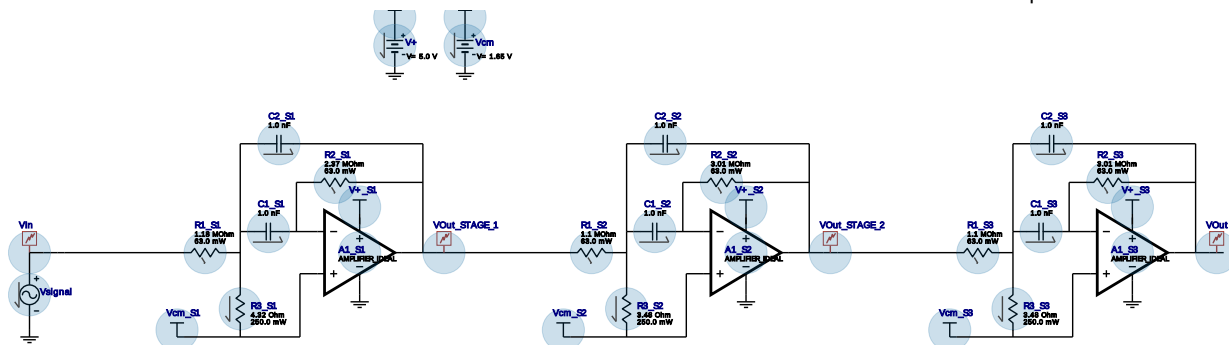




My Comments

No comments

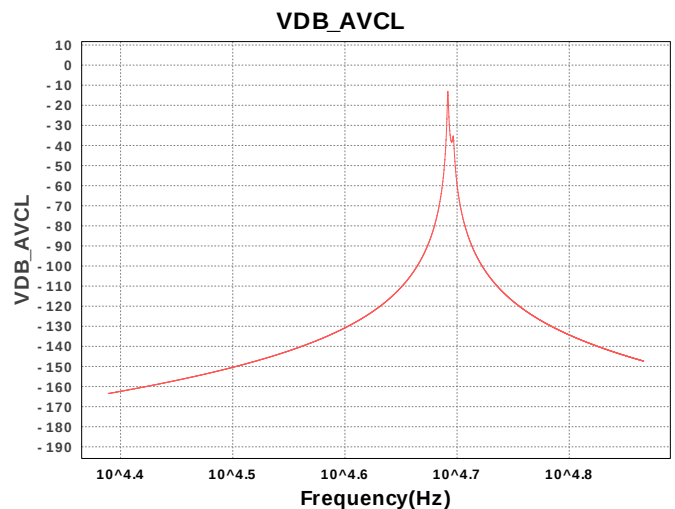
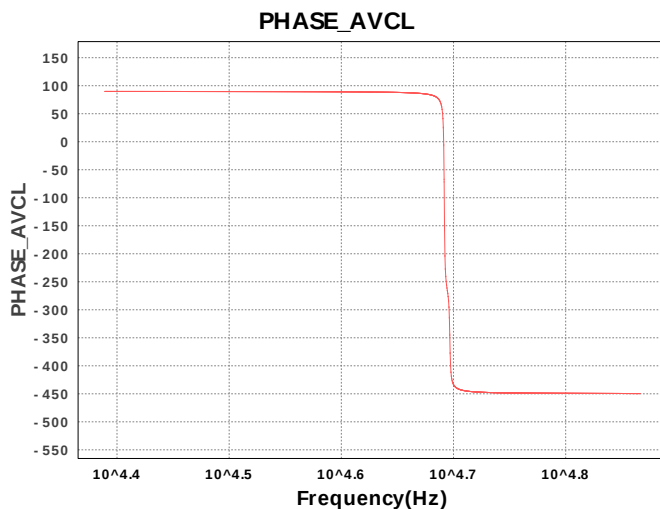
Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	AMPLIFIER_IDEAL	GbwTyp= 1000.0 kHz VccMin= 0.0 V VccMax= 100.0 V	1	NA	0 mm ²
2.	A1_S2	Texas Instruments	AMPLIFIER_IDEAL	GbwTyp= 1000.0 kHz VccMin= 0.0 V VccMax= 100.0 V	1	NA	0 mm ²
3.	A1_S3	Texas Instruments	AMPLIFIER_IDEAL	GbwTyp= 1000.0 kHz VccMin= 0.0 V VccMax= 100.0 V	1	NA	0 mm ²
4.	C1_S1	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²
5.	C1_S2	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²
6.	C1_S3	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²
7.	C2_S1	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²
8.	C2_S2	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²
9.	C2_S3	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²
10.	R1_S1	Vishay-Dale	CRCW04021M18FKED Series= CRCW..e3	Res= 1.18 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
11.	R1_S2	Vishay-Dale	CRCW04021M10FKED Series= CRCW..e3	Res= 1.1 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
12.	R1_S3	Vishay-Dale	CRCW04021M10FKED Series= CRCW..e3	Res= 1.1 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
13.	R2_S1	Vishay-Dale	CRCW04022M37FKED Series= CRCW..e3	Res= 2.37 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
14.	R2_S2	Vishay-Dale	CRCW04023M01FKED Series= CRCW..e3	Res= 3.01 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
15.	R2_S3	Vishay-Dale	CRCW04023M01FKED Series= CRCW..e3	Res= 3.01 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
16.	R3_S1	Vishay-Dale	CRCW12064R32FKEA Series= CRCW..e3	Res= 4.32 Ohm Power= 250.0 mW Tolerance= 1.0%	1	\$0.01	 1206 11 mm²
17.	R3_S2	Vishay-Dale	CRCW12063R48FKEA Series= CRCW..e3	Res= 3.48 Ohm Power= 250.0 mW Tolerance= 1.0%	1	\$0.01	 1206 11 mm²
18.	R3_S3	Vishay-Dale	CRCW12063R48FKEA Series= CRCW..e3	Res= 3.48 Ohm Power= 250.0 mW Tolerance= 1.0%	1	\$0.01	 1206 11 mm²

Simulation Parameters

#	Name	Parameter Name	Description	Values
1.	Vsignal	AC DC	AC Voltage Source Amplitude AC Voltage Source DC Offset	1 V 1.65 V
2.	V+	V	Vcc Supply Rail Value	5.0 V
3.	Vcm	V	Vcm Supply Rail Value	1.65 V



Design Inputs

#	Name	Value	Description
1.	SingleSupply	3.3 V	SingleSupply
2.	FilterType	Bandpass	
3.	FilterResponse	Bessel	
4.	FilterOrder	6.0	
5.	FilterTopology	Multiple_Feedback	
6.	NumberOfStages	3.0	
7.	CenterFrequency	49.0 kHz	
8.	StopbandAttenuation	-45.0 dB	
9.	PassbandBandwidth	100.0 Hz	
10.	StopbandBandwidth	1,000 Hz	
11.	Gain	1.0 V/V	
12.	ResistorTolerance	E96	Resistor series - 1% Passive resistor tolerance
13.	CapacitorTolerance	E24	Capacitor series - 5% Passive capacitance tolerance
14.	SeedCapacitance	1.0 nF	Seed Capacitance to start design of filter

Design Assistance

1. **AMPLIFIER_IDEAL** Product Folder : http://www.ti.com/product/AMPLIFIER_IDEAL : contains the data sheet and other resources.

Filter Stage :1

Cutoff Frequency	49.0 kHz
Min GBW Req'd	1.809 GHz
Stage Gain	1.0 V/V
Stage Q	369.254
Stage Topology	Multiple_Feedback

Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	AMPLIFIER_IDEAL	GbwTyp= 1000.0 kHz VccMin= 0.0 V VccMax= 100.0 V	1	NA	0 mm ²
2.	C1_S1	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	 0402 3 mm ²
3.	C2_S1	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	 0402 3 mm ²
4.	R1_S1	Vishay-Dale	CRCW04021M18FKED Series= CRCW..e3	Res= 1.18 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
5.	R2_S1	Vishay-Dale	CRCW04022M37FKED Series= CRCW..e3	Res= 2.37 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
6.	R3_S1	Vishay-Dale	CRCW12064R32FKEA Series= CRCW..e3	Res= 4.32 Ohm Power= 250.0 mW Tolerance= 1.0%	1	\$0.01	 1206 11 mm ²

Filter Stage :2

Cutoff Frequency	48.95 kHz
Min GBW Req'd	2.282 GHz
Stage Gain	1.0 V/V
Stage Q	466.267
Stage Topology	Multiple_Feedback

Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S2	Texas Instruments	AMPLIFIER_IDEAL	GbwTyp= 1000.0 kHz VccMin= 0.0 V VccMax= 100.0 V	1	NA	0 mm ²
2.	C1_S2	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	 0402 3 mm ²
3.	C2_S2	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	 0402 3 mm ²
4.	R1_S2	Vishay-Dale	CRCW04021M10FKED Series= CRCW..e3	Res= 1.1 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
5.	R2_S2	Vishay-Dale	CRCW04023M01FKED Series= CRCW..e3	Res= 3.01 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
6.	R3_S2	Vishay-Dale	CRCW12063R48FKEA Series= CRCW..e3	Res= 3.48 Ohm Power= 250.0 mW Tolerance= 1.0%	1	\$0.01	 1206 11 mm ²

Filter Stage :3

Cutoff Frequency	49.05 kHz
Min GBW Req'd	2.287 GHz
Stage Gain	1.0 V/V
Stage Q	466.267
Stage Topology	Multiple_Feedback

Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S3	Texas Instruments	AMPLIFIER_IDEAL	GbwTyp= 1000.0 kHz VccMin= 0.0 V VccMax= 100.0 V	1	NA	0 mm ²
2.	C1_S3	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²
3.	C2_S3	Samsung Electro-Mechanics	CL05C102JO5NNNC Series= C0G/NP0	Cap= 1.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²
4.	R1_S3	Vishay-Dale	CRCW04021M10FKED Series= CRCW..e3	Res= 1.1 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
5.	R2_S3	Vishay-Dale	CRCW04023M01FKED Series= CRCW..e3	Res= 3.01 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
6.	R3_S3	Vishay-Dale	CRCW12063R48FKEA Series= CRCW..e3	Res= 3.48 Ohm Power= 250.0 mW Tolerance= 1.0%	1	\$0.01	 1206 11 mm ²

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