Filter Wizard

Filter Wizard Design

Created on 11/01/2025

ANALOG DEVICES

Filter Wizard Design Report

Filter Requirements for Low-Pass, 2nd order Chebyshev

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

Gain: 0 dB

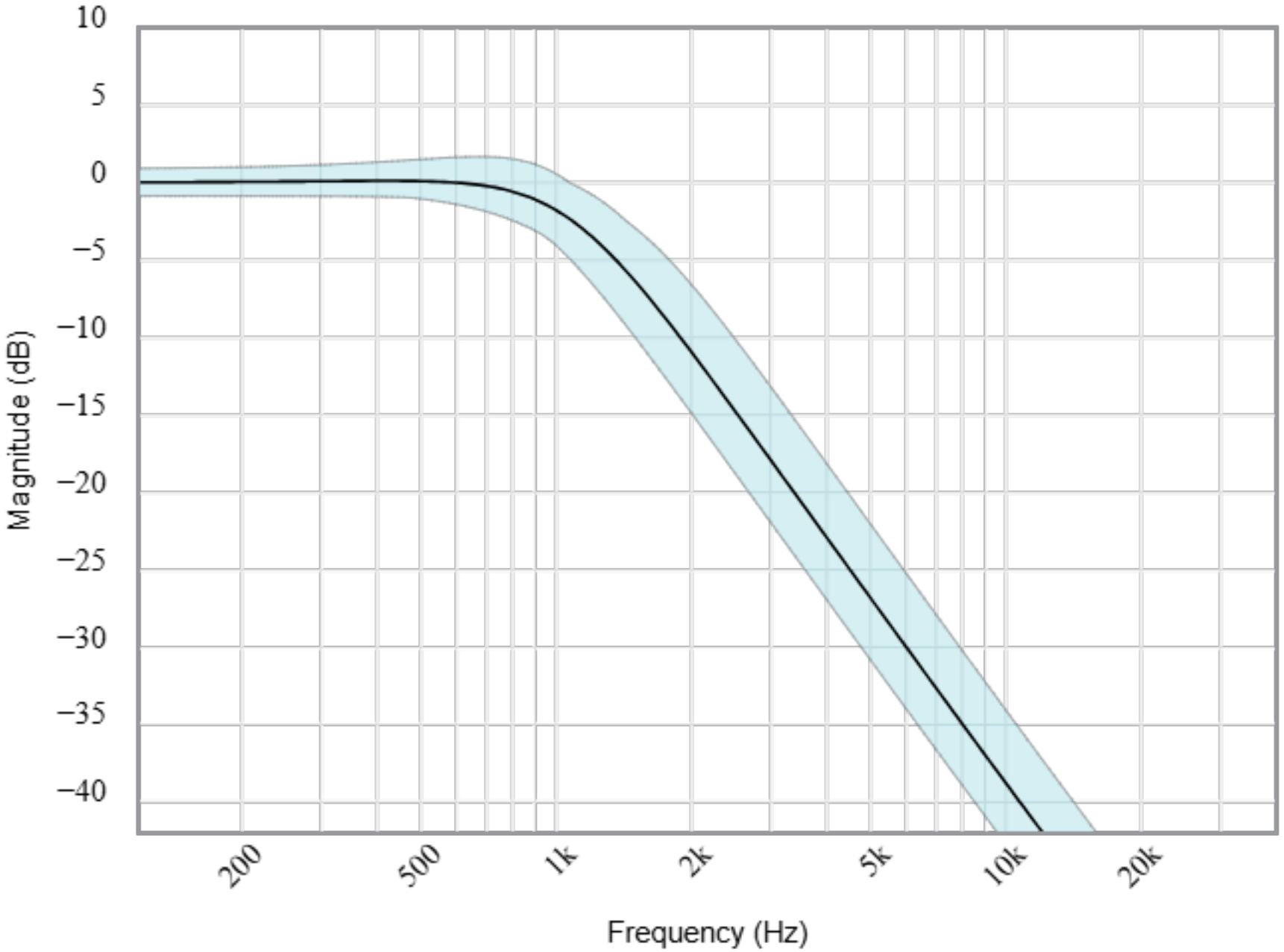
Passband: -3dB at 1.2kHz

Stopband: -22dB at 4kHz

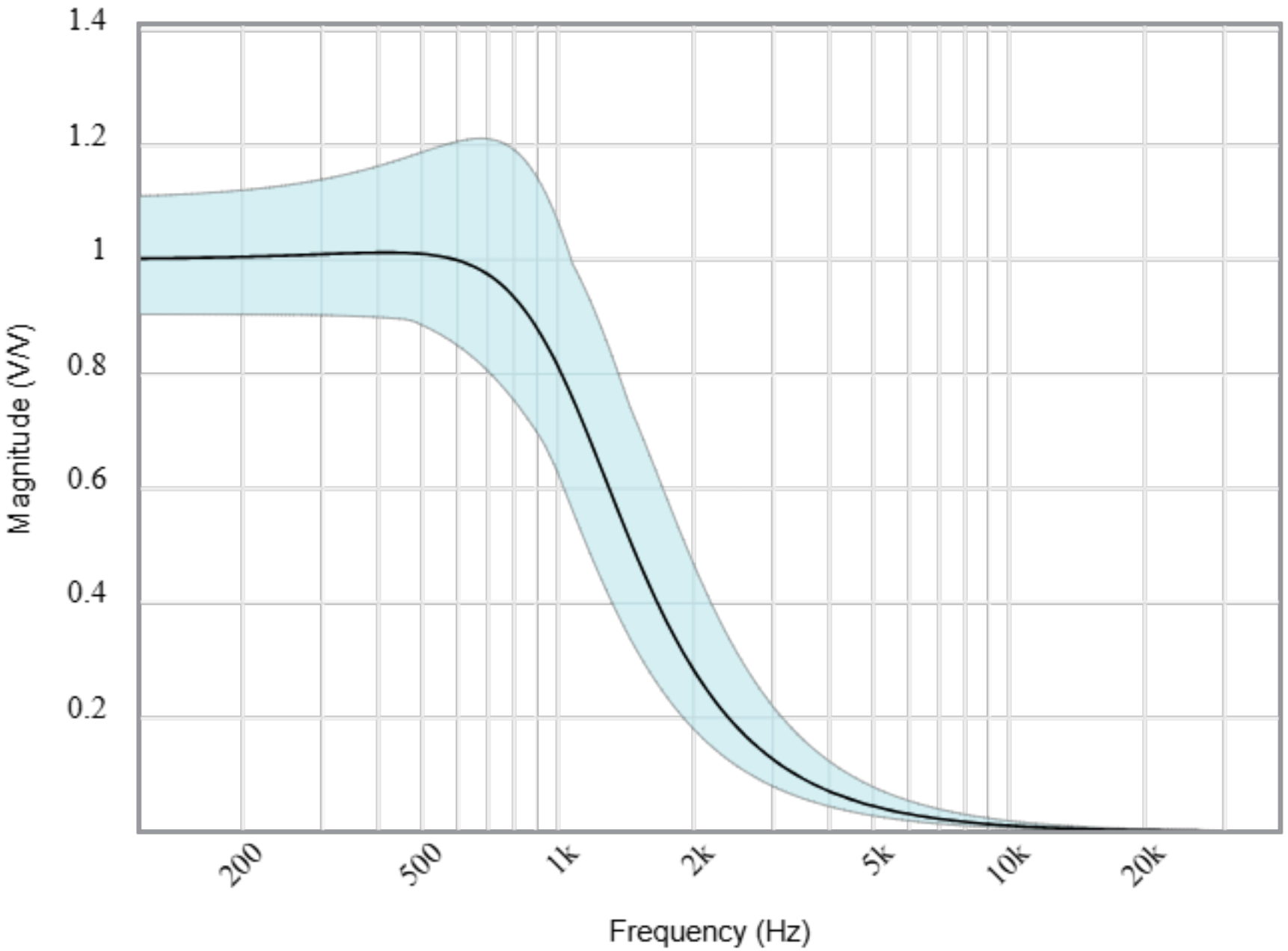
Component Tolerances: Capacitor = 20%; Resistor = 5%; Inductor = 5%; Op Amp GBW = 20%

BOM: refer to BOM.csv file

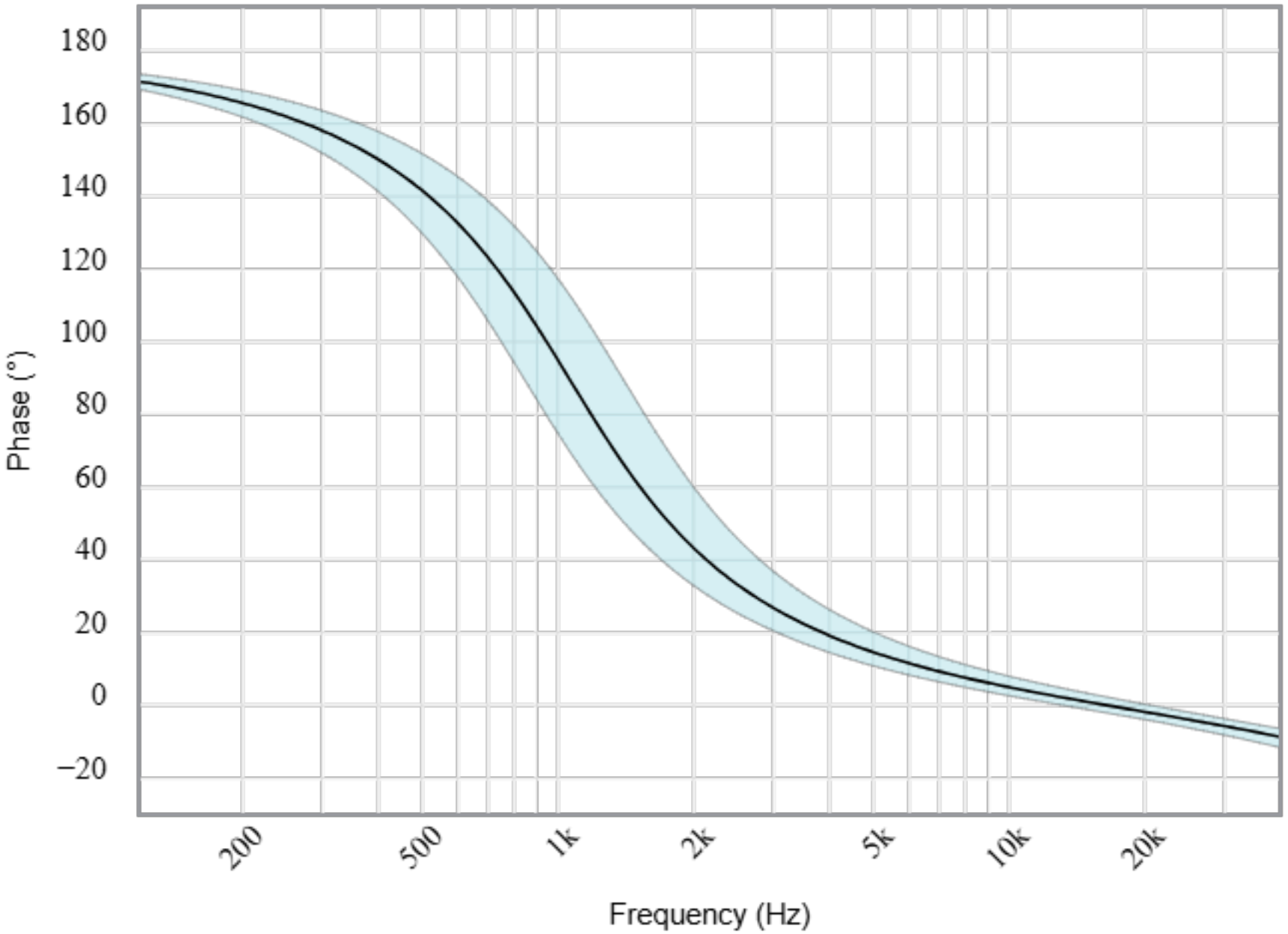
Magnitude(dB)



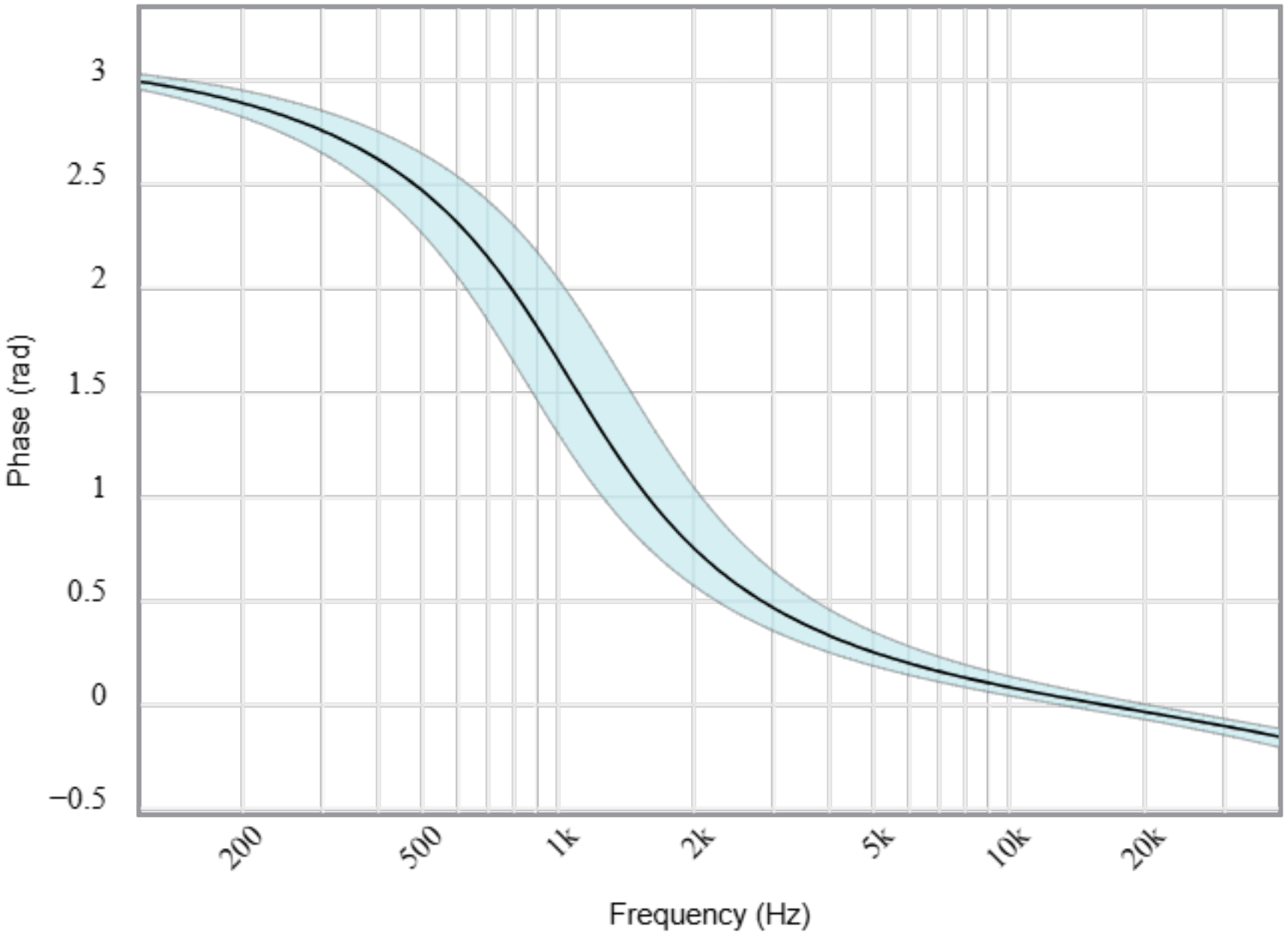
Magnitude(Volts per Volt)



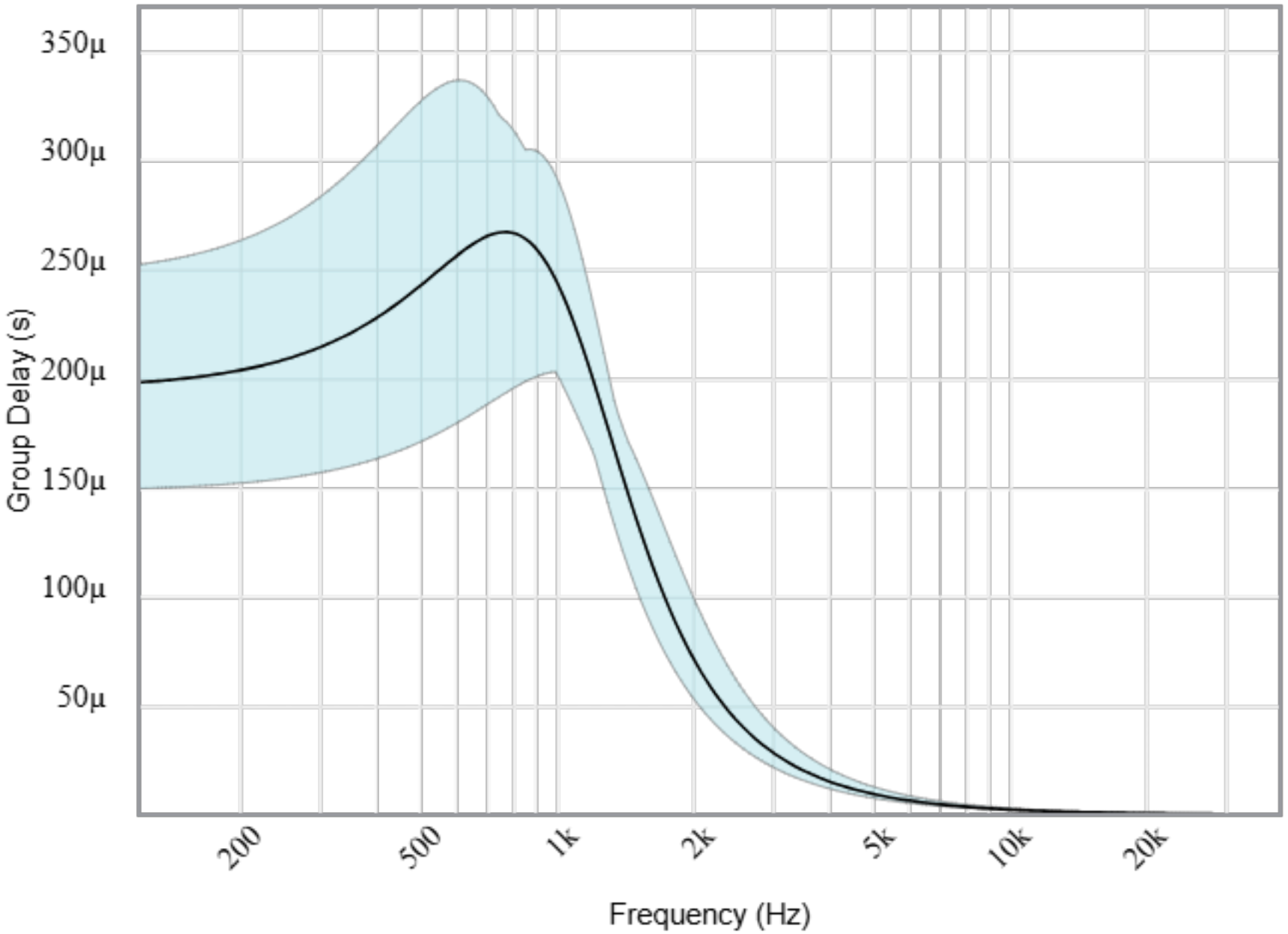
Phase(degrees)



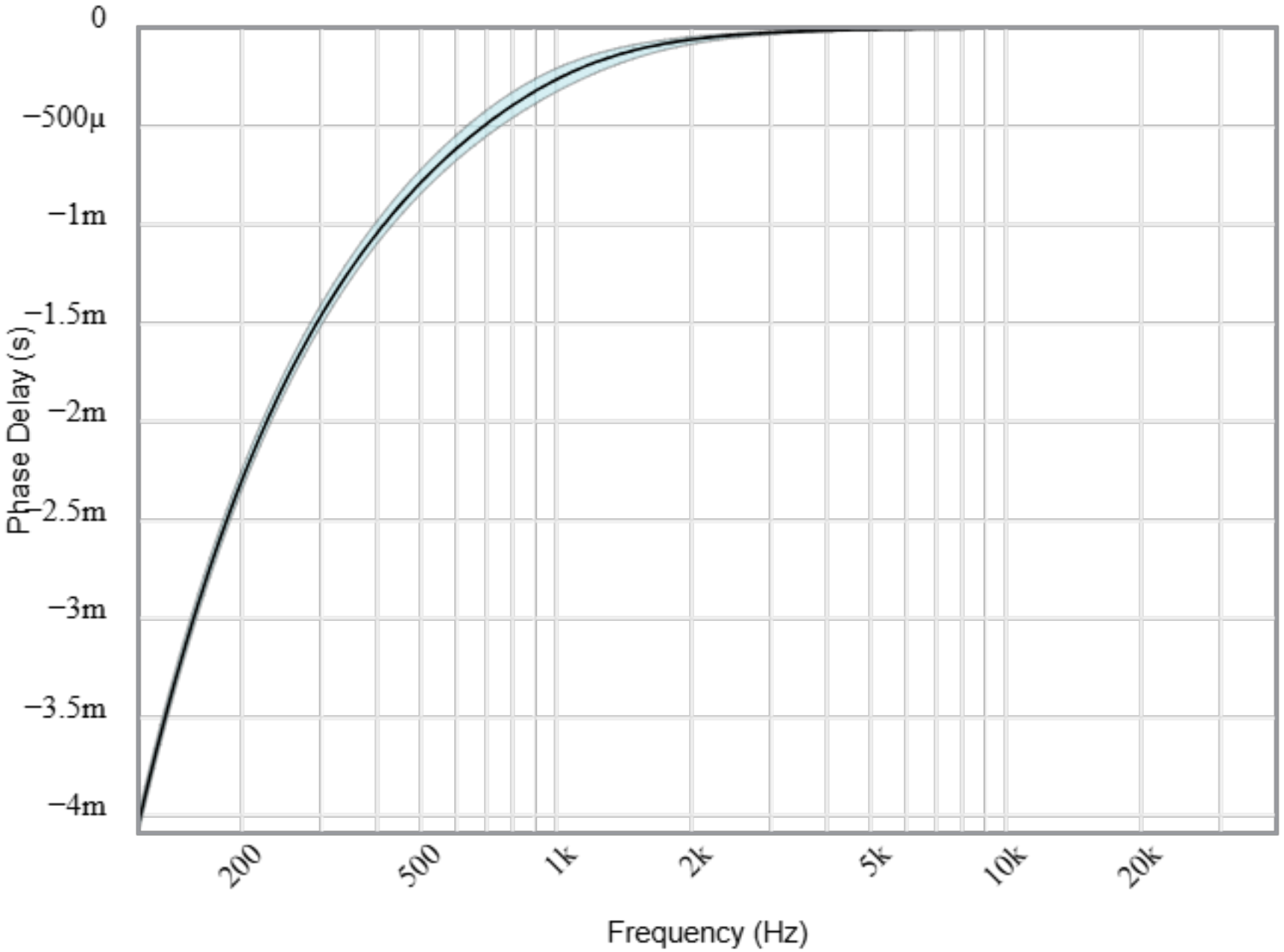
Phase(radians)



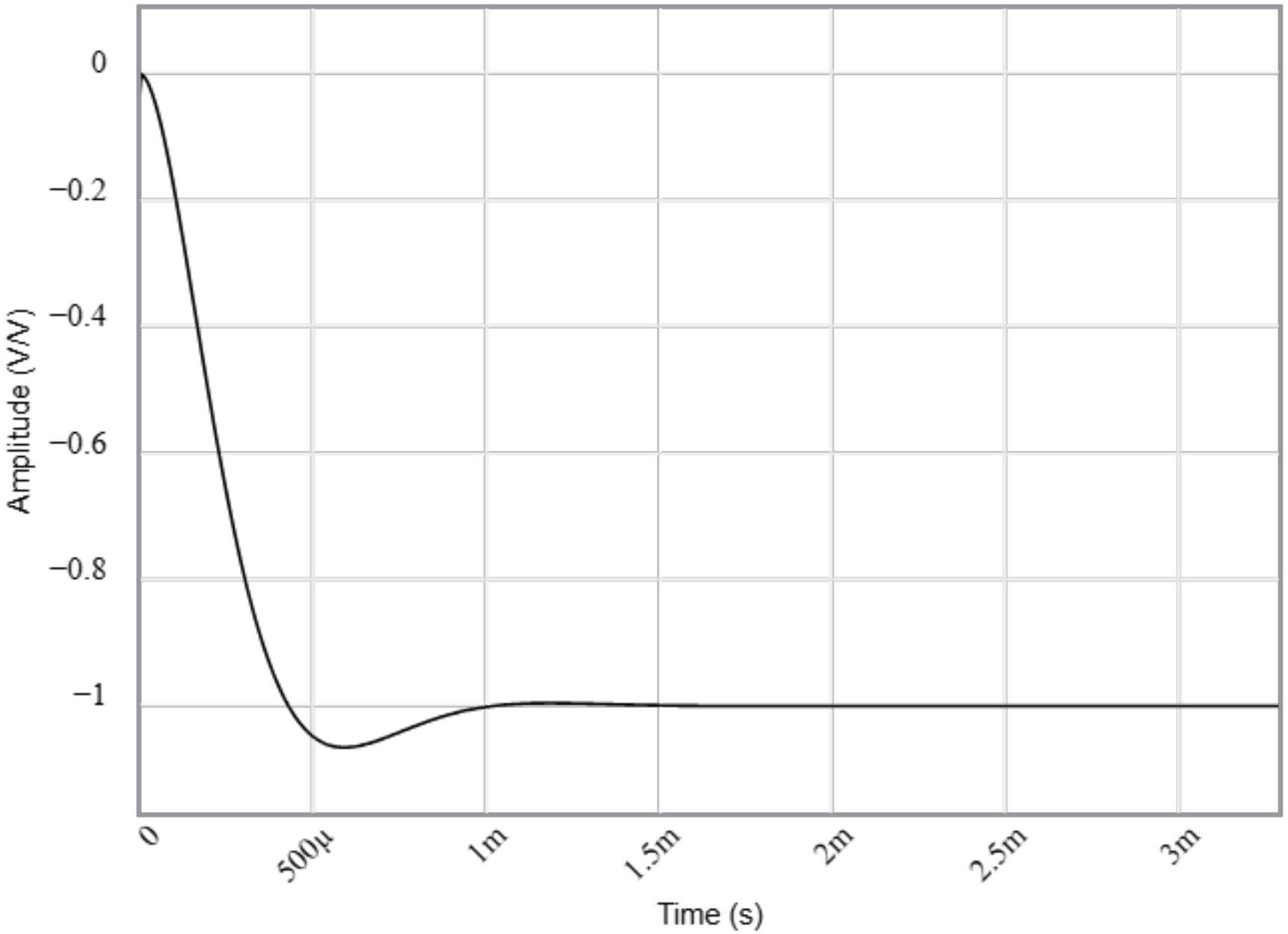
Group Delay


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

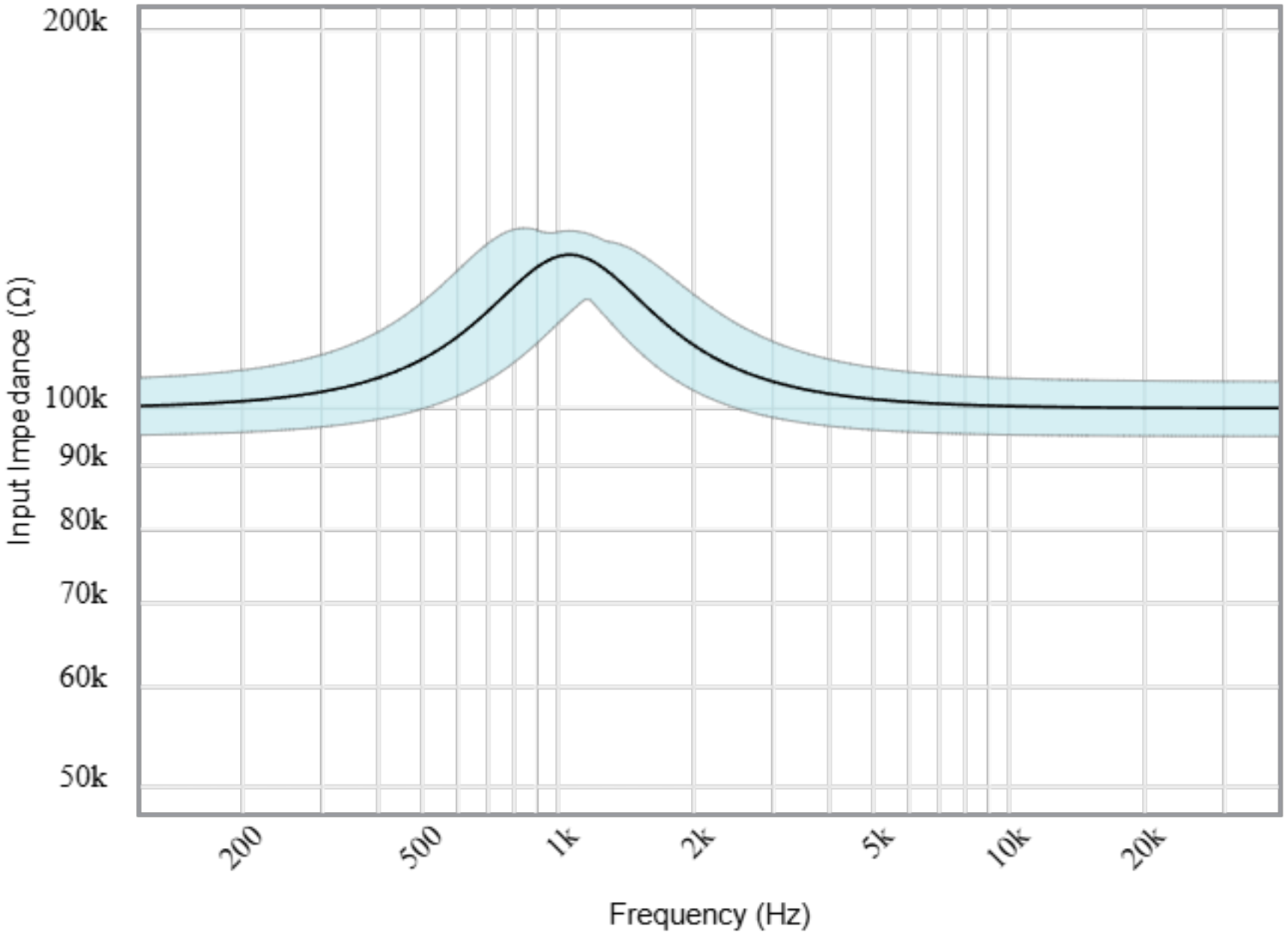
Phase Delay


0
−500µ
−1m
−1.5m
−2m
−2.5m
−3m
−3.5m
−4m
Phase Delay (s)
200
500
1k
2k
5k
10k
20k
Frequency (Hz)

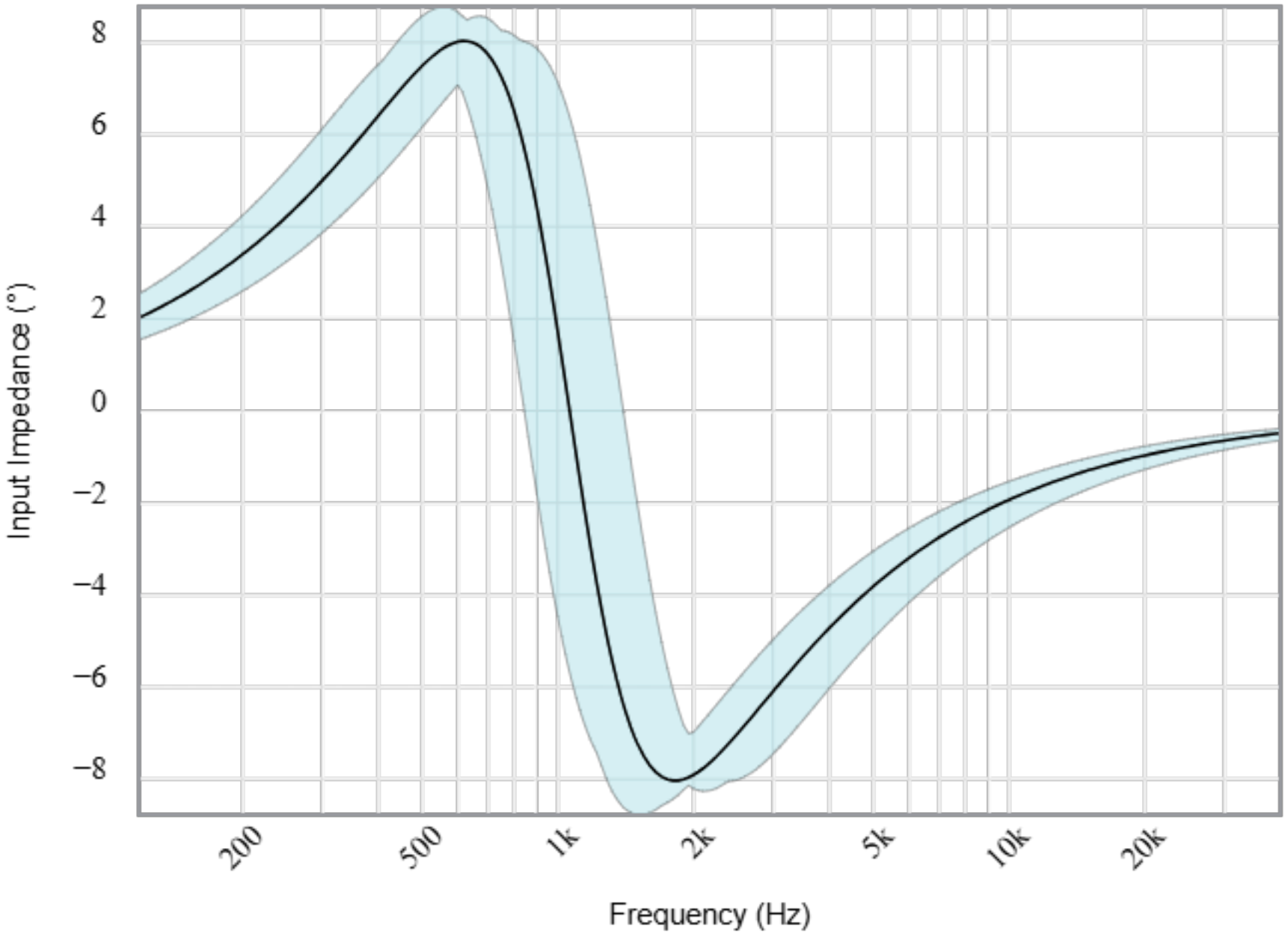
Step Response



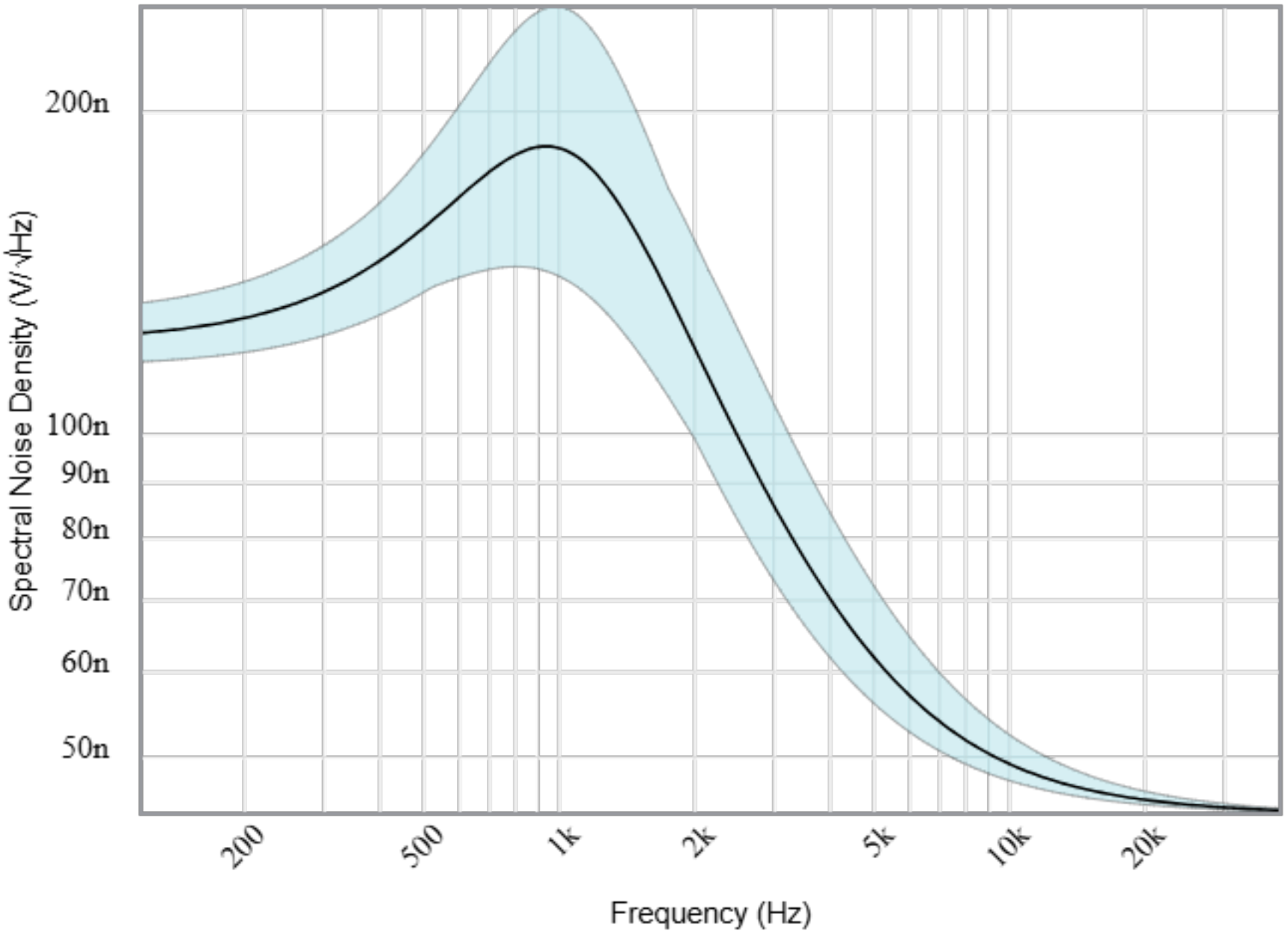
Input Impedance Magnitude



Input Impedance Phase



Noise


200n
100n
90n
80n
70n
60n
50n
Spectral Noise Density (V/√Hz)
200
500
1k
2k
5k
10k
20k
Frequency (Hz)

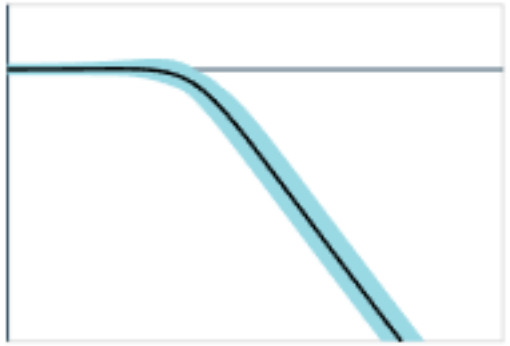
Stages

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

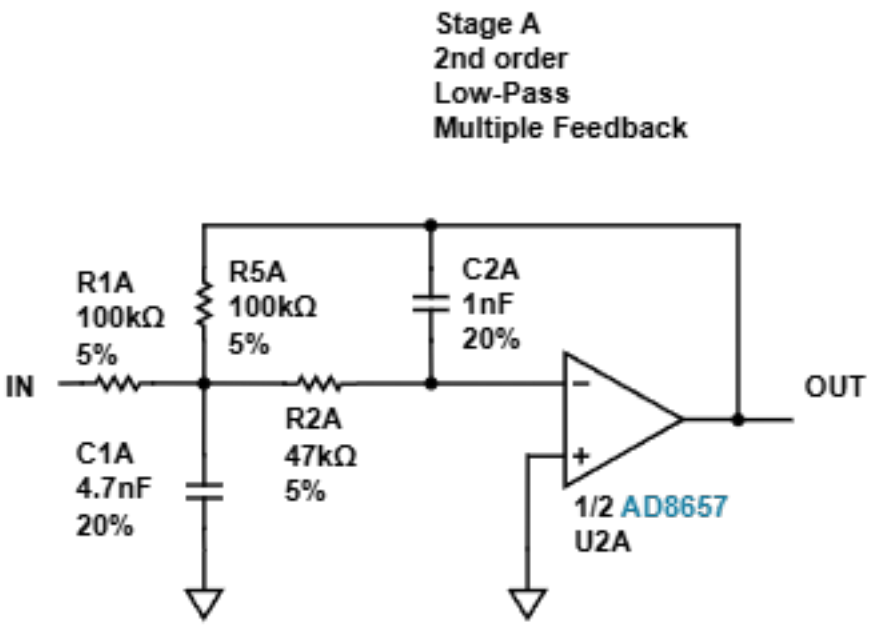
A

2nd order
Low-Pass
Multiple
Feedback

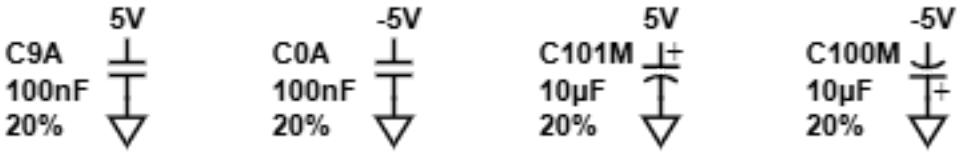
	Target	Simulated
Gain (V/V):	1	0.905 to 1.11
f_p (Hz):	1.12k	844 to 1.4k
Q:	760m	635m to 920m



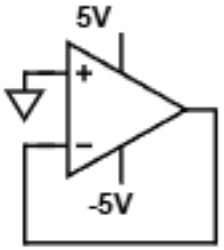
Circuit



BYPASS CAPACITORS



SPARES Why The Spares?



1/2 AD8657
U2A