Filter Wizard

preamp_LN

Created on 09/07/2024

ANALOG DEVICES

Filter Wizard Design Report

Filter Requirements for Low-Pass, 2nd order Butterworth

Specifications: Optimize: Noise; +Vs: 9; -Vs: 0

Gain: 0 dB

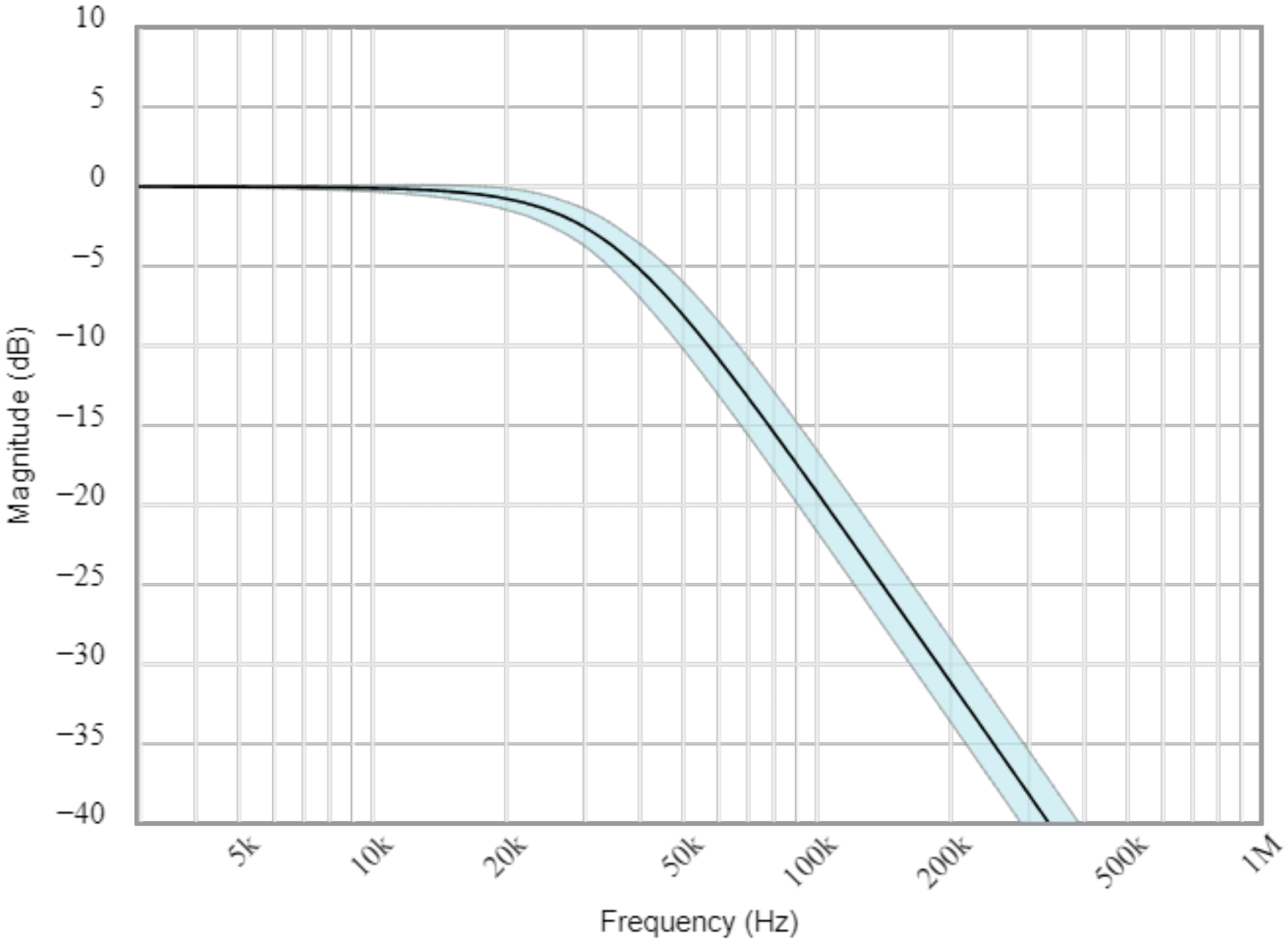
Passband: -3dB at 30kHz

Stopband: -20dB at 100kHz

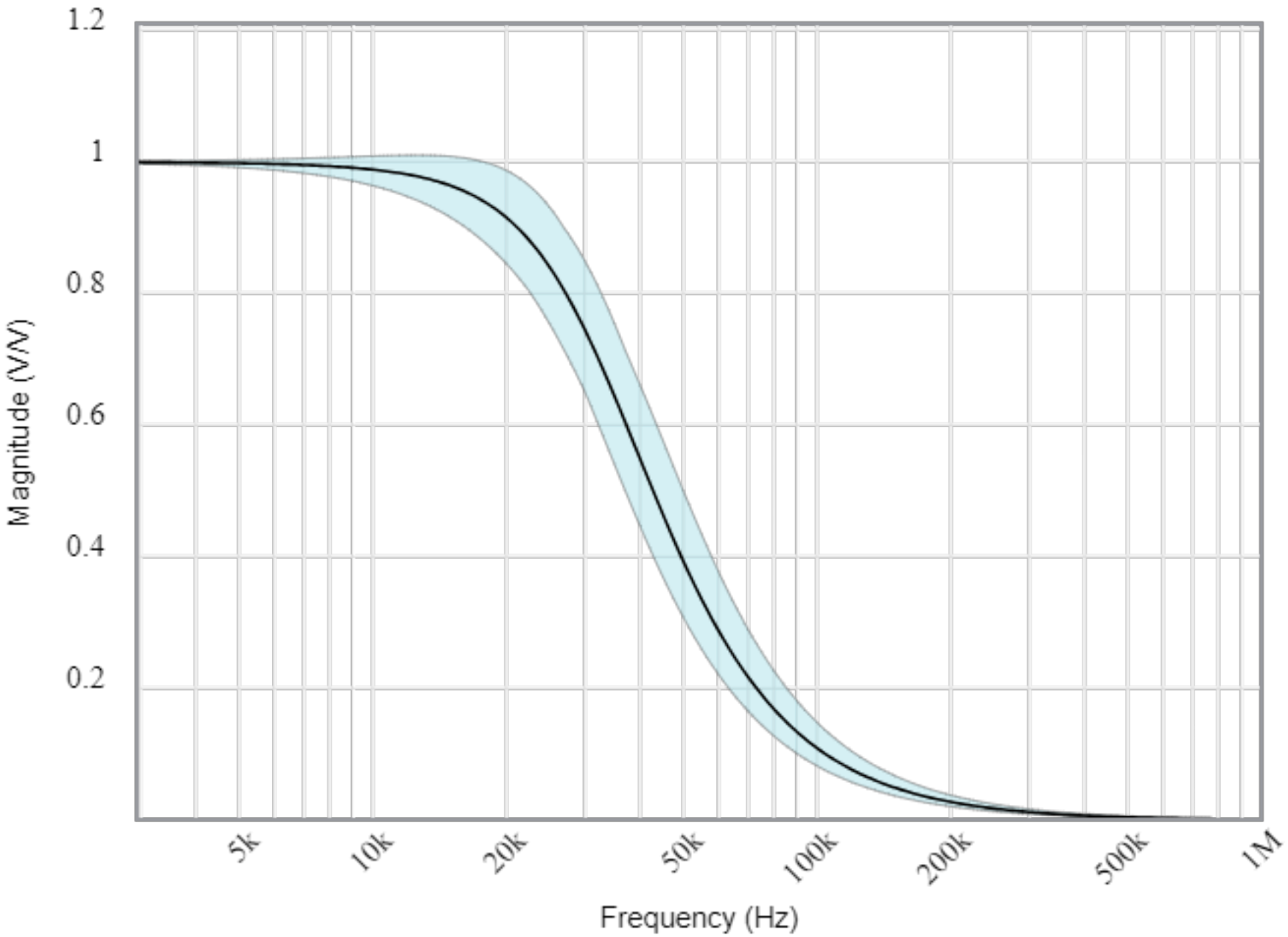
Component Tolerances: Capacitor = 10%; Resistor = 5%; Inductor = 5%; Op Amp GBW = 20%

BOM: refer to BOM.csv file

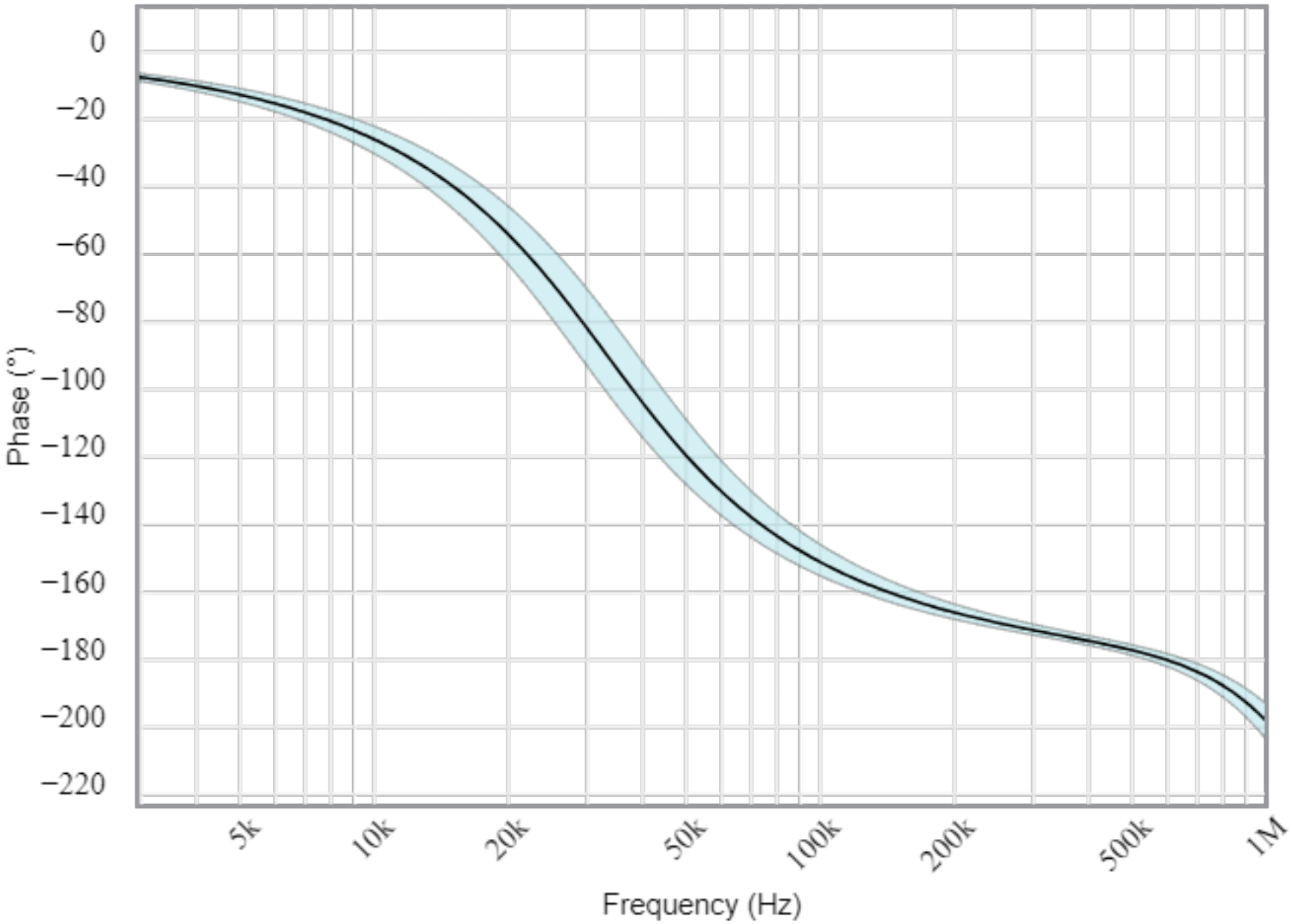
Magnitude(dB)



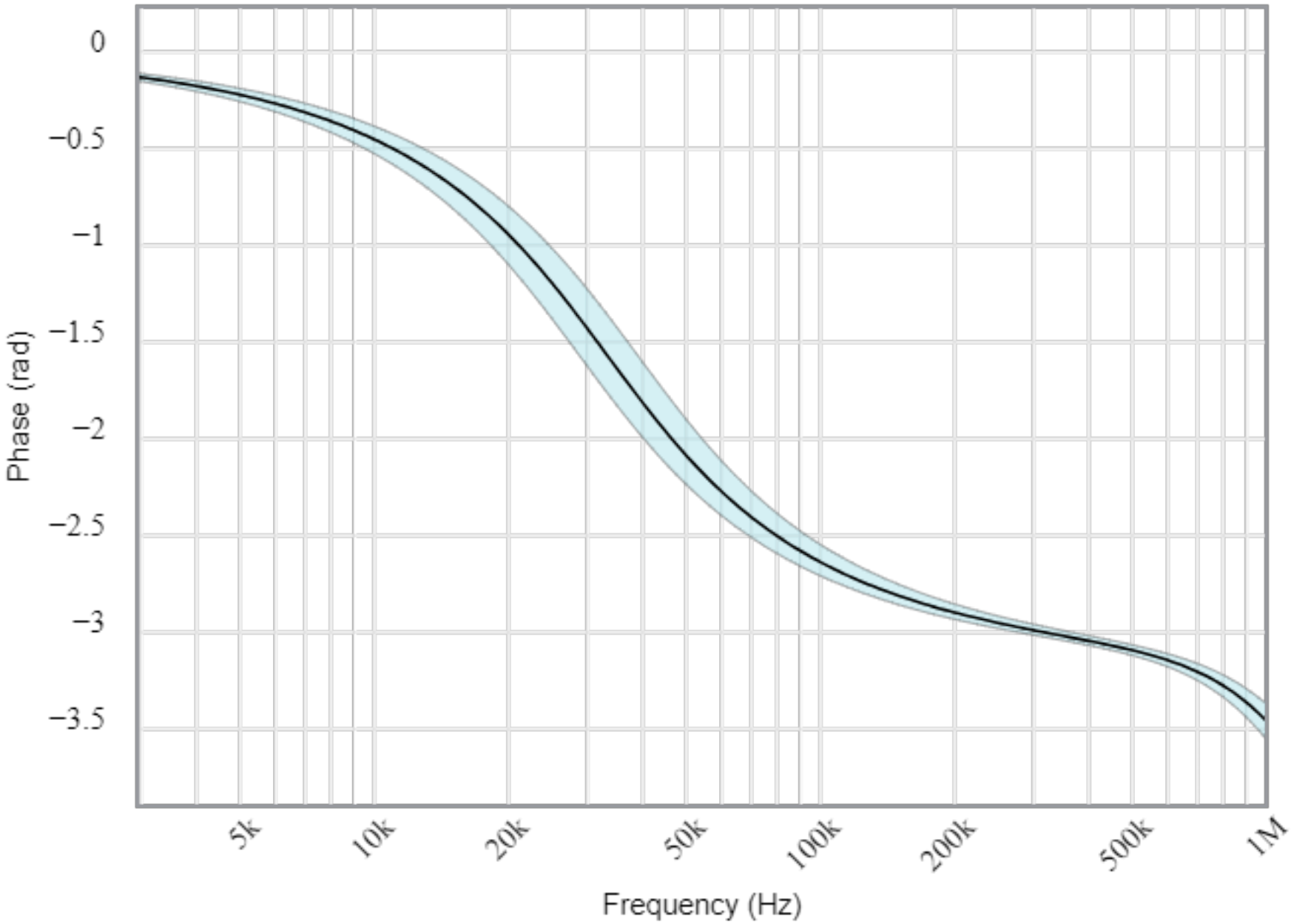
Magnitude(Volts per Volt)



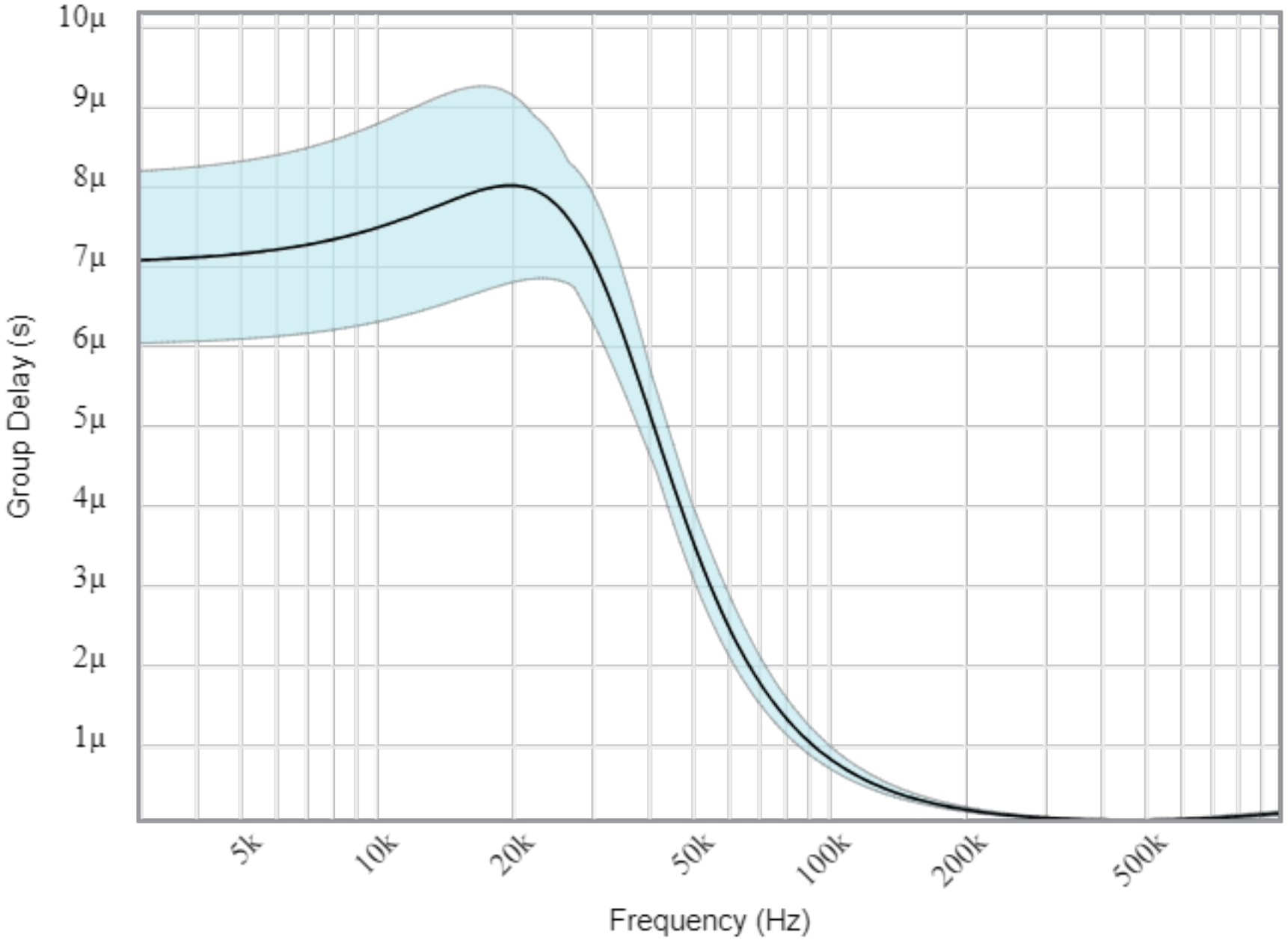
Phase(degrees)



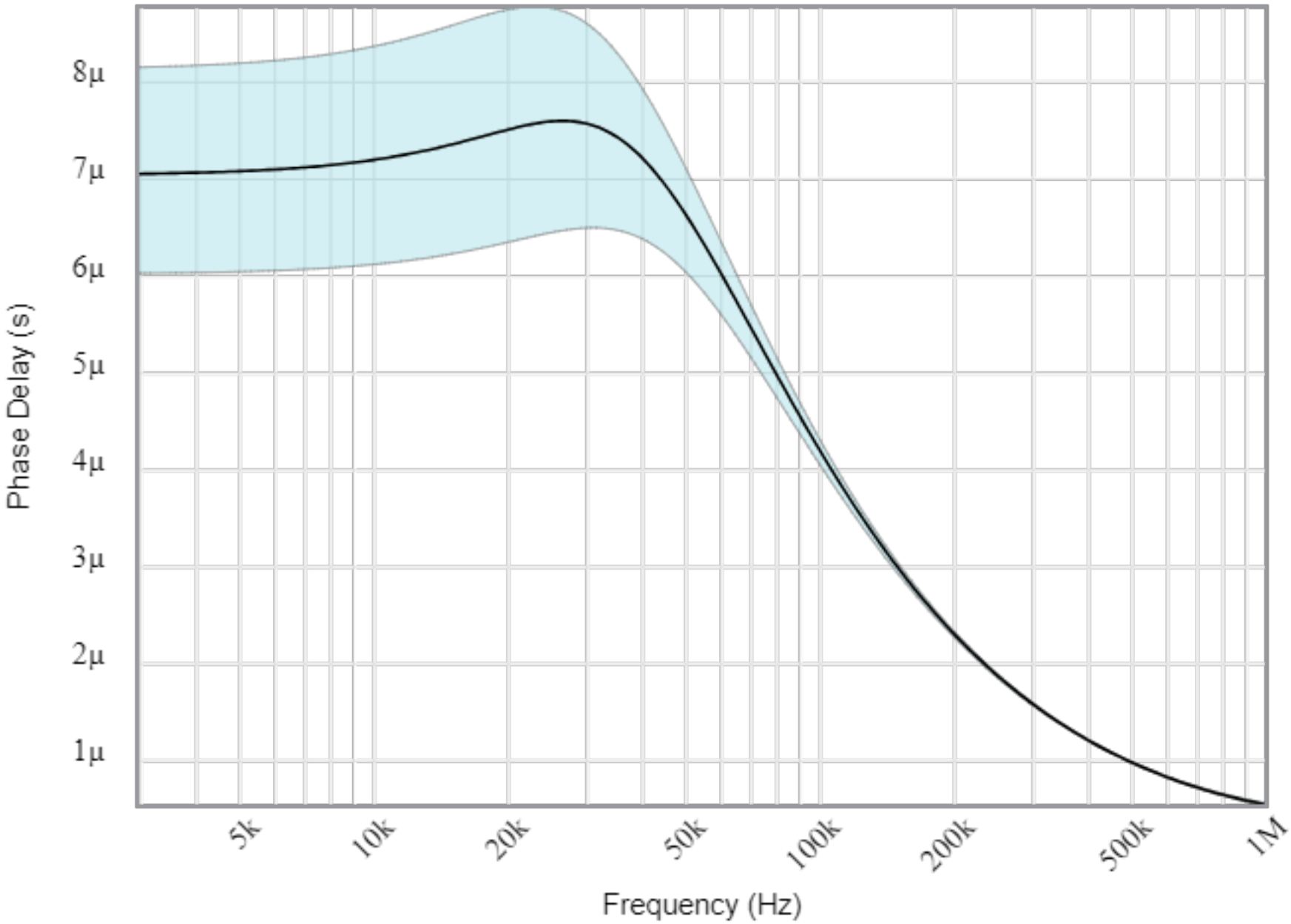
Phase(radians)



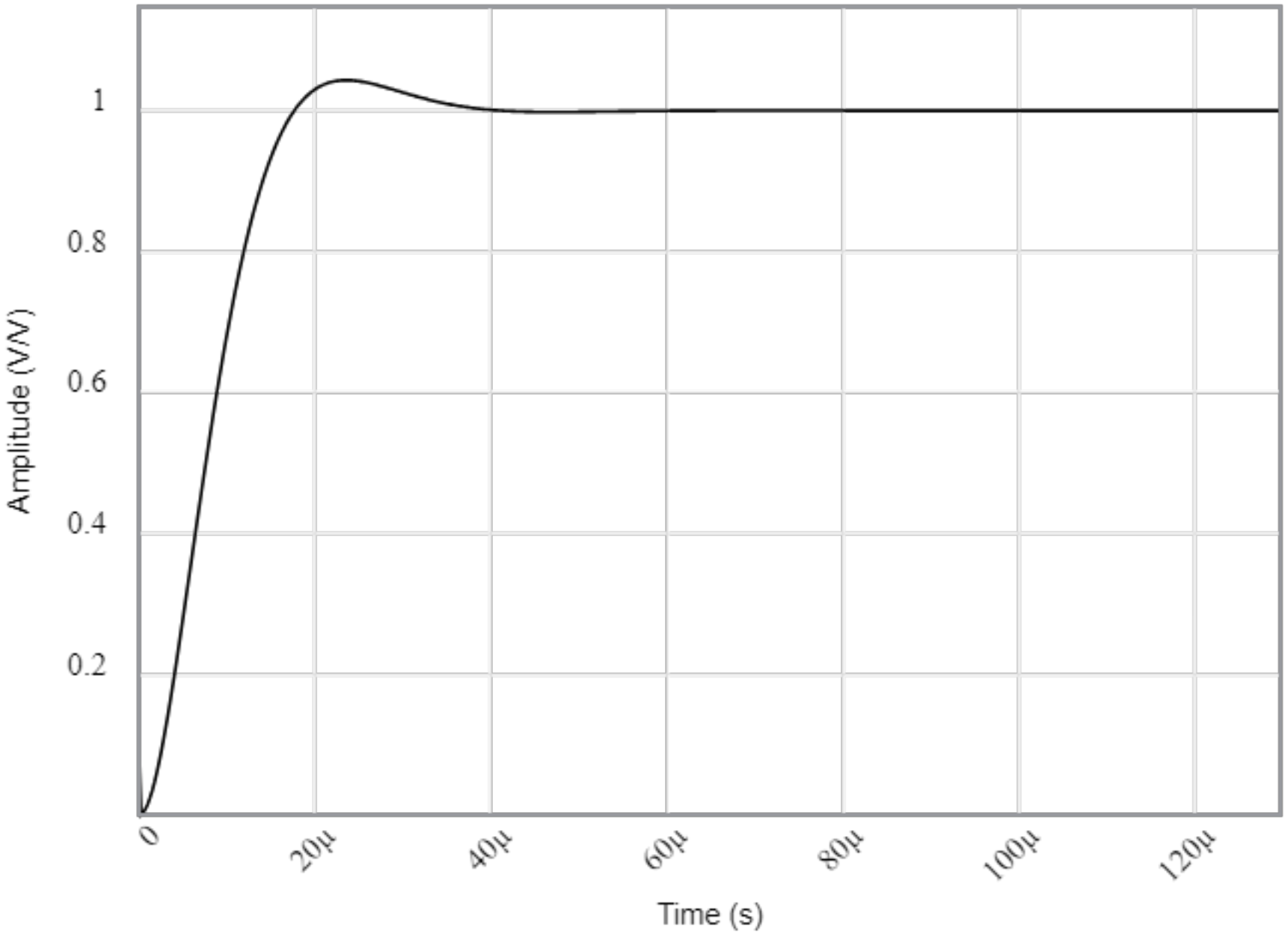
Group Delay


10µ
9µ
8µ
7µ
6µ
5µ
4µ
3µ
2µ
1µ
Group Delay (s)
5k
10k
20k
50k
100k
200k
500k
Frequency (Hz)

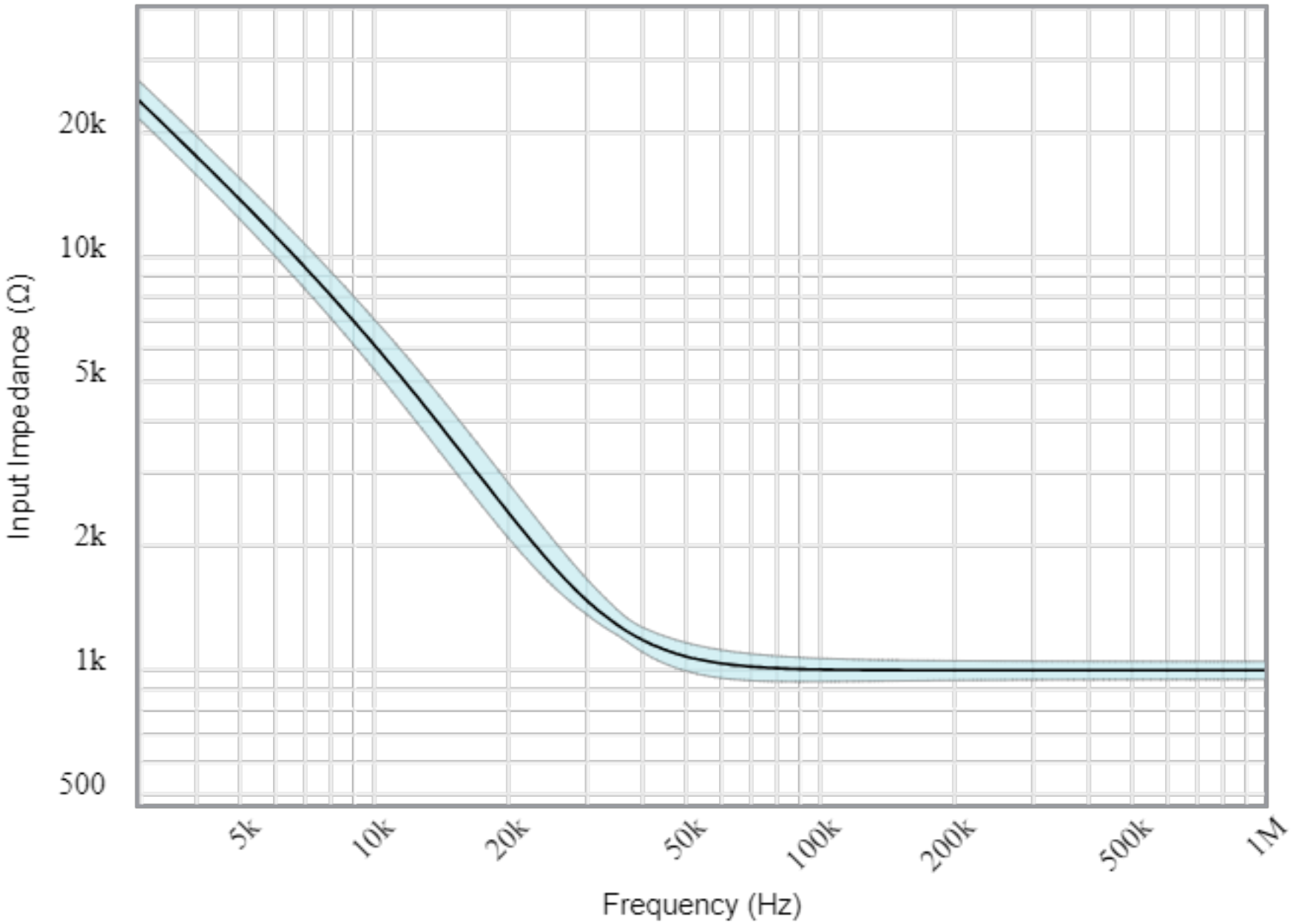
Phase Delay


8µ
7µ
6µ
5µ
4µ
3µ
2µ
1µ
Phase Delay (s)
5k
10k
20k
50k
100k
200k
500k
1M
Frequency (Hz)

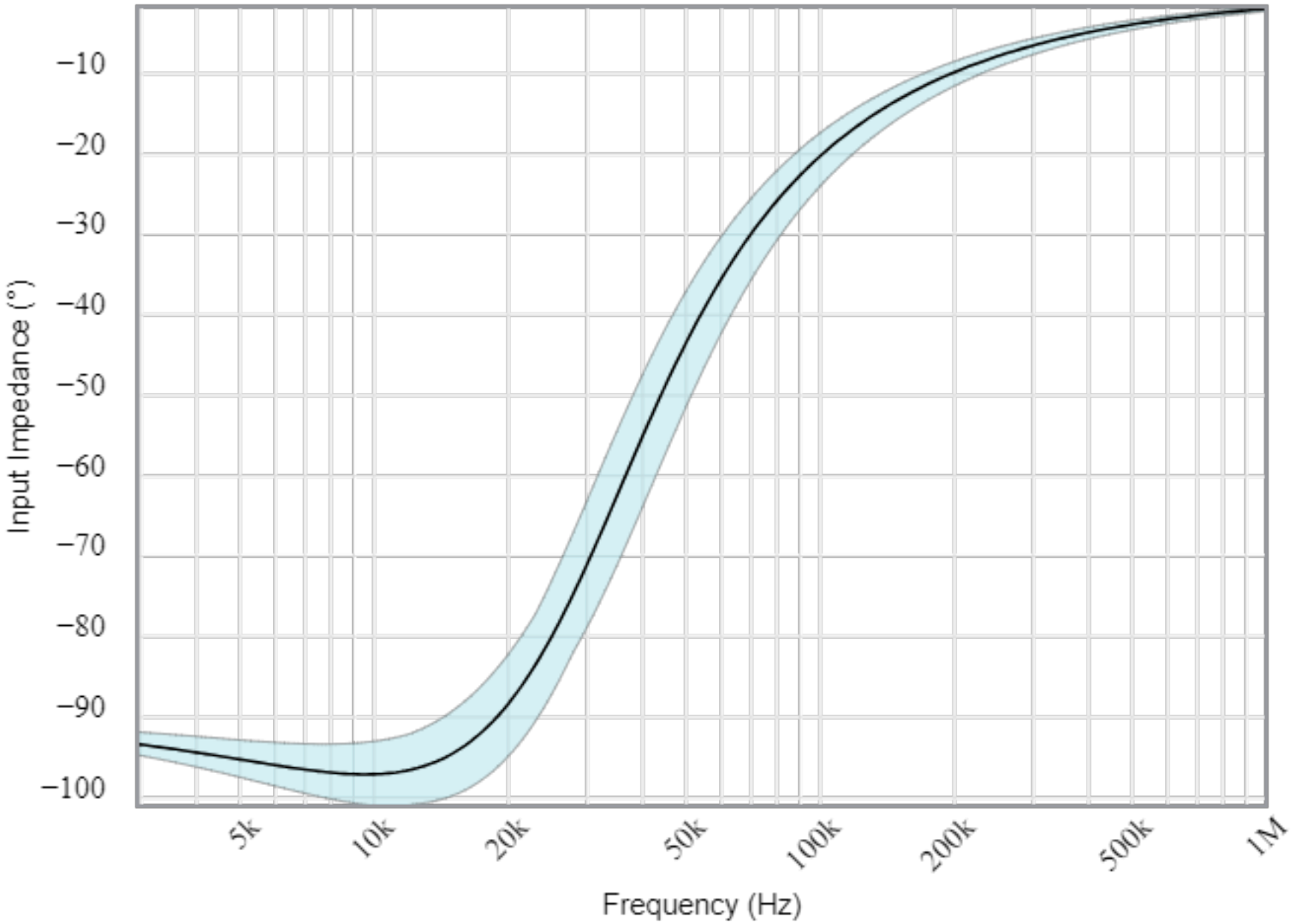
Step Response



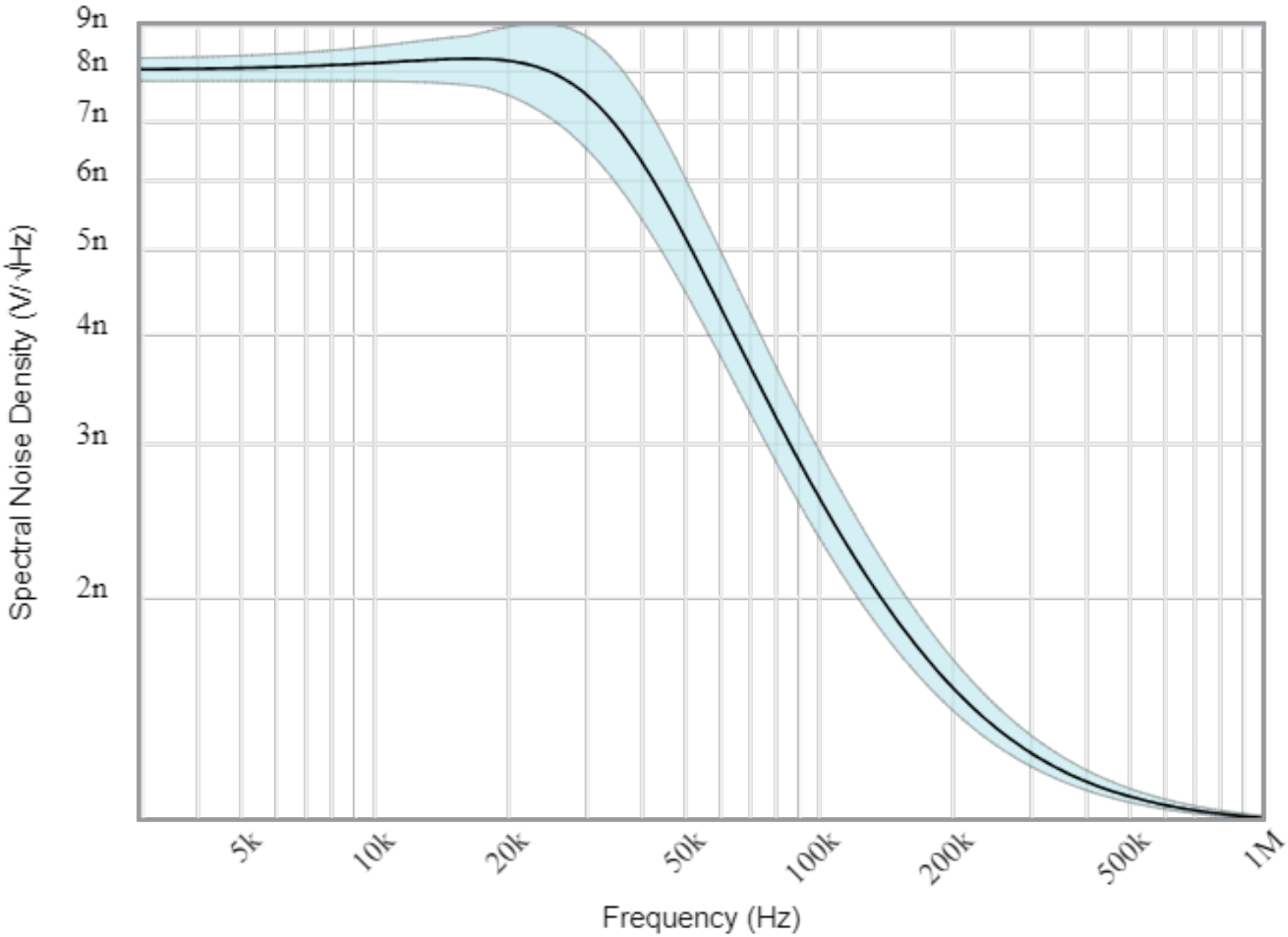
Input Impedance Magnitude



Input Impedance Phase



Noise

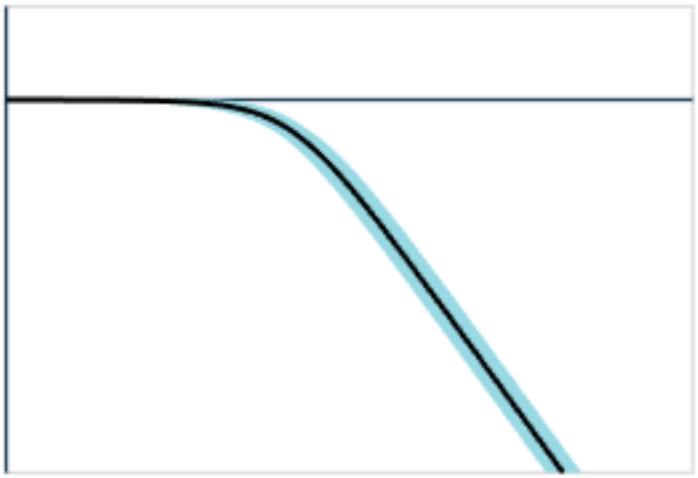

9n
8n
7n
6n
5n
4n
3n
2n
Spectral Noise Density (V/√Hz)
5k
10k
20k
50k
100k
200k
500k
1M
Frequency (Hz)

Stages

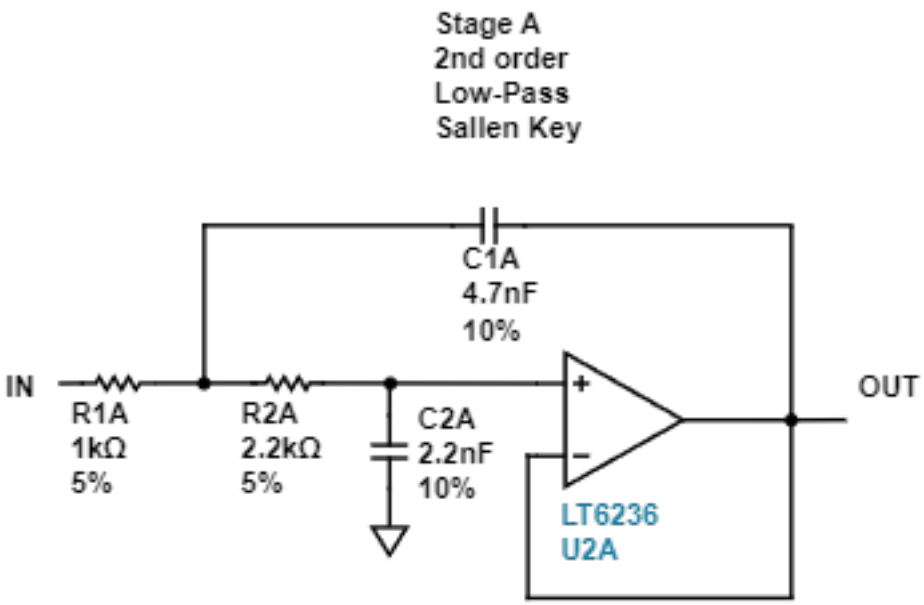
Your filter requires 1 op amp stage(s) with the following characteristics

2nd order
Low-Pass
Sallen Key

	Target	Simulated
Gain (V/V):	1	1 to 1
f_p (Hz):	30k	28.9k to 39k
Q:	707m	601m to 762m



Circuit



BYPASS CAPACITORS