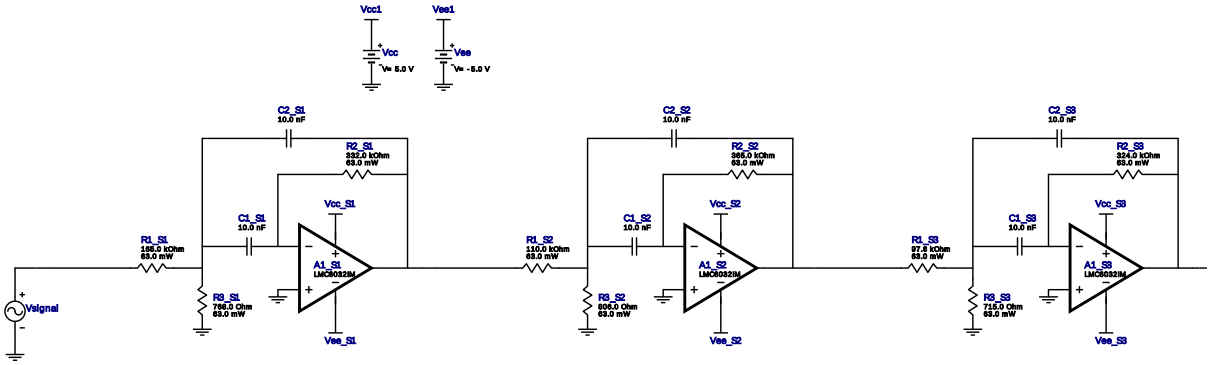
Type : Bandpass
Response : Gaussian_12dB
Order : 6
Number of Stages : 3

Device = LMC6032IM
Created = Jun 11 2015 9:28PM

WEBENCH® Design Report

Design : 1998766/37 LMC6032IM
Bandpass, Multiple Feedback, Gaussian to 12 dB



Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	LMC6032IM	GbwTyp= 1.4 MHz VccMin= 4.75 V VccMax= 15.5 V	1	$0.32	SOIC 0 mm^2
2.	A1_S2	Texas Instruments	LMC6032IM	GbwTyp= 1.4 MHz VccMin= 4.75 V VccMax= 15.5 V	1	$0.32	SOIC 0 mm^2
3.	A1_S3	Texas Instruments	LMC6032IM	GbwTyp= 1.4 MHz VccMin= 4.75 V VccMax= 15.5 V	1	$0.32	SOIC 0 mm^2
4.	C1_S1	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	0603 5 mm^2
5.	C1_S2	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	0603 5 mm^2
6.	C1_S3	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	0603 5 mm^2
7.	C2_S1	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	0603 5 mm^2
8.	C2_S2	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	0603 5 mm^2
9.	C2_S3	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	0603 5 mm^2
10.	R1_S1	Vishay-Dale	CRCW0402165KFKED Series= CRCW..e3	Res= 165.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
11.	R1_S2	Vishay-Dale	CRCW0402110KFKED Series= CRCW..e3	Res= 110.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
12.	R1_S3	Vishay-Dale	CRCW040297K6FKED Series= CRCW..e3	Res= 97.6 kOhm 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	CRCW0402332KFKED Series= CRCW..e3	Res= 332.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
14.	R2_S2	Vishay-Dale	CRCW0402365KFKED Series= CRCW..e3	Res= 365.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
15.	R2_S3	Vishay-Dale	CRCW0402324KFKED Series= CRCW..e3	Res= 324.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
16.	R3_S1	Vishay-Dale	CRCW0402768RFKED Series= CRCW..e3	Res= 768.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
17.	R3_S2	Vishay-Dale	CRCW0402806RFKED Series= CRCW..e3	Res= 806.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
18.	R3_S3	Vishay-Dale	CRCW0402715RFKED Series= CRCW..e3	Res= 715.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2

Design Inputs

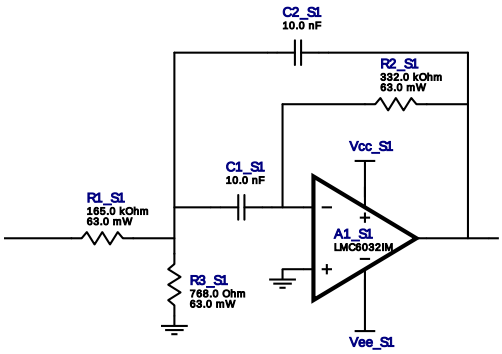
#	Name	Value	Description
1.	FilterType	Bandpass	
2.	FilterResponse	Gaussian_12dB	
3.	FilterOrder	6.0	
4.	FilterTopology	Multiple_Feedback	
5.	NumberOfStages	3.0	
6.	CenterFrequency	1,000.0	
7.	StopbandAttenuation	-45.0	
8.	PassbandBandwidth	100.0	
9.	StopbandBandwidth	1,000.0	
10.	Gain	1.0	
11.	DualSupply	+/-5.0 V	Power supply(s) to active chips
12.	ResistorTolerance	E96	Resistor series - 1% Passive resistor tolerance
13.	CapacitorTolerance	E24	Capacitor series - 5% Passive capacitance tolerance
14.	SeedCapacitance	10.0 n	Seed Capacitance to start design of filter

Design Assistance

1. **LMC6032IM** Product Folder : http://www.ti.com//product/LMC6032 : contains the data sheet and other resources.

Filter Stage :1

Cutoff Frequency	1,000.0 Hz
Min GBW Reqd	1.038 MHz
Stage Gain	1.0 V/V
Stage Q	10.384
Stage Topology	Multiple_Feedback

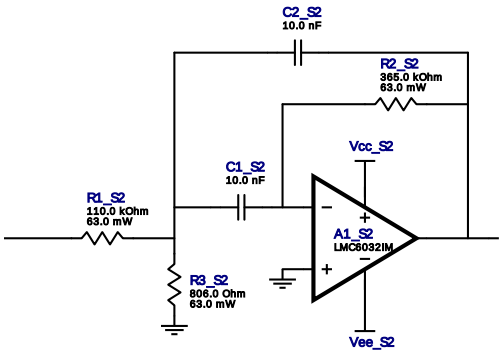


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S1	Texas Instruments	LMC6032IM	GbwTyp= 1.4 MHz VccMin= 4.75 V VccMax= 15.5 V	1	$0.32	SOIC 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	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	0603 5 mm^2
4.	R1_S1	Vishay-Dale	CRCW0402165KFKED Series= CRCW..e3	Res= 165.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
5.	R2_S1	Vishay-Dale	CRCW0402332KFKED Series= CRCW..e3	Res= 332.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
6.	R3_S1	Vishay-Dale	CRCW0402768RFKED Series= CRCW..e3	Res= 768.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2

Filter Stage :2

Cutoff Frequency	940.947 Hz
Min GBW Reqd	1.007 MHz
Stage Gain	1.0 V/V
Stage Q	10.704
Stage Topology	Multiple_Feedback

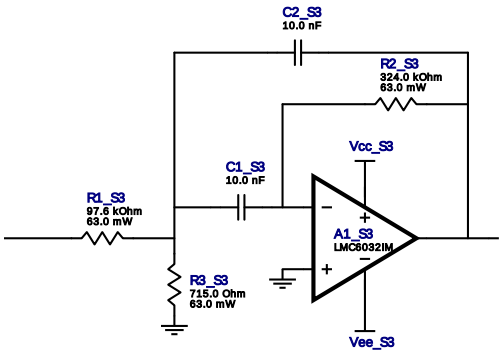


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S2	Texas Instruments	LMC6032IM	GbwTyp= 1.4 MHz VccMin= 4.75 V VccMax= 15.5 V	1	$0.32	SOIC 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	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	0603 5 mm^2
4.	R1_S2	Vishay-Dale	CRCW0402110KFKED Series= CRCW..e3	Res= 110.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
5.	R2_S2	Vishay-Dale	CRCW0402365KFKED Series= CRCW..e3	Res= 365.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
6.	R3_S2	Vishay-Dale	CRCW0402806RFKED Series= CRCW..e3	Res= 806.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2

Filter Stage :3

Cutoff Frequency	1.063 kHz
Min GBW Reqd	1.138 MHz
Stage Gain	1.0 V/V
Stage Q	10.704
Stage Topology	Multiple_Feedback



Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	A1_S3	Texas Instruments	LMC6032IM	GbwTyp= 1.4 MHz VccMin= 4.75 V VccMax= 15.5 V	1	$0.32	SOIC 0 mm^2
2.	C1_S3	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	0603 5 mm^2
3.	C2_S3	Kemet	C0603C103J5RACTU Series= X7R	Cap= 10.0 nF VDC= 50.0 V Tolerance= 5.0 %	1	$0.01	0603 5 mm^2
4.	R1_S3	Vishay-Dale	CRCW040297K6FKED Series= CRCW..e3	Res= 97.6 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
5.	R2_S3	Vishay-Dale	CRCW0402324KFKED Series= CRCW..e3	Res= 324.0 kOhm 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	CRCW0402715RFKED Series= CRCW..e3	Res= 715.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	 0402 3 mm^2