




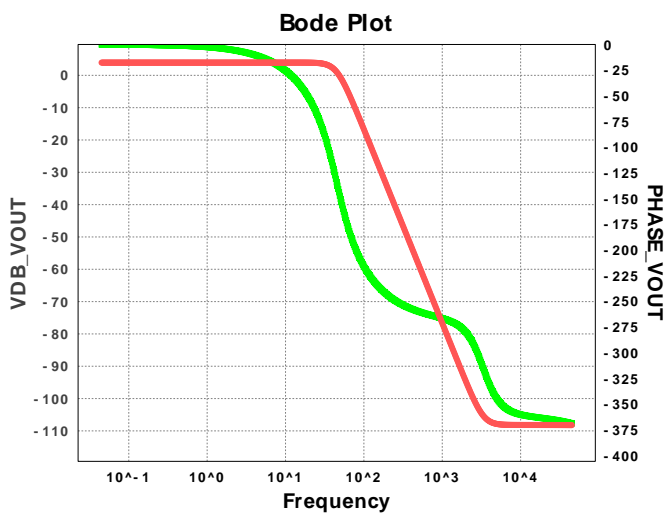
## Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	LMV342MM	GbwTyp= 1.0 MHz VccMin= 2.7 V VccMax= 5.0 V	1	\$0.28	MSOP 0mm2
2.	A1_S2	Texas Instruments	LMV342MM	GbwTyp= 1.0 MHz VccMin= 2.7 V VccMax= 5.0 V	1	\$0.28	MSOP 0mm2
3.	C1_S1	MuRata	GRM155R61A105KE15D Series= X5R	Cap= 1.0 µF VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	0402 3mm2
4.	C1_S2	MuRata	GRM155R61A105KE15D Series= X5R	Cap= 1.0 µF VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	0402 3mm2
5.	C2_S2	Kemet	C0603C225K9PACTU Series= X5R	Cap= 2.2 µF VDC= 6.3 V IRMS= 0.0 A	1	\$0.02	0603 5mm2
6.	R1_S1	Panasonic	ERJ-6ENF3481V Series= 225	Res= 3.48 kΩ Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	0805 7mm2
7.	R1_S2	Panasonic	ERJ-6ENF2211V Series= 225	Res= 2.21 kΩ Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	0805 7mm2
8.	R2_S1	Vishay-Dale	CRCW0805255RFKEA Series= CRCW..e3	Res= 255.0 Ω Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	0805 7mm2
9.	R2_S2	Panasonic	ERJ-6ENF2551V Series= 225	Res= 2.55 kΩ Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	0805 7mm2

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	R3_S1	Panasonic	ERJ-6ENF1001V Series= 225	Res= 1,000 Ohm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7mm2
11.	R3_S2	Panasonic	ERJ-6ENF2491V Series= 225	Res= 2.49 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7mm2
12.	R4_S2	Vishay-Dale	CRCW0805634RFKEA Series= CRCW..e3	Res= 634.0 Ohm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7mm2

## Simulation Parameters

#	Name	Parameter Name	Description	Values
1.	Vsignal	AC DC	AC Voltage Source Amplitude AC Voltage Source DC Offset	1 V 2.5 V
2.	V+	V	Vcc Supply Rail Value	5.0 V
3.	Vcm	V	Vcm Supply Rail Value	2.5 V
4.	Rload	R	Load Resistor Impedance	10k Ohm



## Design Inputs

#	Name	Value	Description
1.	CapacitorTolerance	E6	Capacitor series - 20% Passive capacitance tolerance
2.	FilterOrder	3.0	
3.	FilterResponse	Butterworth	
4.	FilterTopology	Sallen_Key	Resistor series - 0.5% Passive resistor tolerance
5.	FilterType	Lowpass	
6.	Gain	1.58 V/V	
7.	NumberOfStages	2.0	Seed Capacitance to start design of filter
8.	PassbandFrequency	45.0 Hz	
9.	ResistorTolerance	E192	
10.	SeedCapacitance	1.0 $\mu$ F	Settling Time Error Band
11.	SettlingTimeErrorBand	100.0 m%	
12.	SettlingTimeSpecification	100.0 $\mu$ sec	Settling Time Specification
13.	SingleSupply	5.0 V	Power supply(s) to active chips
14.	StepResponseOvershootSpec	20.0 %	Step Response Overshoot
15.	StopbandAttenuation	-40.0 dB	
16.	StopbandFrequency	400.0 Hz	


## Design Assistance

1. **LMV342MM** Product Folder : <http://www.ti.com/product/LMV342> : contains the data sheet and other resources.

## Filter Stage :1

Cutoff Frequency      45.0 Hz  
 Gain Bandwidth        2.828 kHz  
 Stage Gain             1.257 V/V  
 Stage Q                500.0 m  
 Stage Topology        Real\_Pole  
 StageNo                1.0







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2.	C1_S1	MuRata	GRM155R61A105KE15D Series= X5R	Cap= 1.0 µF VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	 0402 3mm2
3.	R1_S1	Panasonic	ERJ-6ENF3481V Series= 225	Res= 3.48 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7mm2
4.	R2_S1	Vishay-Dale	CRCW0805255RFKEA Series= CRCW..e3	Res= 255.0 Ohm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7mm2
5.	R3_S1	Panasonic	ERJ-6ENF1001V Series= 225	Res= 1,000 Ohm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7mm2

## Filter Stage :2

Cutoff Frequency 45.0 Hz  
 Gain Bandwidth 5.656 kHz  
 Stage Gain 1.257 V/V  
 Stage Q 1.0  
 Stage Topology Sallen\_Key  
 StageNo 2.0

### Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S2	Texas Instruments	LMV342MM	GbwTyp= 1.0 MHz VccMin= 2.7 V VccMax= 5.0 V	1	\$0.28	MSOP 0mm2
2.	C1_S2	MuRata	GRM155R61A105KE15D Series= X5R	Cap= 1.0 µF VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	 0402 3mm2
3.	C2_S2	Kemet	C0603C225K9PACTU Series= X5R	Cap= 2.2 µF VDC= 6.3 V IRMS= 0.0 A	1	\$0.02	 0603 5mm2
4.	R1_S2	Panasonic	ERJ-6ENF2211V Series= 225	Res= 2.21 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7mm2
5.	R2_S2	Panasonic	ERJ-6ENF2551V Series= 225	Res= 2.55 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7mm2
6.	R3_S2	Panasonic	ERJ-6ENF2491V Series= 225	Res= 2.49 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7mm2
7.	R4_S2	Vishay-Dale	CRCW0805634RFKEA Series= CRCW...e3	Res= 634.0 Ohm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7mm2

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