Filter Wizard

Created by Cecile LECONTE on 4/24/2017

ANALOG DEVICES

Filter Wizard Design Report

Filter Requirements for High-Pass, 3rd order Butterworth

Specifications: Optimize for Power, +Vs= 5, -Vs= -5

Gain: 0 dB

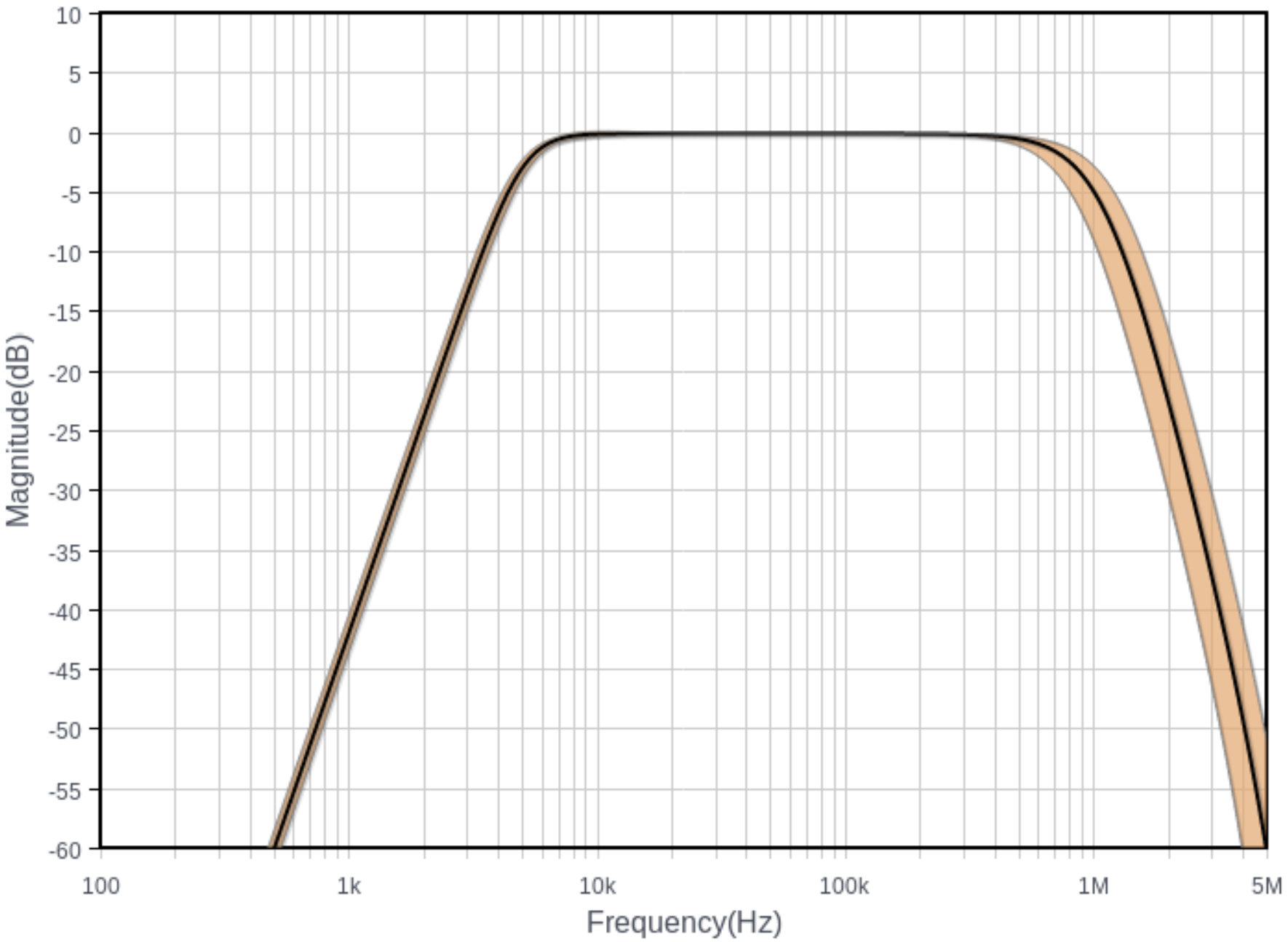
Passband: -3dB at 5kHz

Stopband: -40dB at 1kHz

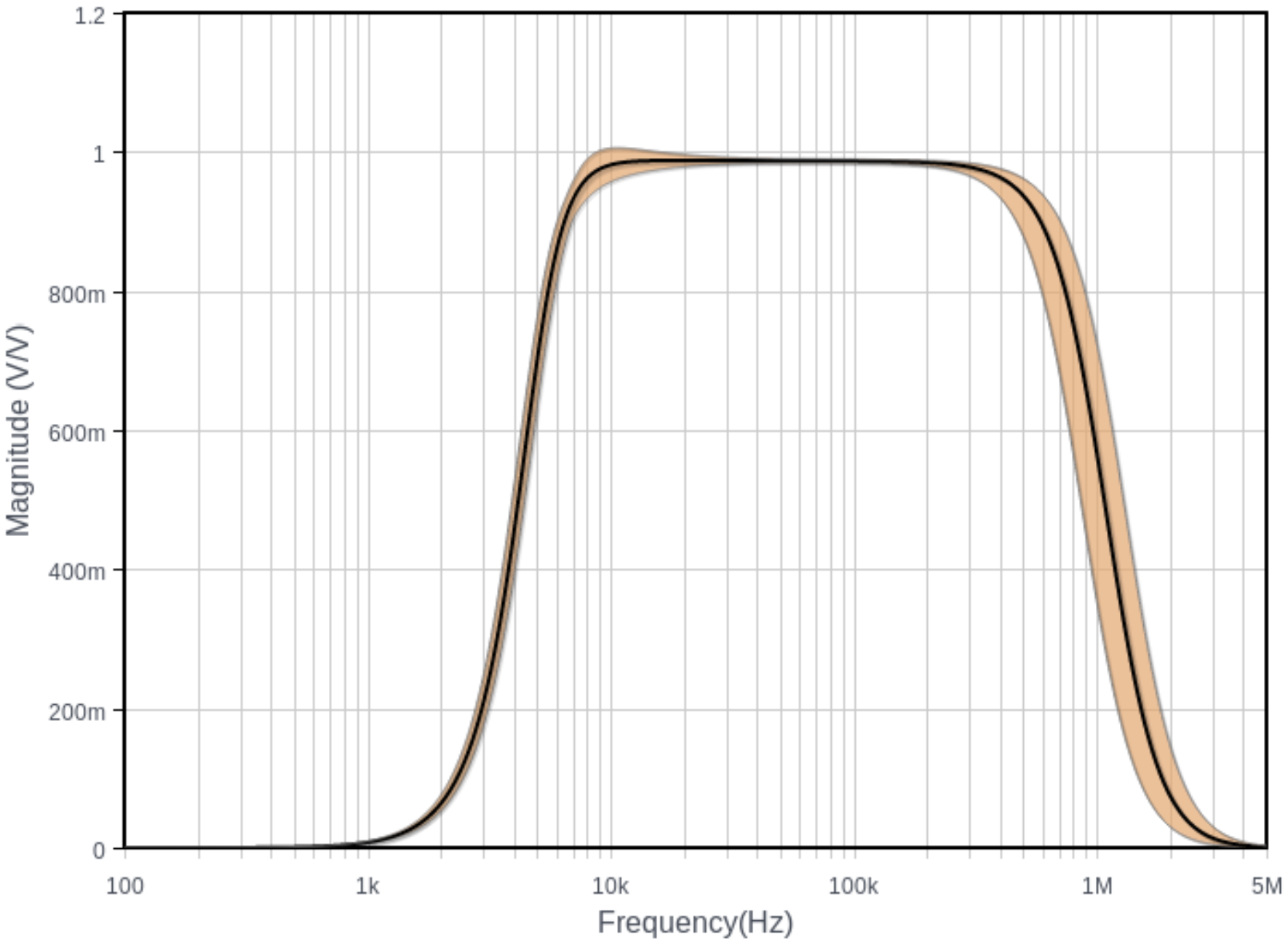
Component Tolerances: Capacitor = 5%; Resistor = 1%; Inductor = 5%; Op Amp GBW = 20%

BOM: refer to BOM.csv file

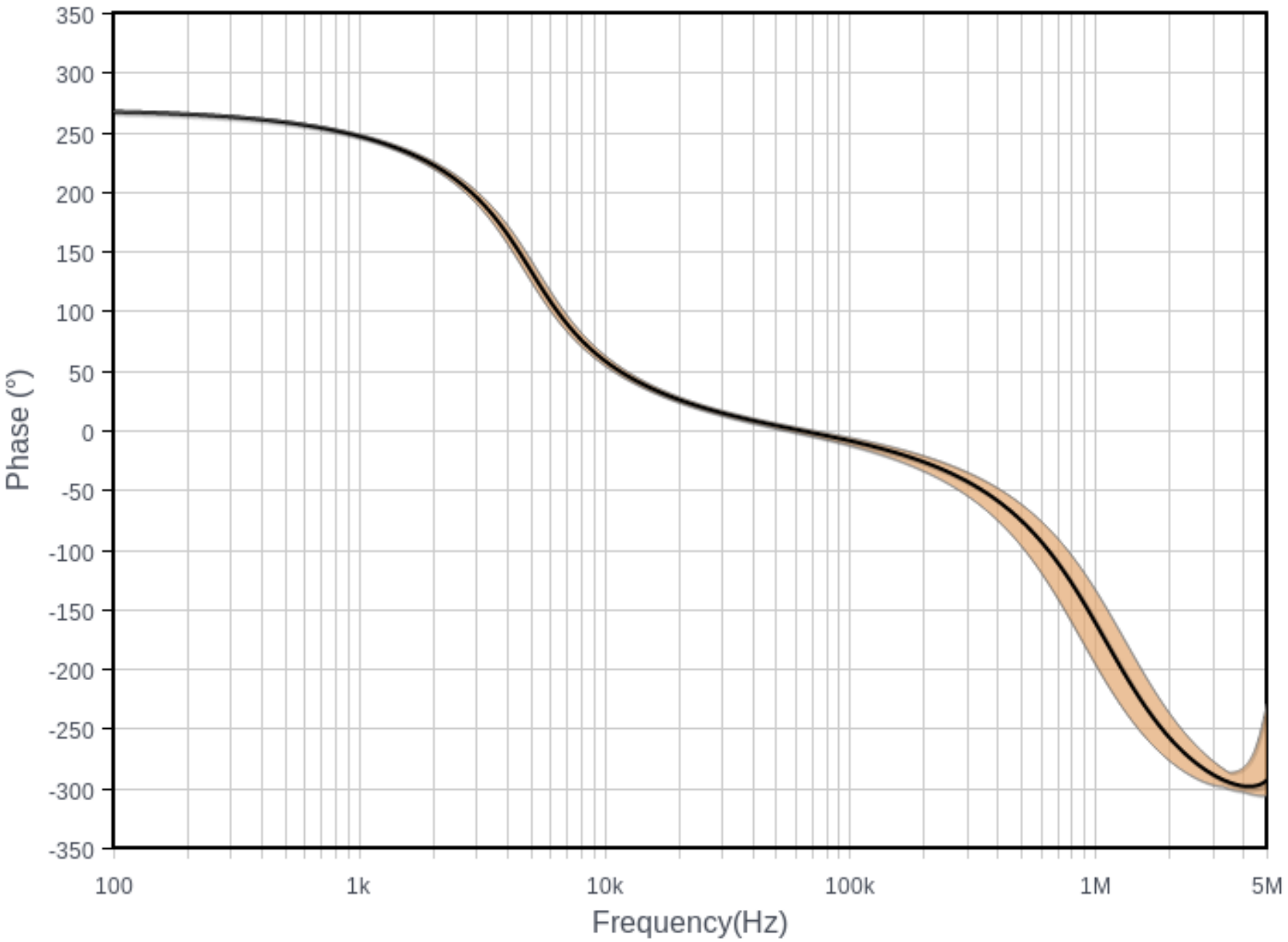
Magnitude(dB)



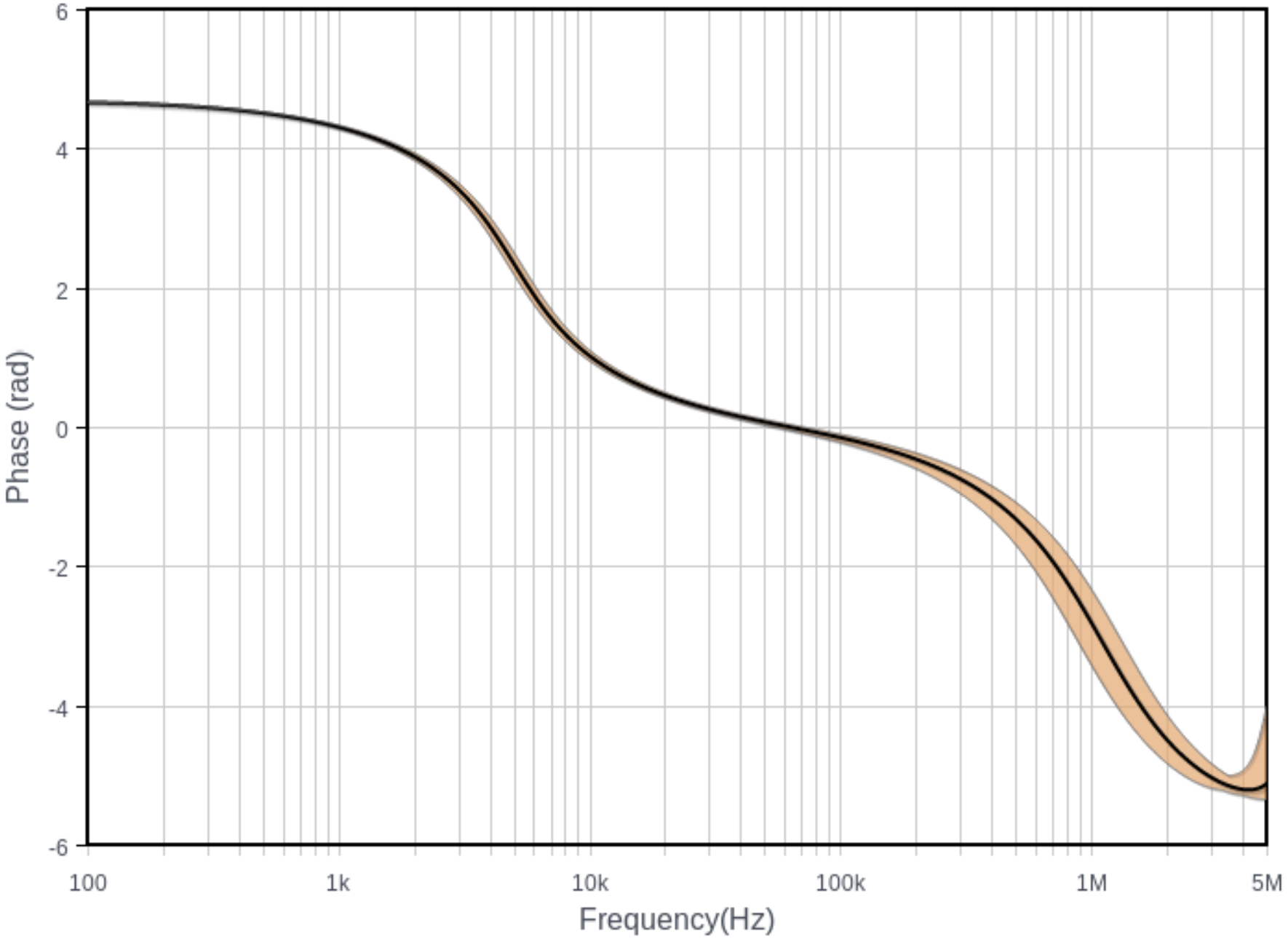
Magnitude(Volts per Volt)



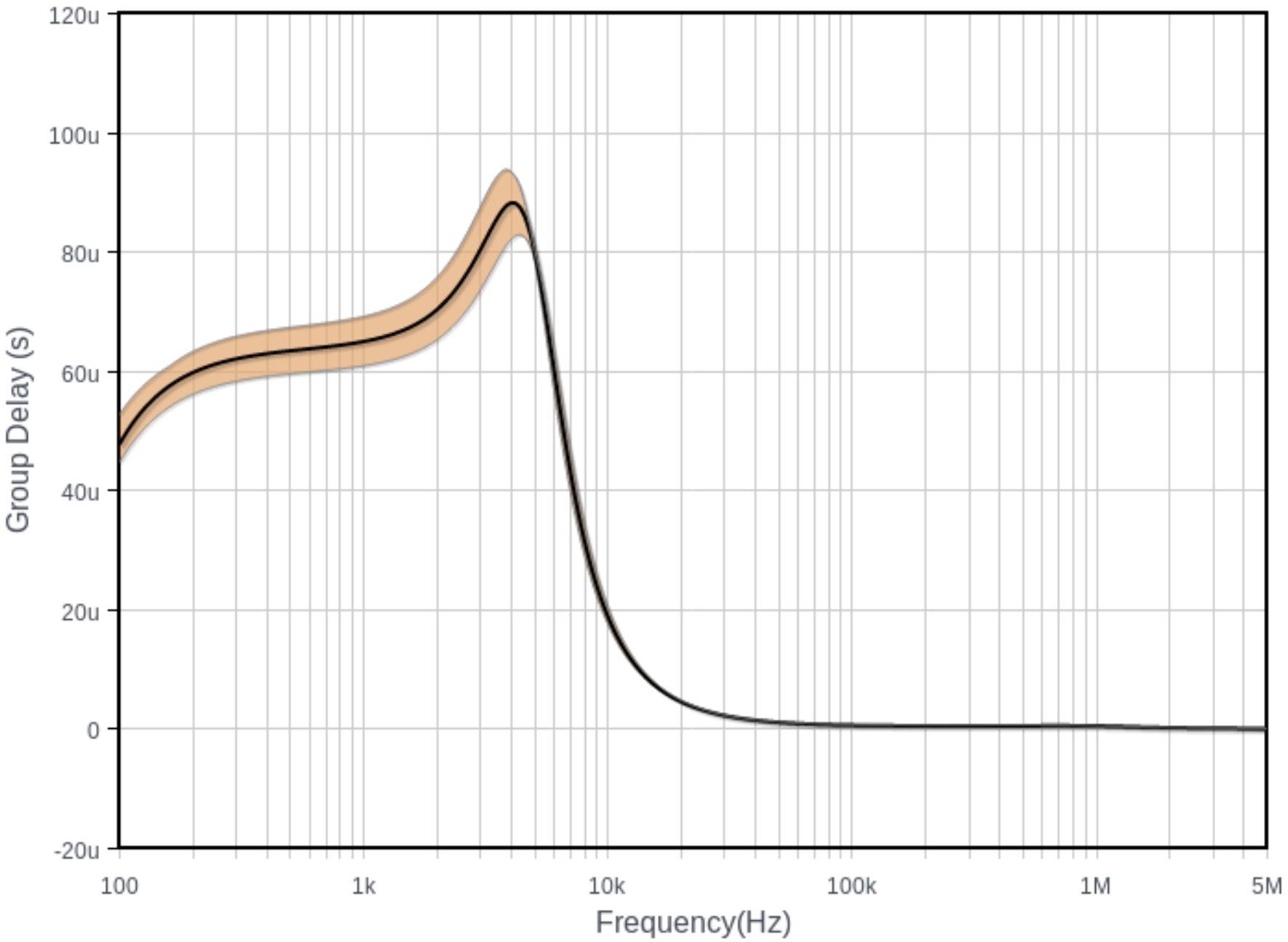
Phase(degrees)



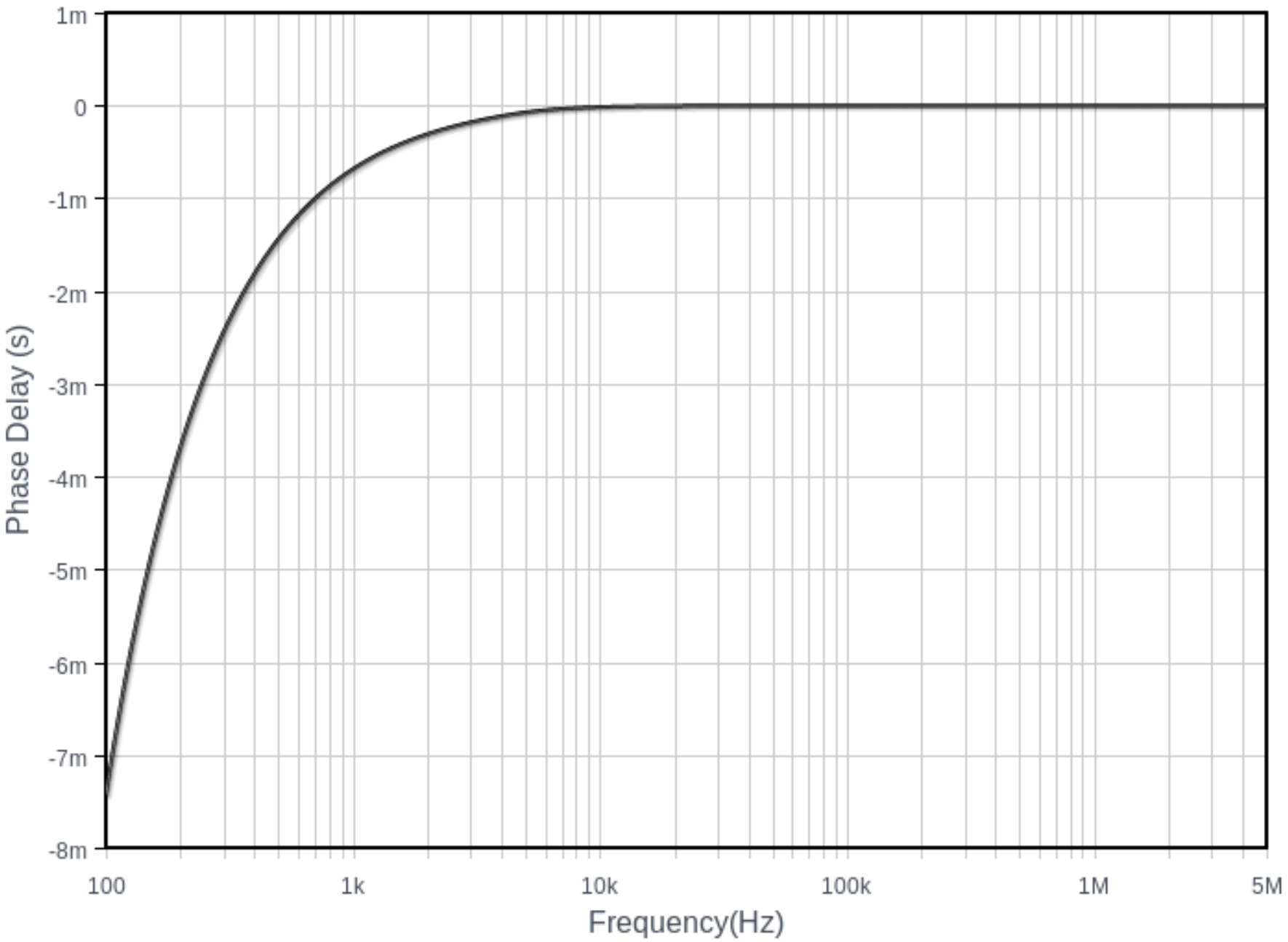
Phase(radians)



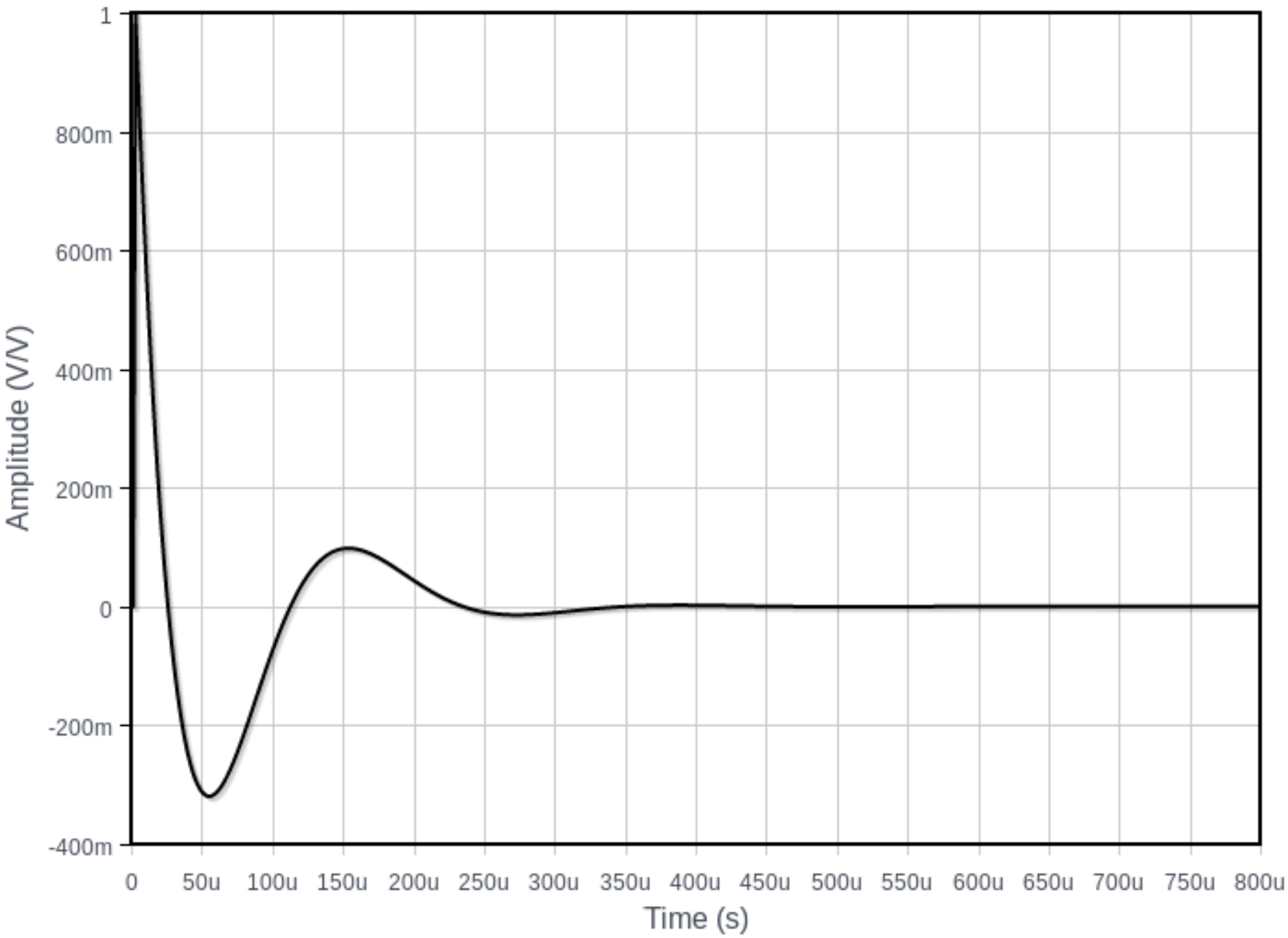
Group Delay


120u
100u
80u
60u
40u
20u
0
-20u
Group Delay (s)
100
1k
10k
100k
1M
5M
Frequency(Hz)

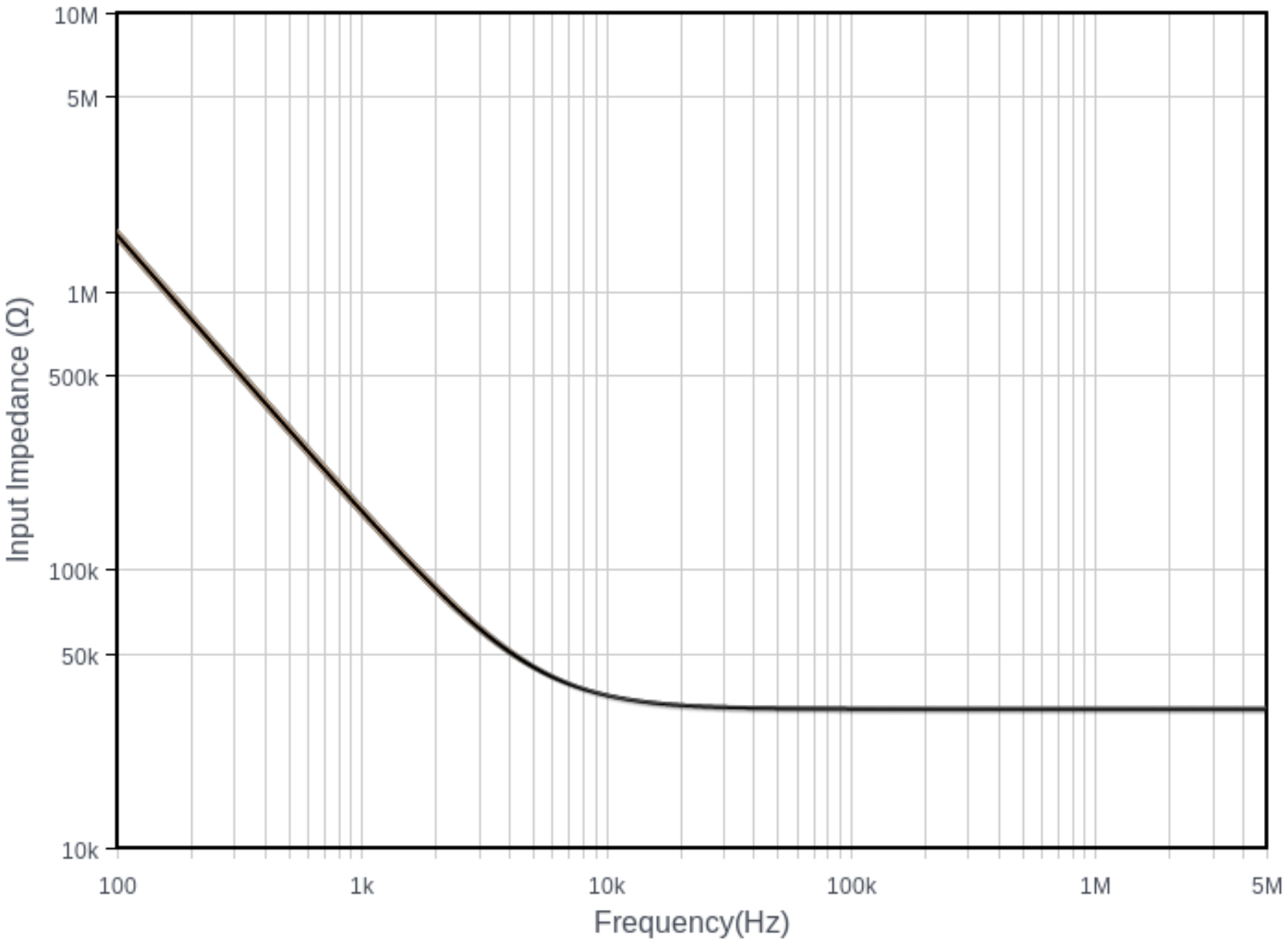
Phase Delay


1m
0
-1m
-2m
-3m
-4m
-5m
-6m
-7m
-8m
Phase Delay (s)
100
1k
10k
100k
1M
5M
Frequency(Hz)

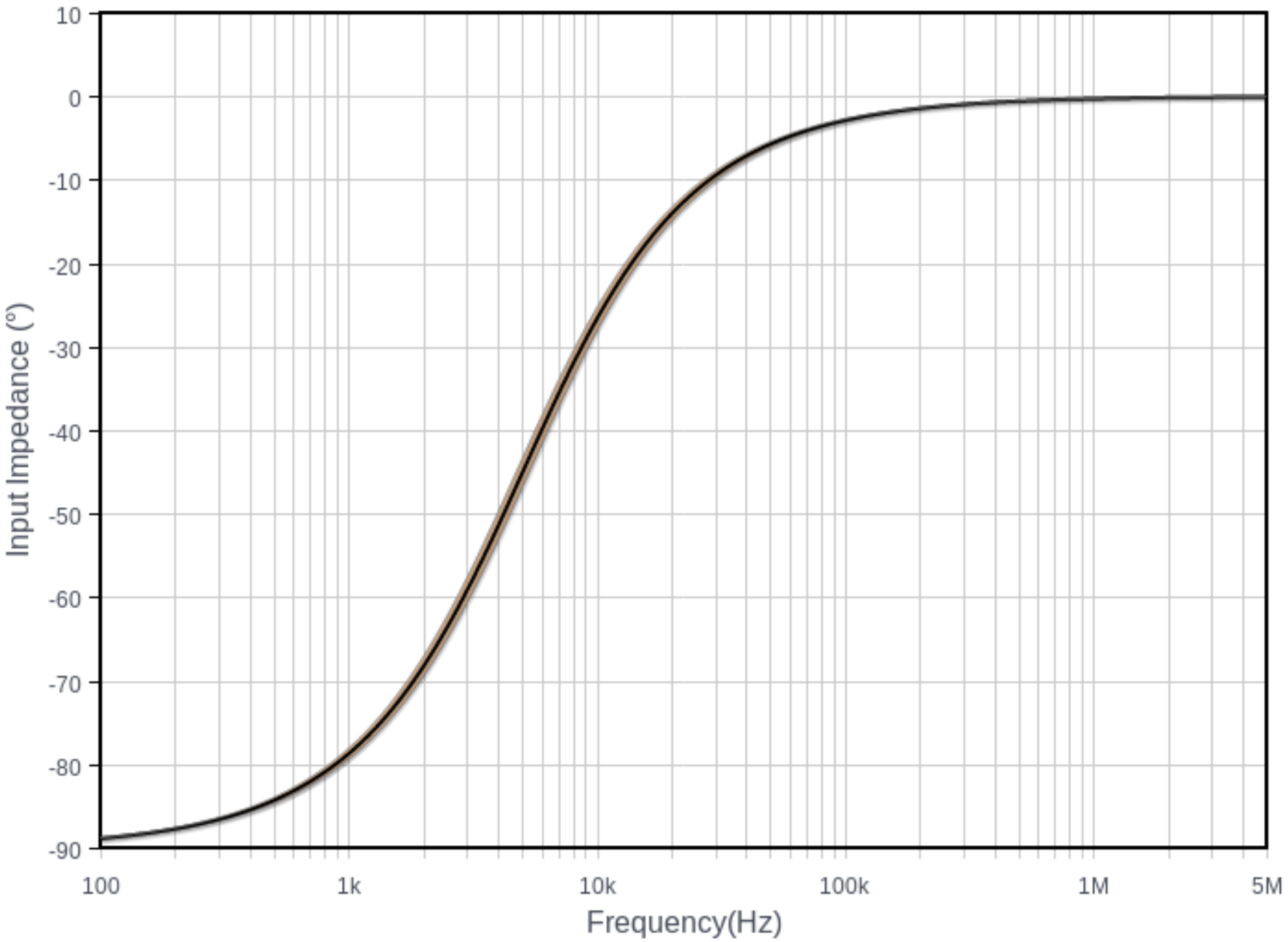
Step Response



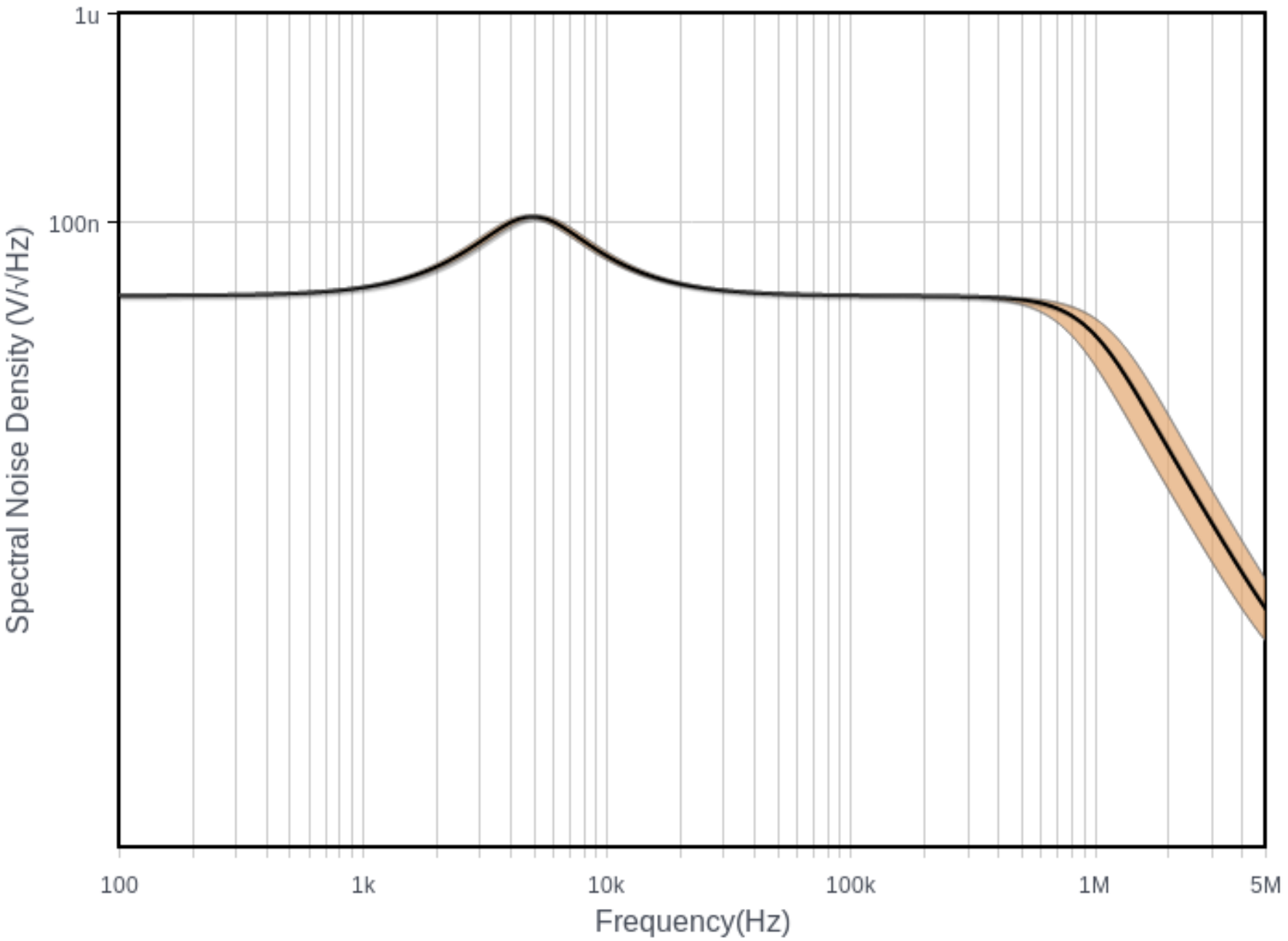
Input Impedance Magnitude



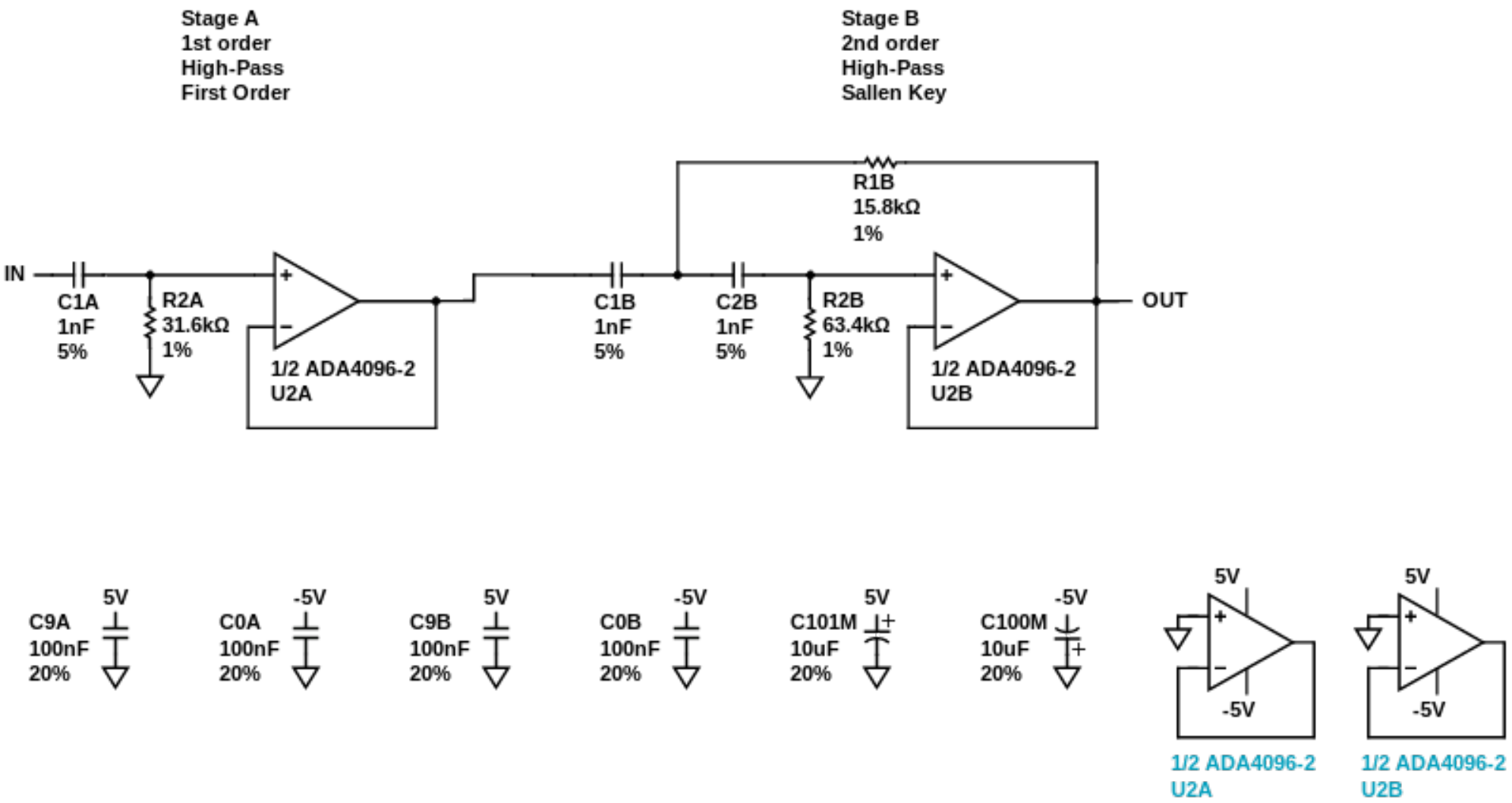
Input Impedance Phase



Noise


1u
100n
Spectral Noise Density (V/√Hz)
100
1k
10k
100k
1M
5M
Frequency(Hz)

Circuit


Stage A
1st order
High-Pass
First Order
Stage B
2nd order
High-Pass
Sallen Key
R1B
15.8kΩ
1%
IN
C1A
1nF
5%
R2A
31.6kΩ
1%
1/2 ADA4096-2
U2A
C1B
1nF
5%
C2B
1nF
5%
R2B
63.4kΩ
1%
1/2 ADA4096-2
U2B
OUT
C9A
100nF
20%
5V
C0A
100nF
20%
-5V
C9B
100nF
20%
5V
C0B
100nF
20%
-5V
C101M
10uF
20%
5V
C100M
10uF
20%
-5V
5V
-5V
1/2 ADA4096-2
U2A
5V
-5V
1/2 ADA4096-2
U2B