

PhotoDiode

Created on 5/04/2020

PhotoDiode Design Report

Design Parameters Entered by User

Reverse Voltage(V_r): 5V

Photodiode Bias: negative

Capacitance: 11pF

Shunt Resistance: 15G Ω

Peak Current: 9.5uA

Q: 167m

Peak Voltage: 5V

Requested Bandwidth: 500kHz

Sensor: Custom

Stages: Two stages

Circuit

SUPPLY VOLTAGE

MIN: $\pm 6.444325481798716\text{V}$

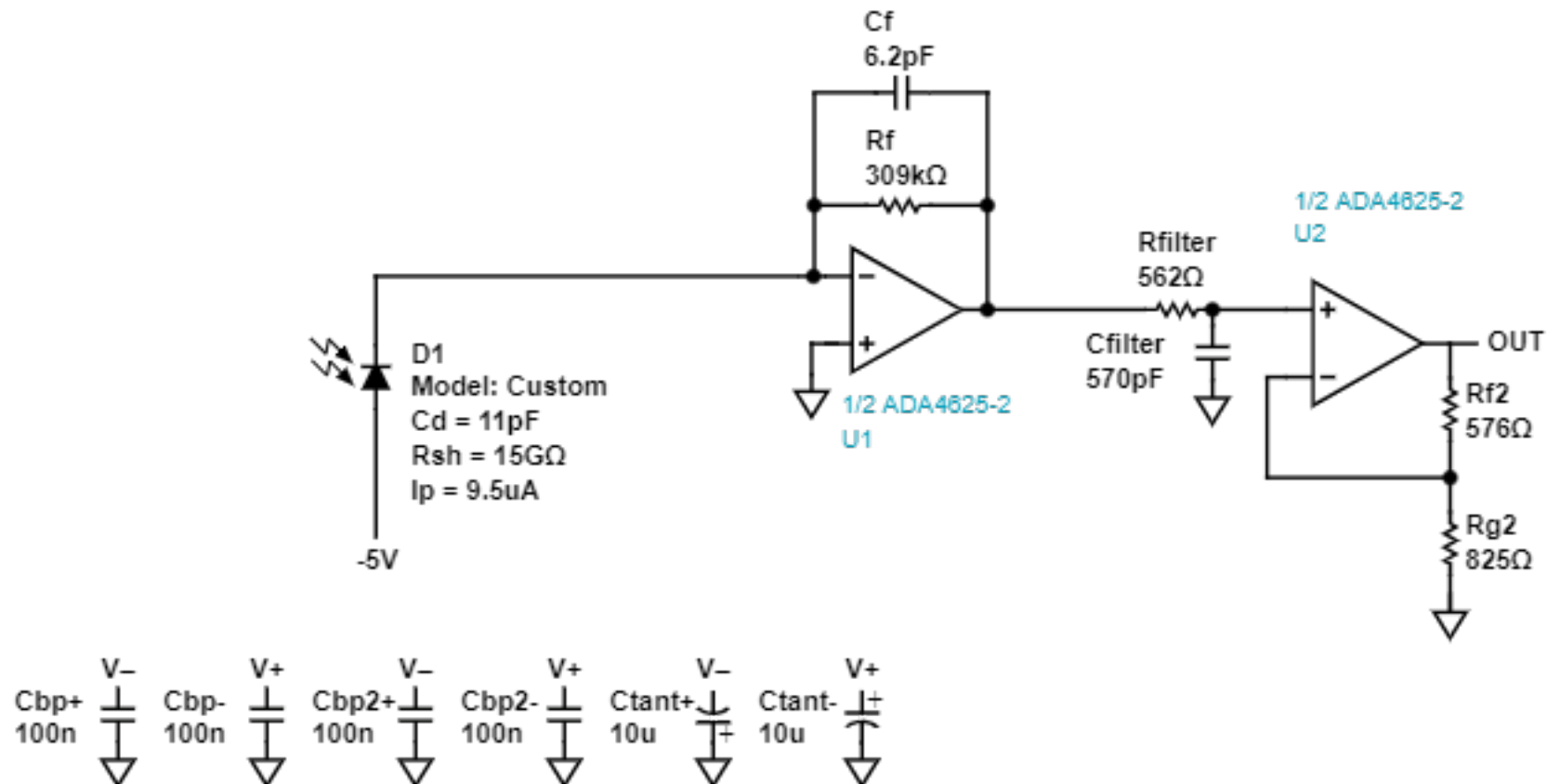
MAX: $\pm 18\text{V}$

STAGE 1

TRANSMIMPEDANCE
AMPLIFIER

STAGE 2

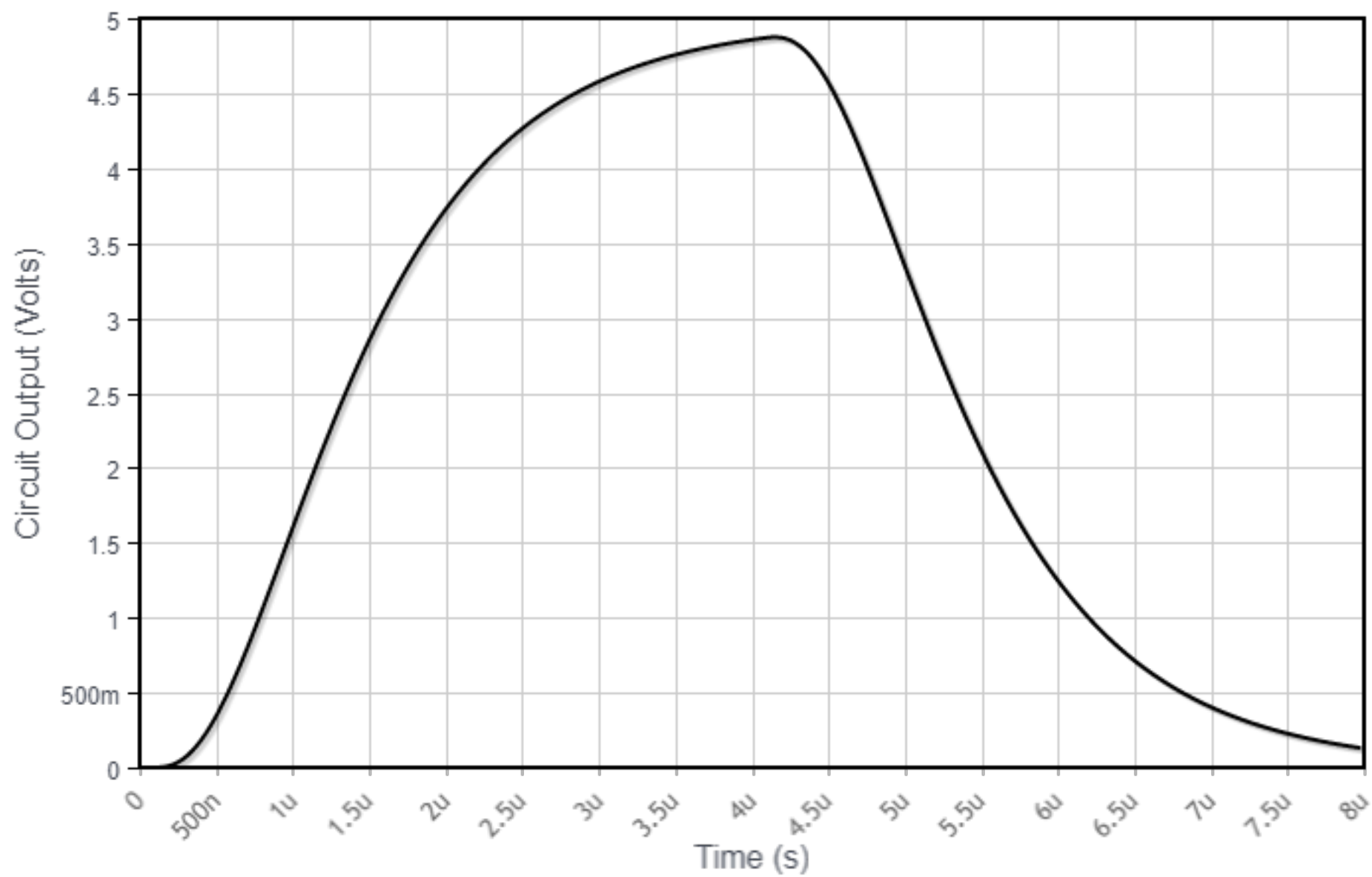
ADDITIONAL GAIN
AND FILTERING



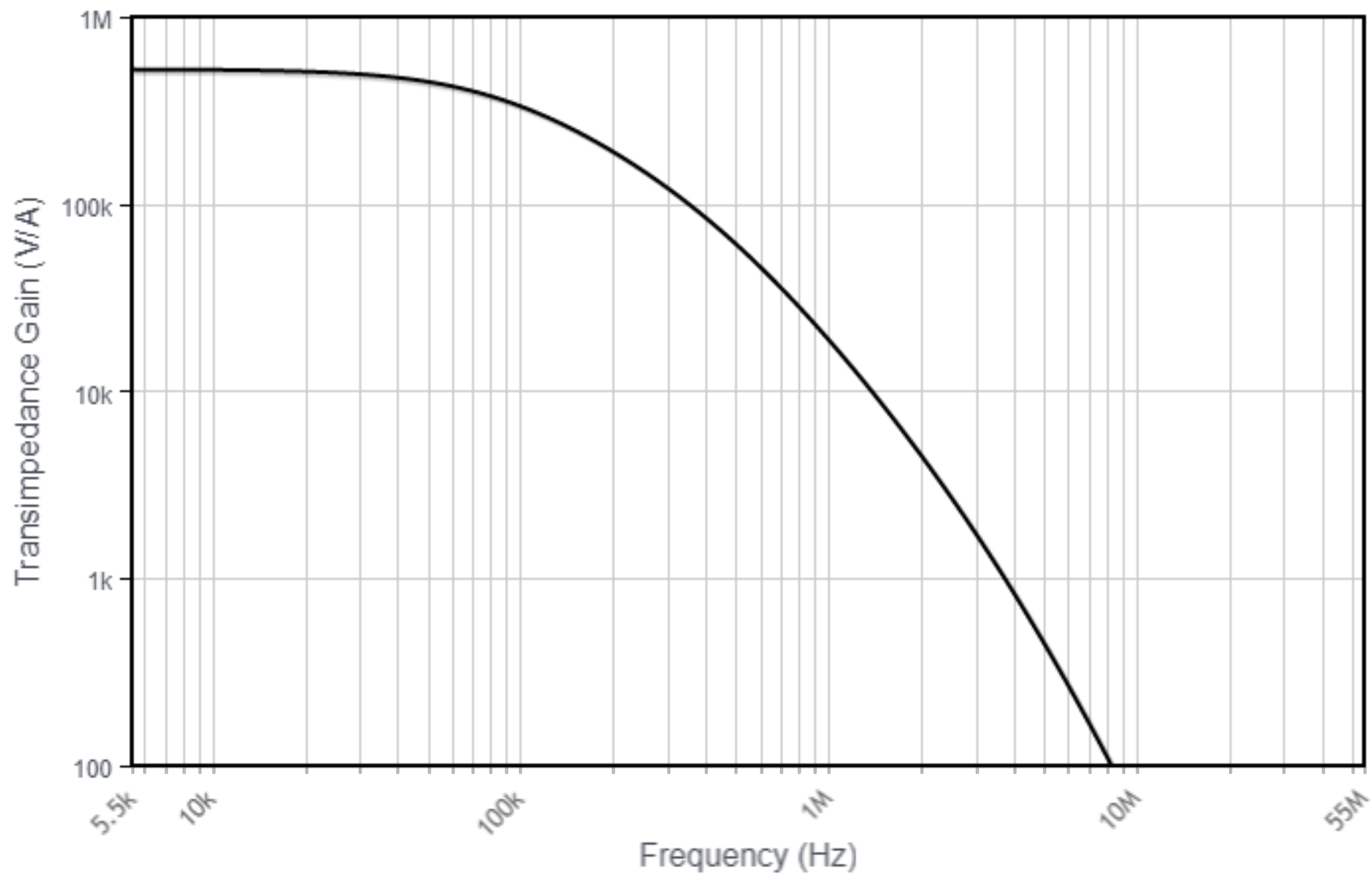
Bill of Materials

Quantity	Designator	Value	Package	Material	Tolerance
1	Rf	309k Ω	0603	Thin Film	0.5%
1	Rg2	825 Ω	0603	Thin Film	0.5%
1	Rf2	576 Ω	0603	Thin Film	0.5%
1	Rfilter	562 Ω	0603	Thin Film	0.5%
1	Cf	6.2pF	0603	C0G	5%
1	Cfilter	570pF	0603	C0G	5%
4	Cbp+, Cbp-, Cbp2+, Cbp2-	100nF	0603	X7R	20%
2	Ctant+, Ctant-	10uF	6032	tantalum	20%
2	U1, U2	ADA4625-2			
1	D1	Custom			

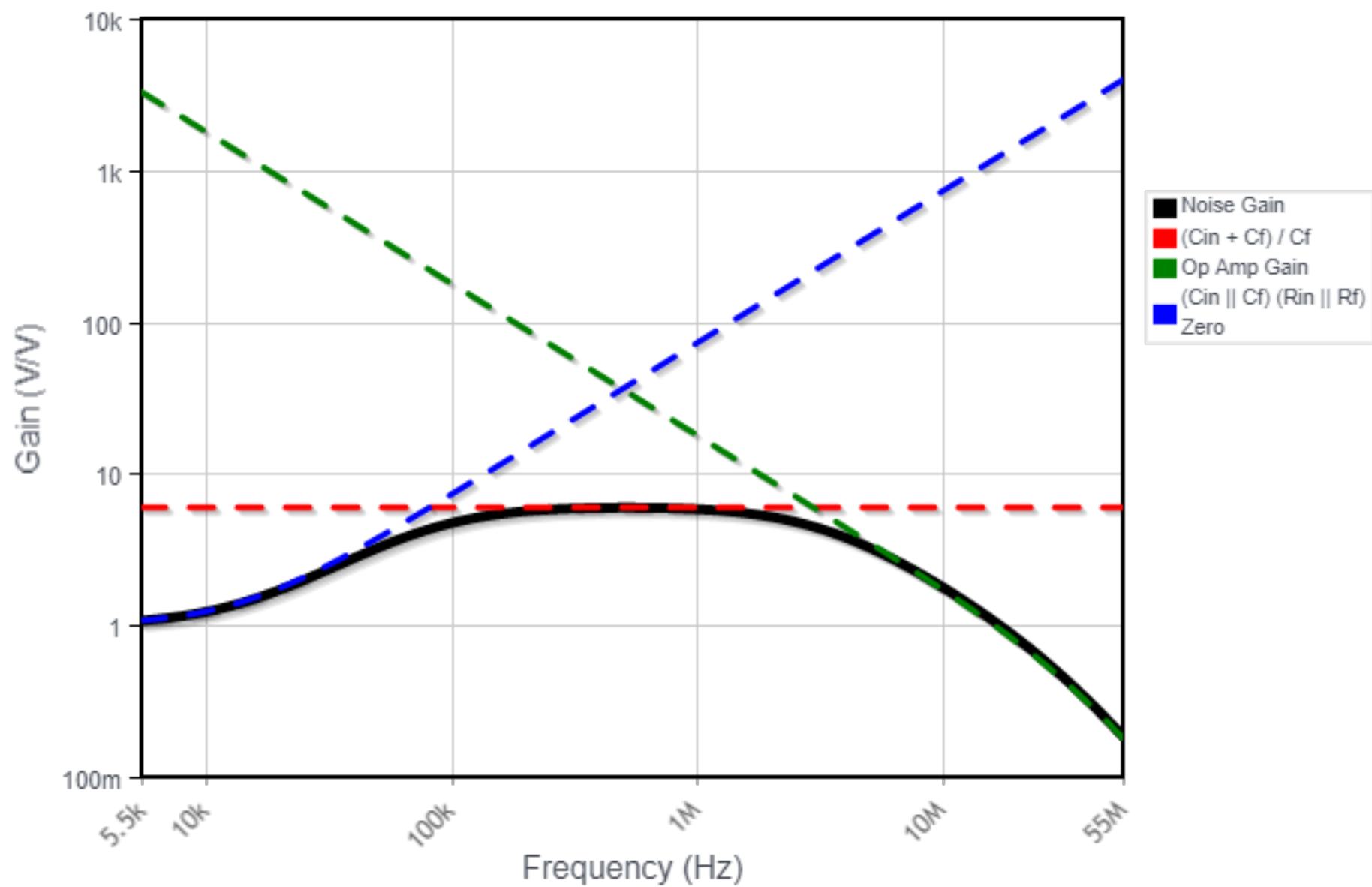
Pulse Response



Frequency Response



Noise Gain



Spectral Noise Density

