**Speaker Design Packet**

**Name-**

**Period-**

**Driver Specification Sheet –** [**www.parts-express.com**](http://www.parts-express.com) **choose raw drivers that fit the following rules**

**8ohm impedance each – Low note of the tweeter should be at least double the high note of the woofer – Fill in any available specs**

**Driver Type**: Tweeter

**Brand:**

**Part #**:

**Price:**

**Product Specifications**

**Nominal Diameter:**

**Power Handling (RMS) :**

**Power Handling (max) :**

**Impedance:**

**Frequency Response:**

**Sensitivity:**

**Voice Coil Diameter:**

**Thiele-Small Parameters**

**Resonant Frequency (Fs) :**

**DC Resistance (Re) :**

**Voice Coil Inductance (Le) :**

**Mechanical Q (Qms) :**

**Electromagnetic Q (Qes) :**

**Total Q (Qts) :**

**Compliance Equivalent Volume (Vas) :**

**Mechanical Compliance of Suspension (Cms) :**

**BL Product (BL) :**

**Diaphragm Mass Inc. Airload (Mms) :**

**Maximum Linear Excursion (Xmax) :**

**Surface Area of Cone (Sd) :**

**Mounting Information**

**Overall Outside Diameter:**

**Baffle Cutout Diameter:**

**Depth:**

**Driver Type**: Woofer

**Brand:**

**Part #**:

**Price:**

**Product Specifications**

**Nominal Diameter: 5.25”-8”**

**Power Handling (RMS) :**

**Power Handling (max) :**

**Impedance:**

**Frequency Response:**

**Sensitivity:**

**Voice Coil Diameter:**

**Thiele-Small Parameters**

**Resonant Frequency (Fs) :**

**DC Resistance (Re) :**

**Voice Coil Inductance (Le) :**

**Mechanical Q (Qms) :**

**Electromagnetic Q (Qes) :**

**Total Q (Qts) :**

**Compliance Equivalent Volume (Vas) :**

**Mechanical Compliance of Suspension (Cms) :**

**BL Product (BL) :**

**Diaphragm Mass Inc. Airload (Mms) :**

**Maximum Linear Excursion (Xmax) :**

**Surface Area of Cone (Sd) :**

**Mounting Information**

**Overall Outside Diameter:**

**Baffle Cutout Diameter:**

**Depth:**

[www.diyaudioandvideo.com](http://www.diyaudioandvideo.com)

-2-way Crossover Calculator

-Crossover frequency is the average of the low note of the tweeter and the high note of the woofer.

-Driver Attenuation Circuit Calculator

-Z=Impedance of tweeter

-A=The difference between the sensitivity of the woofer and tweeter.

-If (A)<1 you do not need an LPad

1st Order Butterworth

 Hertz

 Ohm Tweeter / Ohm Woofer

|  |  |
| --- | --- |
| Description: http://www.diyaudioandvideo.com/Calculator/XOver/circuit1.gif | **Parts List*****Capacitors*****C1** = . ***Inductors*****L1** = . |
| LPad (Driver Attenuation Circuit)**Z = Ohms****A = db**

|  |  |
| --- | --- |
| Description: http://www.diyaudioandvideo.com/Calculator/LPad/circuit.gif | **Parts List*****Resistors*****R1** = Ohms **R2** = Ohms  |
|  |  |

 |  |

**Sealed or Ported Enclosure Calculator**

**-Use Woofer Specs**

|  |  |
| --- | --- |
| **Free Air Resonance (Fs):** | **Hz** |
| **Driver Electrical "Q" (Qes):** |  |
|  |
| **Efficiency Bandwidth Product (EBP):** |  |
| **Recommendation:** |  |



**Speaker Box Designer Calculator**

**Vas = ft3**
**fs = Hz**
**Qts =**

**Qtc = (Sealed)**

**(Qtc must be greater than Qts, if using the provided woofer, change Qtc so that the vb becomes .25ft3)**

**D = in**

|  |  |
| --- | --- |
| http://www.diyaudioandvideo.com/Calculator/Box/portedBox.gif | **Dimensions****Vb** = ft3  **f3** = Hz**fb** = Hz**Dv** = in (Ported)**Lv** = in (Ported)   |
|

|  |
| --- |
| **Vb**: Speaker Box Internal Volume**f3**: 3dB Cutoff Frequency**fb**: Enclosure Resonant Frequency**Dv**: Port Diameter**Lv**: Port Length |

 |  |

**Internal Box Dimensions**

**Use the lines below to calculate for X in inches. Round X to nearest 100th**

**4.096x^3=(vb)(1728)**

 W=X= D=1.6x= H=1.6(1.6x)=

Fill in the internal dimensions of your enclosure:

**H=\_\_\_\_\_\_\_\_\_\_**

**D=\_\_\_\_\_\_\_\_\_**

**\_\_\_**

**W=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Determine which face will be the front. Look at the Overall Diameter of your woofer. If it is greater than X, the side becomes the front. Draw the circle representing the woofer on the correct face.**

**Panel Sizes and Plywood Layout**

 **Front and Back: (W+1.5”) by (H+1.5”) \_\_\_\_\_x\_\_\_\_\_\_\_**

 **Sides: (H+1.5”) by (D)\_\_\_\_\_\_\_\_\_\_x\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Front

 **Top and Bottom: (W) by (D)\_\_\_\_\_\_\_\_x\_\_\_\_\_\_\_\_\_\_\_\_\_**

Side

Bottom

**Lay out the Panels to be cut out of the sheet of plywood. Arrange them in an efficient manner. You need six panels to make one speaker.**

 48”

 48”