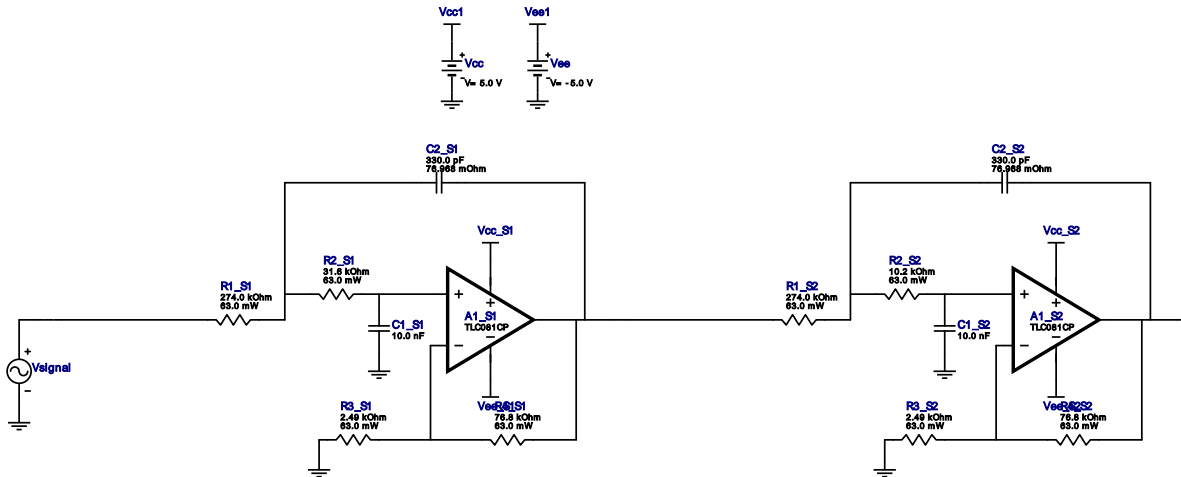


WEBENCH[®] Design Report

 Design : 4360538/5 TLC081CP
 Lowpass, Sallen Key, Gaussian to 6 dB


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	TLC081CP	GbwTyp= 10.0 MHz VccMin= 4.5 V VccMax= 16.0 V	1	\$0.45	DIP 0 mm ²
2.	A1_S2	Texas Instruments	TLC081CP	GbwTyp= 10.0 MHz VccMin= 4.5 V VccMax= 16.0 V	1	\$0.45	DIP 0 mm ²
3.	C1_S1	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	0603 5 mm ²
4.	C1_S2	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	0603 5 mm ²
5.	C2_S1	TDK	C1608C0G1H331J Series= C0G/NP0	Cap= 330.0 pF ESR= 76.968 mOhm VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	0603 5 mm ²
6.	C2_S2	TDK	C1608C0G1H331J Series= C0G/NP0	Cap= 330.0 pF ESR= 76.968 mOhm VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	0603 5 mm ²
7.	R1_S1	Vishay-Dale	CRCW0402274KFKED Series= CRCW..e3	Res= 274.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
8.	R1_S2	Vishay-Dale	CRCW0402274KFKED Series= CRCW..e3	Res= 274.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
9.	R2_S1	Vishay-Dale	CRCW040231K6FKED Series= CRCW..e3	Res= 31.6 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
10.	R2_S2	Vishay-Dale	CRCW040210K2FKED Series= CRCW..e3	Res= 10.2 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
11.	R3_S1	Vishay-Dale	CRCW04022K49FKED Series= CRCW..e3	Res= 2.49 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
12.	R3_S2	Vishay-Dale	CRCW04022K49FKED Series= CRCW..e3	Res= 2.49 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
13.	R4_S1	Vishay-Dale	CRCW040276K8FKED Series= CRCW..e3	Res= 76.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
14.	R4_S2	Vishay-Dale	CRCW040276K8FKED Series= CRCW..e3	Res= 76.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

Design Inputs

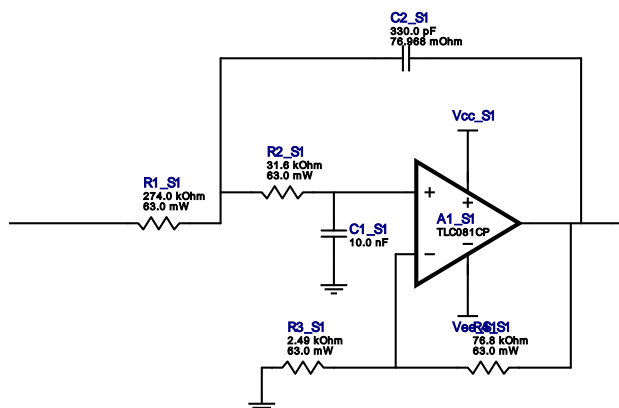
#	Name	Value	Description
1.	FilterType	Lowpass	
2.	FilterResponse	Gaussian_6dB	
3.	FilterOrder	4.0	
4.	FilterTopology	Sallen_Key	
5.	NumberOfStages	2.0	
6.	PassbandFrequency	1,000.0	
7.	StopbandAttenuation	-45.0	
8.	StopbandFrequency	5.0 k	
9.	Gain	1,000.0	
10.	DualSupply	+/-5.0 V	Power supply(s) to active chips
11.	ResistorTolerance	E96	Resistor series - 1% Passive resistor tolerance
12.	CapacitorTolerance	E24	Capacitor series - 5% Passive capacitance tolerance
13.	SeedCapacitance	10.0 n	Seed Capacitance to start design of filter

Design Assistance

1. **TLC081CP** Product Folder : <http://www.ti.com//product/TLC081> : contains the data sheet and other resources.

Filter Stage :1

Cutoff Frequency 940.0 Hz
 Min GBW Req'd 1.754 MHz
 Stage Gain 31.623 V/V
 Stage Q 590.0 m
 Stage Topology Sallen_Key

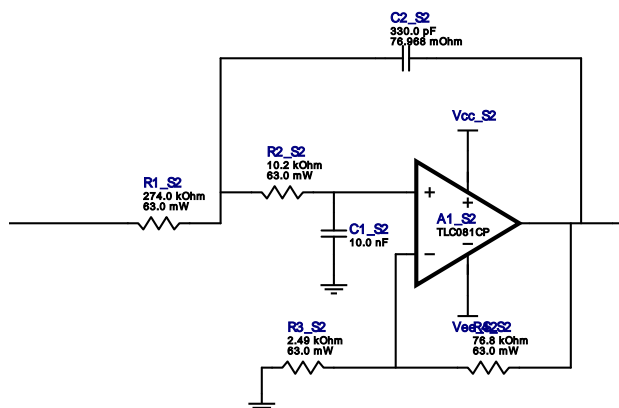


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	TLC081CP	GbwTyp= 10.0 MHz VccMin= 4.5 V VccMax= 16.0 V	1	\$0.45	DIP 0 mm ²
2.	C1_S1	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	0603 5 mm ²
3.	C2_S1	TDK	C1608C0G1H331J Series= C0G/NP0	Cap= 330.0 pF ESR= 76.968 mOhm VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	0603 5 mm ²
4.	R1_S1	Vishay-Dale	CRCW0402274KFKED Series= CRCW..e3	Res= 274.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
5.	R2_S1	Vishay-Dale	CRCW040231K6FKED Series= CRCW..e3	Res= 31.6 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
6.	R3_S1	Vishay-Dale	CRCW04022K49FKED Series= CRCW..e3	Res= 2.49 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
7.	R4_S1	Vishay-Dale	CRCW040276K8FKED Series= CRCW..e3	Res= 76.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

Filter Stage :2

Cutoff Frequency 1.665 kHz
 Min GBW Req'd 6.95 MHz
 Stage Gain 31.623 V/V
 Stage Q 1.32
 Stage Topology Sallen_Key



Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S2	Texas Instruments	TLC081CP	GbwTyp= 10.0 MHz VccMin= 4.5 V VccMax= 16.0 V	1	\$0.45	DIP 0 mm ²
2.	C1_S2	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	0603 5 mm ²
3.	C2_S2	TDK	C1608C0G1H331J Series= C0G/NP0	Cap= 330.0 pF ESR= 76.968 mOhm VDC= 50.0 V Tolerance= 5.0 %	1	\$0.01	0603 5 mm ²
4.	R1_S2	Vishay-Dale	CRCW0402274KFKED Series= CRCW..e3	Res= 274.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
5.	R2_S2	Vishay-Dale	CRCW040210K2FKED Series= CRCW..e3	Res= 10.2 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
6.	R3_S2	Vishay-Dale	CRCW04022K49FKED Series= CRCW..e3	Res= 2.49 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
7.	R4_S2	Vishay-Dale	CRCW040276K8FKED Series= CRCW..e3	Res= 76.8 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

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