Filter Wizard

Filter Wizard Design

Created on 06/19/2025

ANALOG DEVICES

Filter Wizard Design Report

Filter Requirements for Low-Pass, 4th order Butterworth

Specifications: Optimize: Specific Parts; +Vs: 5; -Vs: -5

Gain: 0 dB

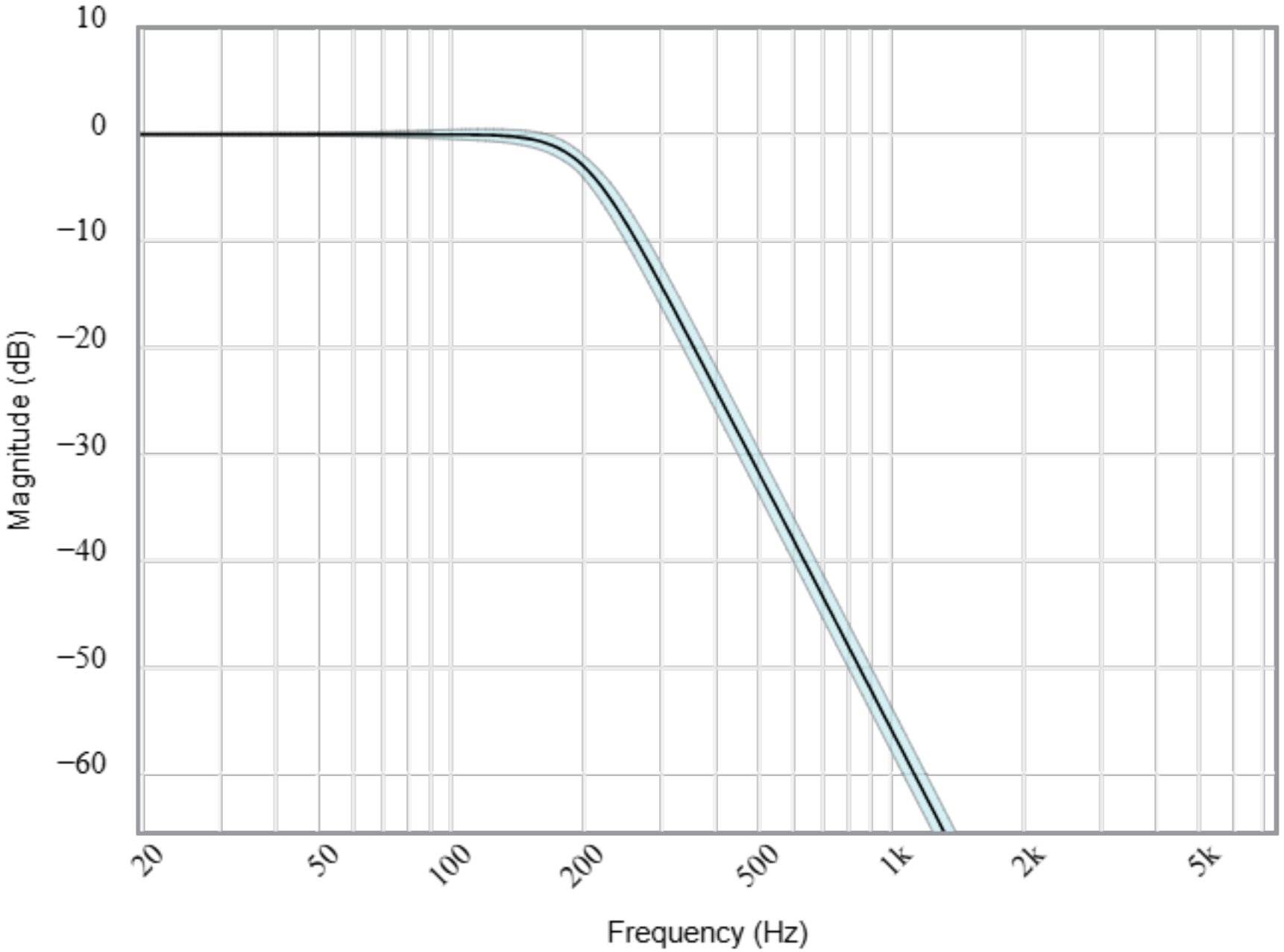
Passband: -3dB at 200Hz

Stopband: -45.5dB at 750Hz

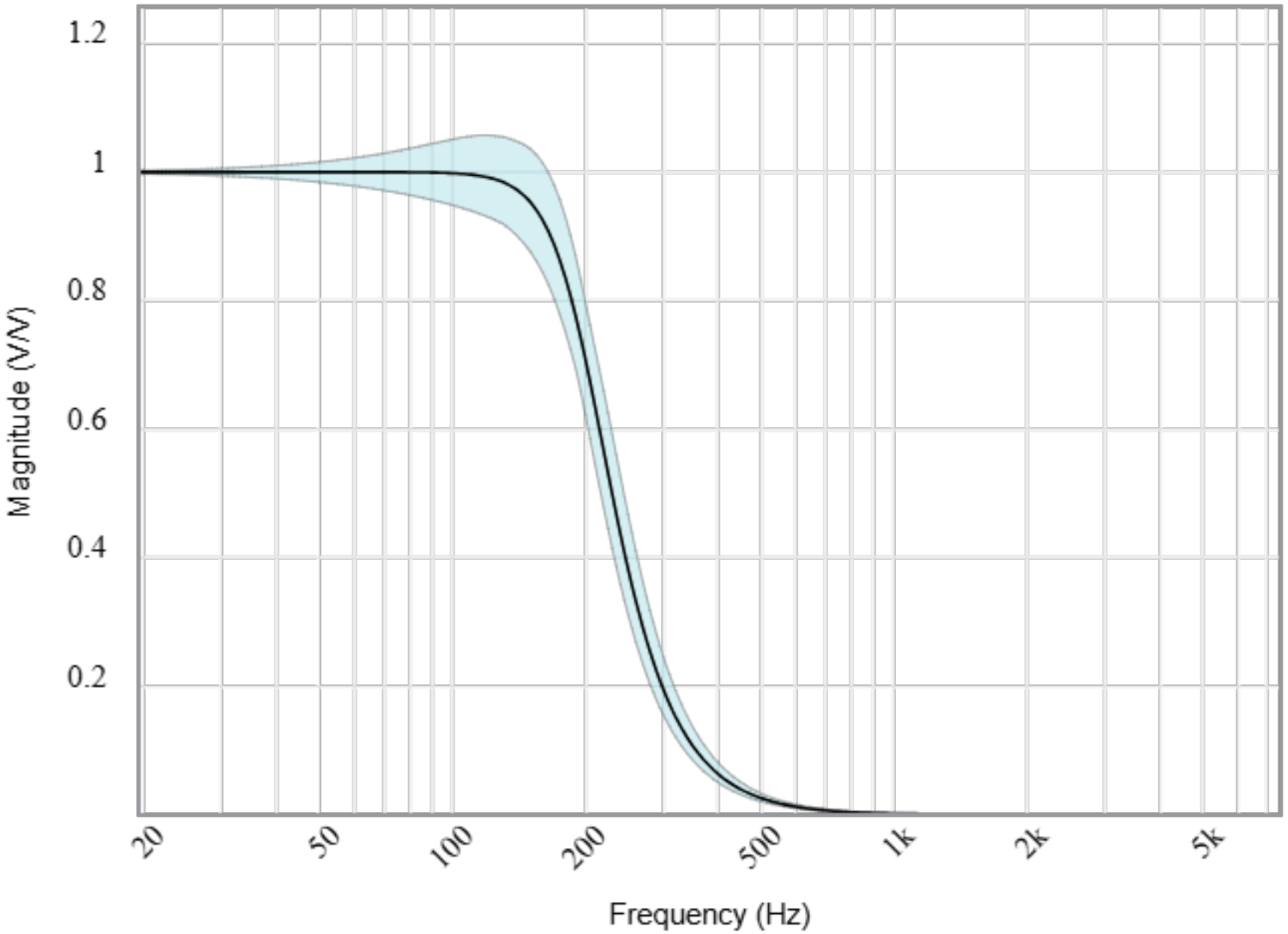
Component Tolerances: Capacitor = 5%; Resistor = 1%; Inductor = 5%; Op Amp GBW = 20%

BOM: refer to BOM.csv file

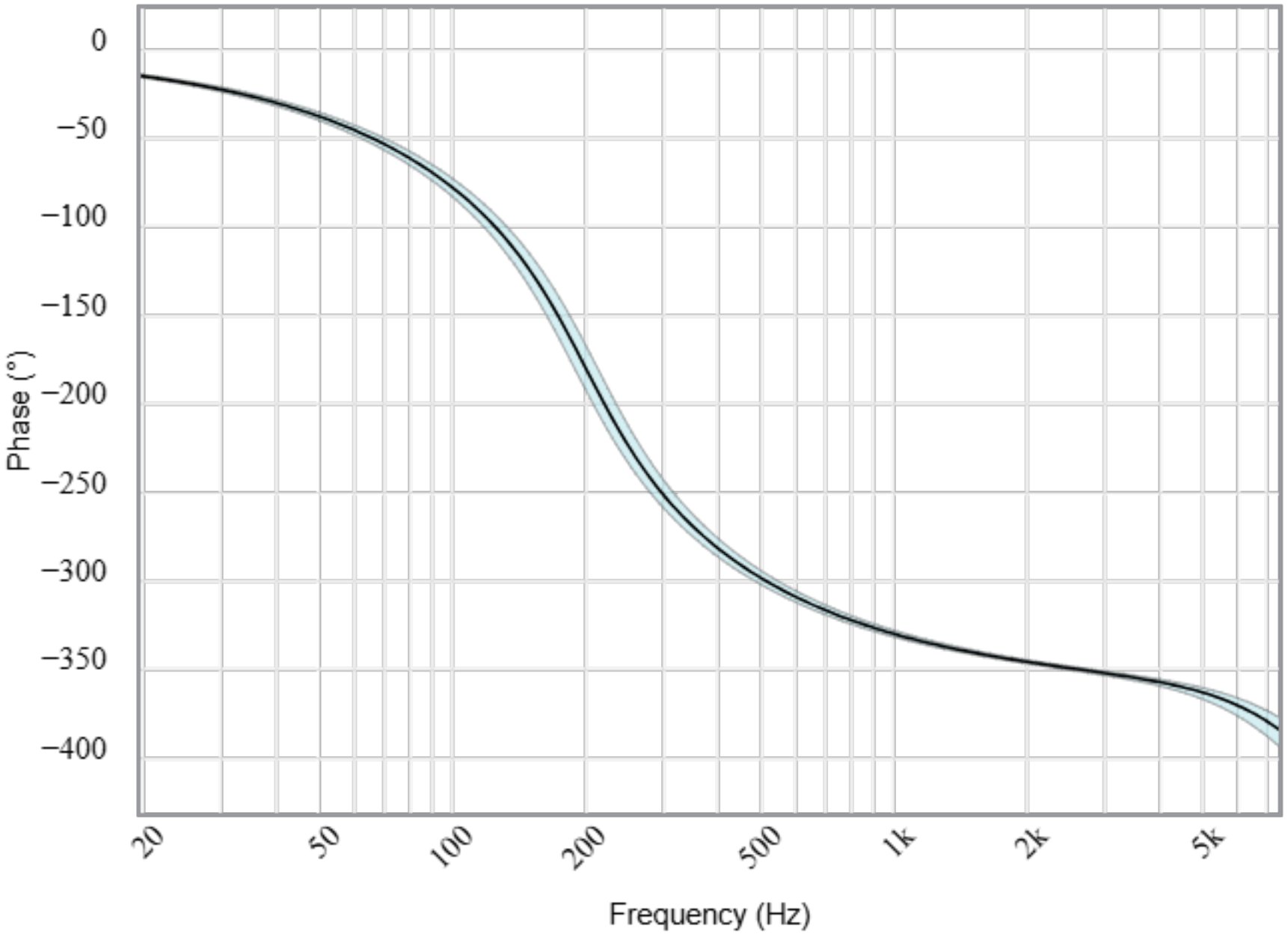
Magnitude(dB)



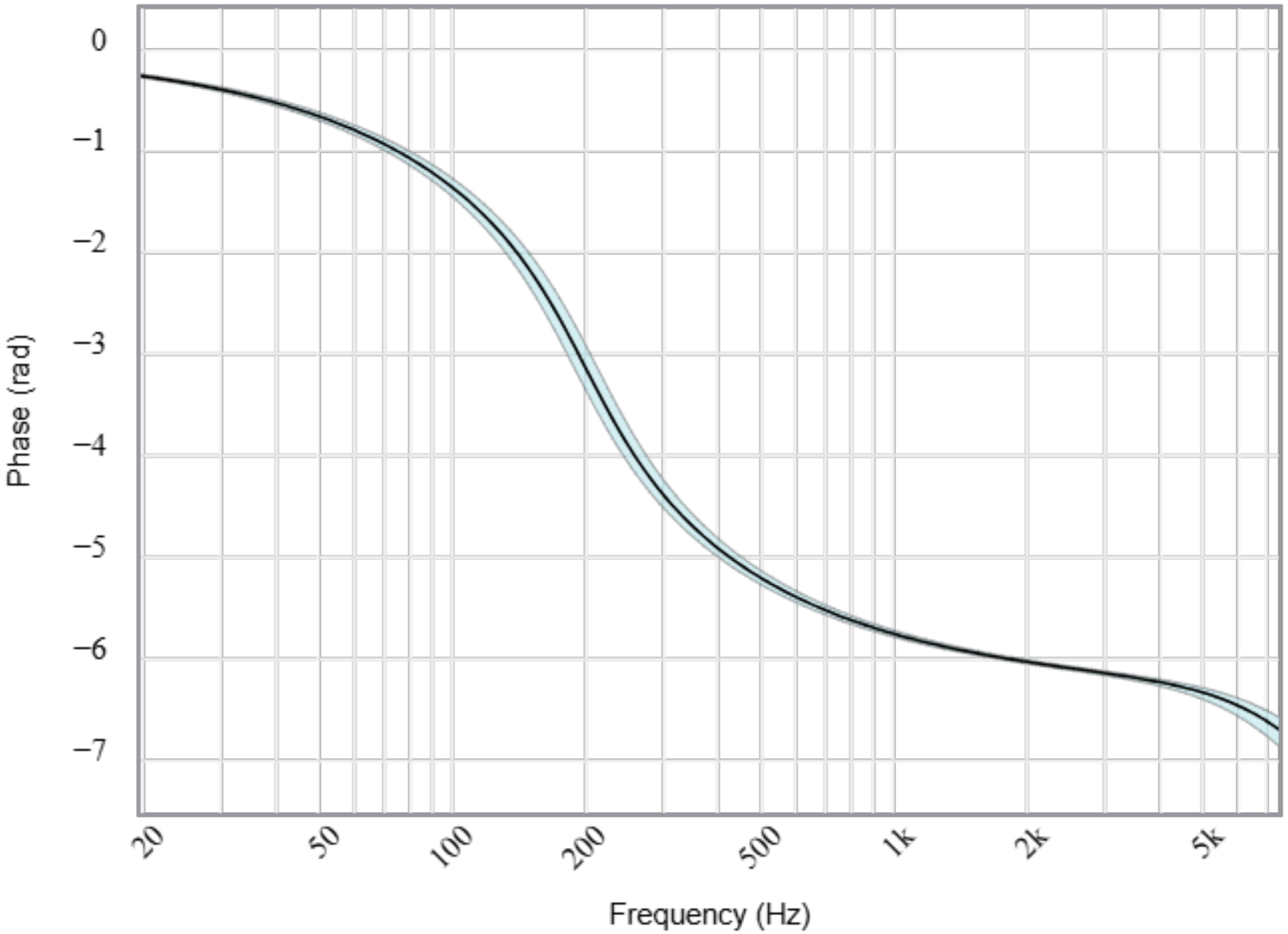
Magnitude(Volts per Volt)



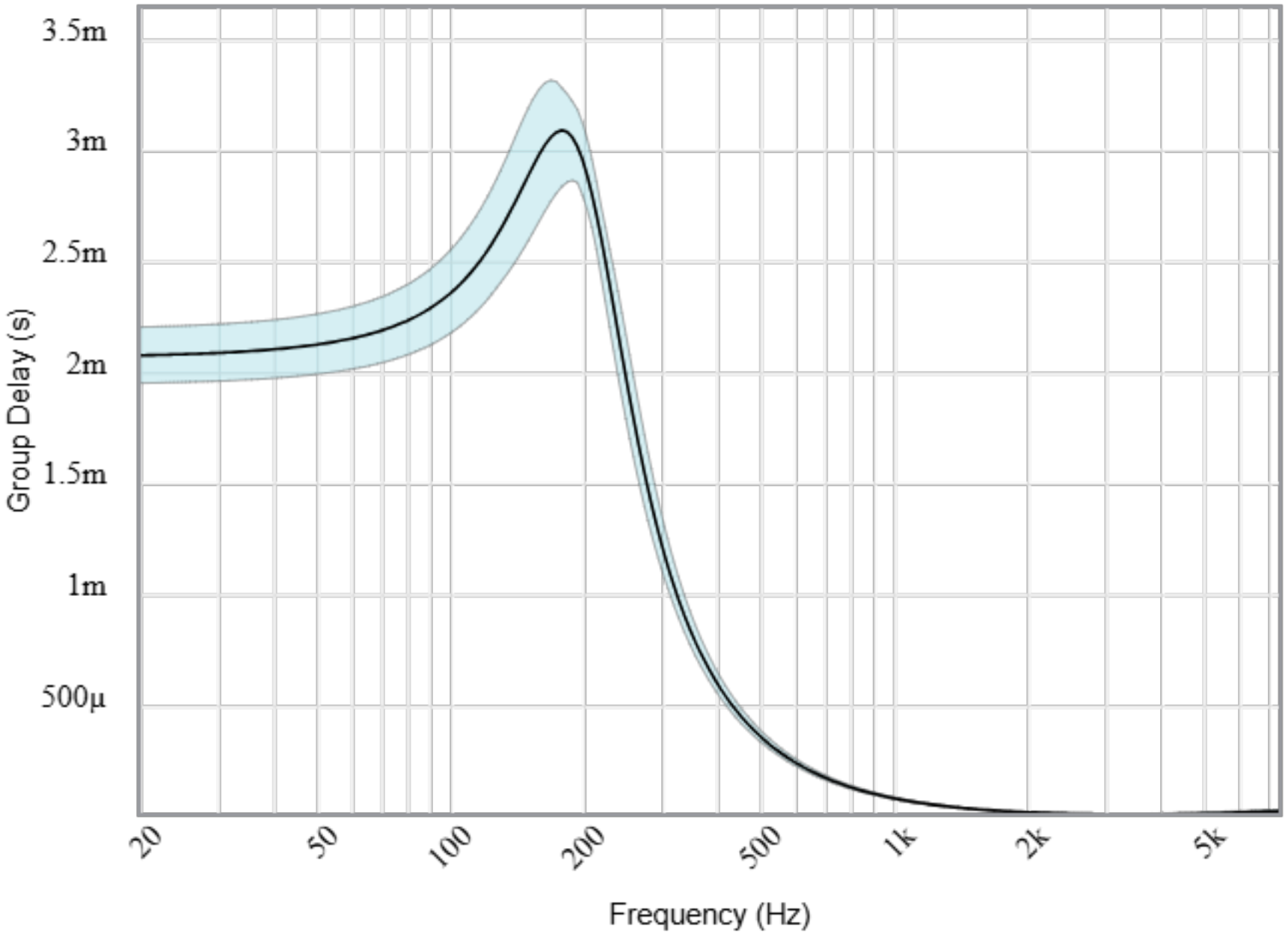
Phase(degrees)



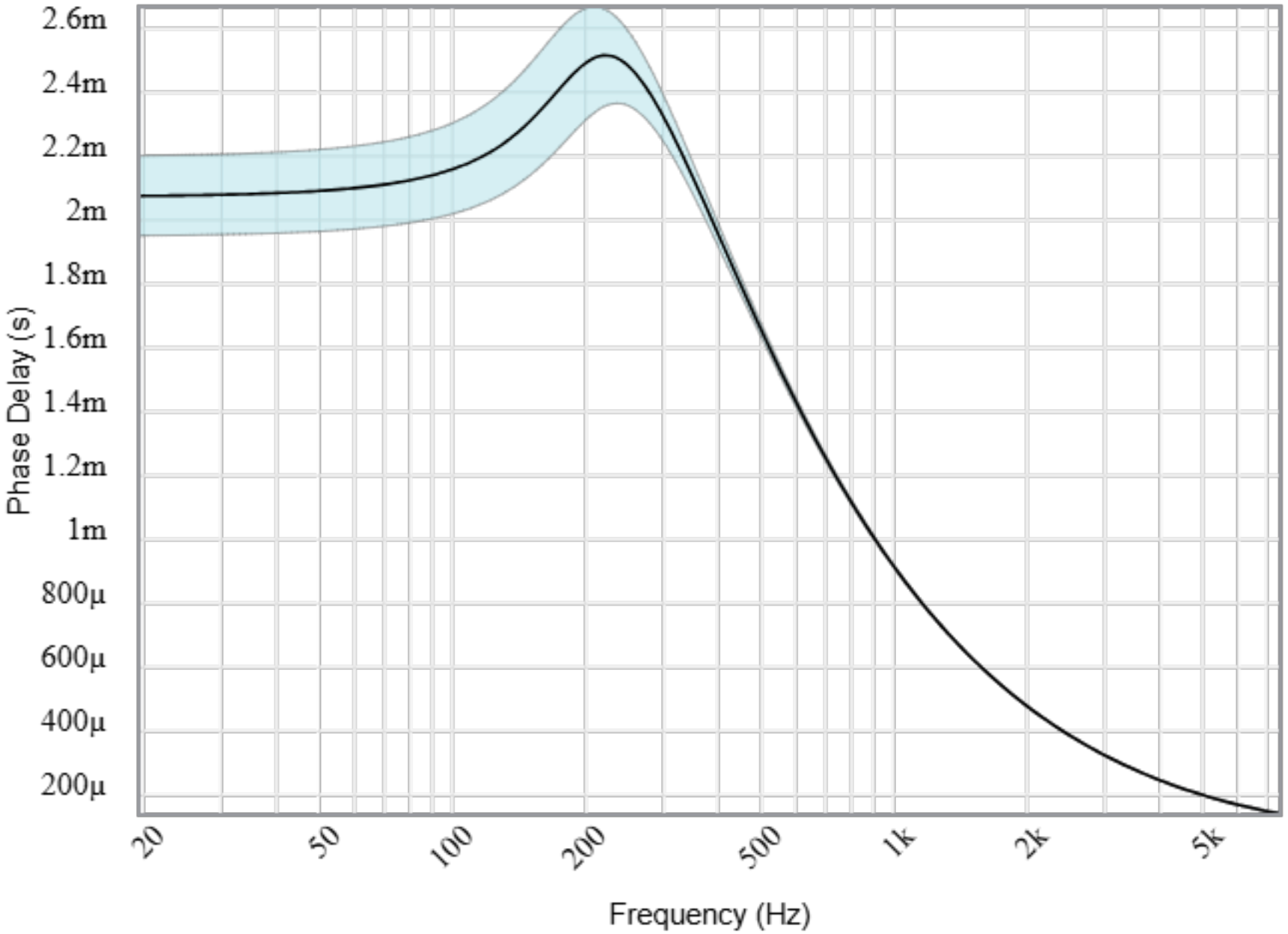
Phase(radians)



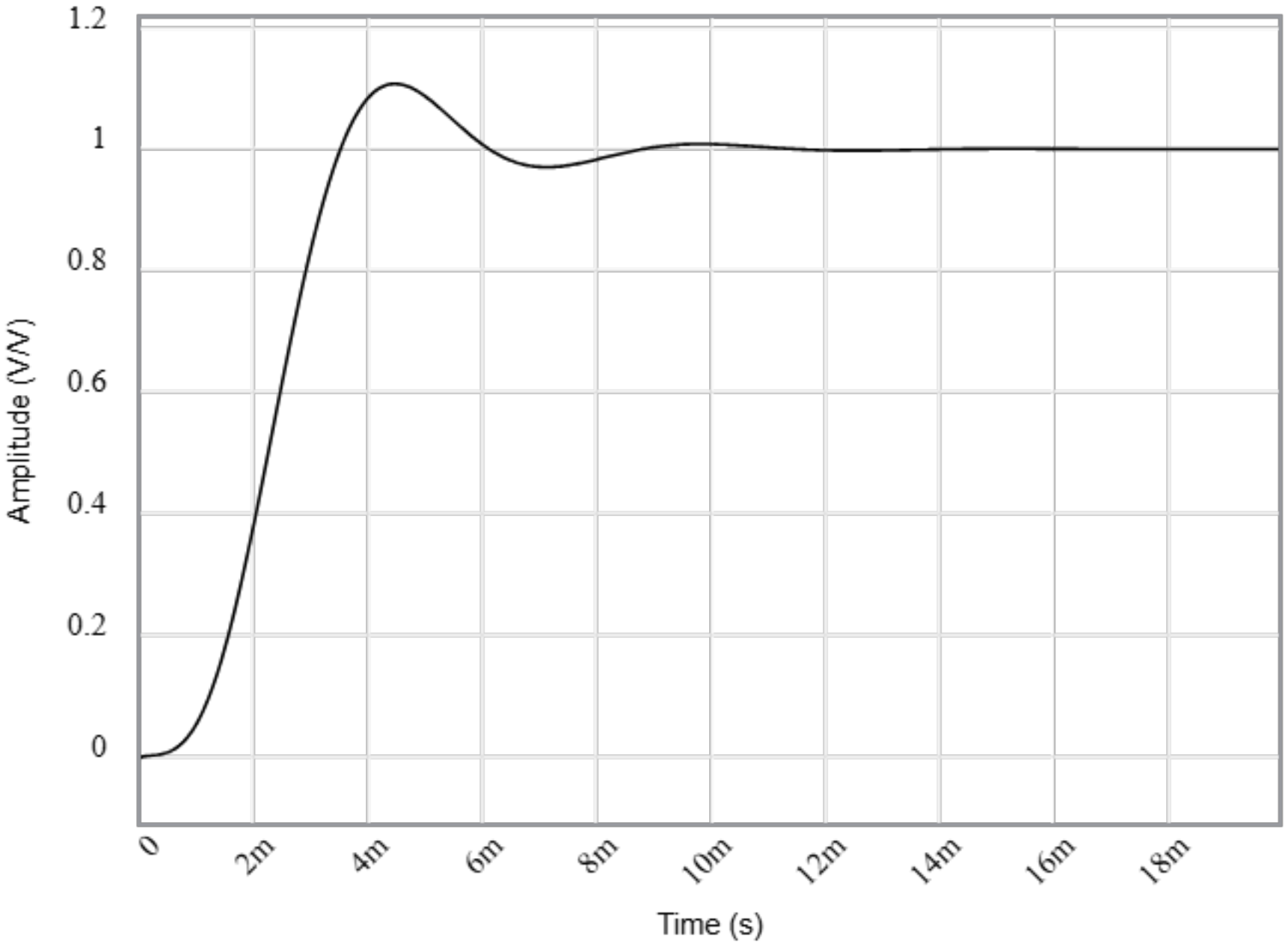
Group Delay


3.5m
3m
2.5m
2m
1.5m
1m
500µ
Group Delay (s)
20
50
100
200
500
1k
2k
5k
Frequency (Hz)

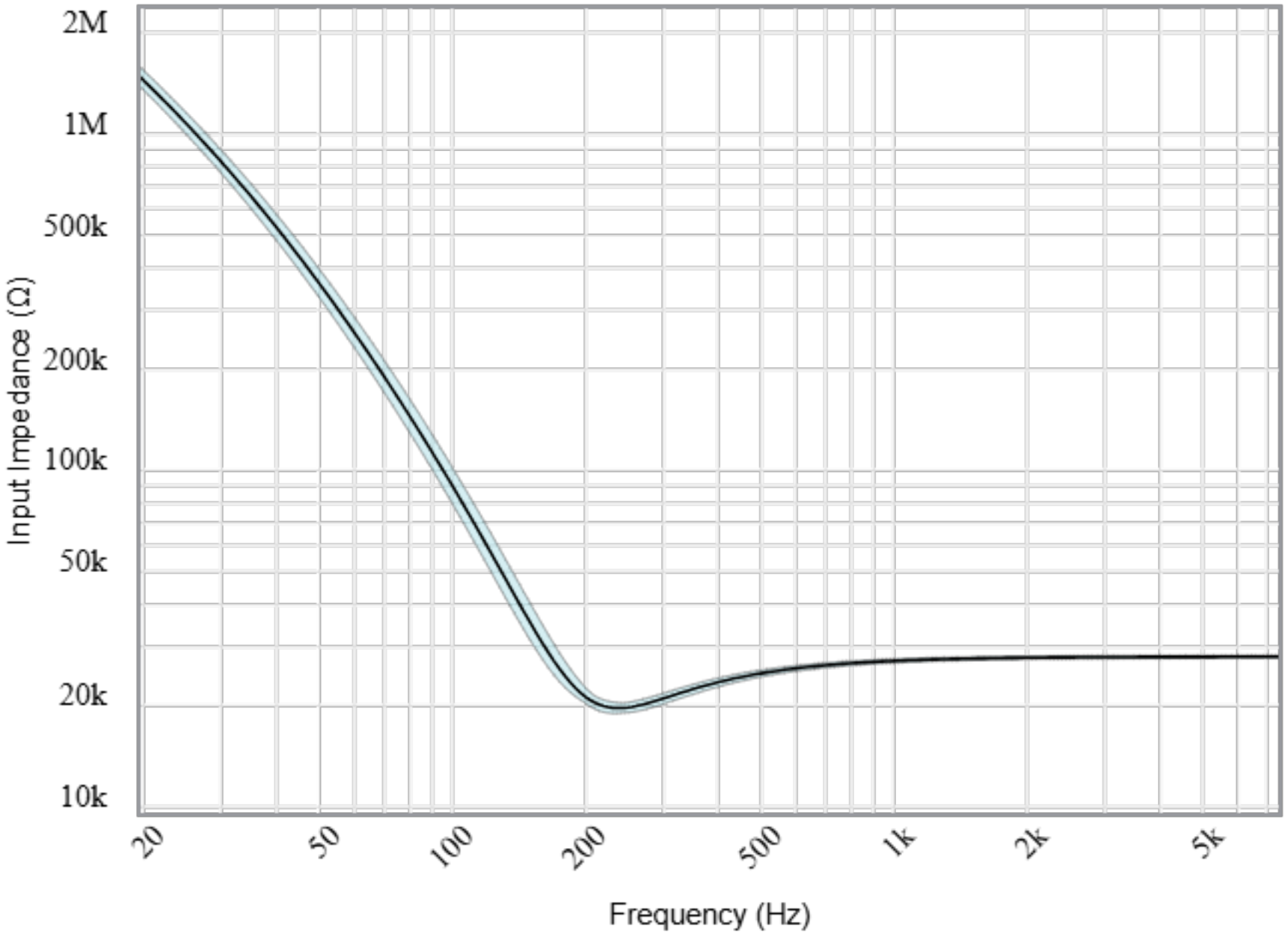
Phase Delay


2.6m
2.4m
2.2m
2m
1.8m
1.6m
1.4m
1.2m
1m
800µ
600µ
400µ
200µ
Phase Delay (s)
20
50
100
200
500
1k
2k
5k
Frequency (Hz)

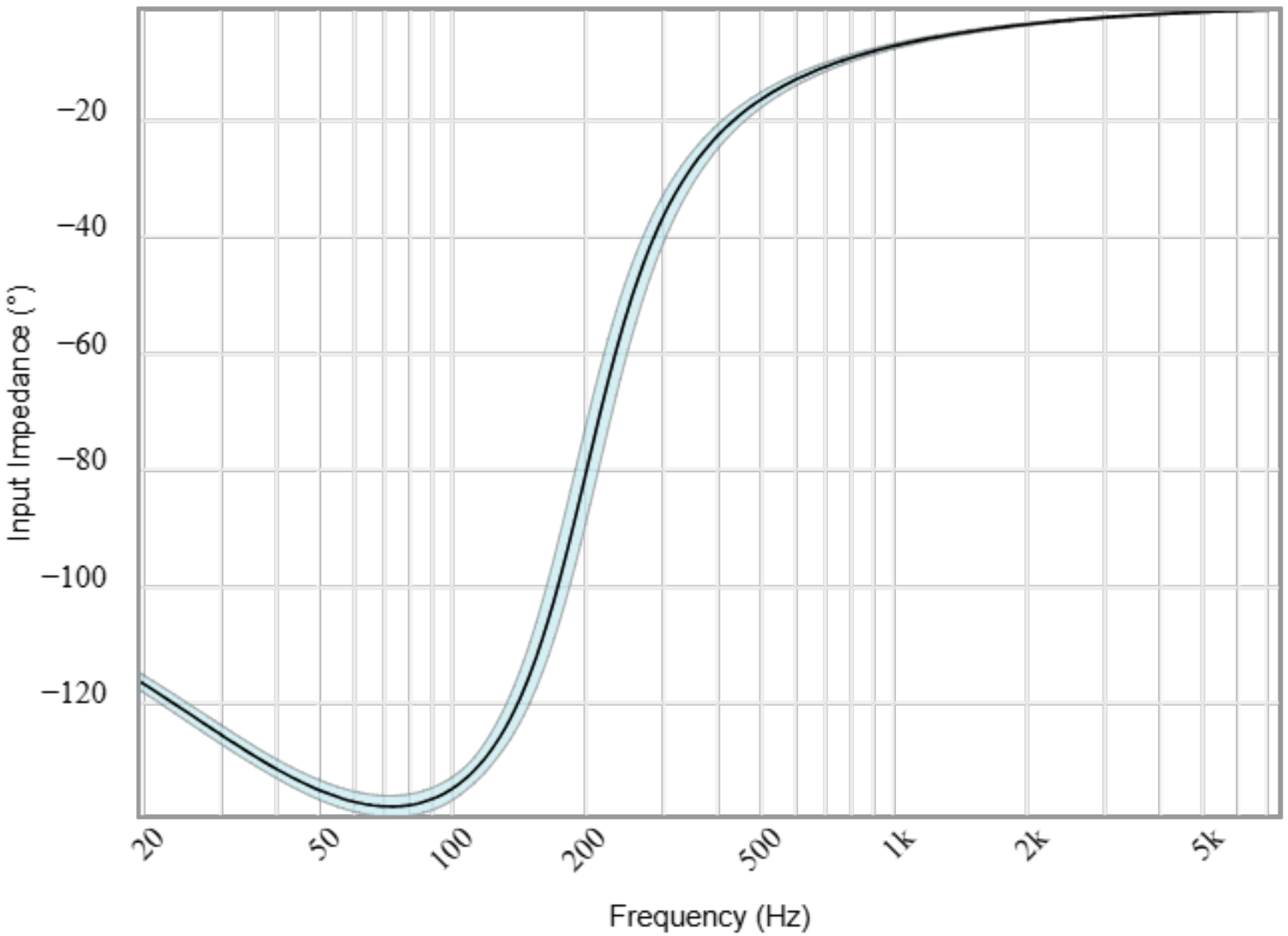
Step Response



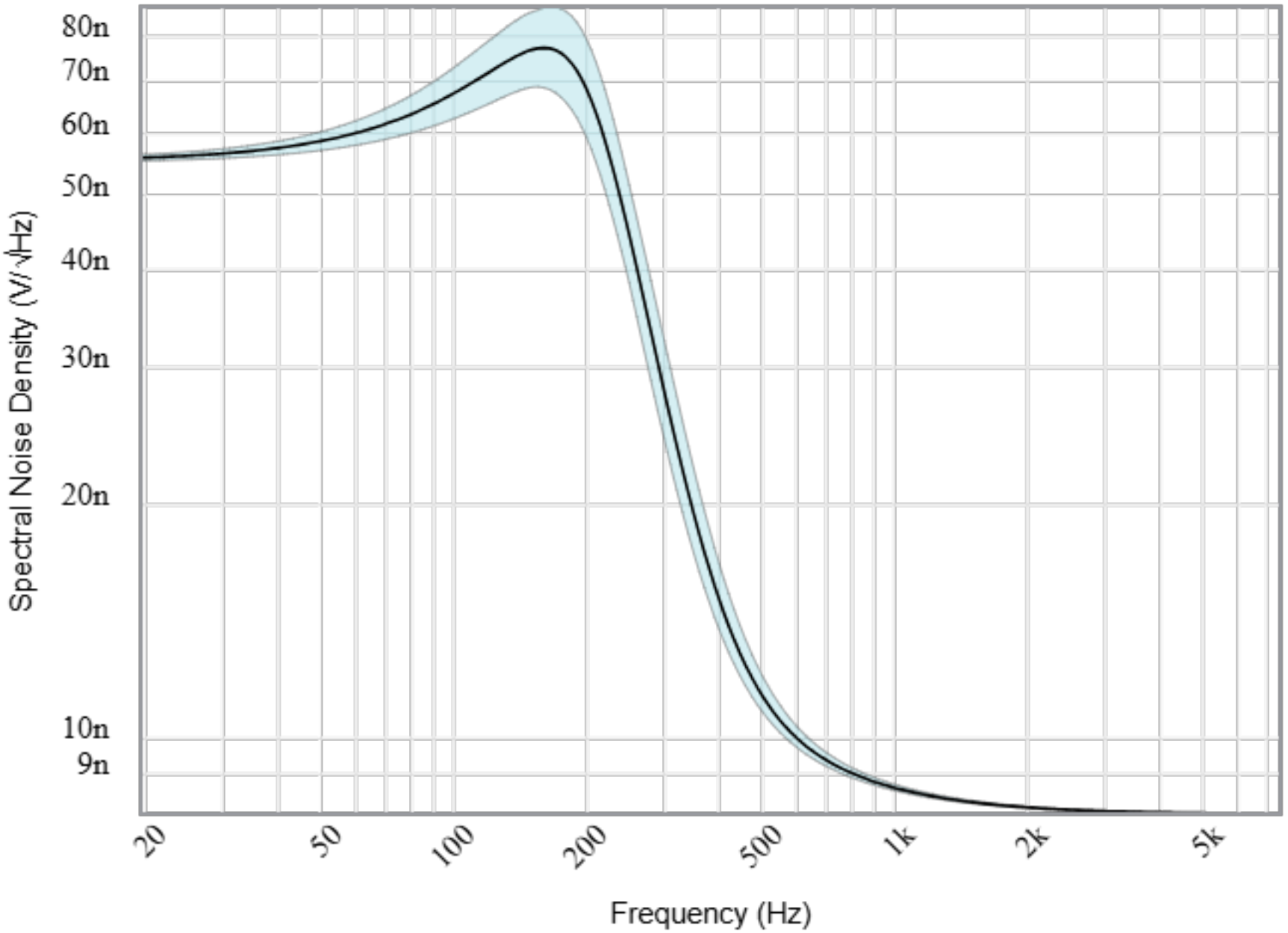
Input Impedance Magnitude



Input Impedance Phase



Noise

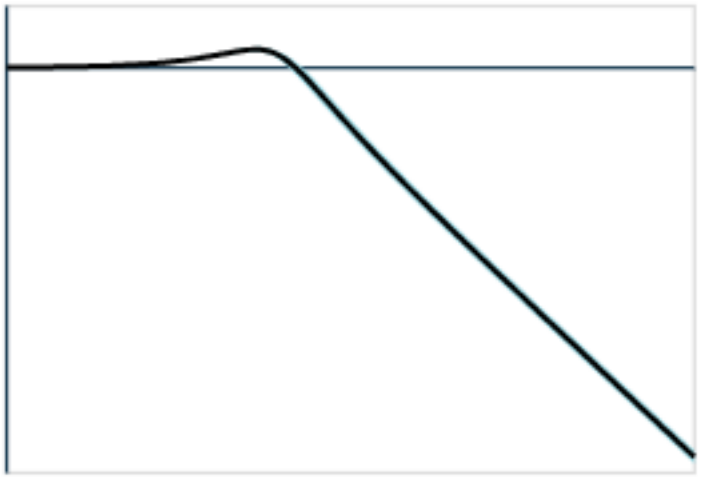

80n
70n
60n
50n
40n
30n
20n
10n
9n
Spectral Noise Density (V/√Hz)
20
50
100
200
500
1k
2k
5k
Frequency (Hz)

Stages

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

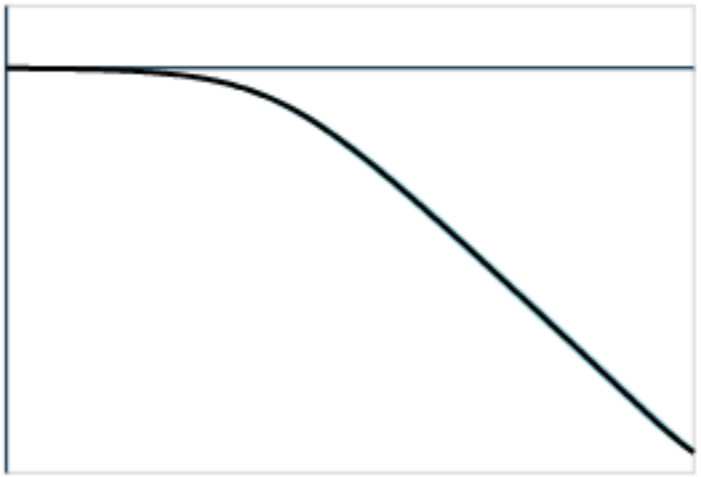
A — 2nd order Low-Pass Sallen Key

	Target	Simulated
Gain (V/V):	1	1 to 1
f_p (Hz):	200	189 to 213
Q:	1.31	1.23 to 1.37

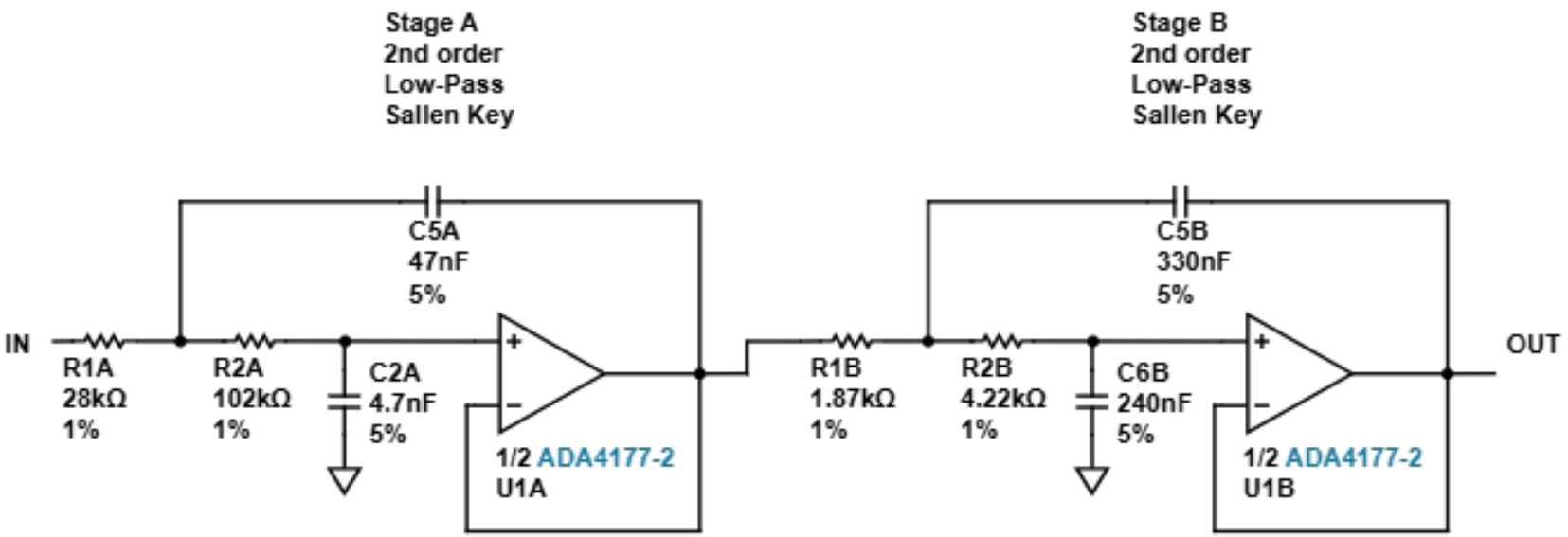


B — 2nd order Low-Pass Sallen Key

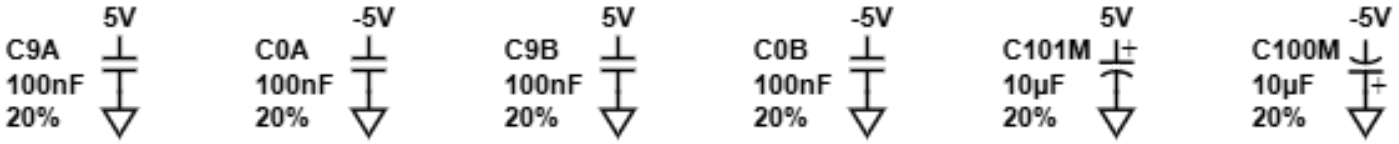
Target	Simulated
1	1 to 1
200	190 to 214
541m	513m to 571m



Circuit



BYPASS CAPACITORS



SPARES Why The Spares?