
Subject: Re: Announcements

Posted by [Chris R.](#) on Thu, 06 Nov 2003 17:51:01 GMT

[View Forum Message](#) <> [Reply to Message](#)

Without further adieu...The math is pretty easy with a calculator if you don't have perlavailable to you. If you are stuck on Windows, check with[www.activestate.com](#). If you are on linux or other Unix, perlshould already be there. There's a version in BASIC from Wayneat the bottom.Here's how it runs: Usage: ./mech_res.pl Zmax Fs Qms./mech_res.pl 100 32 10.4! mechanical reactance (32 Hz, Qms: 10.4) C5: 9 0 517.4uF L5: 9 0 47.8mH R5: 9 0 104.0And here's all the code and comments:#!/usr/bin/perl -w# Copyright (c) 2003 Chris E. Richmond All rights reserved# This program is free software; you can readily redistribute it# and/or modify it under the terms of the GNU General Public License# as published by the Free Software Foundation; either version 1, or# at your option) any later version. You can receive a copy of this# license by writing Free Software Foundation, Inc., 675 Mass Ave.,# Cambridge, MA 02139,

```
USA#=====
##### Create mechanical parameters for Spice model for woofers.#
Input: Zmax and Fs, output equivilant L, C, and R, where their# values are defined thusly:##
About making a virtual circuit that models mechanical resonance, the idea is to find# parallel L,C
and R that acts as the mechanical resonator does. R will be set by Zmax,# so that one is easy.
Then, the values of C and L will be the same at resonance, and# since Q is the ratio of reactive
impedance to resistive impedance, you will find a the# value of inductor and capacitor with
reactances equal to Zmax / Qms at Fr. Wayne Parham##      C5#      ----||-----#      |
R5  |# -----VW-----#      |      |#      ----(((((((-----#
L5#=====
#####if ( @ARGV != 3 ) { die "\n Usage: $0 Zmax Fs Qms\n\n";
}$Zmax = $ARGV[0]; $Fs = $ARGV[1];$Qms = $ARGV[2];$Pi = 3.141; # constant$Q_ratio =
$Zmax/$Qms;$L = ($Q_ratio / (2 * $Pi * $Fs)) * 1000;$C = 1000000 * ( 1 / ( 2 * $Pi * $Q_ratio *
$Fs ));#! mechanical reactance (40Hz, Q=6.56)# C5      9 0      400uF# L5      9 0
40mH# R5      9 0      65.6print "\n! mechanical reactance ($Fs Hz, Qms:
```

```
BASIC:=====10 input
"Zmax"; R20 input "Fs"; F30 input "Qms"; Q40 Pi = 3.141592653550 Z = R/Q60 L = (Z / (2 * Pi *
F)) * 100070 C = (1 / (2 * Pi * Z * F)) * 100000080 print "Reactance = " reactance90 print
"Capacitor is " C " uF."100 print "Inductor is " L " mH."110 print "Resistor is " R "
ohms."=====
```