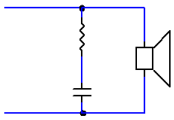


SPEAKERS:

Type	NAME	Impedance (Ohm)	Factory Frequency (Hz)	Best between (Hz)	Power (W)	Sensitivity (Db)	Re (Ohm)	Le (mH)
Tweeter	Dayton Audio RS28F-4 1-1/8" Silk Dome Tweeter	4	1200 - 20000	2000 - 20000	100	95.8	2.82	0.51
Mid Woofer	Dayton Audio PM220-8 8" Wideband Midbass Neo Driver	8	43 - 10000	100 - 9000	40	95	6.3	0.85
Woofer	Dayton Audio PA310-8 12" Pro Woofer	8	44 - 4000	50 - 3500	450	97.2	5.7	1.53
SubWoofer	Dayton Audio RSS390HF-4 15" Reference HF Subwoofer 4 Ohm	4	18 - 800	40 - 1000	500	87	3.3	1

A. Flattening Woofers Impedance (AllenB - diyaudio)



$$\text{Res} = \text{"Re"} * 1.25$$

$$\text{Cap} = \text{Le} / \text{Res}^2$$

$$\text{M_High} \rightarrow \text{Re} = 6.3\text{Ohm}, \text{Le} = 0.85\text{mH}$$

$$\text{Res} = 6.3 * 1.25 = 7.87 = \text{approx. } \underline{8\text{Ohm}}$$

$$\text{Cap} = 0.00085 / 64 = 13.28 = \text{approx. } \underline{12\mu\text{F}}$$

$$\text{M_Low} \rightarrow \text{Re} = 5.7\text{Ohm}, \text{Le} = 1.53\text{mH}$$

$$\text{Res} = 5.7 * 1.25 = 7.125 = \text{approx. } \underline{7\text{Ohm}}$$

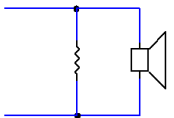
$$\text{Cap} = 0.00153 / 49 = 31.22 = \text{approx. } \underline{30\mu\text{F}}$$

$$\text{Woofer} \rightarrow \text{Re} = 3.3\text{Ohm}, \text{Le} = 1$$

$$\text{Res} = 3.3 * 1.25 = 4.125 = \text{approx. } \underline{4\text{Ohm}}$$

$$\text{Cap} = 0.001 / 16 = 62.5 = \text{approx. } \underline{60\mu\text{F}}$$

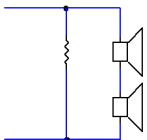
B. Flattening Tweeter Impedance (AllenB – diyaudio)



$$\text{Res} = \underline{20\text{ Ohm}}$$

$$\text{New Impedance of the Tweeter} = (4 * 20) / (4 + 20) = \underline{3.33\text{ Ohm}}$$

OR, if I take the 2 tweeters as 1 unit of 8Ohm (2 x 4 Ohm in series) then:



$$\text{New Impedance of the Tweeter} = (8 * 20) / (8 + 20) = \underline{5.7\text{ Ohm}}???$$

C. Sensitivity Attenuation – LPad (<http://www.diyaudioandvideo.com/>)

Tweeter = 95.8 Db
Med High = 95 Db
Med Low = 97.2 Db
Woofer = 87 Db

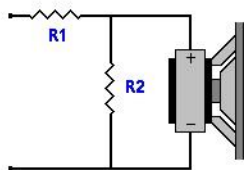
Chosen sensitivity = **87 Db**

Tweeter:

LPad (Driver Attenuation Circuit)

$$Z = 8 \text{ Ohms}$$

$$A = 8.8 \text{ db}$$



Parts List

Resistors

R1 = 5.1 Ohms 63.69 Watts
R2 = 4.56 Ohms 23.13 Watts

Speaker Power = 13.18 Watts

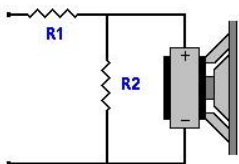
(What is this “speaker power”?? I chose for every driver 100W / channel)

Mid High:

LPad (Driver Attenuation Circuit)

$$Z = 8 \text{ Ohms}$$

$$A = 8 \text{ db}$$



Parts List

Resistors

R1 = 4.82 Ohms 60.19 Watts
R2 = 5.29 Ohms 23.96 Watts

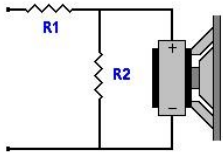
Speaker Power = 15.85 Watts

Mid Low:

LPad (Driver Attenuation Circuit)

$$Z = 8 \text{ Ohms}$$

$$A = 10.2 \text{ db}$$



Parts List

Resistors

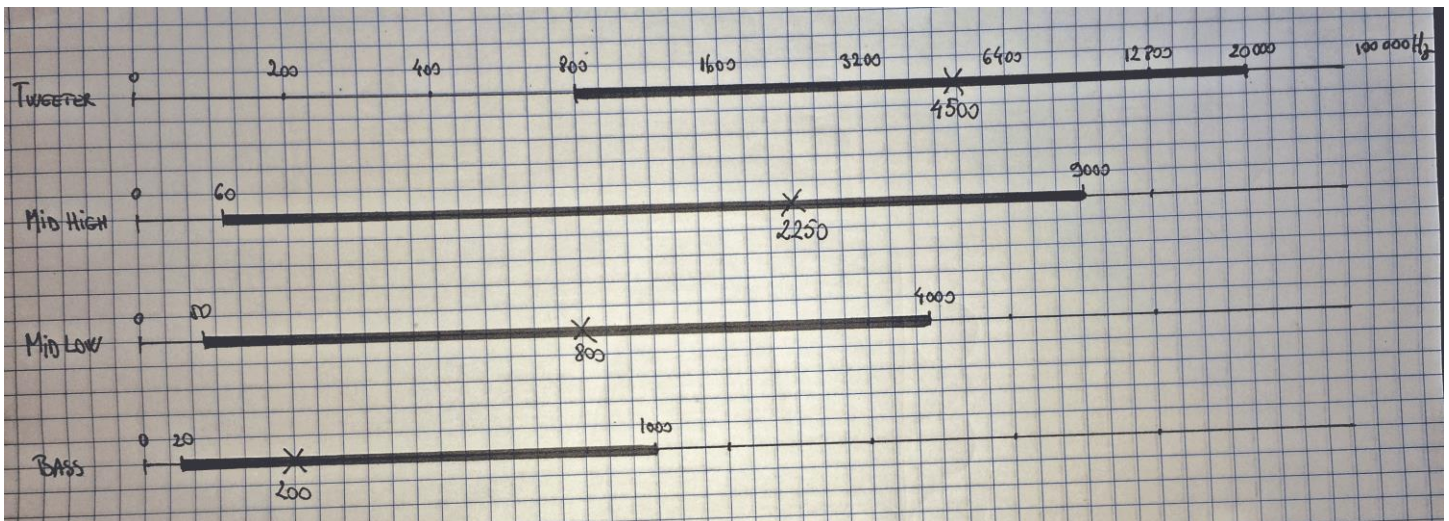
R1 = 5.53 Ohms 69.1 Watts

R2 = 3.58 Ohms 21.35 Watts

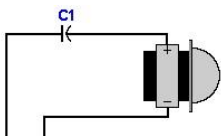
Speaker Power = 9.55 Watts

D. Crossovers

Tweeter	= High Pass 4,500 Hz
Mid High	= Band Pass 800 / 2250 Hz
Mid Low	= Band Pass 200 / 800 Hz
Woofer	= Low Pass 200 Hz

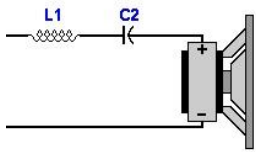


8 ohm Tweeter High Pass 4500Hz:



$$C = 4.42\mu\text{F}$$

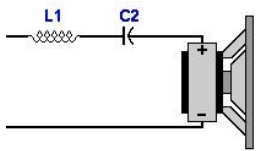
8 Ohm Mid High Band Pass 800 / 2250Hz:



$$L = 0.57\text{mH}$$

$$C = 24.84\mu\text{F}$$

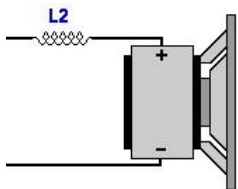
8 Ohm Mid Low Band Pass 200 / 800Hz:



$$L = 1.59\text{mH}$$

$$C = 99.38\mu\text{F}$$

4 Ohm Woofer Low Pass 200Hz:



$$L = 3.18\text{mH}$$