Filter Wizard

Filter Wizard Design

Created on 06/21/2025

ANALOG DEVICES

Filter Wizard Design Report

Filter Requirements for Low-Pass, 6th order Butterworth

Specifications: Optimize: Specific Parts; +Vs: 12; -Vs: -12

Gain: 0 dB

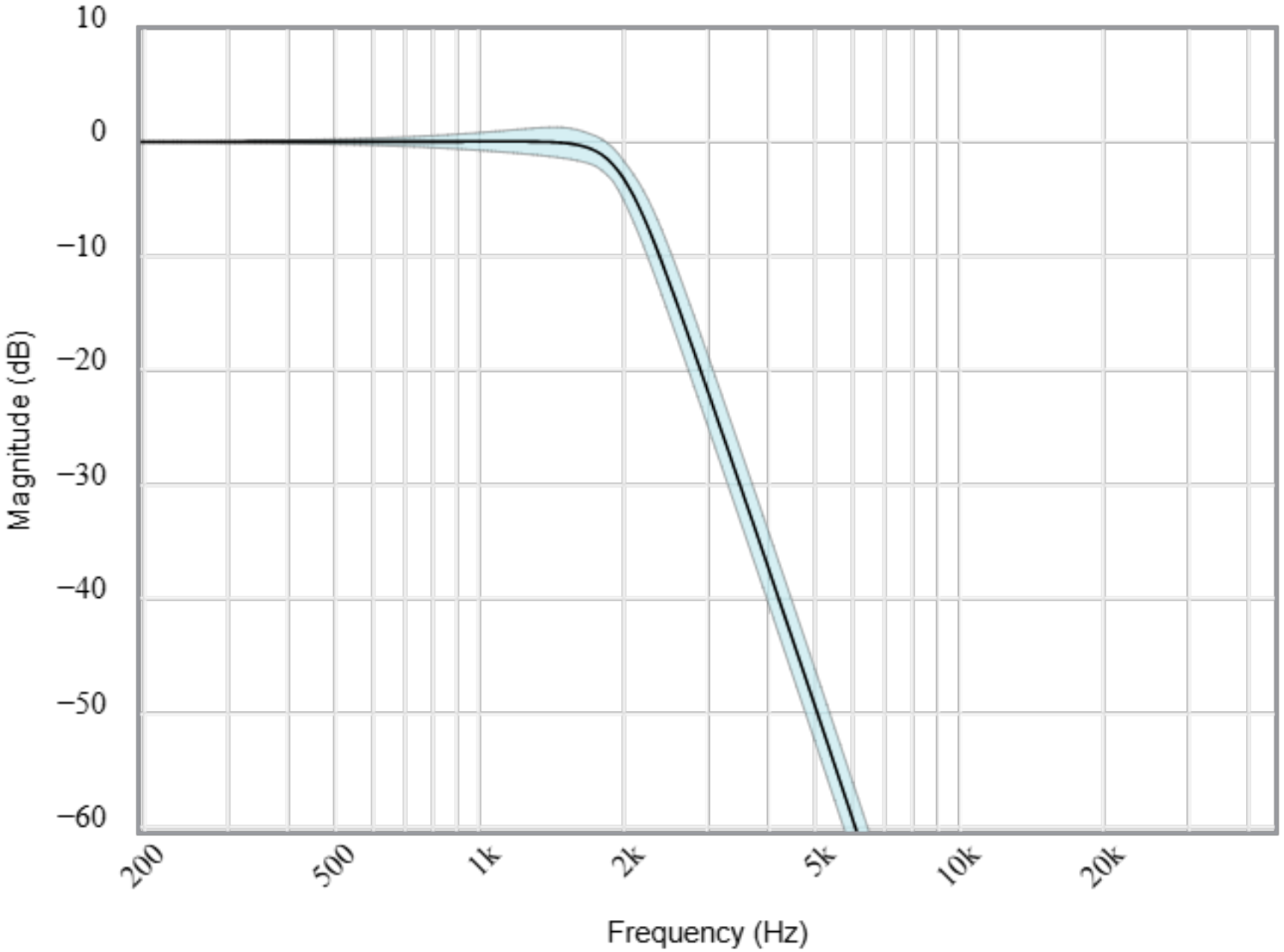
Passband: -3dB at 2kHz

Stopband: -40.5dB at 4.54kHz

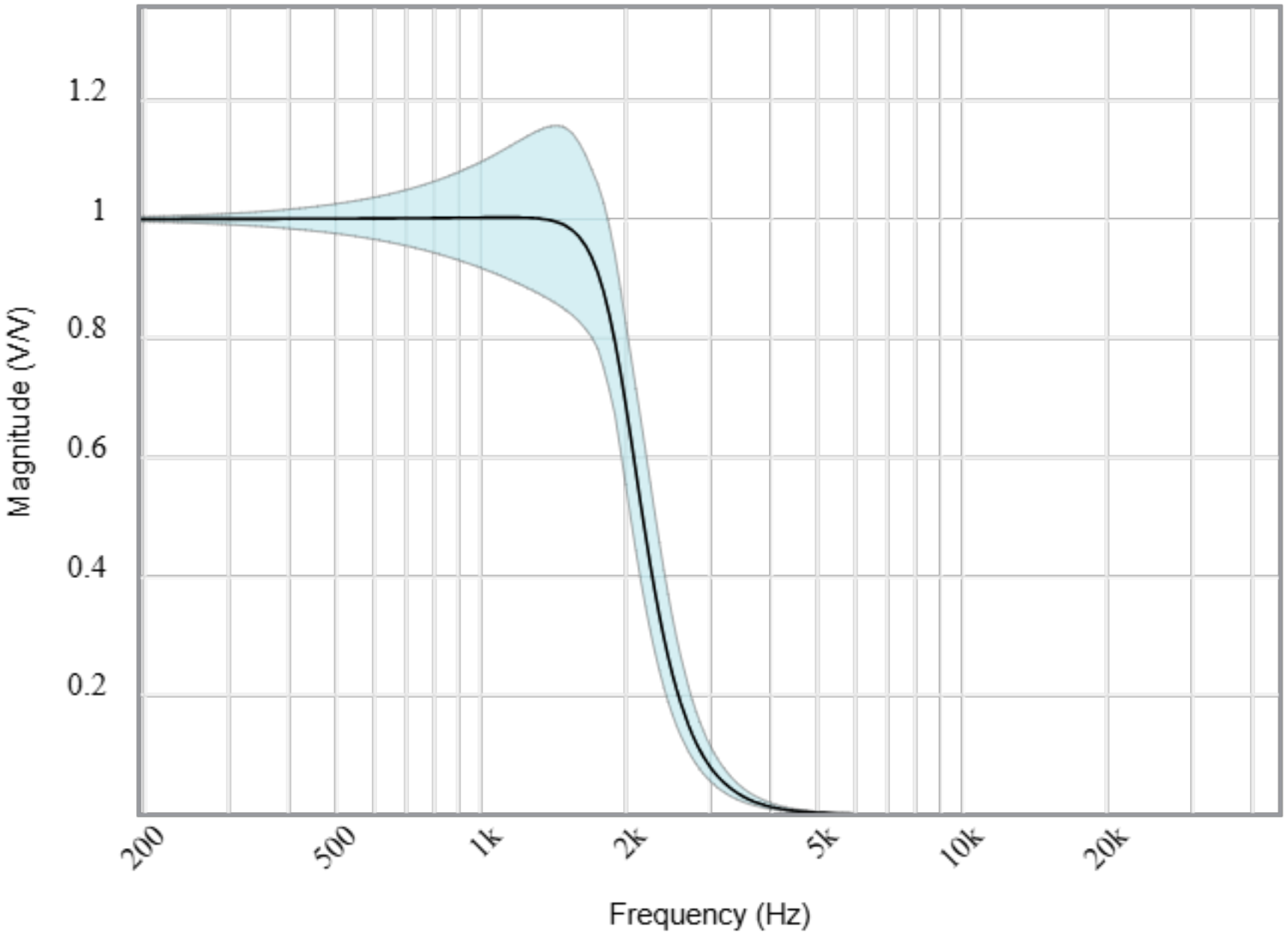
Component Tolerances: Capacitor = 5%; Resistor = 1%; Inductor = 5%; Op Amp GBW = 20%

BOM: refer to BOM.csv file

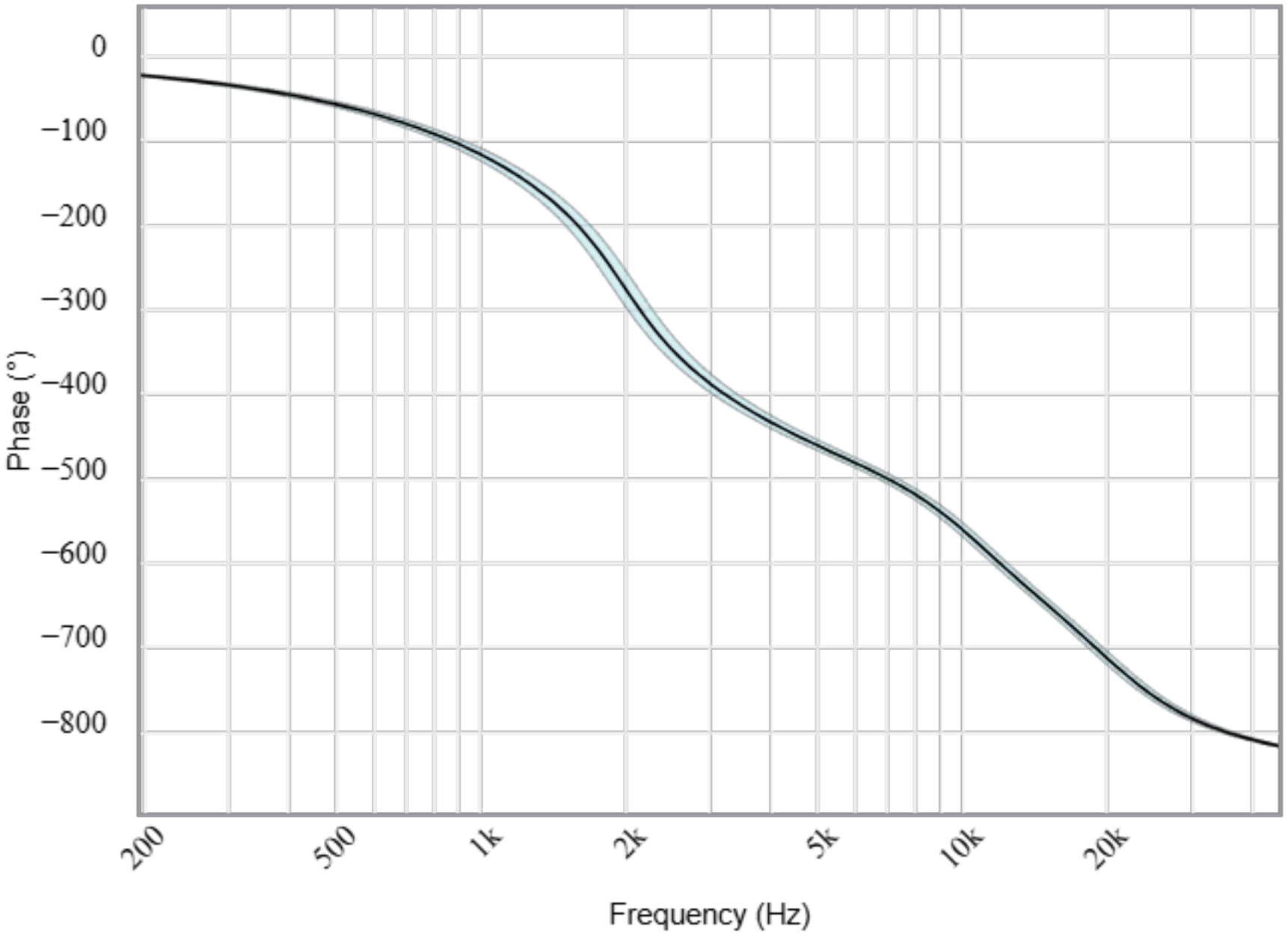
Magnitude(dB)



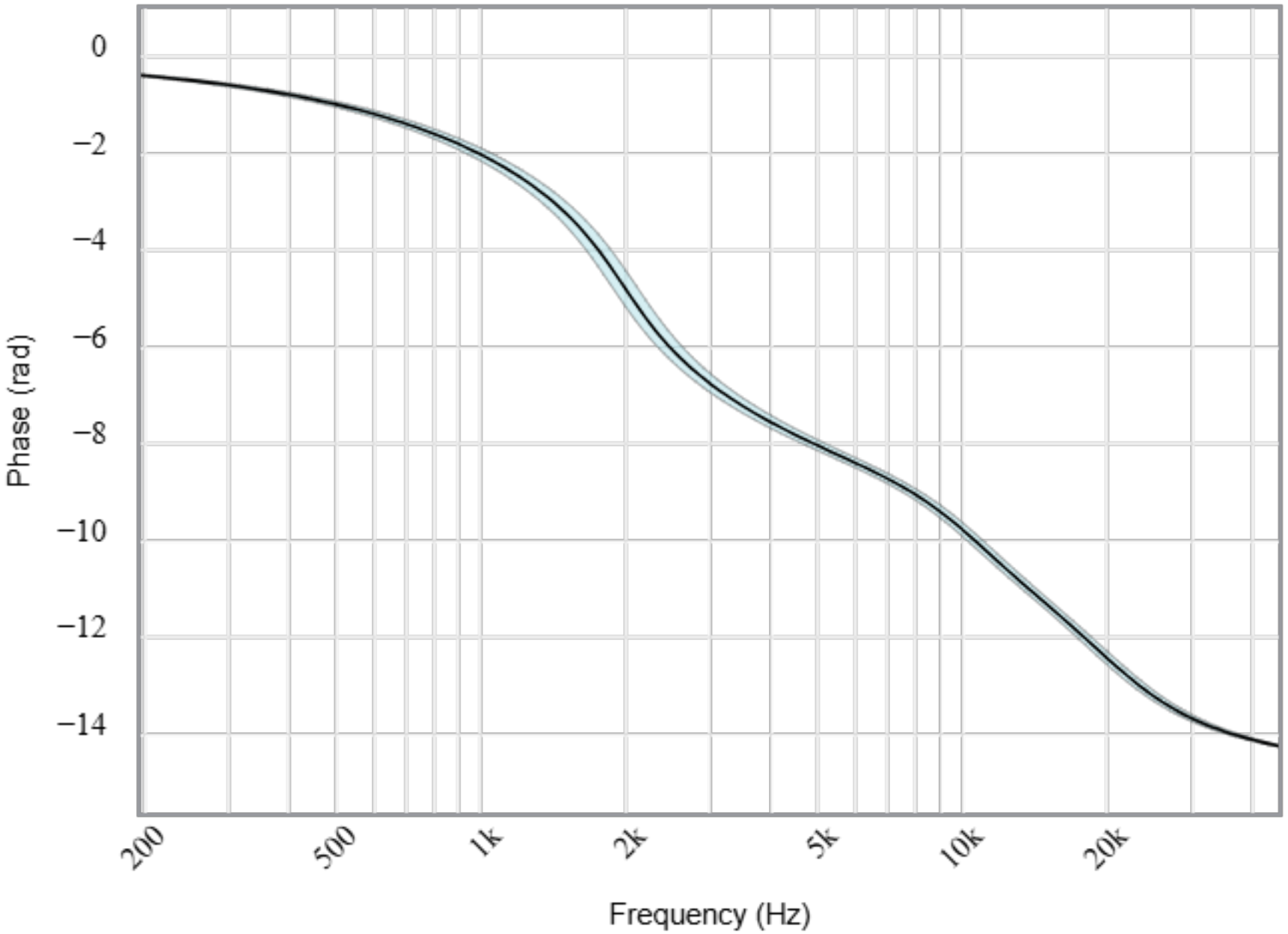
Magnitude(Volts per Volt)



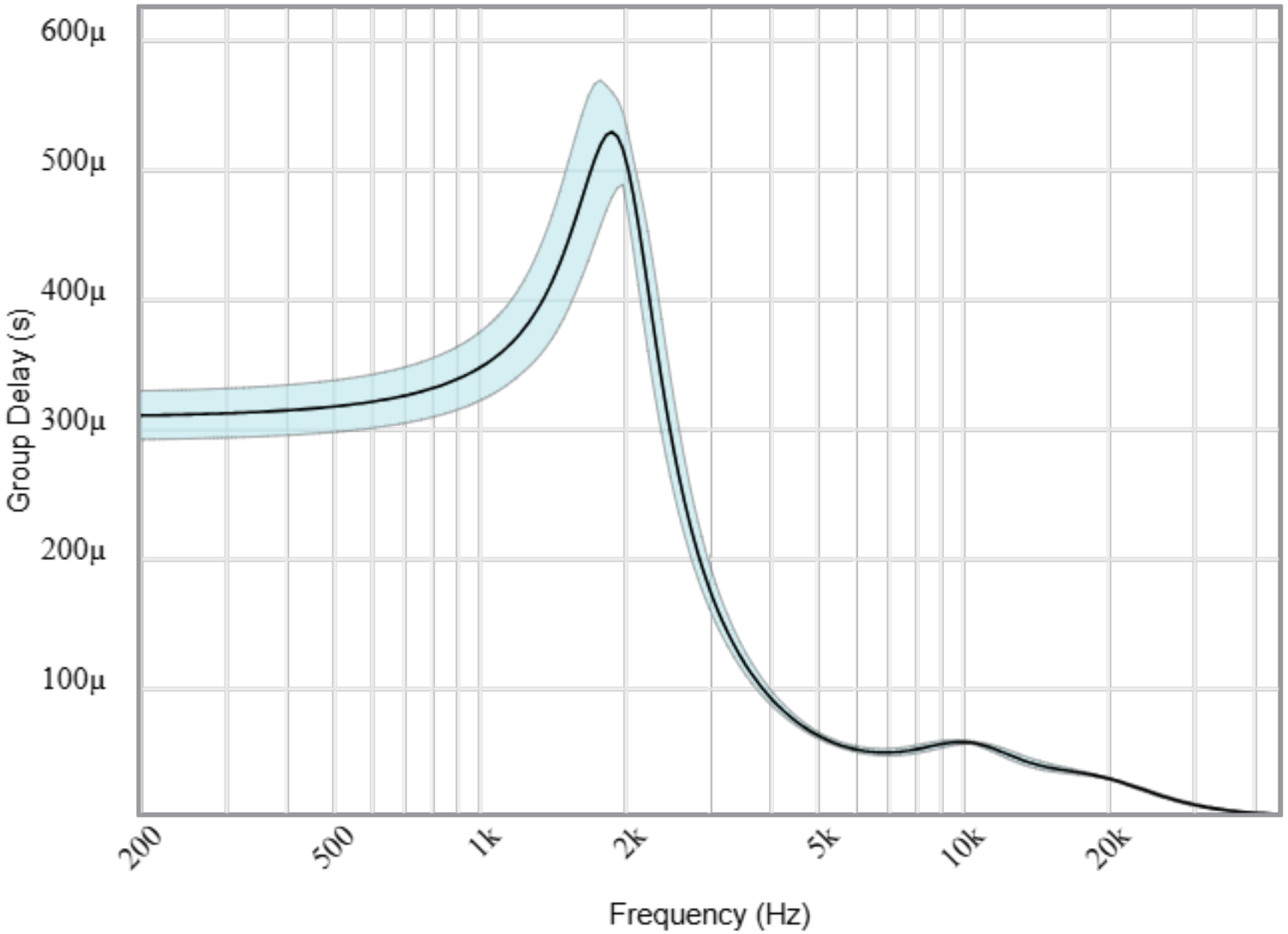
Phase(degrees)



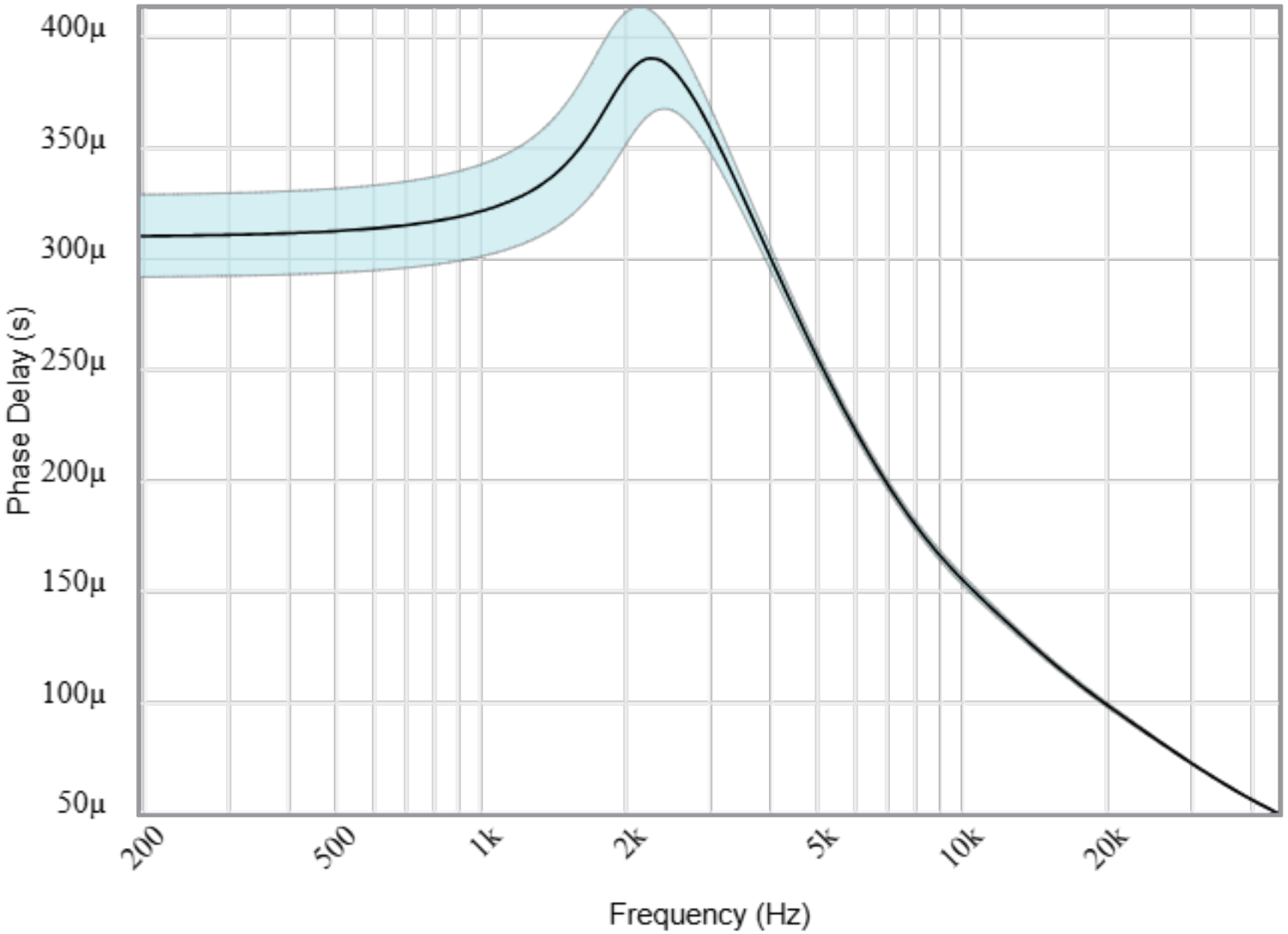
Phase(radians)



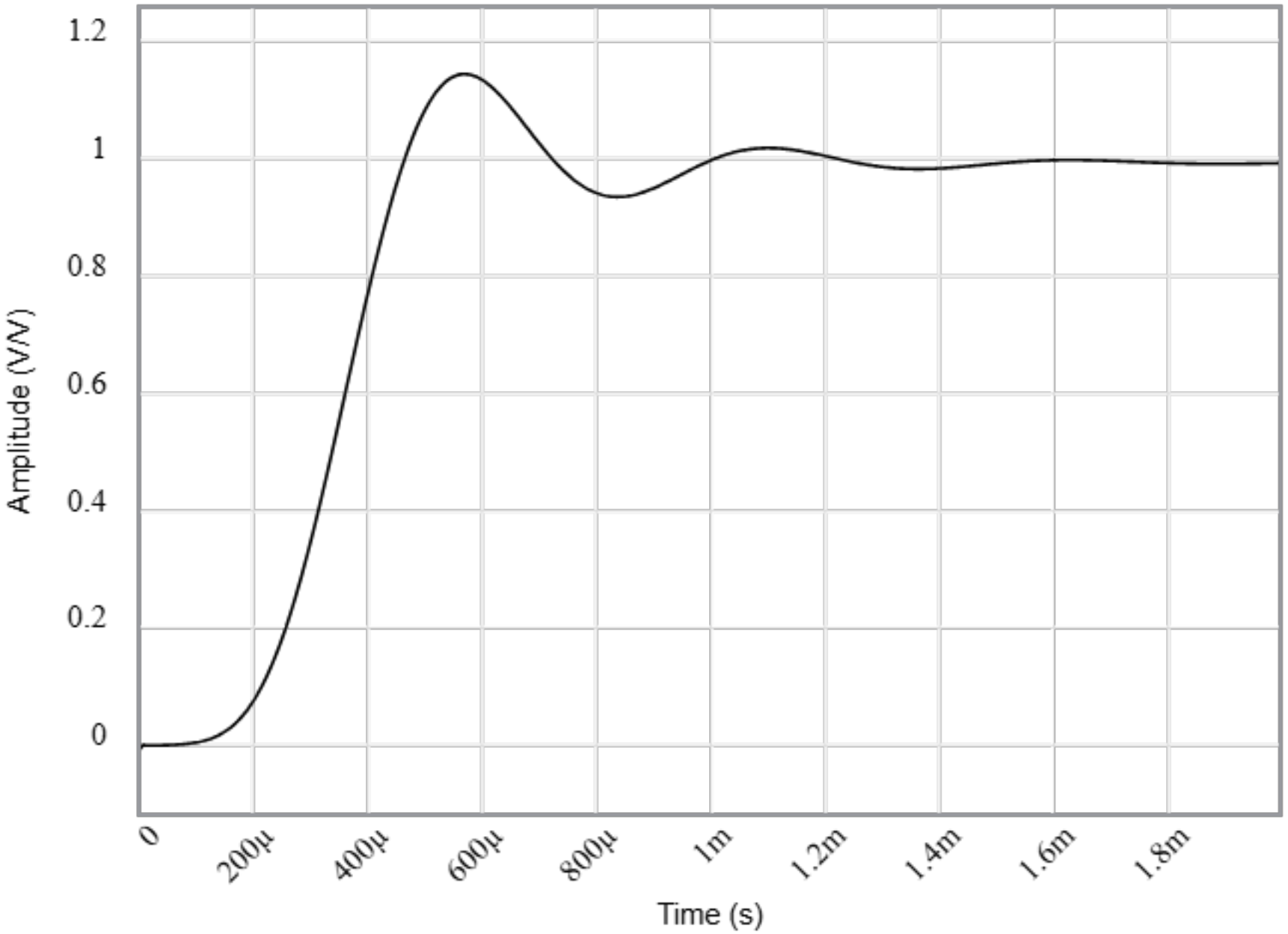
Group Delay


600µ
500µ
400µ
300µ
200µ
100µ
Group Delay (s)
200
500
1k
2k
5k
10k
20k
Frequency (Hz)

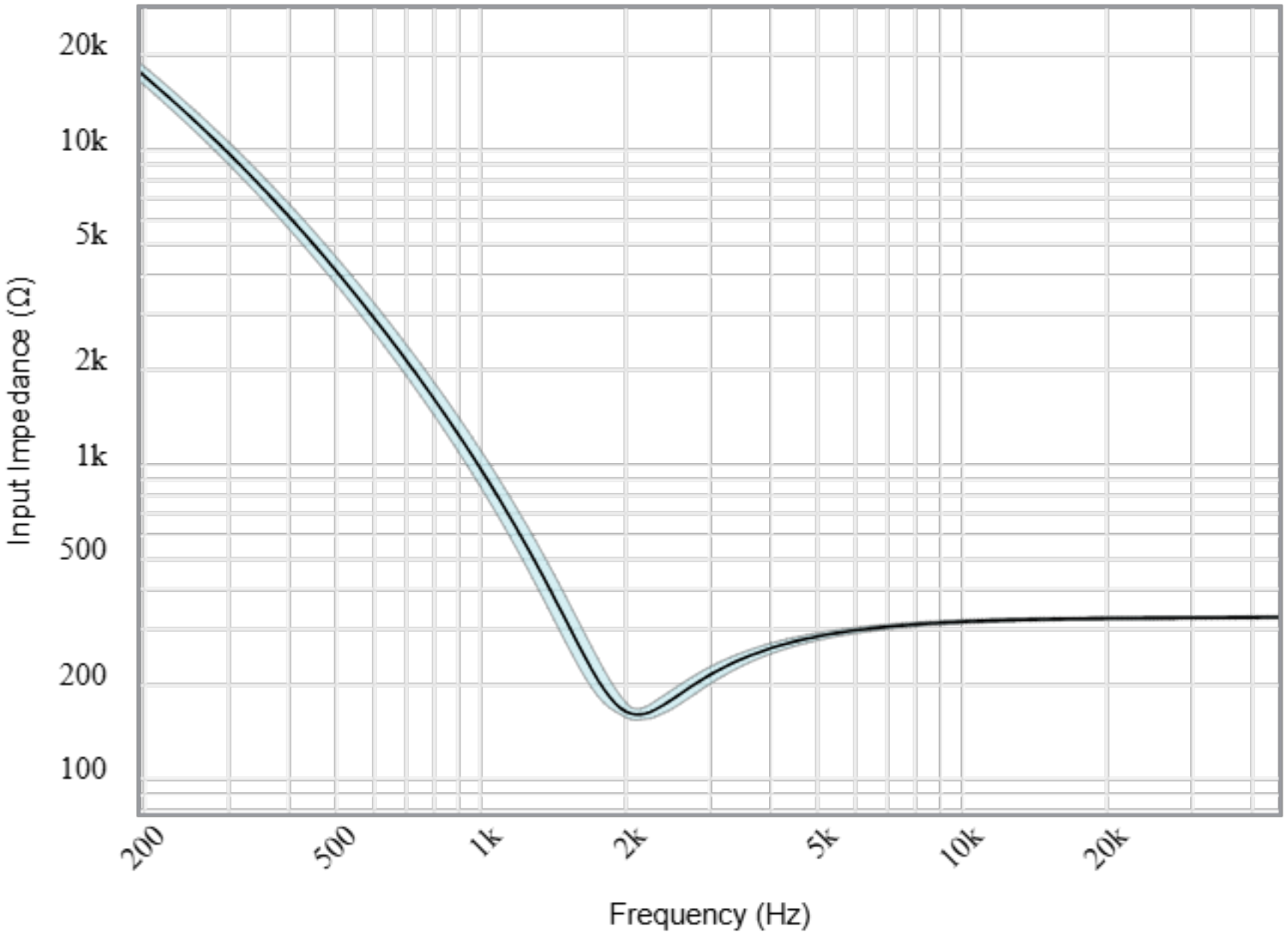
Phase Delay


400µ
350µ
300µ
250µ
200µ
150µ
100µ
50µ
Phase Delay (s)
200
500
1k
2k
5k
10k
20k
Frequency (Hz)

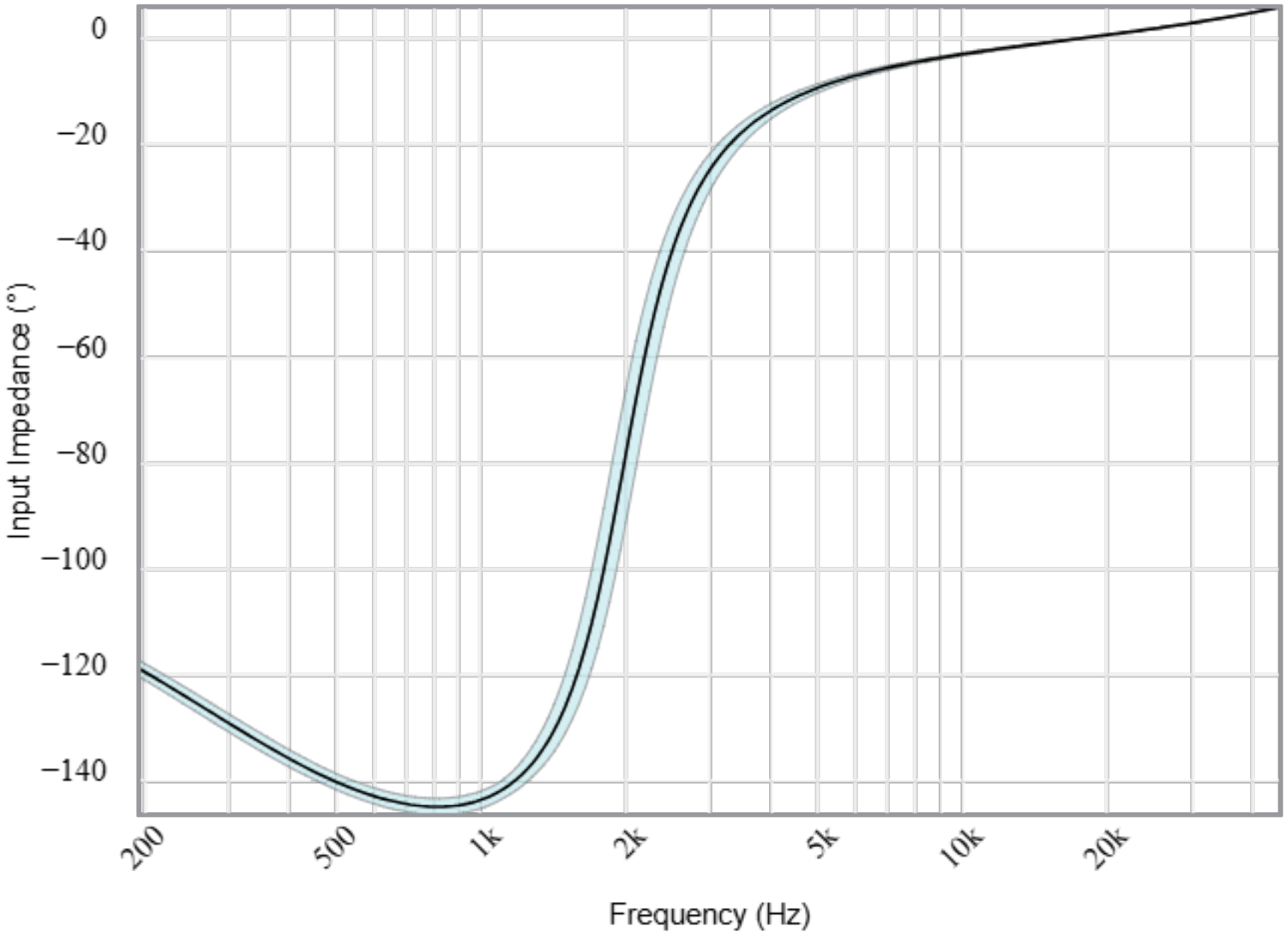
Step Response



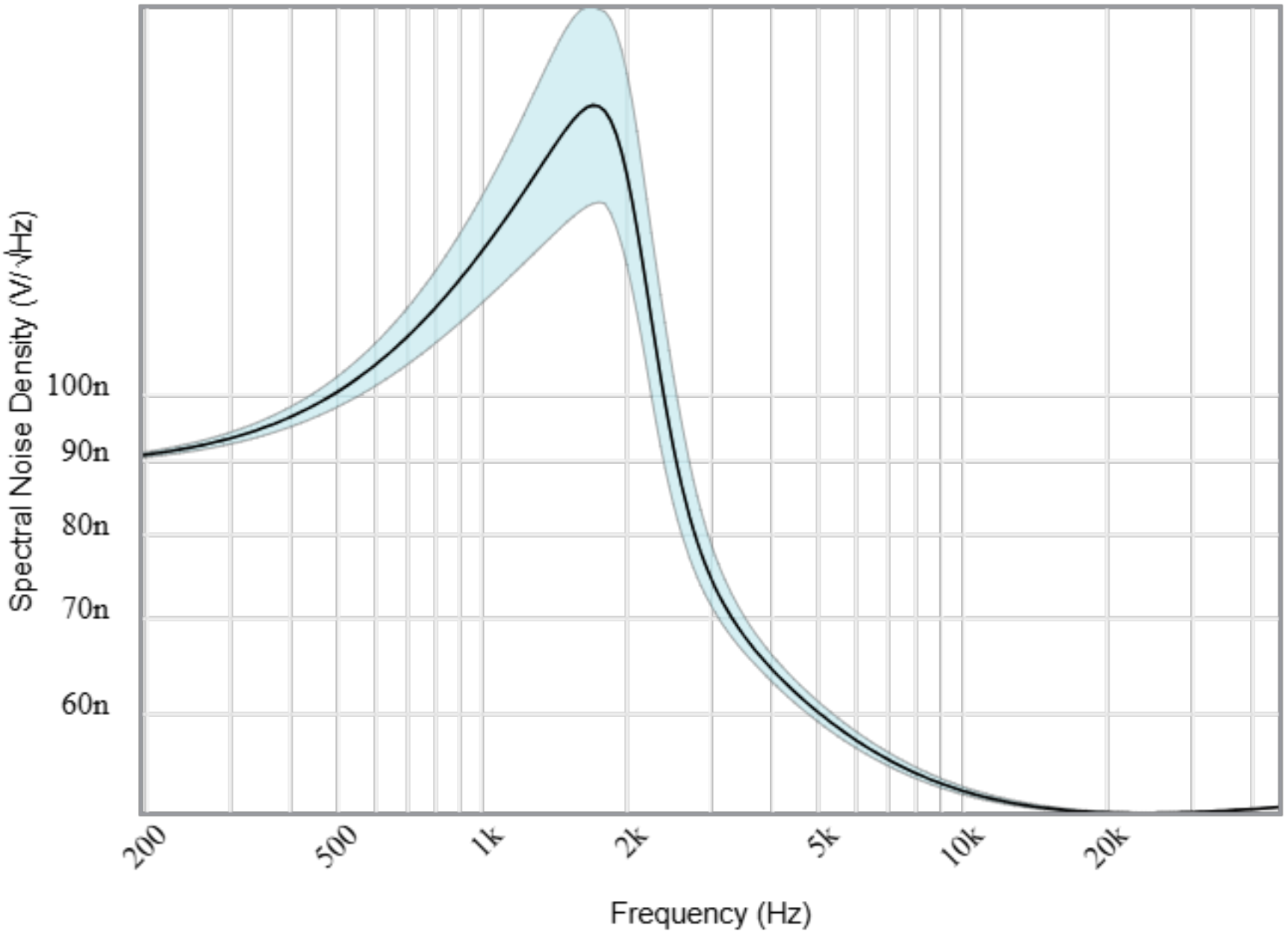
Input Impedance Magnitude



Input Impedance Phase



Noise

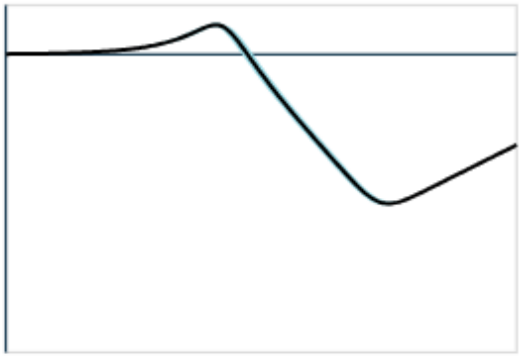

Spectral Noise Density (V/√Hz)
100n
90n
80n
70n
60n
200
500
1k
2k
5k
10k
20k
Frequency (Hz)

Stages

Your filter requires 3 op amp stage(s) with the following characteristics

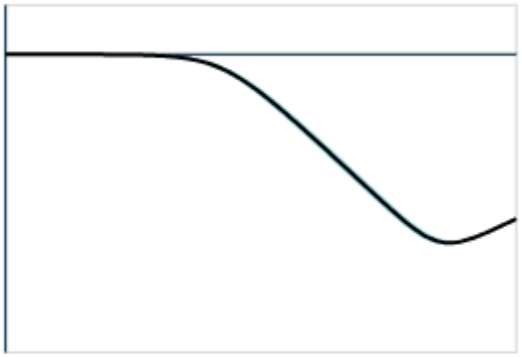
A — 2nd order Low-Pass Sallen Key

	Target	Simulated
Gain (V/V):	1	0.995 to 0.995
f_p (Hz):	2k	1.86k to 2.09k
Q:	1.93	1.83 to 2.04



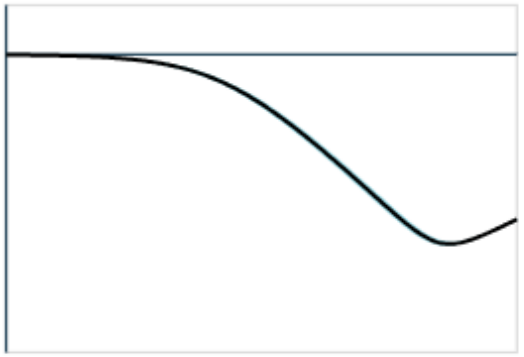
B — 2nd order Low-Pass Sallen Key

Target	Simulated
1	1 to 1
2k	1.87k to 2.11k
707m	675m to 751m

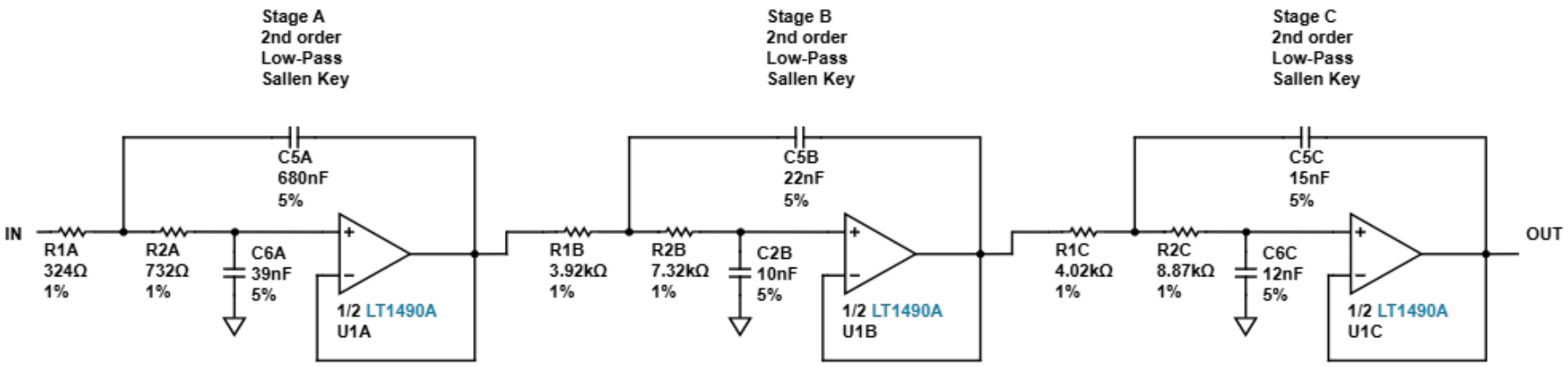


C — 2nd order Low-Pass Sallen Key

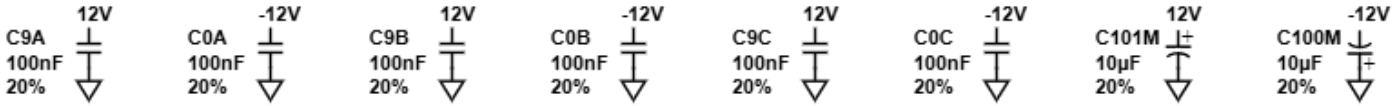
Target	Simulated
1	1 to 1
2k	1.86k to 2.09k
518m	494m to 550m



Circuit



BYPASS CAPACITORS



SPARES Why The Spares?