1188a, 1165a, 1141a, 1142 (screw in driver), and a few more... they have a 400 W rating.I no longer can find my old KSN numbers, sorry.There is one, KSN1176a... looks like a KSN1142/KSN1025. BUT, even though it has the larger motor case, it only responds down to 3500 hz. It does not sound that good, and opening it shows no protection. Even the 1025 has a resistor internally mounted.Oh, yes... the 1.8 khz motors do not require an external series resistor, as there is one internally mounted. There is a nice piezo application paper on the CTS site.

http://www.ctscorp.com/pzt/ffpzt-home.htm

Subject: Piezo's for Studio Series one Pi's
Posted by Wayne Parham on Fri, 18 May 2001 00:38:12 GMT
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There are a ton of other parts that are made using the same motor. Some have horns, and some don't. Of the horns, I personally don't care for the ones with the long center piece on the phase plug like the KSN 1005. The good ones, in my opinion, have the smaller phase plug like the KSN 1038.

Subject: Re: Pi implementations of quartz piezoelectric tweeters
Posted by Paul C. on Sun, 20 May 2001 12:58:10 GMT
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Avoid the very inexpensive knock-offs, and buy the genuine CTS/Motorola items.
