Filter Wizard

Filter Wizard Design

Created on 09/19/2021

ANALOG DEVICES

Filter Wizard Design Report

Filter Requirements for Band-Pass, 8th order Butterworth

Specifications: Optimize: Noise; +Vs: 5; -Vs: -5

Gain: 0 dB

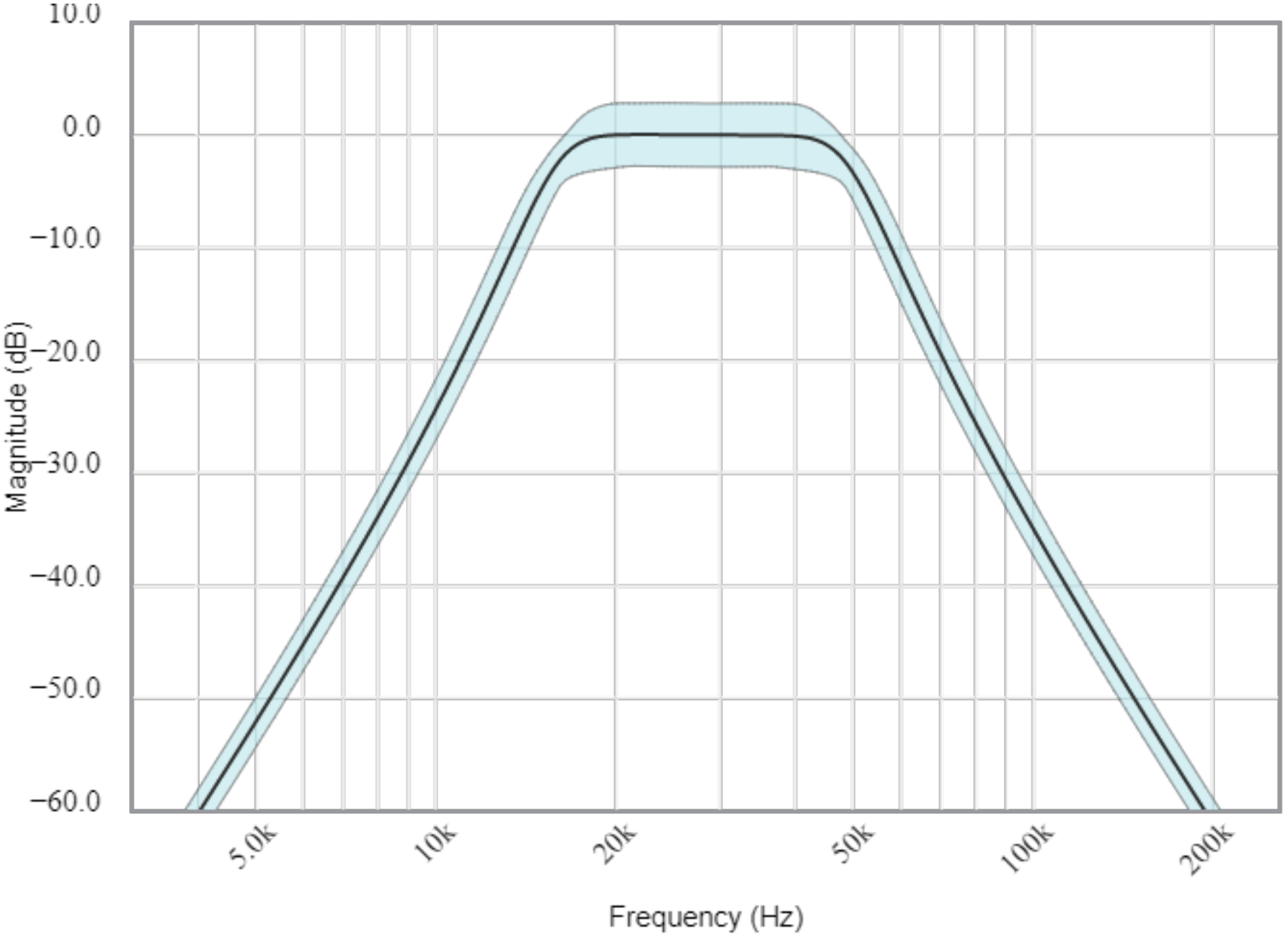
Passband: -20dB at 60kHz

Stopband: -40dB at 125kHz

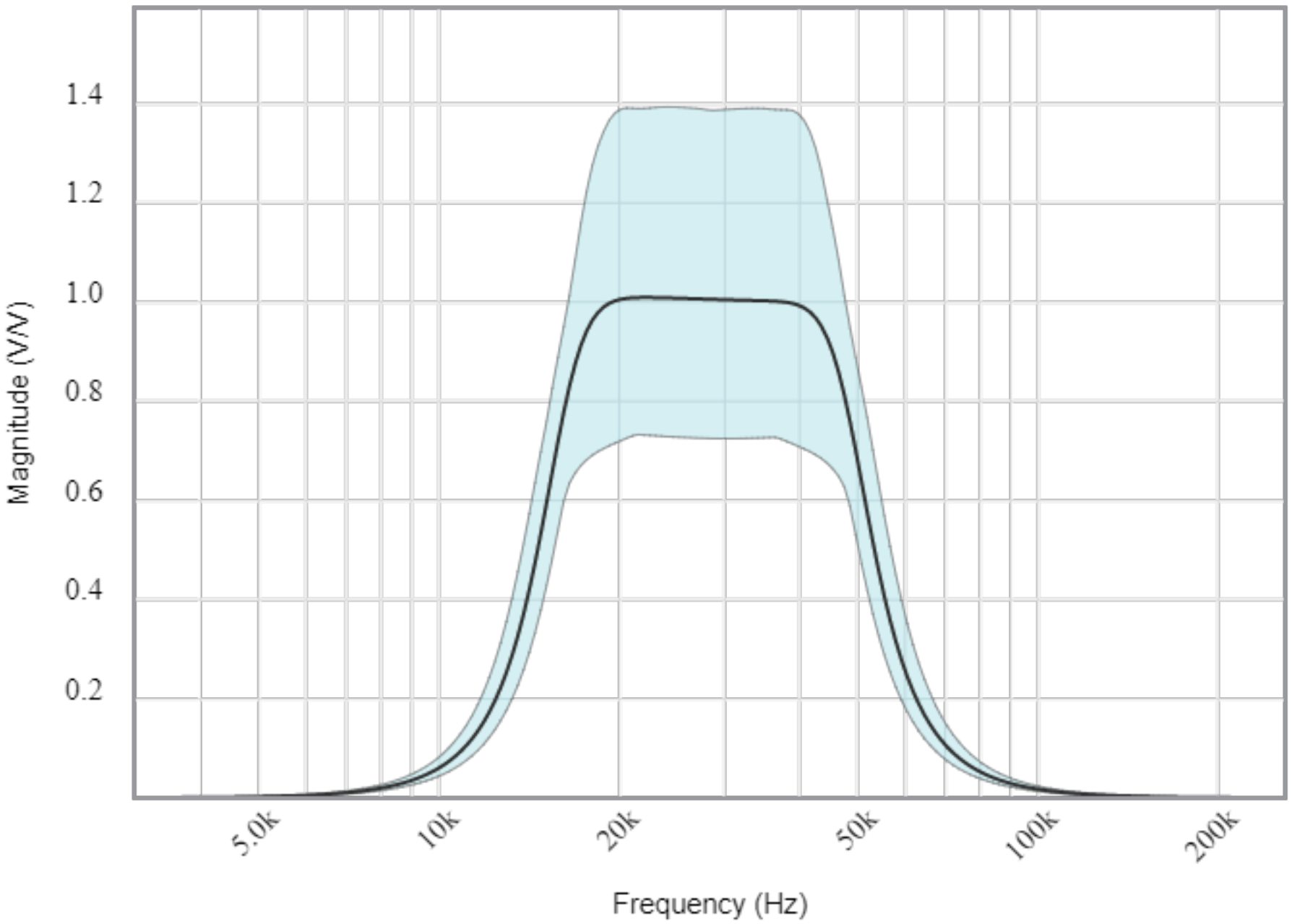
Component Tolerances: Capacitor = 5%; Resistor = 1%; Inductor = 5%; Op Amp GBW = 20%

BOM: refer to BOM.csv file

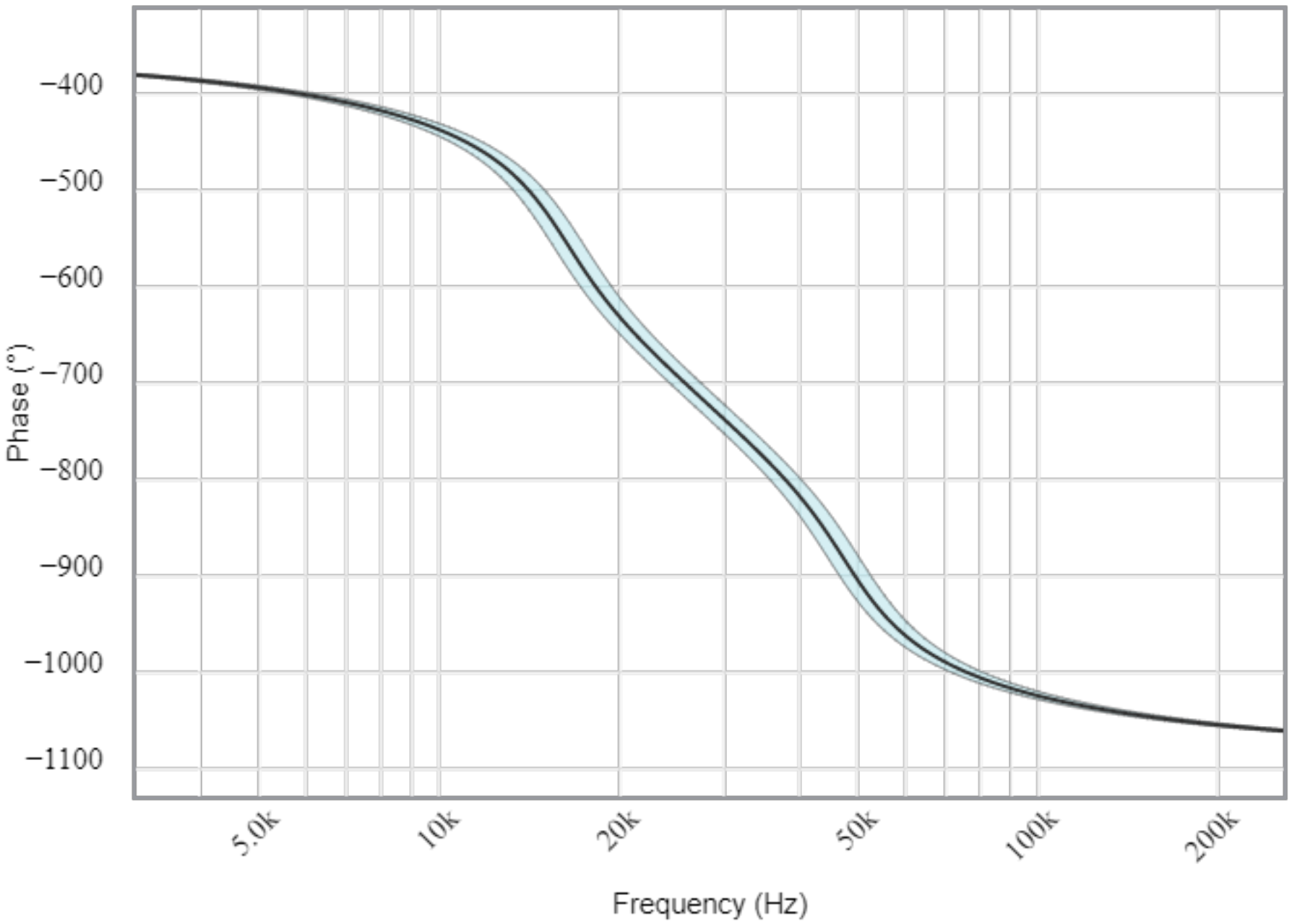
Magnitude(dB)



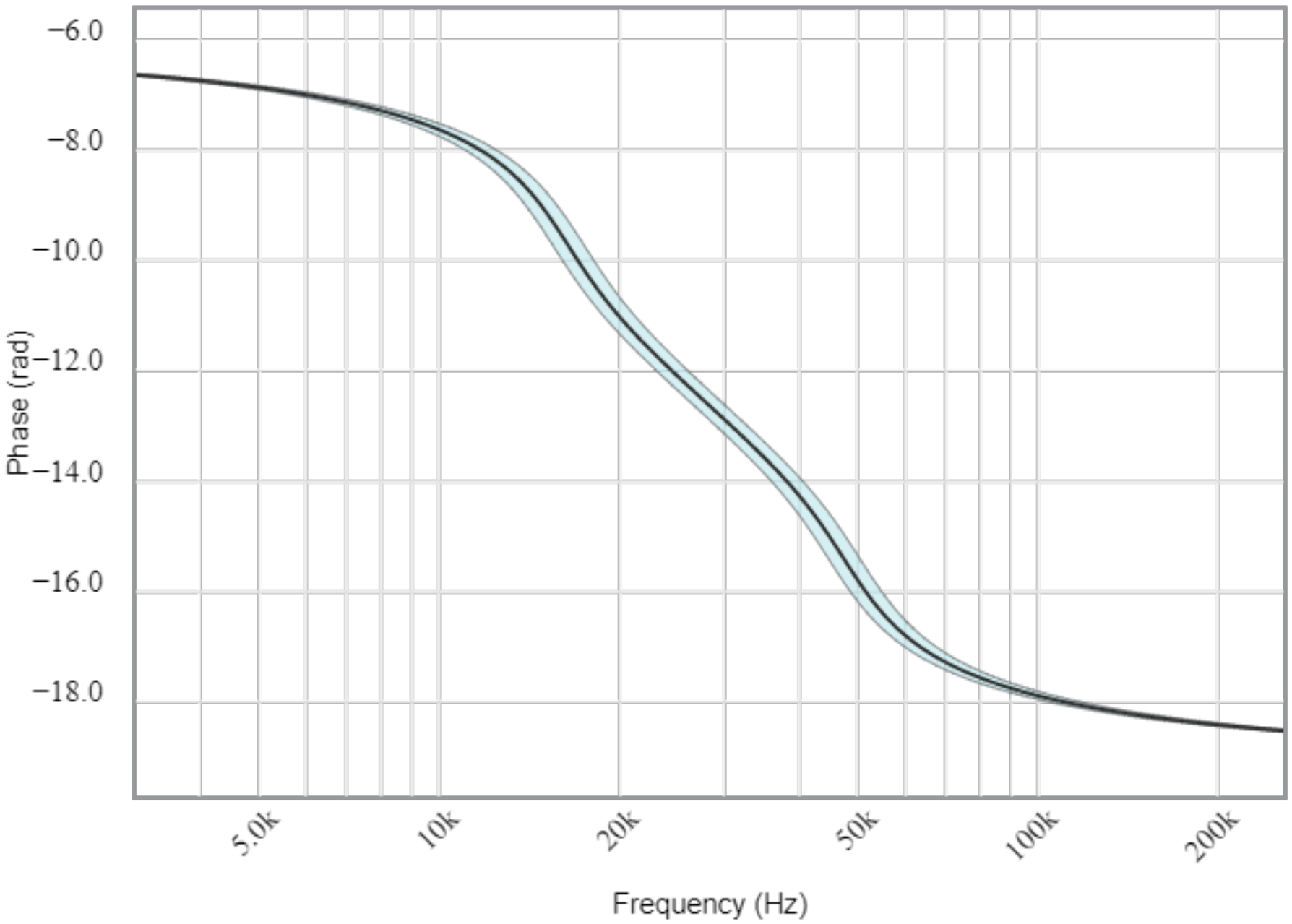
Magnitude(Volts per Volt)



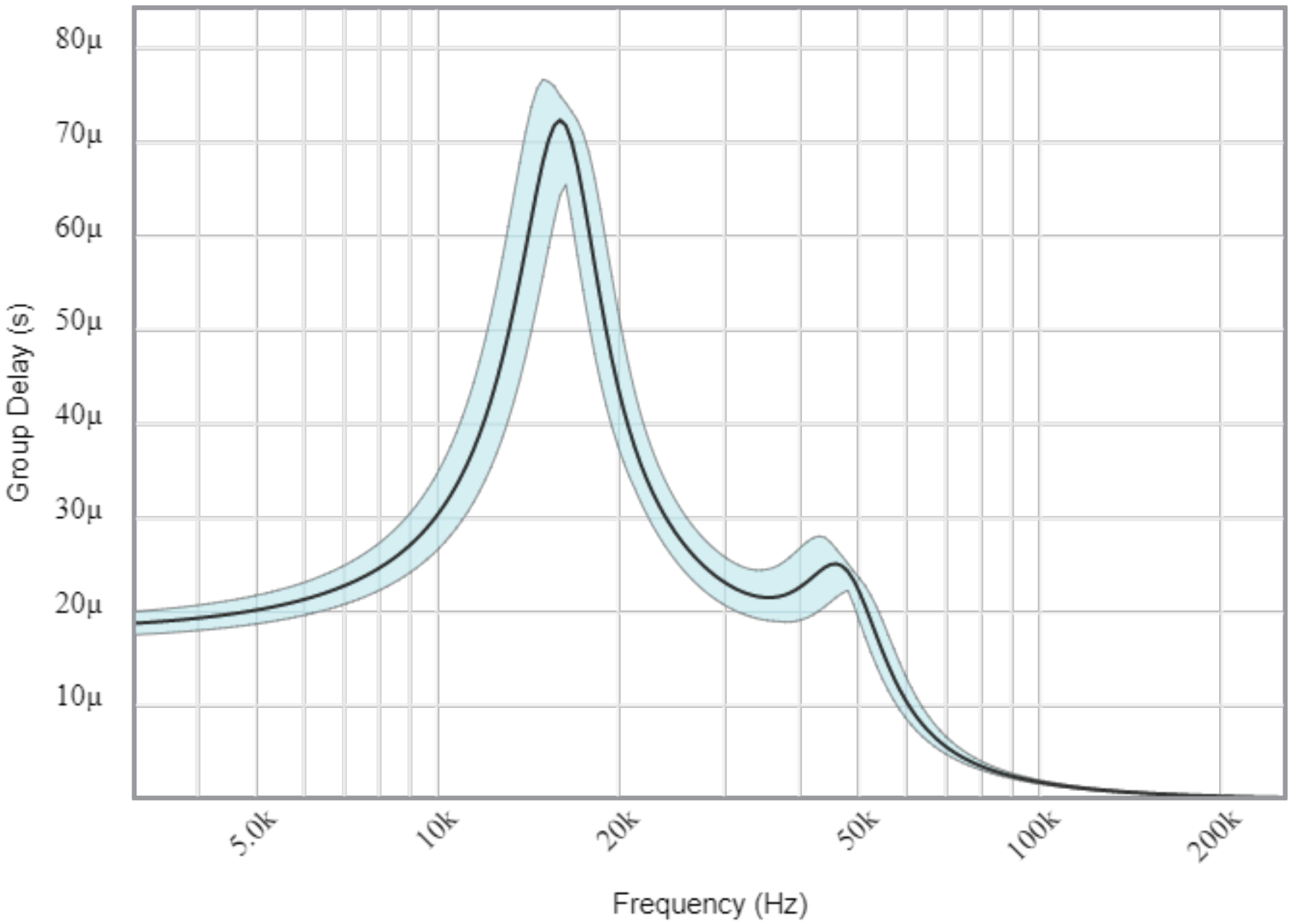
Phase(degrees)



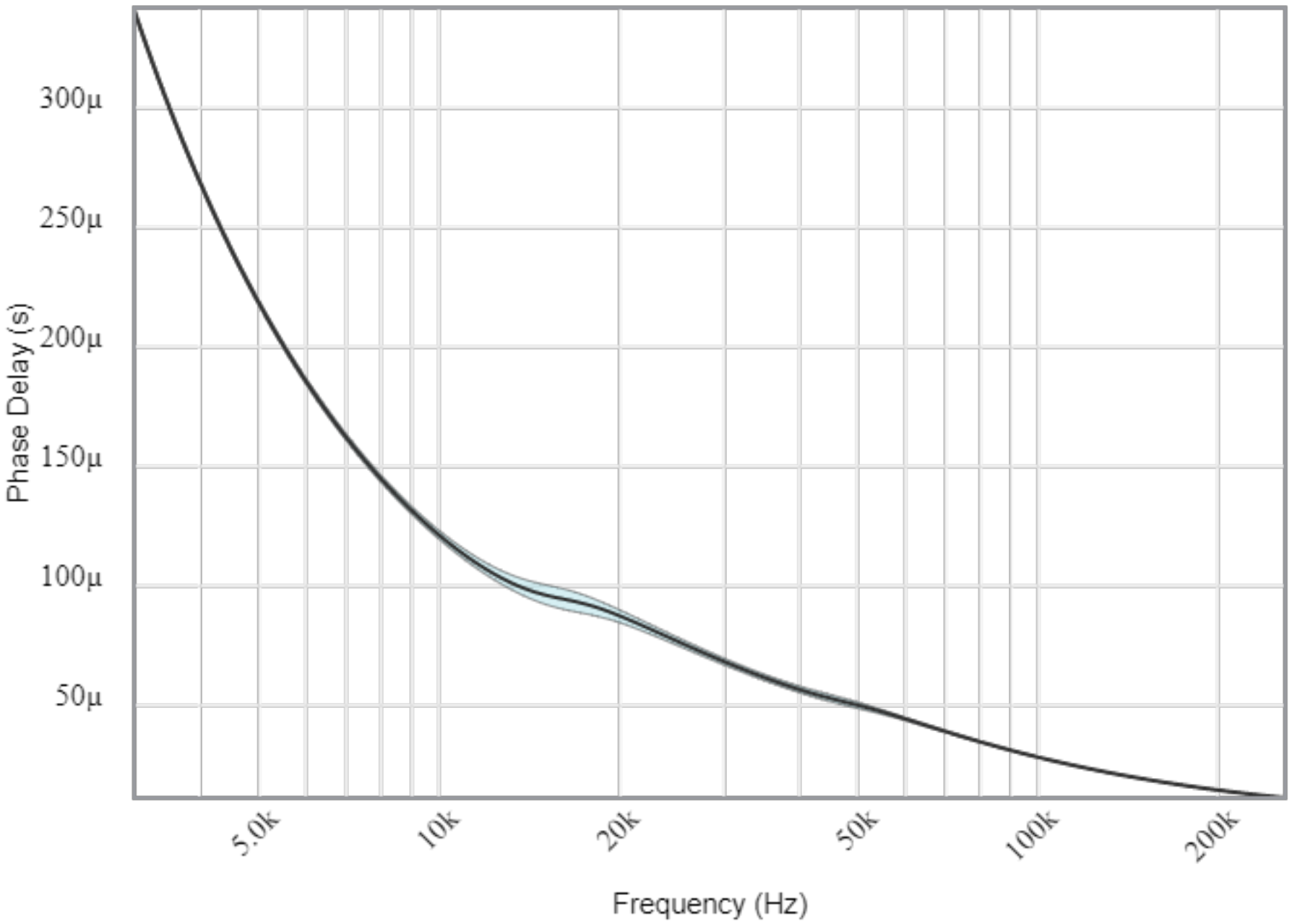
Phase(radians)



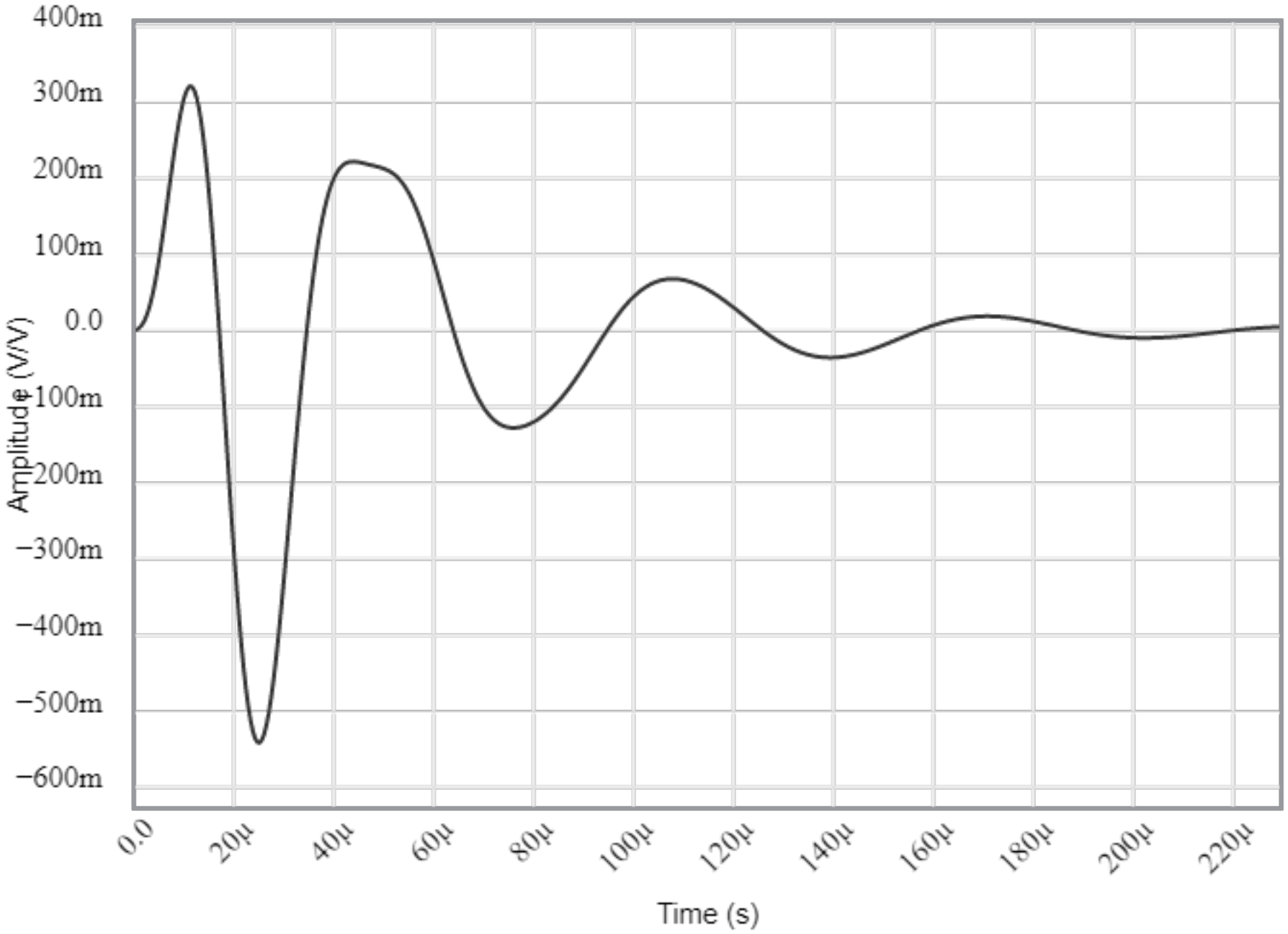
Group Delay


80µ
70µ
60µ
50µ
40µ
30µ
20µ
10µ
Group Delay (s)
5.0k
10k
20k
50k
100k
200k
Frequency (Hz)

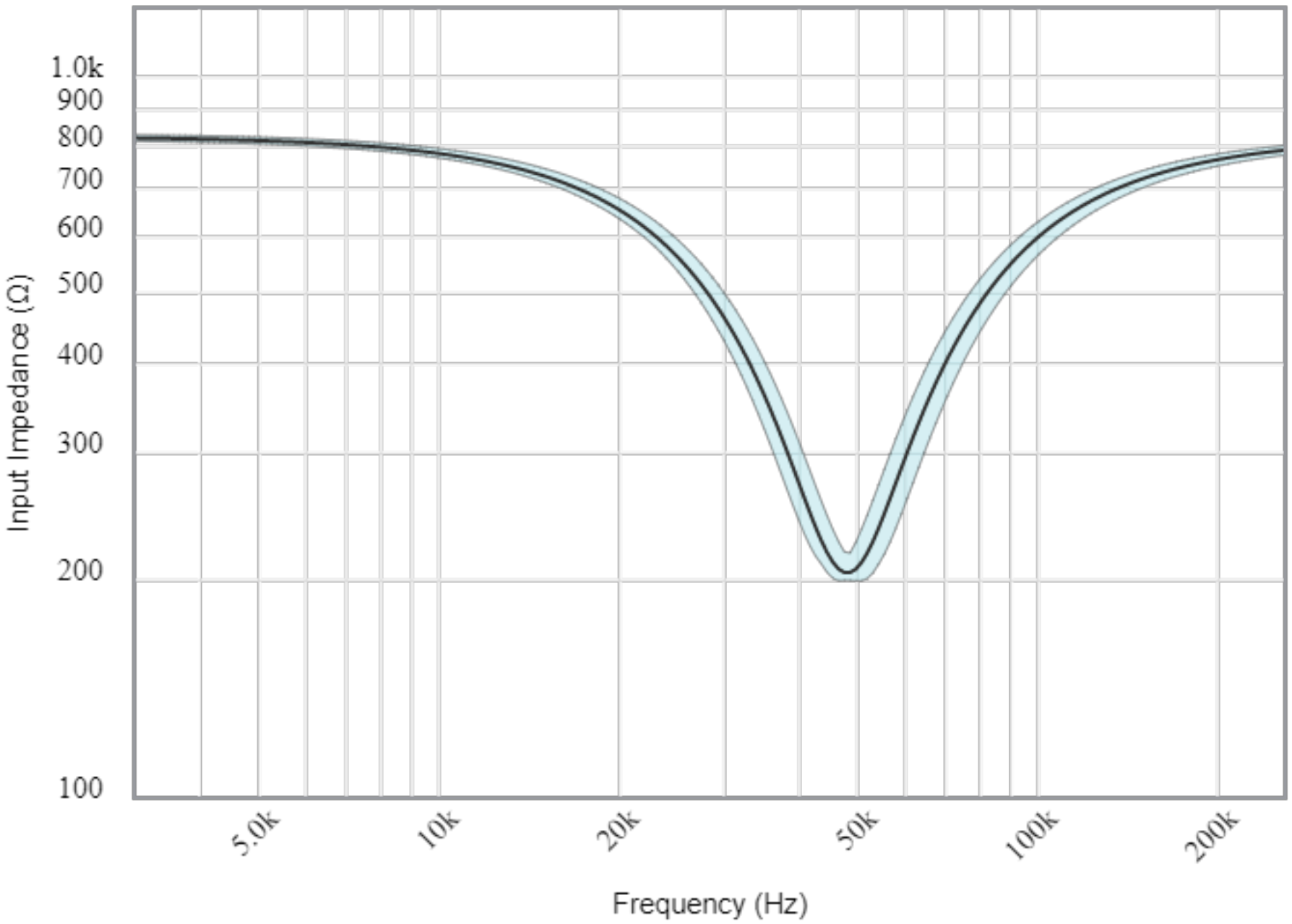
Phase Delay


300µ
250µ
200µ
150µ
100µ
50µ
Phase Delay (s)
5.0k
10k
20k
50k
100k
200k
Frequency (Hz)

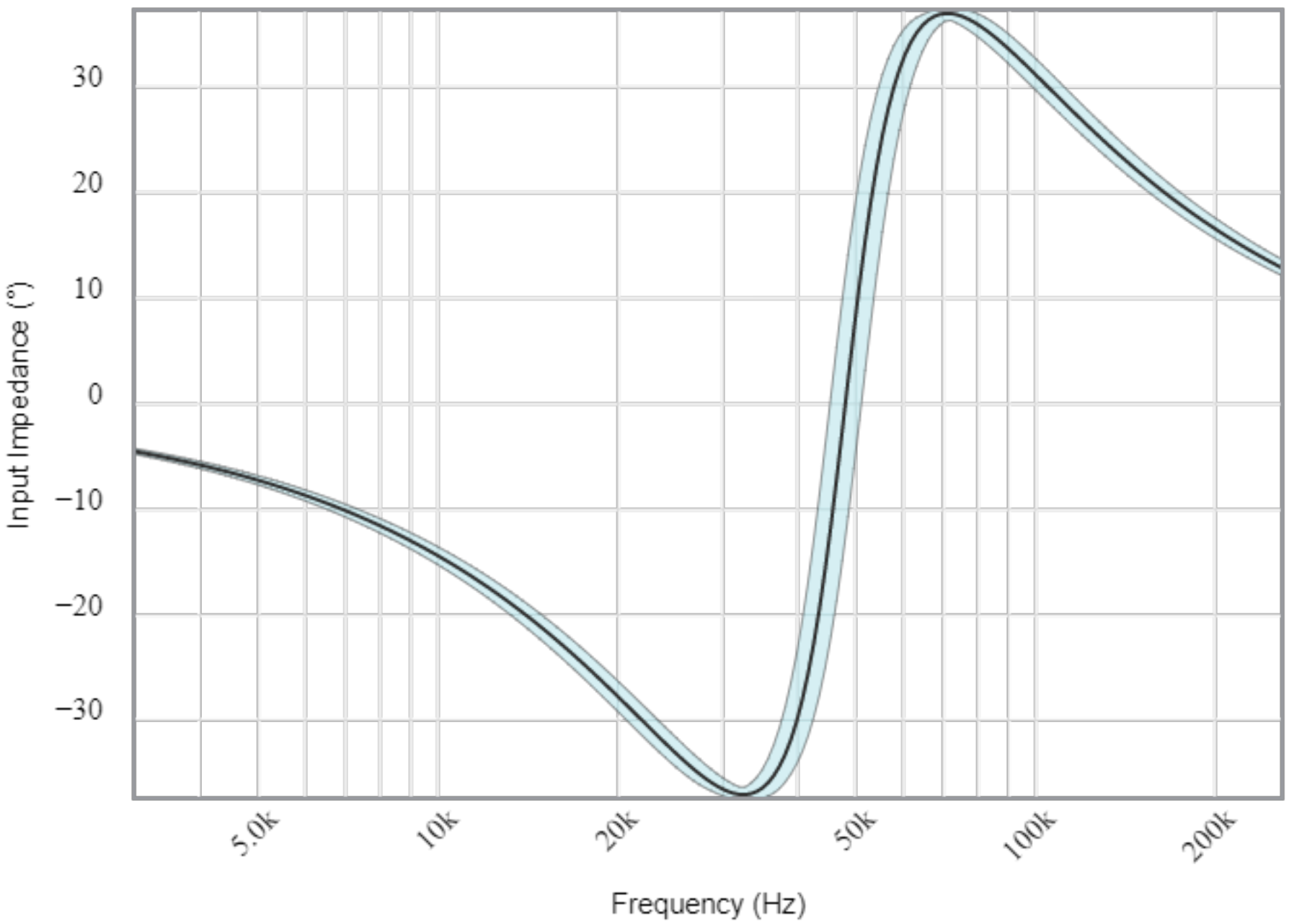
Step Response



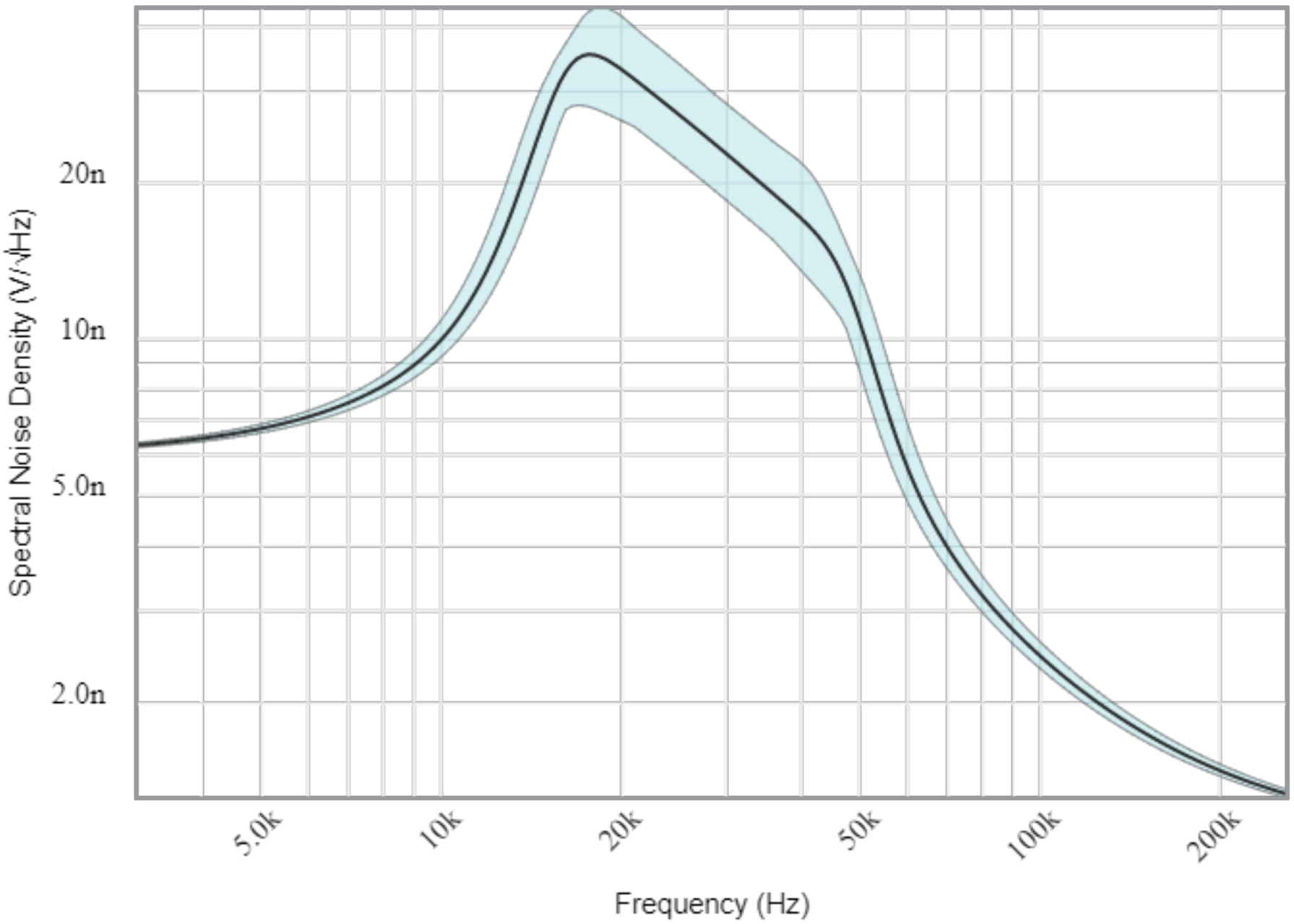
Input Impedance Magnitude



Input Impedance Phase



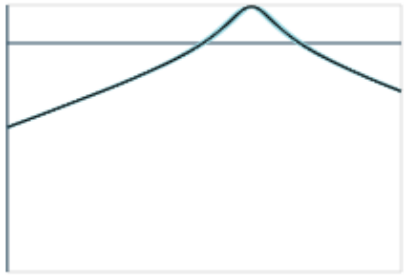
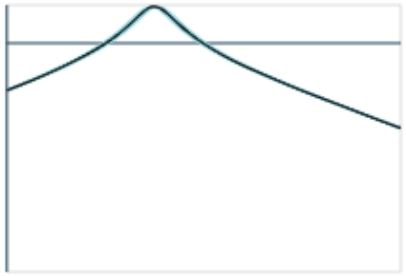
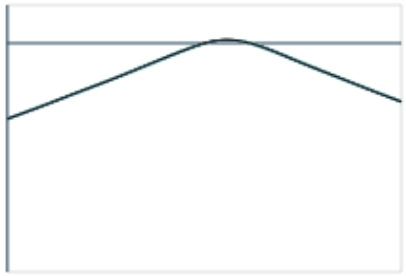
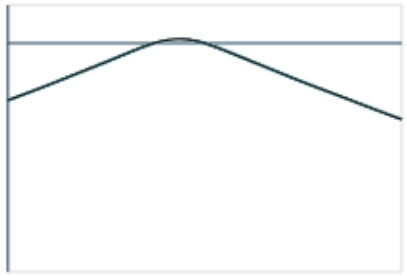
Noise


20n
10n
5.0n
2.0n
Spectral Noise Density (V/√Hz)
5.0k
10k
20k
50k
100k
200k
Frequency (Hz)

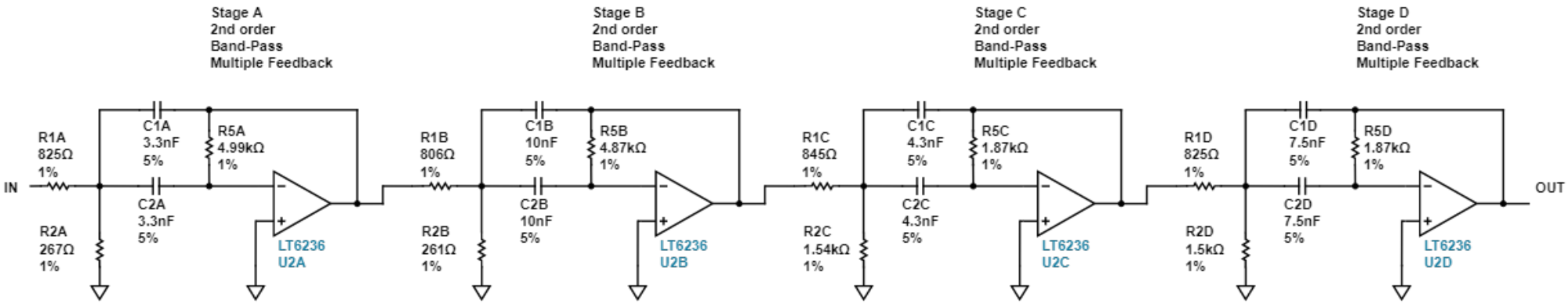
Stages

Your filter requires 4 op amp stage(s) with the following characteristics

	A: 2nd order Band-Pass Multiple Feedback		B: 2nd order Band-Pass Multiple Feedback		C: 2nd order Band-Pass Multiple Feedback		D: 2nd order Band-Pass Multiple Feedback	
	Target	Simulated	Target	Simulated	Target	Simulated	Target	Simulated
Gain (V/V):	3.01	2.96 to 3.09	3.01	2.96 to 3.08	1.12	1.08 to 1.13	1.12	1.11 to 1.16
f_p (Hz):	48.1k	45.3k to 51.1k	16.3k	15.3k to 17.3k	36.7k	34.6k to 39k	21.4k	20k to 22.6k
Q:	2.49	2.42 to 2.52	2.49	2.42 to 2.52	930m	926m to 966m	930m	902m to 944m

Circuit



BYPASS CAPACITORS