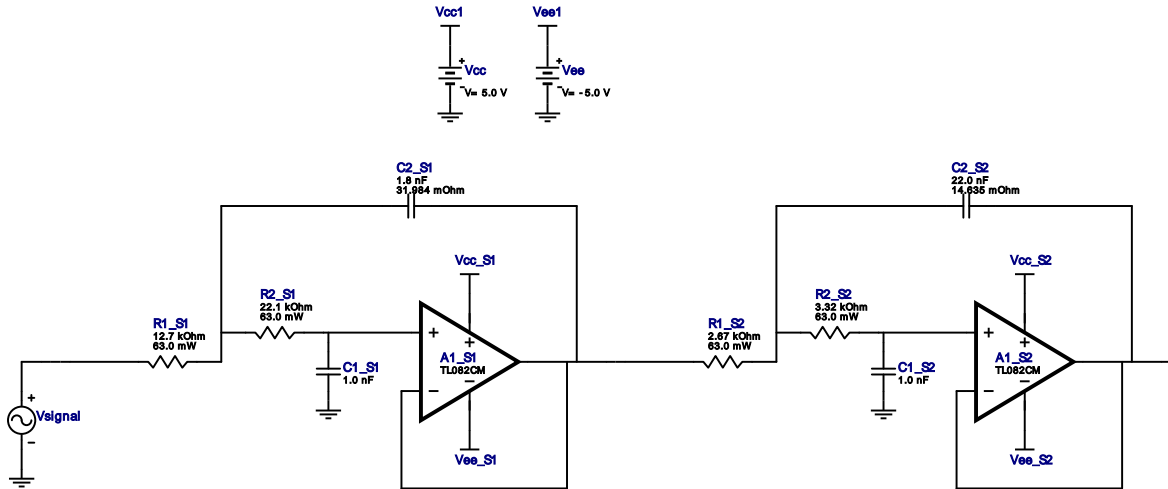


WEBENCH[®] Design Report

 Design : 3456113/676 TL082CM
 Lowpass, Sallen Key, Chebyshev 0.2 dB

Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	TL082CM	GbwTyp= 4.0 MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.21	SOIC 0 mm ²
2.	A1_S2	Texas Instruments	TL082CM	GbwTyp= 4.0 MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.21	SOIC 0 mm ²
3.	C1_S1	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V Tolerance= 5.0 %	1	\$0.01	0402 3 mm ²
4.	C1_S2	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V Tolerance= 5.0 %	1	\$0.01	0402 3 mm ²
5.	C2_S1	TDK	C2012C0G1H182J Series= C0G/NP0	Cap= 1.8 nF ESR= 31.984 mOhm VDC= 50.0 V Tolerance= 5.0 %	1	\$0.02	0805 7 mm ²
6.	C2_S2	TDK	C2012C0G1E223J Series= C0G/NP0	Cap= 22.0 nF ESR= 14.635 mOhm VDC= 25.0 V Tolerance= 5.0 %	1	\$0.08	0805 7 mm ²
7.	R1_S1	Vishay-Dale	CRCW040212K7FKED Series= CRCW..e3	Res= 12.7 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
8.	R1_S2	Vishay-Dale	CRCW04022K67FKED Series= CRCW..e3	Res= 2.67 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
9.	R2_S1	Vishay-Dale	CRCW040222K1FKED Series= CRCW..e3	Res= 22.1 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	R2_S2	Vishay-Dale	CRCW04023K32FKED Series= CRCW..e3	Res= 3.32 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

Design Inputs

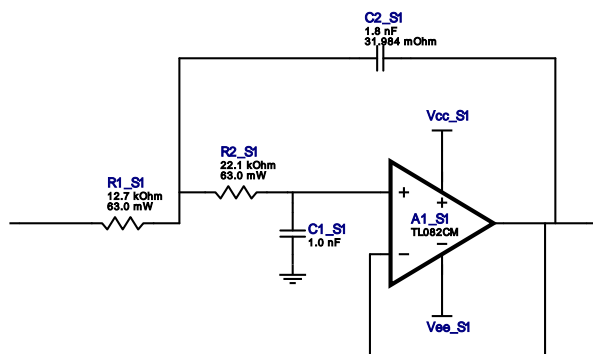
#	Name	Value	Description
1.	FlatnessHigherTestFrequency	6.0 k	Magnitude Flatness Higher Test Frequency
2.	FlatnessLowerTestFrequency	0.0	Magnitude Flatness Lower Test Frequency
3.	FlatnessMagnitudeFlatnessSpecification	200.0 m	Flatness Specification
4.	FilterType	Lowpass	
5.	FilterResponse	Chebyshev	
6.	FilterOrder	4.0	
7.	FilterTopology	Sallen_Key	
8.	NumberOfStages	2.0	
9.	PassbandFrequency	10.0 k	
10.	StopbandAttenuation	-45.0	
11.	StopbandFrequency	50.0 k	
12.	Gain	1.0	
13.	DualSupply	+/-5.0 V	Power supply(s) to active chips
14.	ResistorTolerance	E96	Resistor series - 1% Passive resistor tolerance
15.	CapacitorTolerance	E24	Capacitor series - 5% Passive capacitance tolerance
16.	SeedCapacitance	1.0 n	Seed Capacitance to start design of filter

Design Assistance

1. TL082CM Product Folder : <http://www.ti.com//product/TL082-N> : contains the data sheet and other resources.

Filter Stage :1

Cutoff Frequency 7.011 kHz
 Min GBW Req'd 452.917 kHz
 Stage Gain 1.0 V/V
 Stage Q 646.0 m
 Stage Topology Sallen_Key

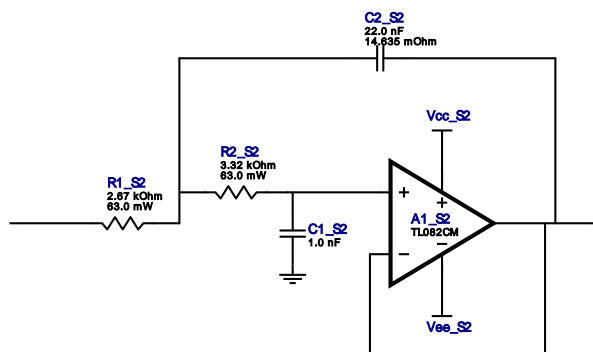


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	TL082CM	GbwTyp= 4.0 MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.21	SOIC 0 mm ²
2.	C1_S1	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V Tolerance= 5.0 %	1	\$0.01	0402 3 mm ²
3.	C2_S1	TDK	C2012C0G1H182J Series= C0G/NP0	Cap= 1.8 nF ESR= 31.984 mOhm VDC= 50.0 V Tolerance= 5.0 %	1	\$0.02	0805 7 mm ²
4.	R1_S1	Vishay-Dale	CRCW040212K7FKED Series= CRCW..e3	Res= 12.7 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
5.	R2_S1	Vishay-Dale	CRCW040222K1FKED Series= CRCW..e3	Res= 22.1 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

Filter Stage :2

Cutoff Frequency	10.948 kHz
Min GBW Req'd	2.666 MHz
Stage Gain	1.0 V/V
Stage Q	2.435
Stage Topology	Sallen_Key



Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S2	Texas Instruments	TL082CM	GbwTyp= 4.0 MHz VccMin= 10.0 V VccMax= 36.0 V	1	\$0.21	SOIC 0 mm ²
2.	C1_S2	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V Tolerance= 5.0 %	1	\$0.01	0402 3 mm ²
3.	C2_S2	TDK	C2012C0G1E223J Series= C0G/NP0	Cap= 22.0 nF ESR= 14.635 mOhm VDC= 25.0 V Tolerance= 5.0 %	1	\$0.08	0805 7 mm ²
4.	R1_S2	Vishay-Dale	CRCW04022K67FKED Series= CRCW..e3	Res= 2.67 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
5.	R2_S2	Vishay-Dale	CRCW04023K32FKED Series= CRCW..e3	Res= 3.32 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

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