

Filters

Low Pass (2nd Order)

SPEAKER IMPEDANCE - R (ohms)

8

CUTOFF FREQUENCY - R (Hz)

100

CALCULATE INDUCTANCE AND CAPACITANCE

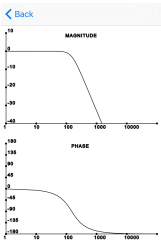
INDUCTANCE - L (mHenry)

12.004217

CAPACITANCE - C (microFarad)

93.782951

BODE PLOT



FILTERS	
Low Pass (1st Order)	>
High Pass (1st Order)	>
Band Pass (2nd Order)	>
Low Pass (2nd Order)	>
Formulas	>

Filters

Formulas

4) Low Pass Filter (second order)

Transfer function:

$$H(s) = \frac{R}{s^2 LC^2 + sRC + R}$$

Magnitude:

$$|H(j\omega)| = \frac{R}{\sqrt{R^2 + (\omega^2 LC^2 + R^2)^2}}$$

Phase:

$$\angle H(j\omega) = \arctan\left(\frac{-\omega^2 LC^2}{R}\right)$$

Cutoff frequency:

$$\omega_c = \sqrt{\frac{1}{LC} + \frac{1}{R^2 C^2}}$$

Capacitance Calculation:

$$C = \frac{1}{\omega_c \sqrt{LC}}$$

1 / 1