

## Class-D LC Filter Designer

### 1 Class-D Configuration

Select the output configuration on the right.

Filter Type

Output Configuration

Load Factor

Enter the speaker load, desired cutoff frequency, and quality factor.

Speaker Load ( $R_{Load}$ )   $\Omega$

Cutoff Frequency  kHz

Quality Factor (Q)

### 2 Calculated Components

The calculated LC filter component values are shown below.

Inductor (L)   $\mu\text{H}$

Capacitor ( $C_g$ )   $\mu\text{F}$

Capacitor ( $C_{BTL}$ )   $\mu\text{F}$

Total Cap SE Equivalent   $\mu\text{F}$

### 3 Graph & Verify

Enter standard inductor and capacitor values below to graph & verify.

Inductor (L)   $\mu\text{H}$

Capacitor ( $C_g$ )   $\mu\text{F}$

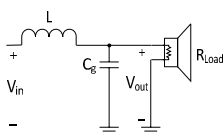
Capacitor ( $C_{BTL}$ )   $\mu\text{F}$

Total Cap SE Equivalent   $\mu\text{F}$

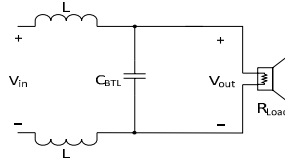
Cut-Off Frequency  kHz

Quality Factor (Q)

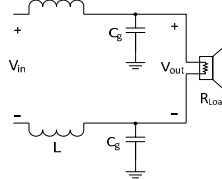
Single-Ended (SE) - AD or BD



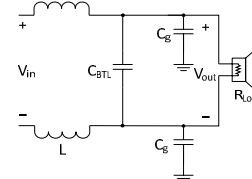
BTL - Differential - AD Mode



BTL - Common Mode - BD or AD Mode



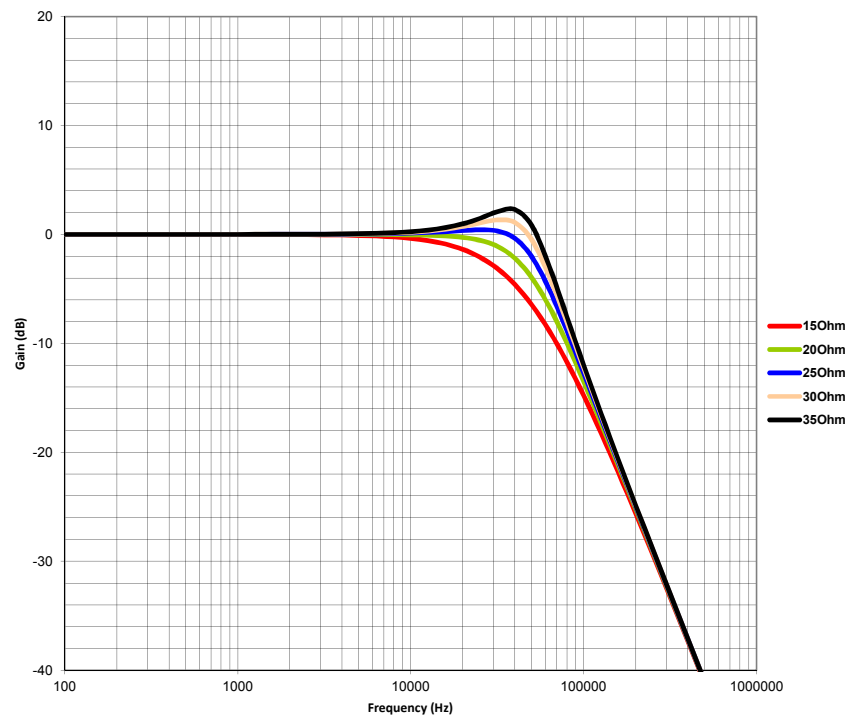
BTL - Hybrid - AD Mode



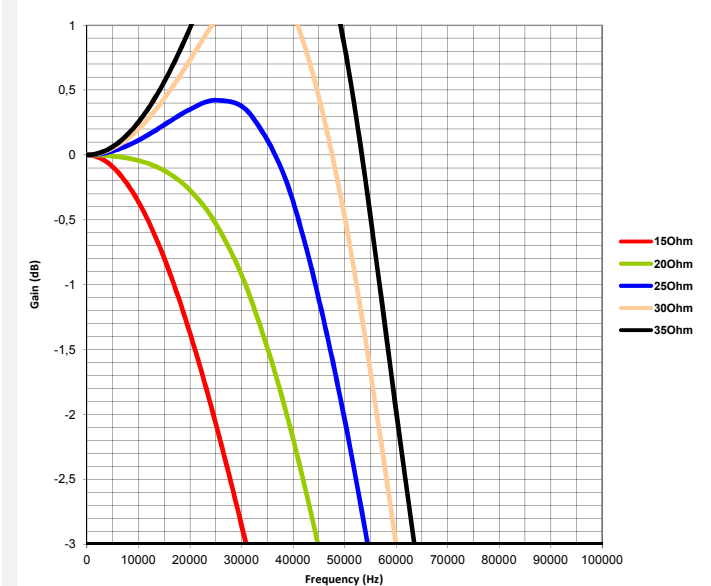
Transfer Function

$$\frac{1}{1 + s \cdot \frac{L}{R_{Load}} + L \cdot C \cdot s^2}$$

Gain vs Frequency



Zoom (Gain vs Frequency)



Graph Settings

Enter up to 5 different loads to graph.

Load	Value	Q
Load 1	15 $\Omega$	0,509
Load 2	20 $\Omega$	0,678
Load 3	25 $\Omega$	0,848
Load 4	30 $\Omega$	1,017
Load 5	35 $\Omega$	1,187