Filter Wizard

Filter Wizard Design

Created on 11/15/2025

ANALOG DEVICES

Filter Wizard Design Report

Filter Requirements for Band-Pass, 4th order Butterworth Bessel

Specifications: Optimize: Specific Parts; +Vs: 2.75; -Vs: -2.75

Gain: 6 dB

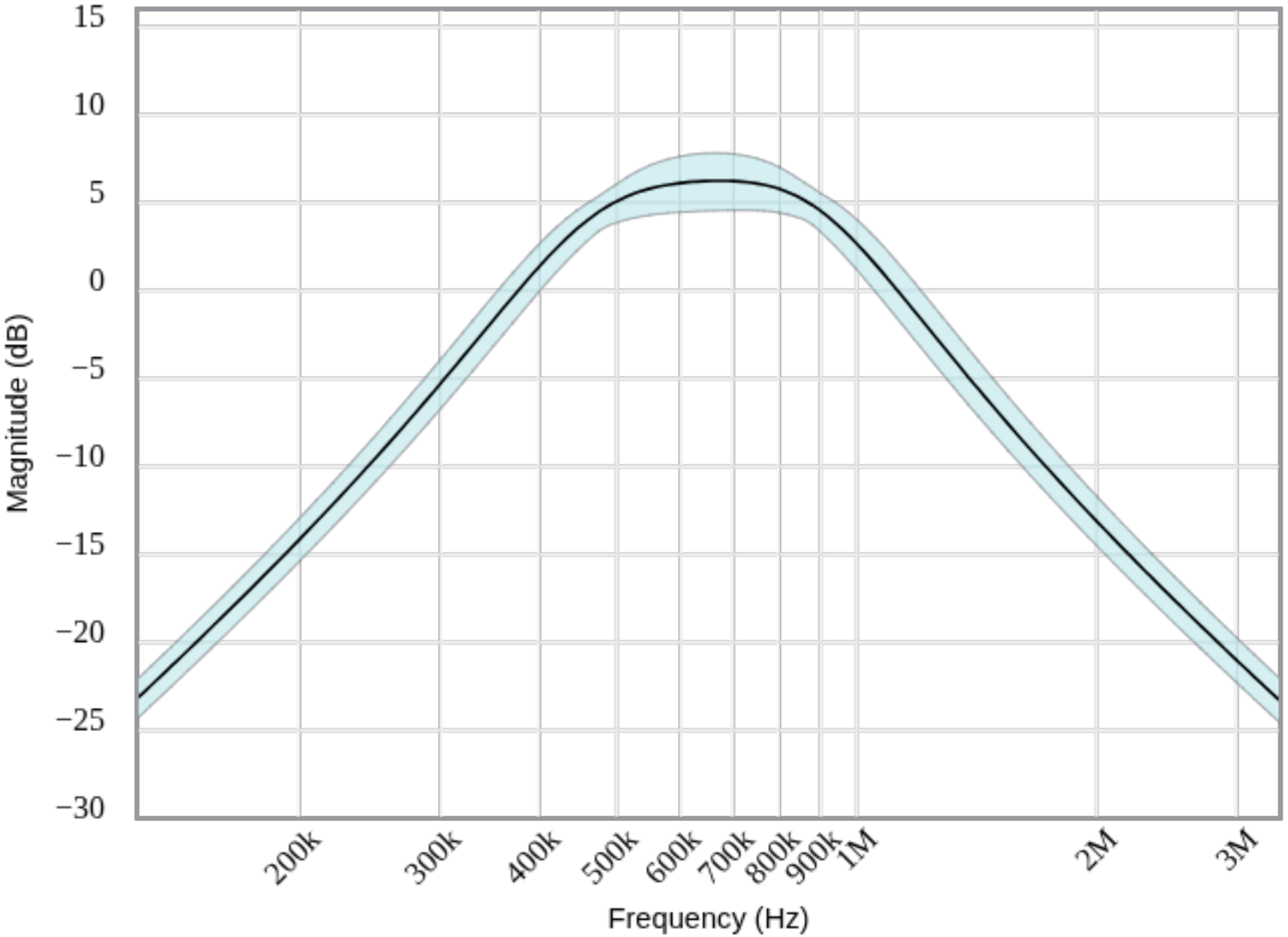
Passband: -8dB at 900kHz

Stopband: -16dB at 1.6MHz

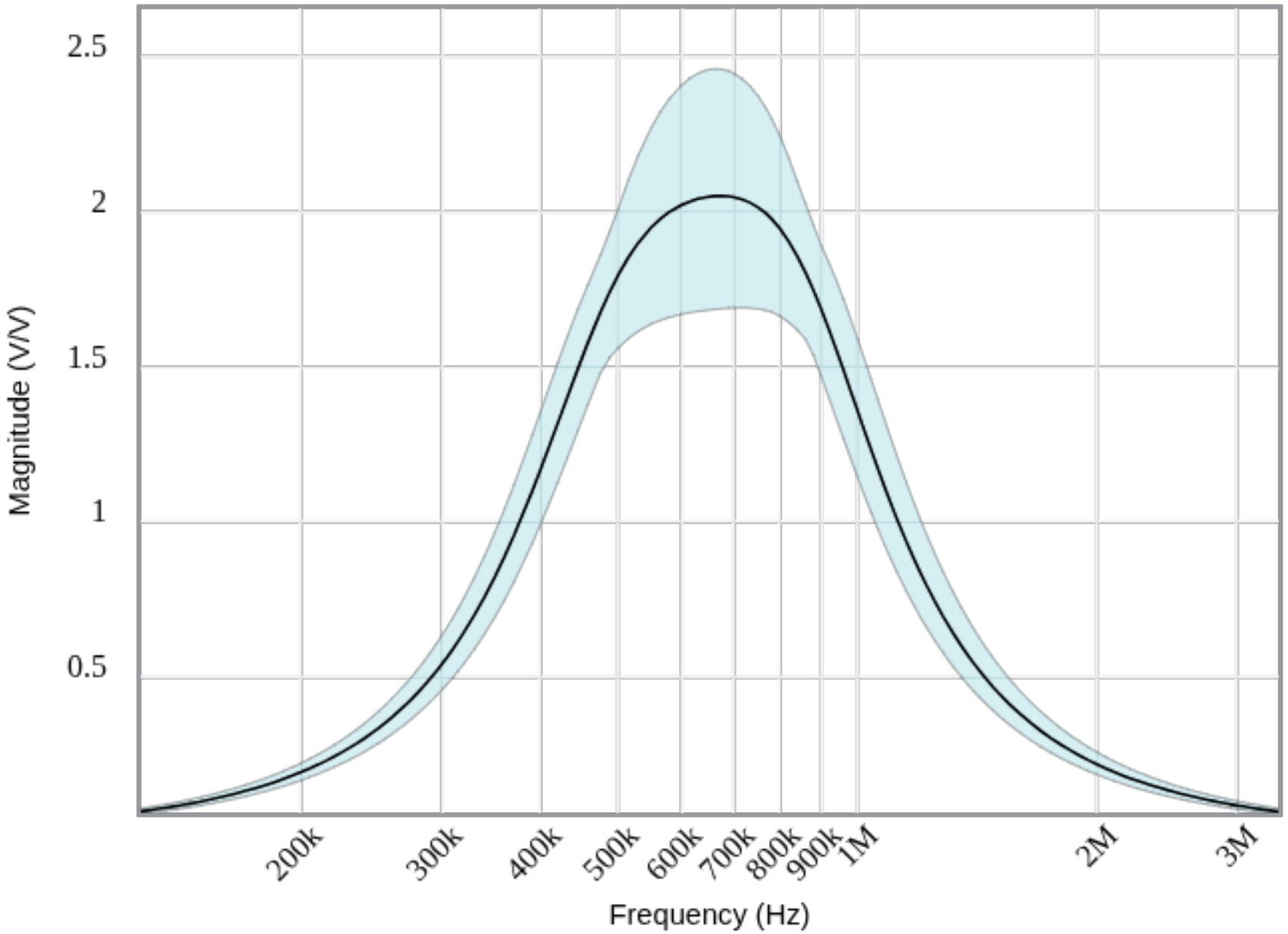
Component Tolerances: Capacitor = 5%; Resistor = 1%; Inductor = 5%; Op Amp GBW = 20%

BOM: refer to BOM.csv file

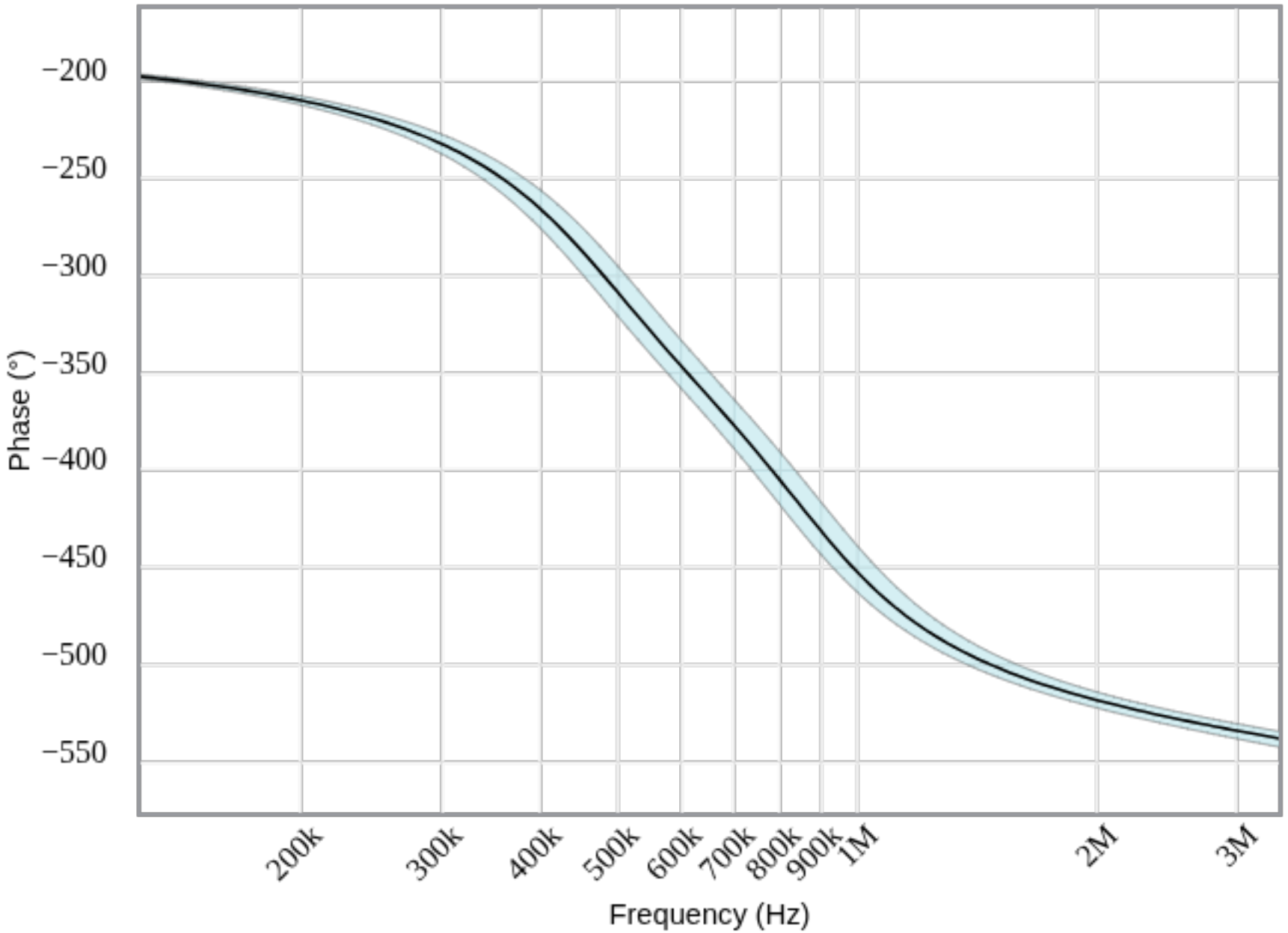
Magnitude(dB)



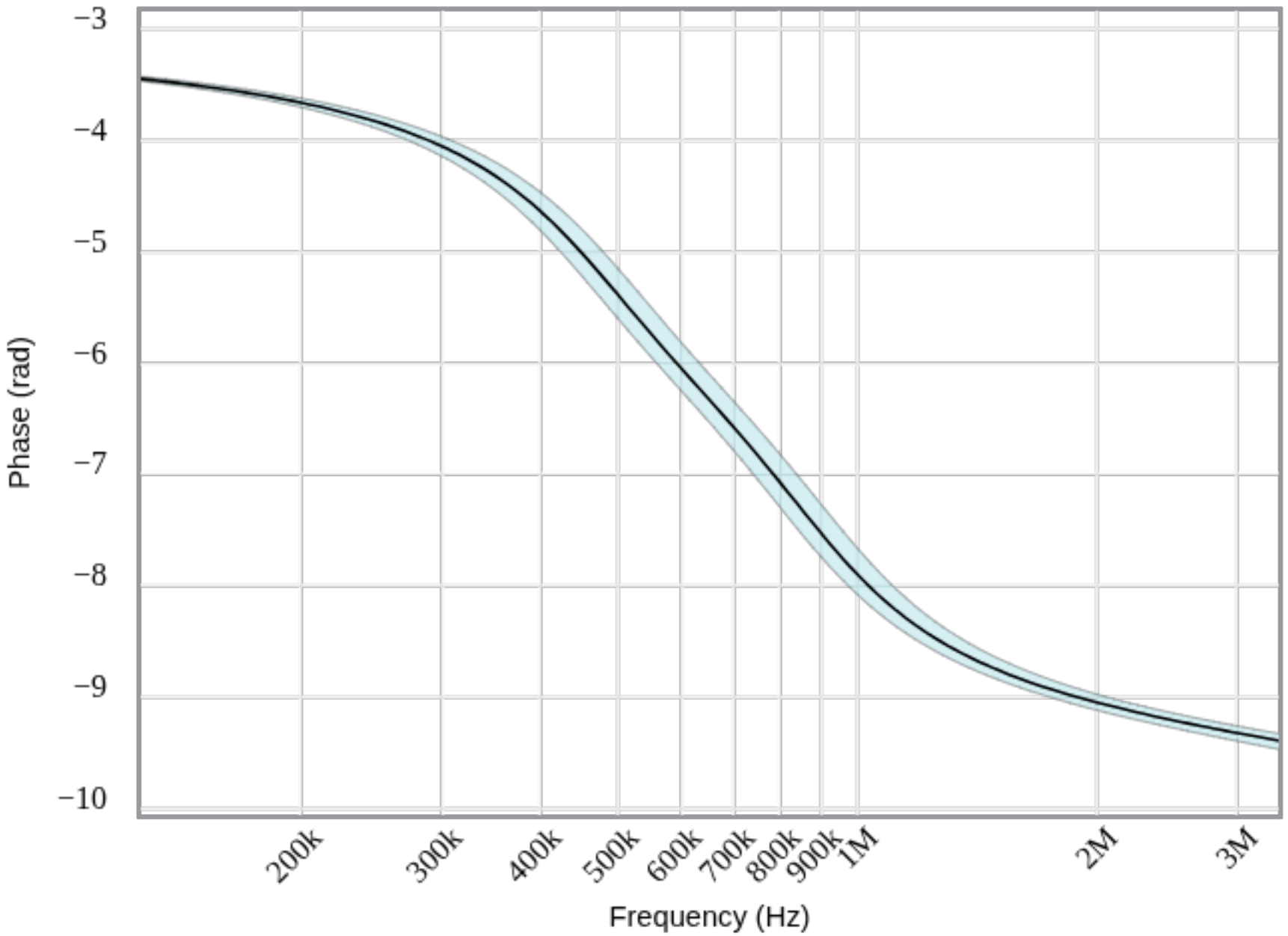
Magnitude(Volts per Volt)



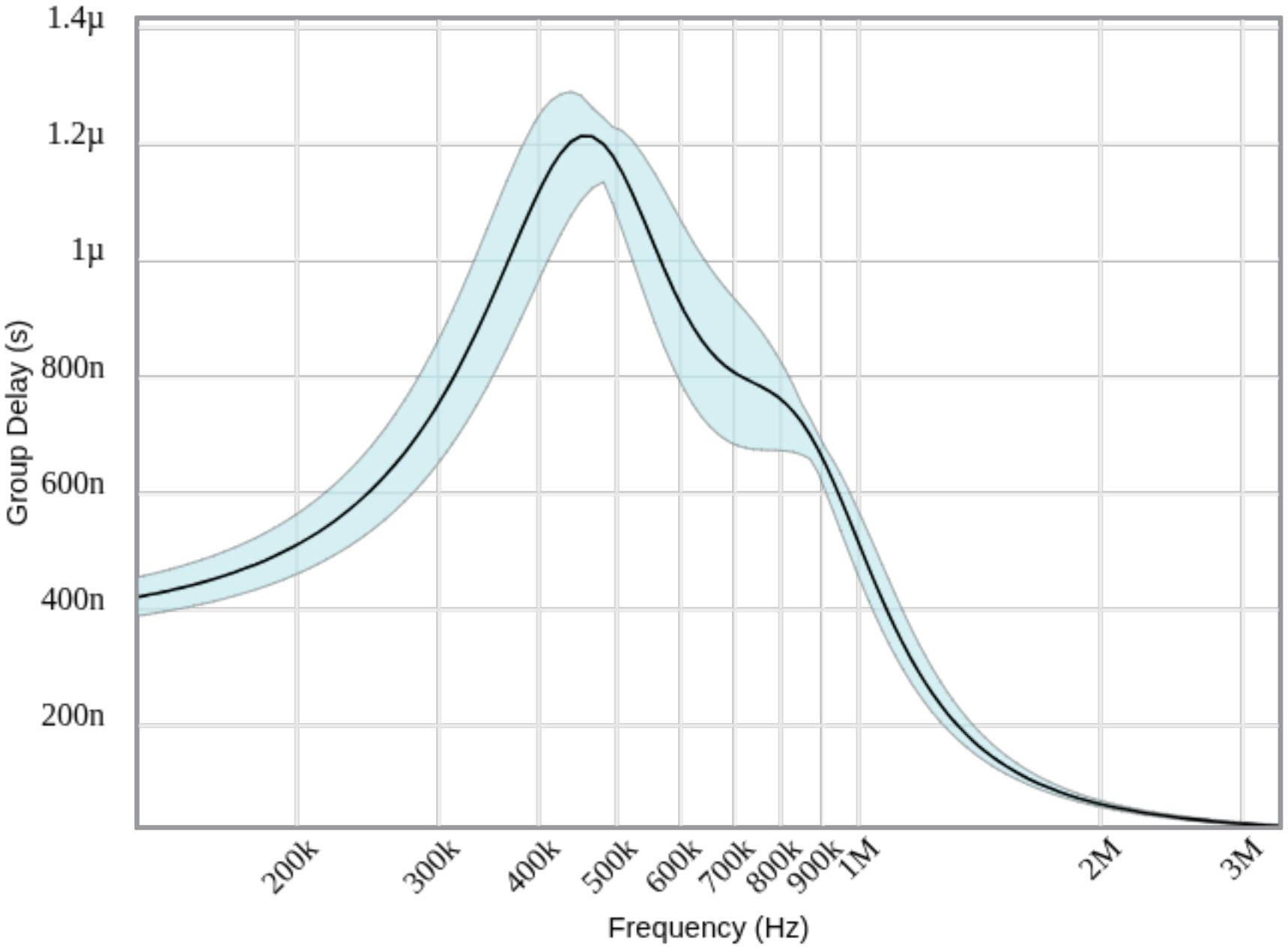
Phase(degrees)



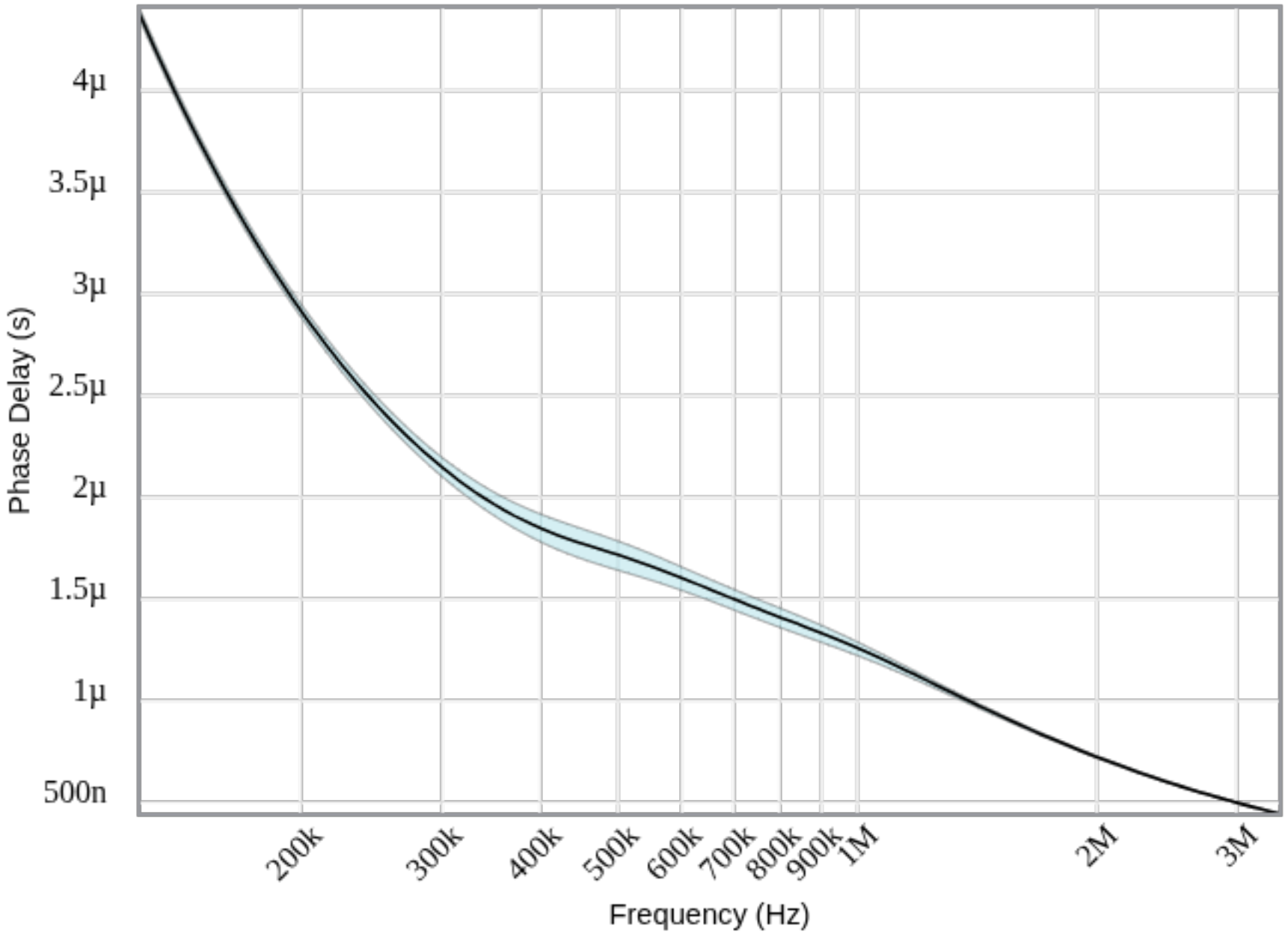
Phase(radians)



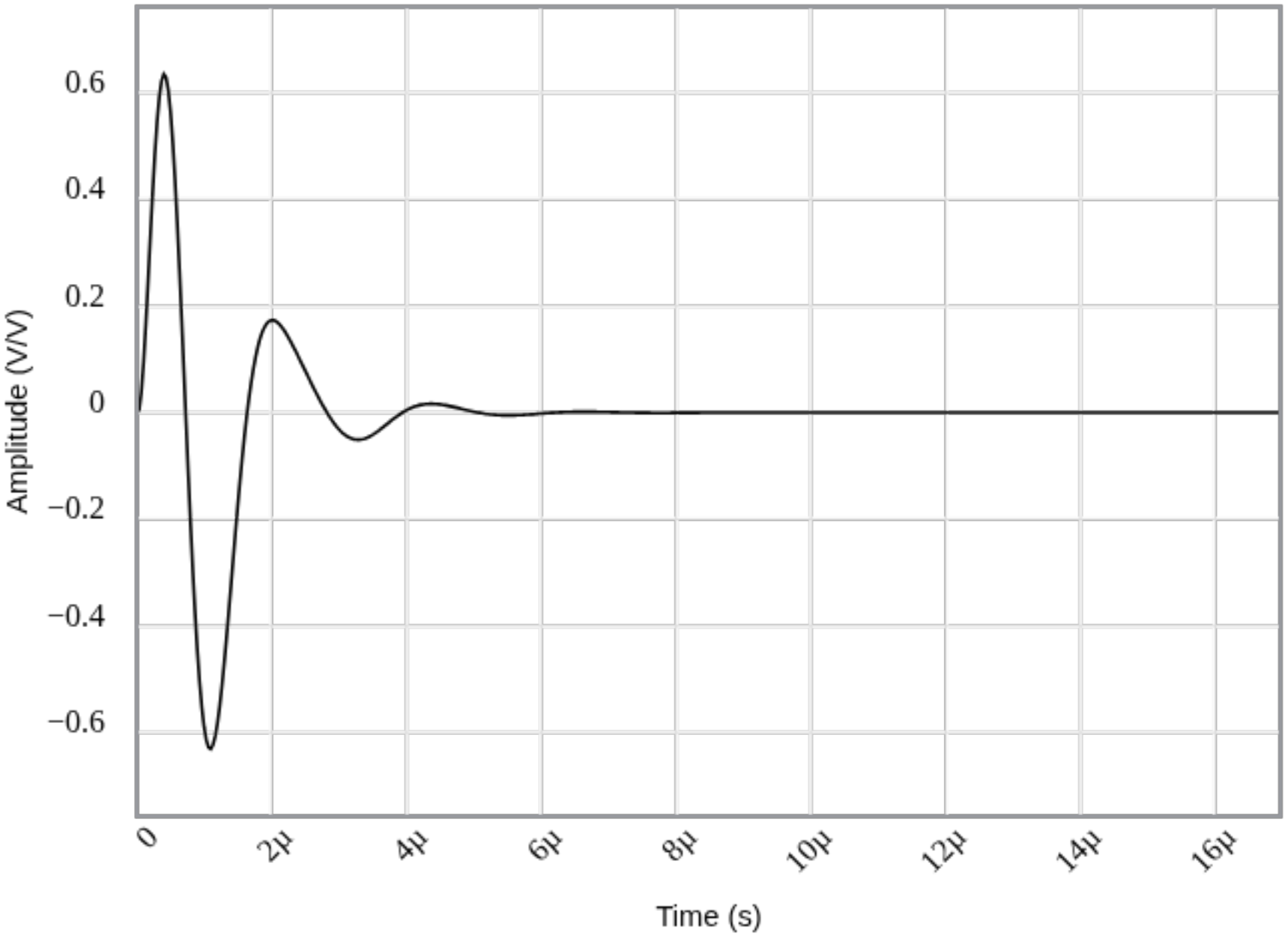
Group Delay


1.4µ
1.2µ
1µ
800n
600n
400n
200n
Group Delay (s)
200k
300k
400k
500k
600k
700k
800k
900k
1M
2M
3M
Frequency (Hz)

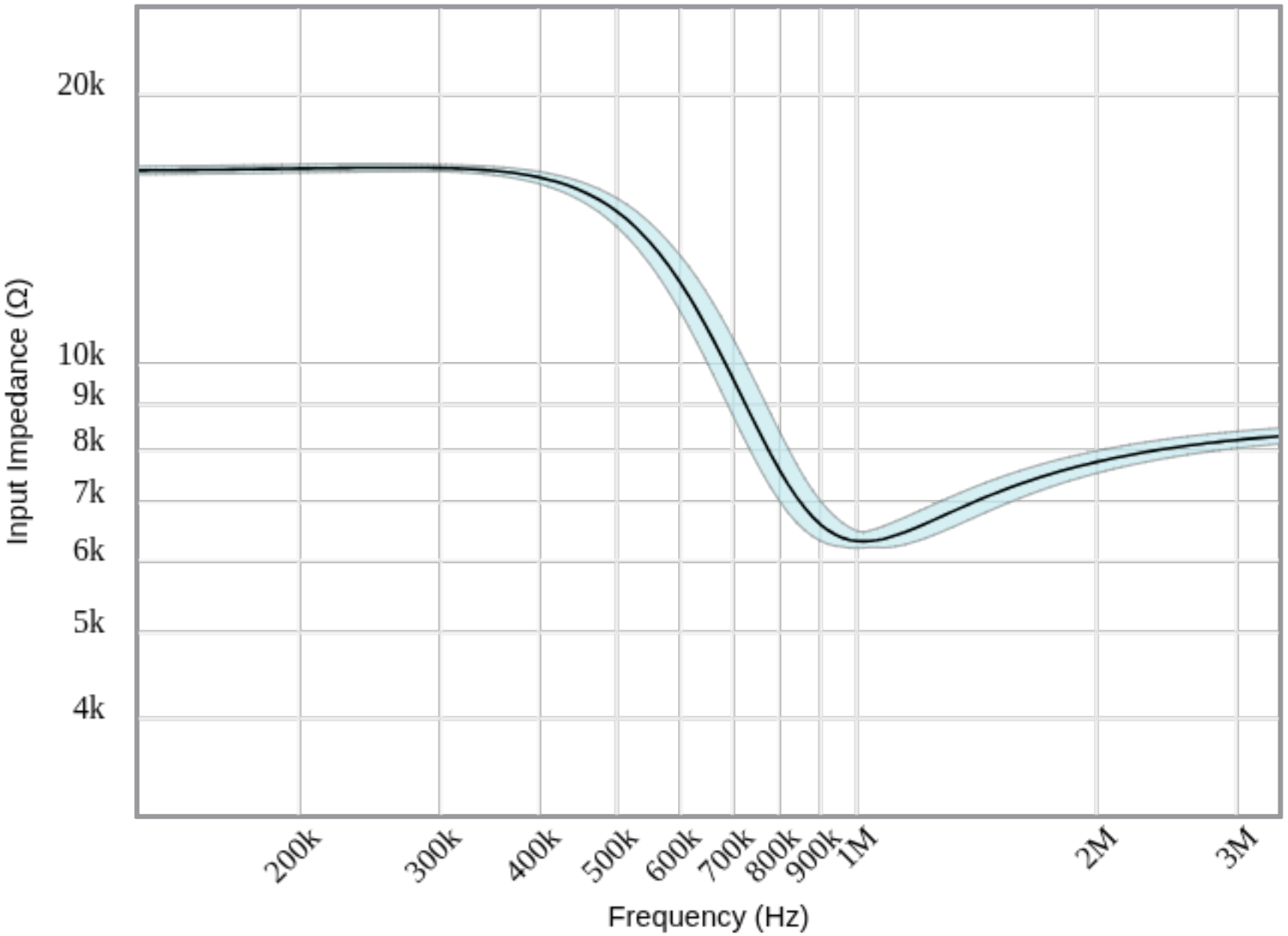
Phase Delay


4µ
3.5µ
3µ
2.5µ
2µ
1.5µ
1µ
500n
Phase Delay (s)
200k
300k
400k
500k
600k
700k
800k
900k
1M
2M
3M
Frequency (Hz)

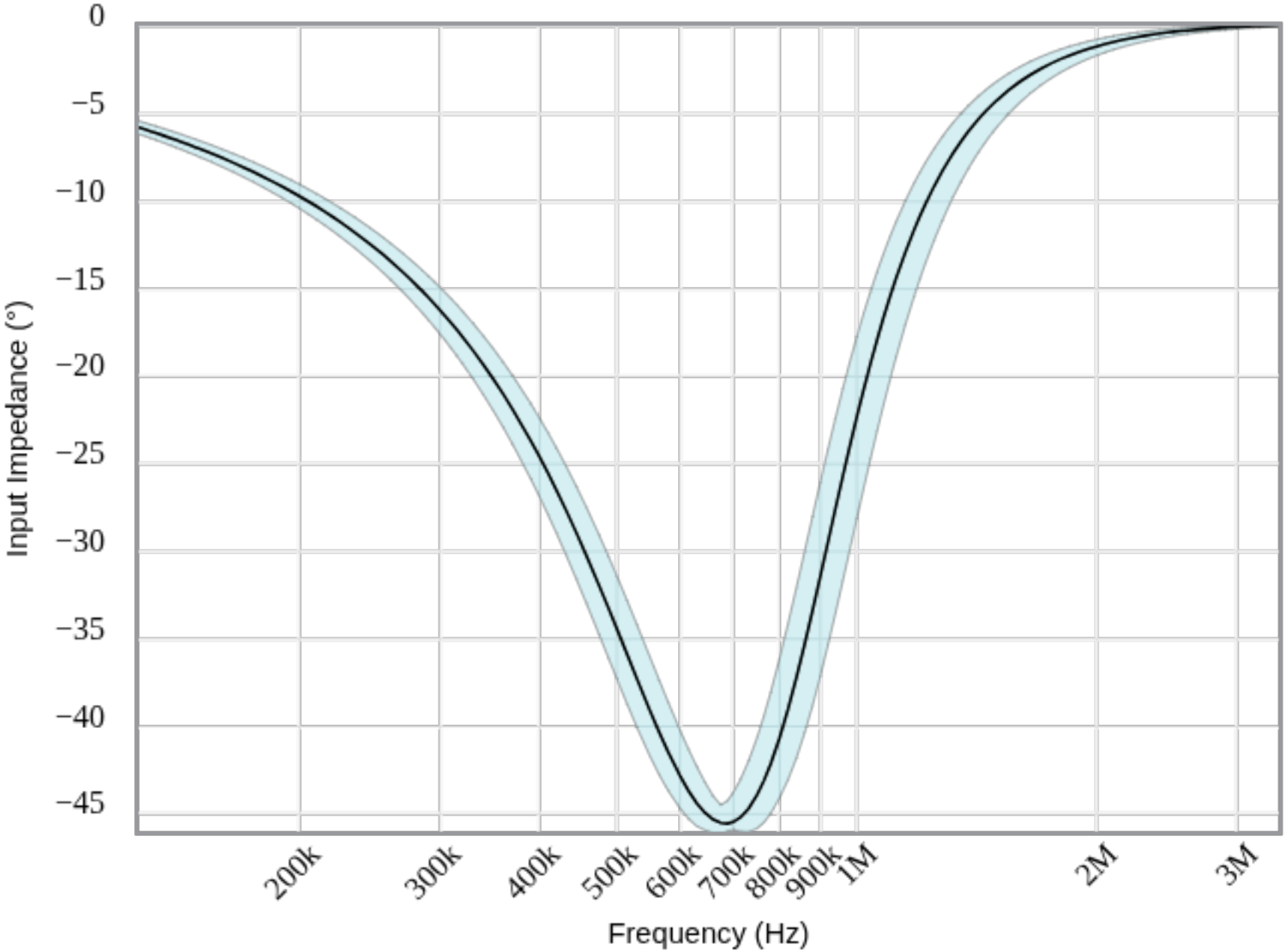
Step Response



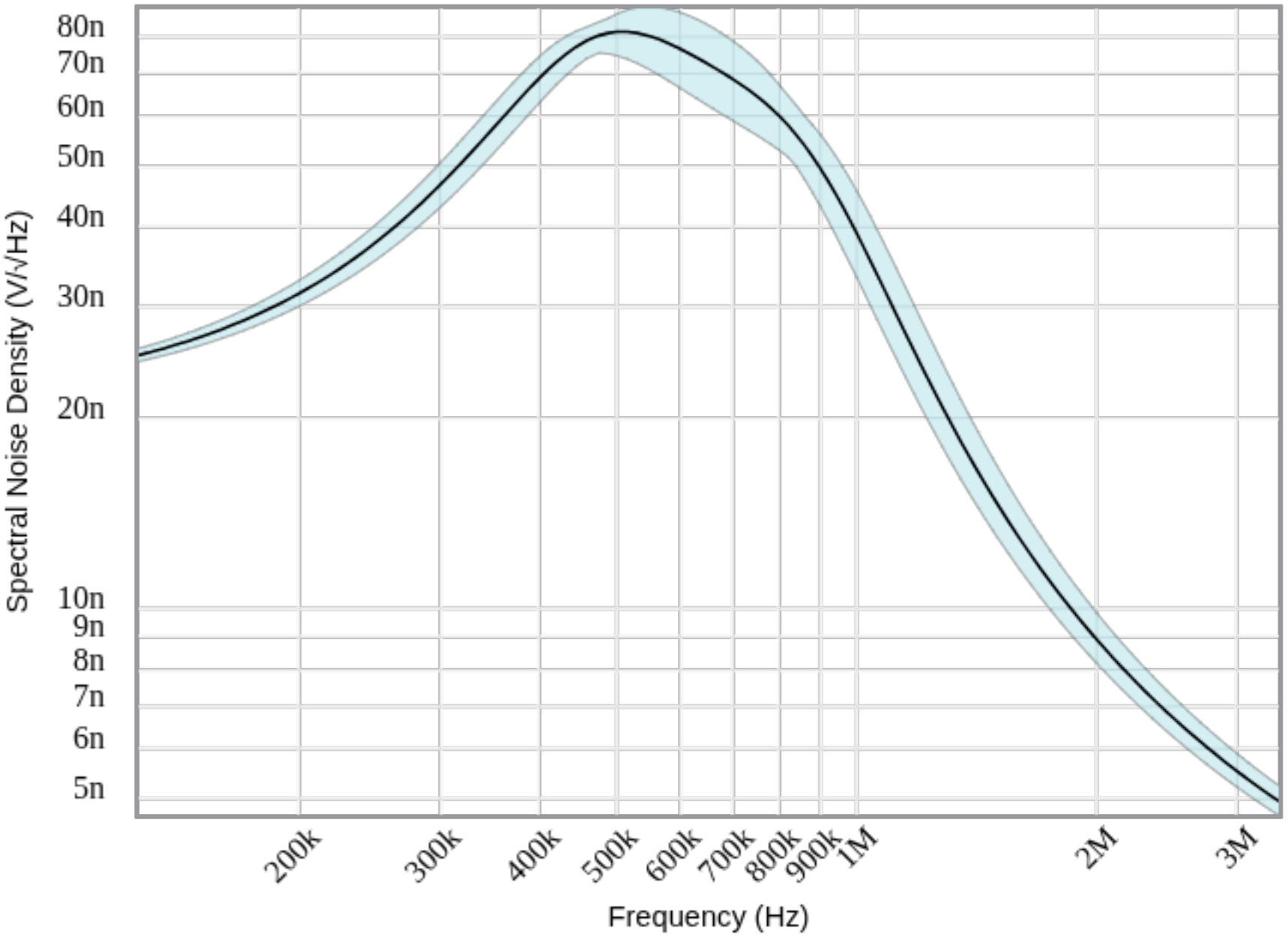
Input Impedance Magnitude



Input Impedance Phase



Noise


80n
70n
60n
50n
40n
30n
20n
10n
9n
8n
7n
6n
5n
Spectral Noise Density (V/√Hz)
200k
300k
400k
500k
600k
700k
800k
900k
1M
2M
3M
Frequency (Hz)

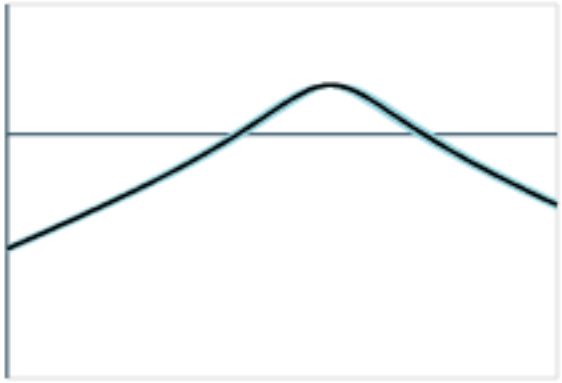
Stages

Your filter requires 2 op amp stage(s) with the following characteristics

A

2nd order
Band-Pass
Multiple
Feedback

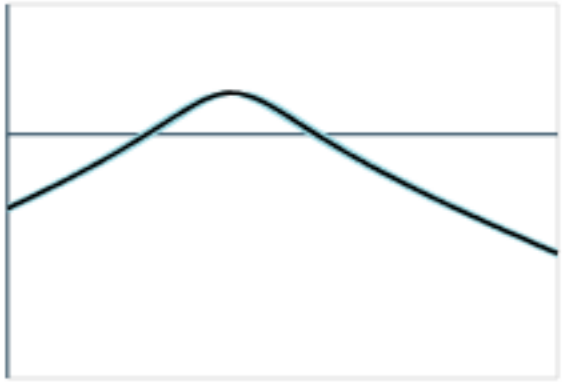
	Target	Simulated
Gain (V/V):	1.94	1.97 to 2.05
f_p (Hz):	894k	825k to 932k
Q:	1.45	1.44 to 1.5



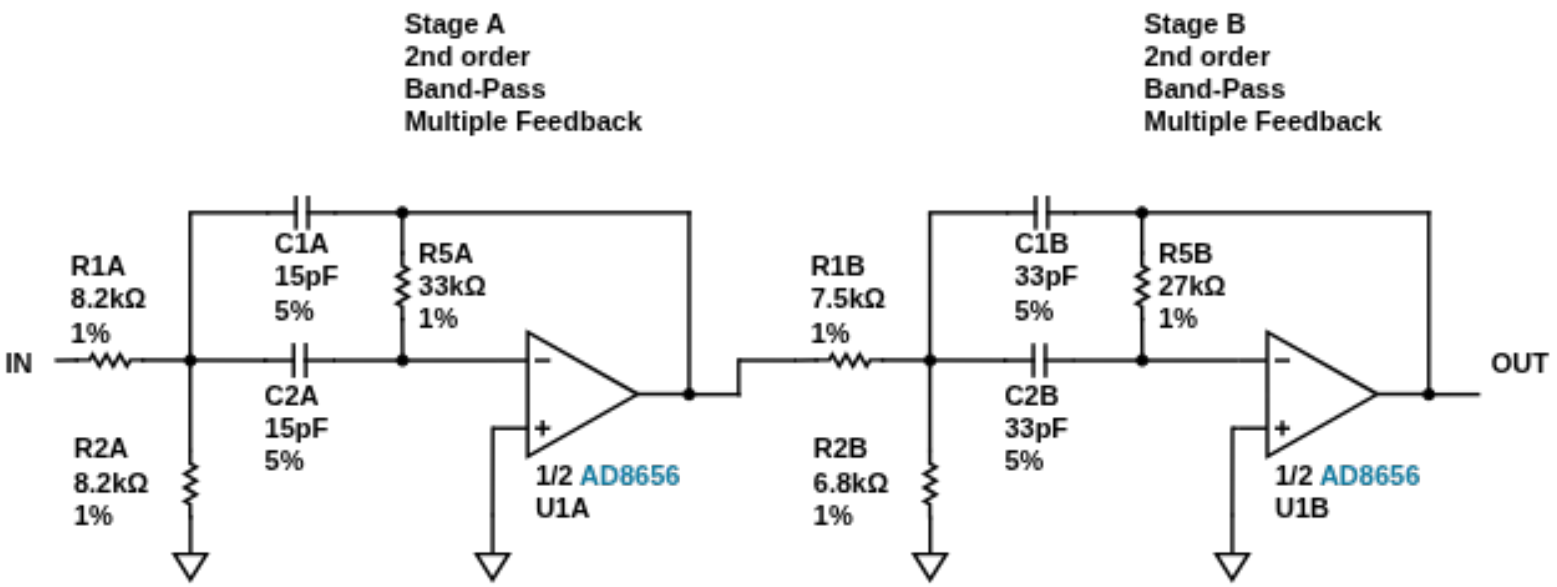
B

2nd order
Band-Pass
Multiple
Feedback

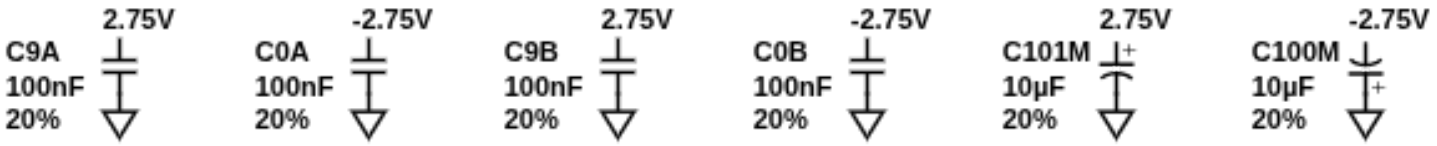
Target	Simulated
1.94	1.76 to 1.84
473k	453k to 512k
1.45	1.4 to 1.45



Circuit



BYPASS CAPACITORS



SPARES Why The Spares?