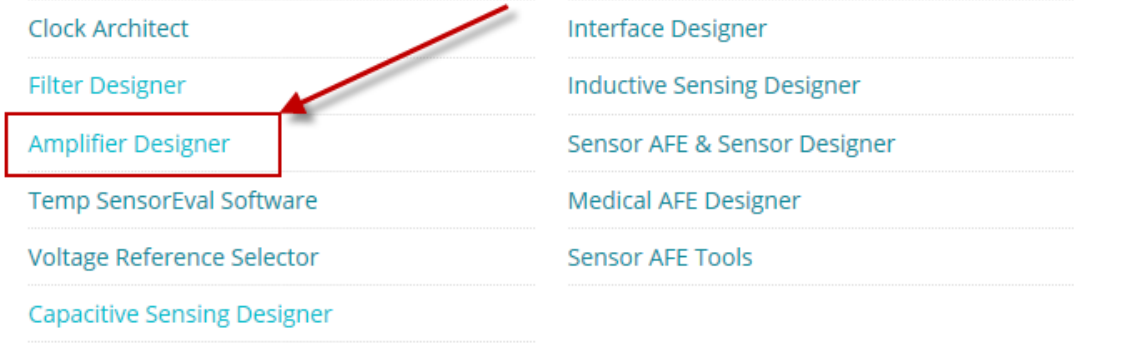
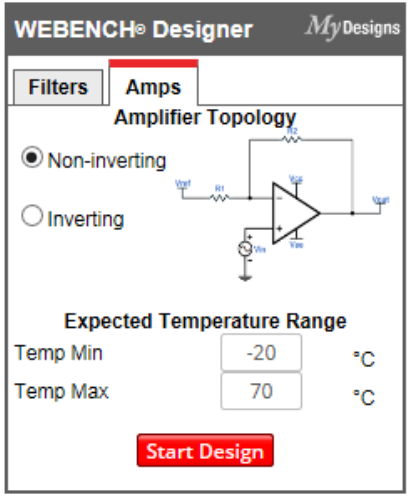
Amplifier Designer

Stealth Release

WEBENCH® Amplifier Designer

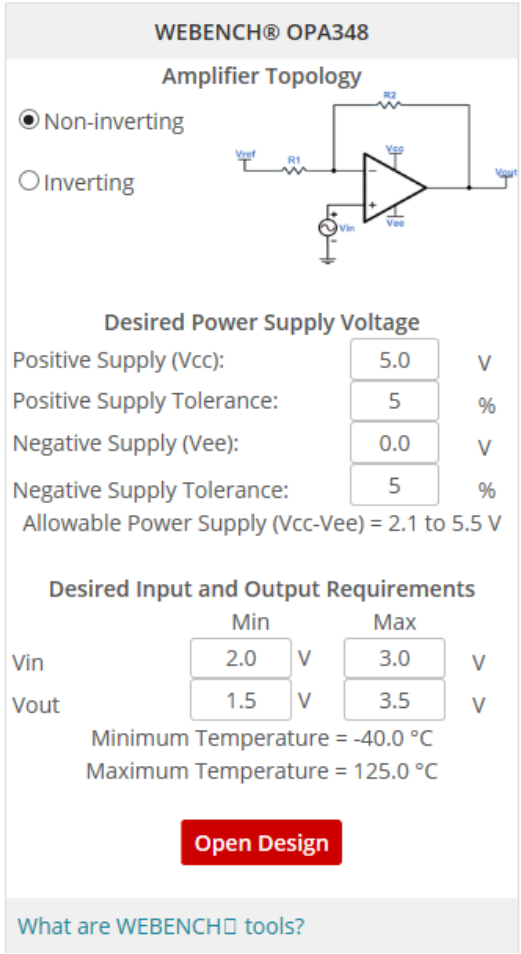
- Currently in Stealth Release
- Design OpAmp circuits in a few minutes
- Currently supporting Non-inverting and Inverting topologies (more planned)
- Access from http://webench.ti.com/ and click on the Amplifier Designer link



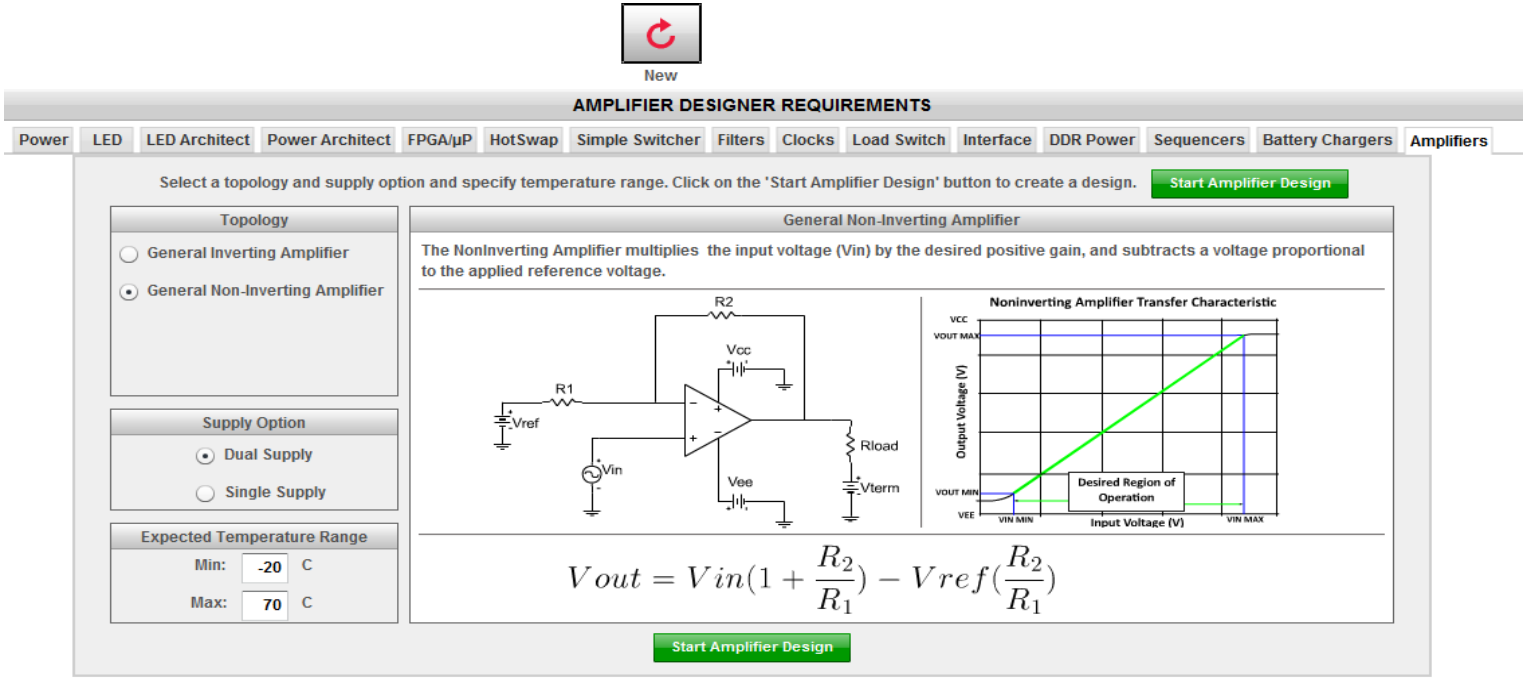


WEBENCH® Amplifier Designer

- Access from the Product Folder
- Choose the topology
- Choose the power supply requirements, including tolerances
- Select the Vin requirements
- Select the Vout requirements
- Click on Open Design – Launches directly into the design for the product
- Over 600 products currently available

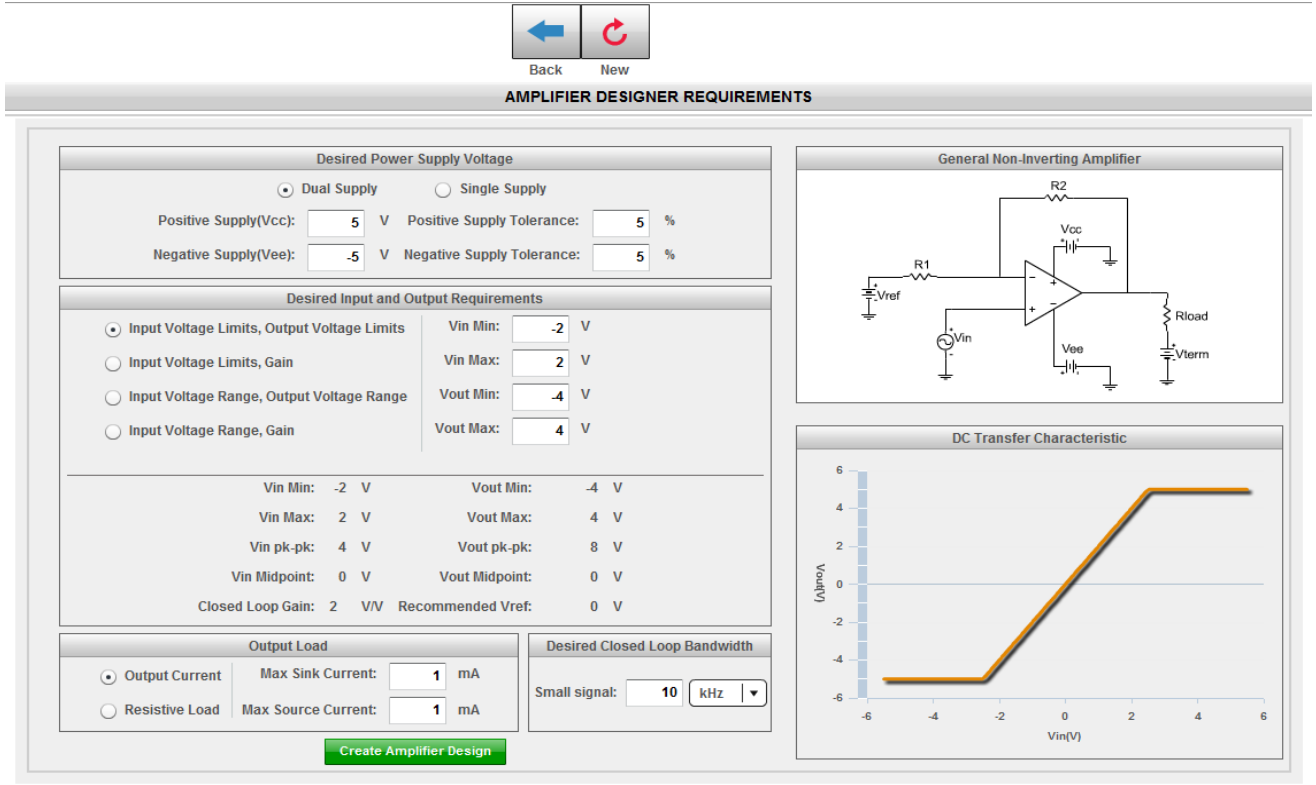


WEBENCH® Amplifier Designer



Click on Start Amplifier Design to launch the tool

WEBENCH® Amplifier Designer



Enter your Desired Input and Output Requirements

Enter your Output Load and Closed Loop Bandwidth

Information will update as changes are made.

Click on Create Amplifier Design

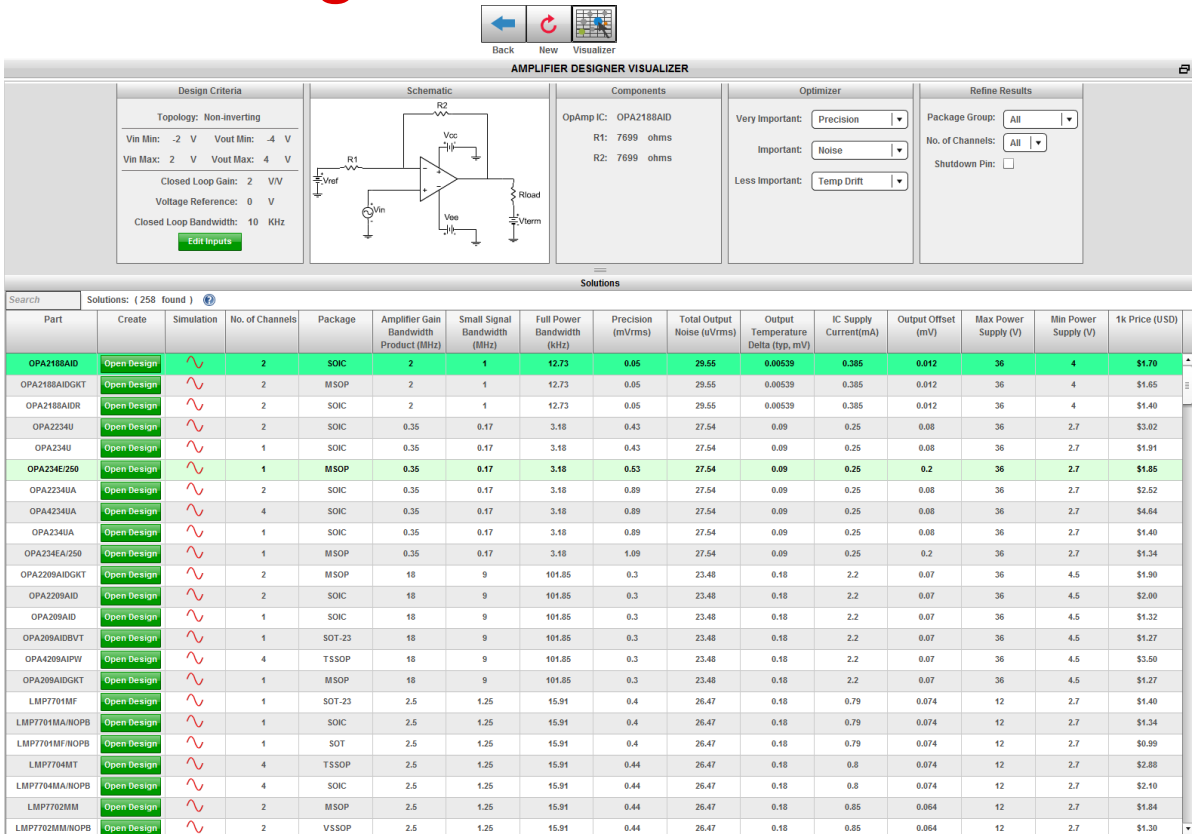
WEBENCH® Amplifier Designer

A list of choices is shown

Choices can be updated by changing Design Criteria, Optimizer, or Refine Results

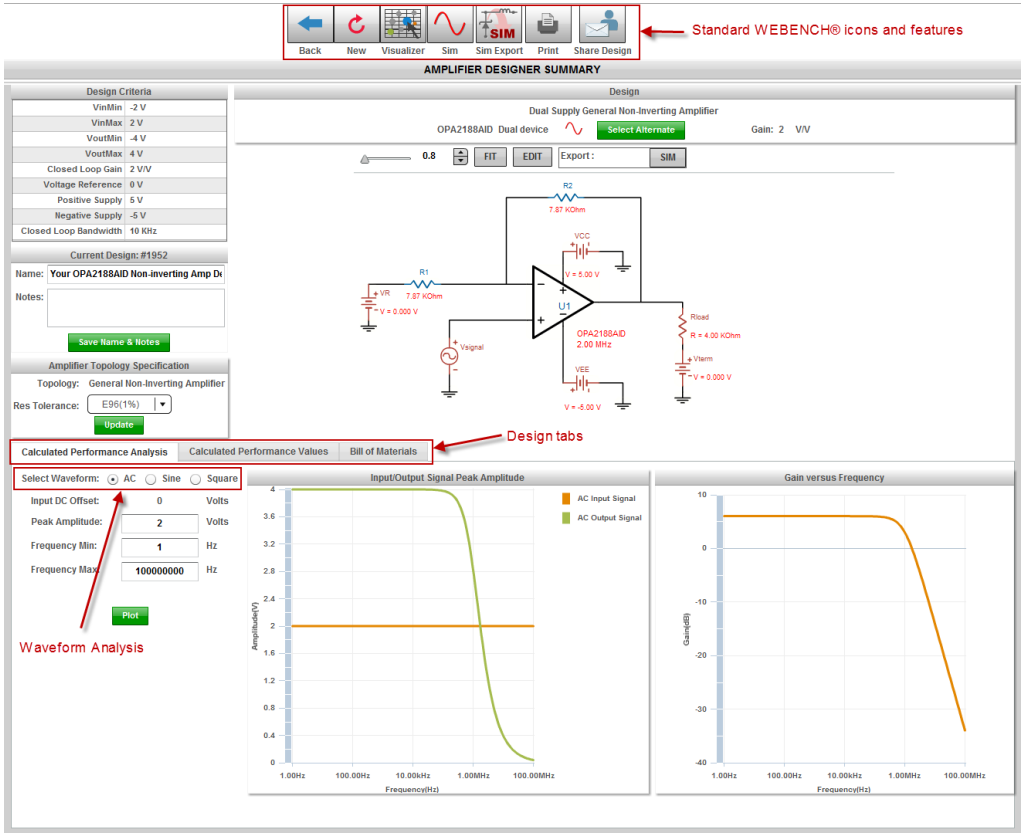
Solutions may be searched by part number or ordered by column sorting.

Once a choice is made, click on Open Design



Part	Create	Simulation	No. of Channels	Package	Amplifier Gain Bandwidth Product (MHz)	Small Signal Bandwidth (MHz)	Full Power Bandwidth (kHz)	Precision (mVrms)	Total Output Noise (uVrms)	Output Temperature Delta (typ, mV)	IC Supply Current(mA)	Output Offset (mV)	Max Power Supply (V)	Min Power Supply (V)	1k Price (USD)
OPA2188AID	Open Design		2	SOIC	2	1	12.73	0.05	29.55	0.00539	0.385	0.012	36	4	$1.70
OPA2188AIDGKT	Open Design		2	MSOP	2	1	12.73	0.05	29.55	0.00539	0.385	0.012	36	4	$1.65
OPA2188AIDR	Open Design		2	SOIC	2	1	12.73	0.05	29.55	0.00539	0.385	0.012	36	4	$1.40
OPA2234U	Open Design		2	SOIC	0.35	0.17	3.18	0.43	27.54	0.09	0.25	0.08	36	2.7	$3.02
OPA234U	Open Design		1	SOIC	0.35	0.17	3.18	0.43	27.54	0.09	0.25	0.08	36	2.7	$1.91
OPA234E/250	Open Design		1	MSOP	0.35	0.17	3.18	0.53	27.54	0.09	0.25	0.2	36	2.7	$1.85
OPA2234UA	Open Design		2	SOIC	0.35	0.17	3.18	0.89	27.54	0.09	0.25	0.08	36	2.7	$2.52
OPA4234UA	Open Design		4	SOIC	0.35	0.17	3.18	0.89	27.54	0.09	0.25	0.08	36	2.7	$4.64
OPA234UA	Open Design		1	SOIC	0.35	0.17	3.18	0.89	27.54	0.09	0.25	0.08	36	2.7	$1.40
OPA234EA/250	Open Design		1	MSOP	0.35	0.17	3.18	1.09	27.54	0.09	0.25	0.2	36	2.7	$1.34
OPA2209AIDGKT	Open Design		2	MSOP	18	9	101.85	0.3	23.48	0.18	2.2	0.07	36	4.5	$1.90
OPA2209AID	Open Design		2	SOIC	18	9	101.85	0.3	23.48	0.18	2.2	0.07	36	4.5	$2.00
OPA209AID	Open Design		1	SOIC	18	9	101.85	0.3	23.48	0.18	2.2	0.07	36	4.5	$1.32
OPA209AIDBVT	Open Design		1	SOT-23	18	9	101.85	0.3	23.48	0.18	2.2	0.07	36	4.5	$1.27
OPA4209AIPW	Open Design		4	TSSOP	18	9	101.85	0.3	23.48	0.18	2.2	0.07	36	4.5	$3.50
OPA209AIDGKT	Open Design		1	MSOP	18	9	101.85	0.3	23.48	0.18	2.2	0.07	36	4.5	$1.27
LMP7701MF	Open Design		1	SOT-23	2.5	1.25	15.91	0.4	26.47	0.18	0.79	0.074	12	2.7	$1.40
LMP7701MA/NOPB	Open Design		1	SOIC	2.5	1.25	15.91	0.4	26.47	0.18	0.79	0.074	12	2.7	$1.34
LMP7701MF/NOPB	Open Design		1	SOT	2.5	1.25	15.91	0.4	26.47	0.18	0.79	0.074	12	2.7	$0.99
LMP7704MT	Open Design		4	TSSOP	2.5	1.25	15.91	0.44	26.47	0.18	0.8	0.074	12	2.7	$2.88
LMP7704MA/NOPB	Open Design		4	SOIC	2.5	1.25	15.91	0.44	26.47	0.18	0.8	0.074	12	2.7	$2.10
LMP7702MM	Open Design		2	MSOP	2.5	1.25	15.91	0.44	26.47	0.18	0.85	0.064	12	2.7	$1.84
LMP7702MM/NOPB	Open Design		2	VSSOP	2.5	1.25	15.91	0.44	26.47	0.18	0.85	0.064	12	2.7	$1.30

WEBENCH® Amplifier Designer



Supported WEBENCH® features include simulation, Sim Export, PDF report generation, and Share Designs

Design Tabs allow choice of Graphical Performance Analysis, Calculated Performance Values, and the Bill of Materials (BOM)

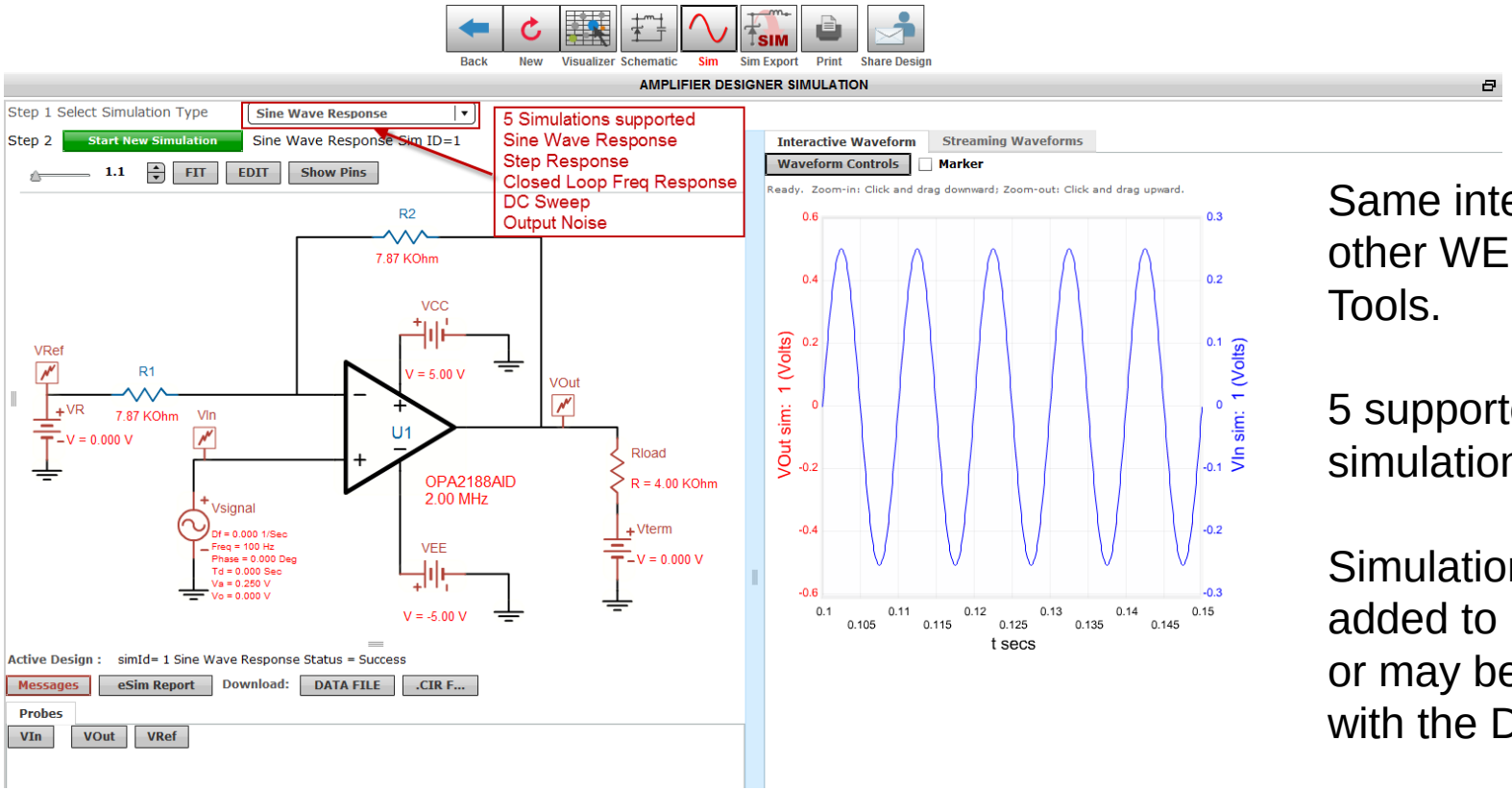
Waveform Analysis allows AC, Sine, and Square wave stimulus.

WEBENCH® Amplifier Designer – Design Tabs

Calculated Performance Analysis | Calculated Performance Values | **Bill of Materials**

Part	Manufacturer	Part Number	Price	Value	Footprint	Top View	Edit
R1	Vishay-Dale	CRCW04027K87FKED	$0.01	7.870KΩ	3.000 mm²	▪	Select Alternate Part
R2	Vishay-Dale	CRCW04027K87FKED	$0.01	7.870KΩ	3.000 mm²	▪	Select Alternate Part
U1	Texas Instruments, Inc.	OPA2188AID (Dual device)	$1.70 Per Channel:$0.85	N/A	56.580 mm²		Select Alternate Part

WEBENCH® Amplifier Designer - Simulation



Same interface as other WEBENCH® Tools.

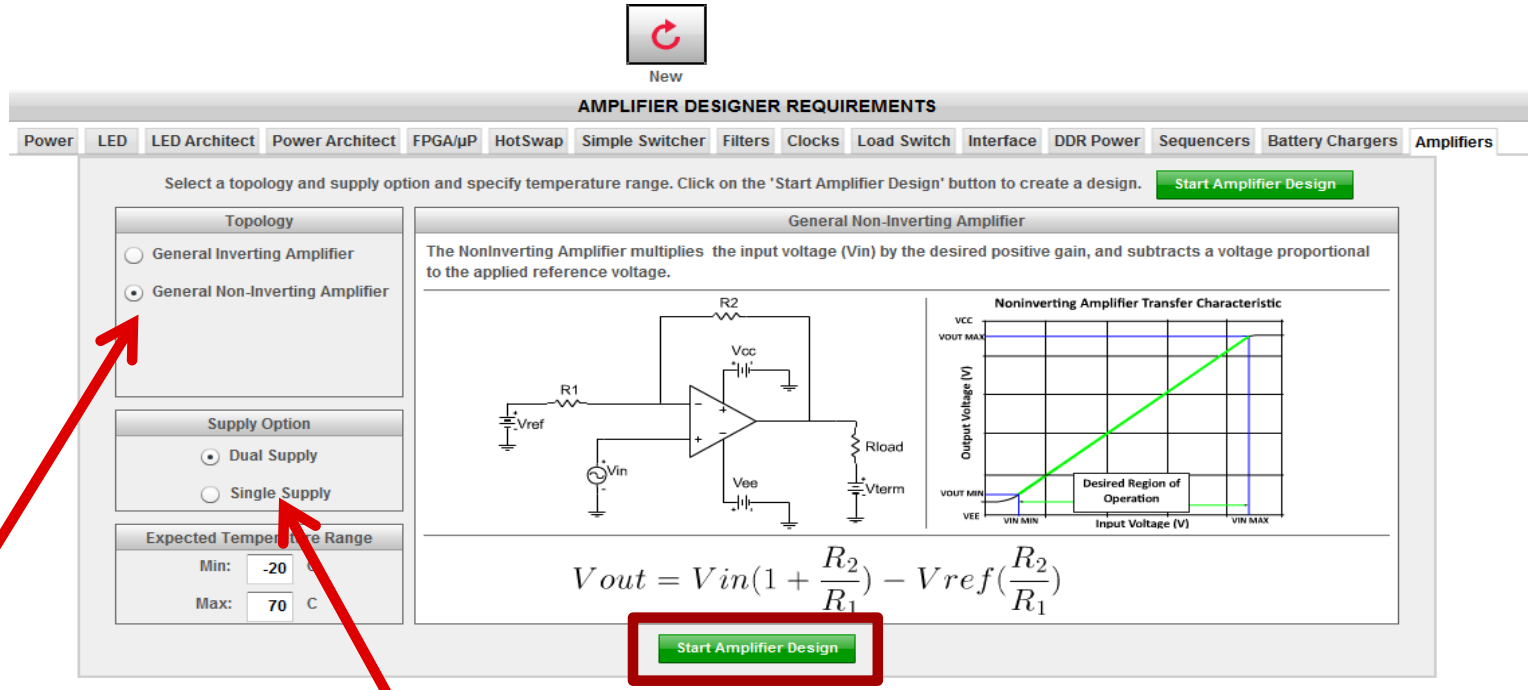
5 supported simulations

Simulations may be added to PDF report or may be shared with the Design

Hands-on Exercise – Amplifier Designer

Design Problem:	Goals:
The customer would like to design a simple inverting configuration amplifier. The circuit should use either a single (5V) or dual (+/-5V) supply. The input voltage range is -0.5 to 0.7V and output voltage range is -2 to 4V. Output current max is 10mA. The most important concern is precision, followed by cost and noise.	Test the capabilities of the new Amplifier Designer and show the ease of use. Look at simulation results for impulse response and noise. Examine the tradeoffs for the optimizer cases and see if dual/single voltage supplies impact the solution. Extra credit: Include a shutdown capability

WEBENCH® Amplifier Designer - Example



Select Topology and supply

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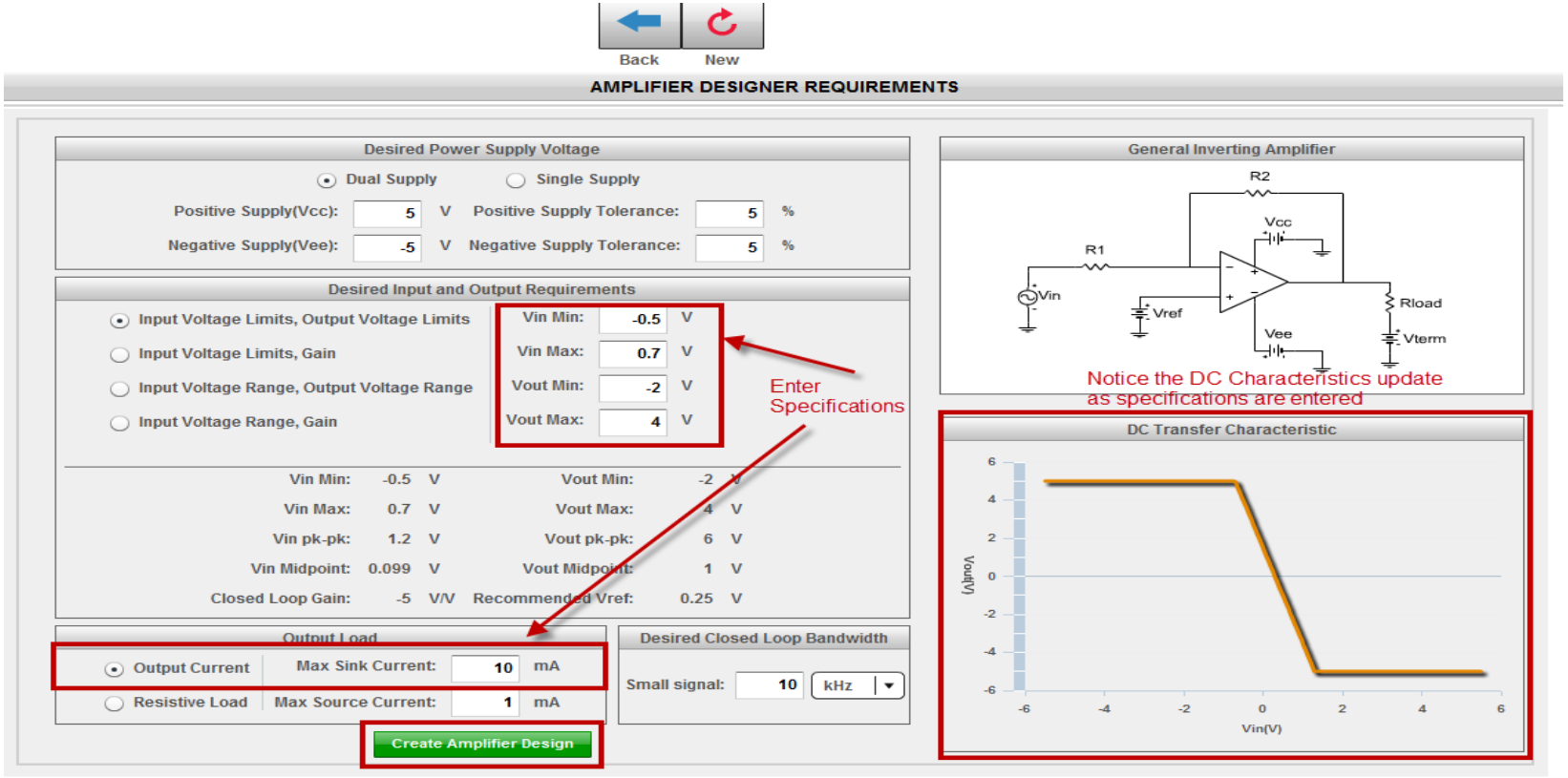
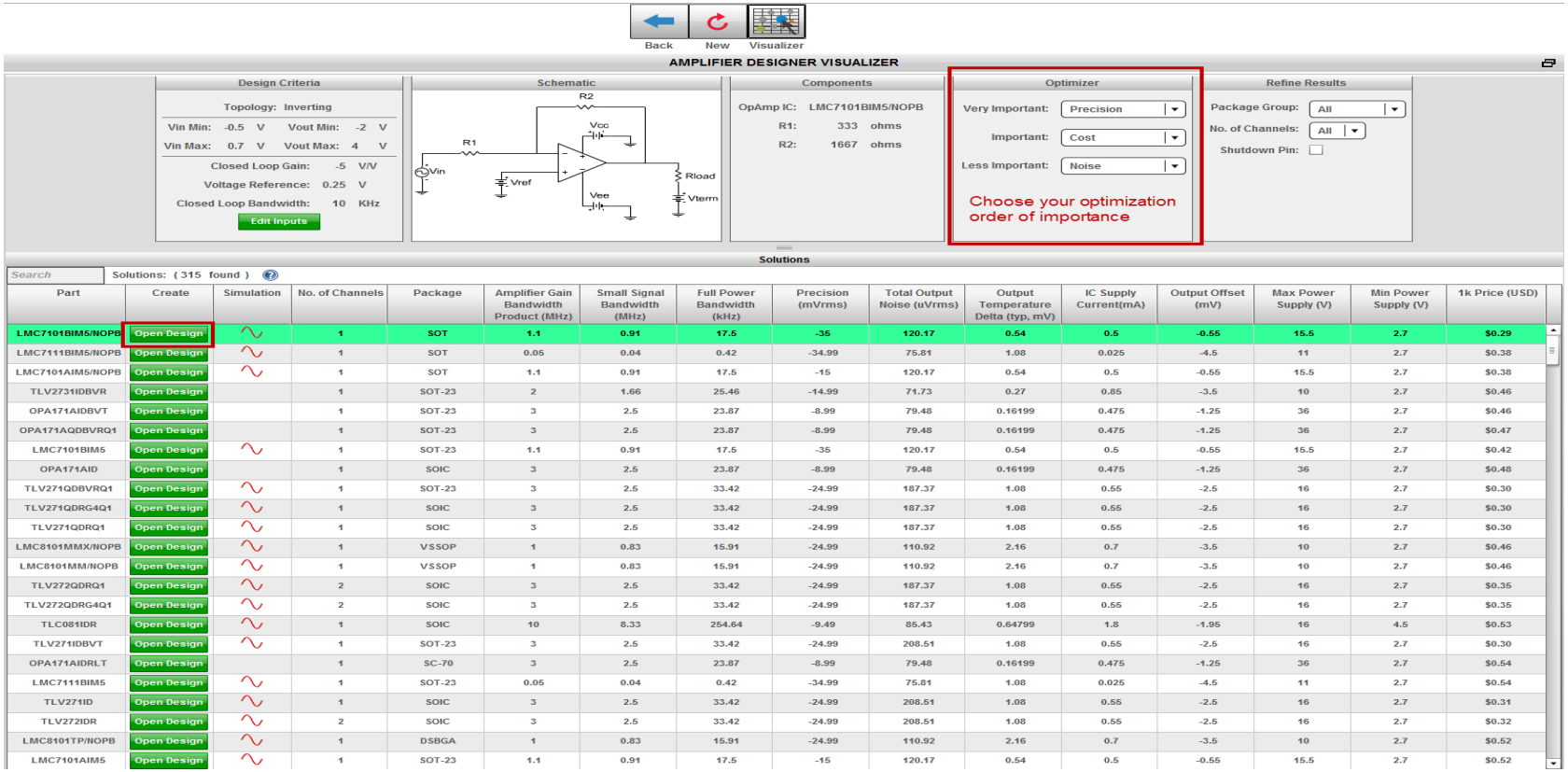


WEBENCH® Amplifier Designer - Example



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LMC7101BIM5/NOPB	Open Design		1	SOT	1.1	0.91	17.5	-35	120.17	0.54	0.5	-0.55	15.5	2.7	$0.29
LMC7111BIM5/NOPB	Open Design		1	SOT	0.05	0.04	0.42	-34.99	75.81	1.08	0.025	-4.5	11	2.7	$0.38
LMC7101AIM5/NOPB	Open Design		1	SOT	1.1	0.91	17.5	-15	120.17	0.54	0.5	-0.55	15.5	2.7	$0.38
TLV2731IDBVR	Open Design		1	SOT-23	2	1.66	25.46	-14.99	71.73	0.27	0.85	-3.5	10	2.7	$0.46
OPA171AIDBVT	Open Design		1	SOT-23	3	2.5	23.87	-8.99	79.48	0.16199	0.475	-1.25	36	2.7	$0.46
OPA171AQDBVRQ1	Open Design		1	SOT-23	3	2.5	23.87	-8.99	79.48	0.16199	0.475	-1.25	36	2.7	$0.47
LMC7101BIM5	Open Design		1	SOT-23	1.1	0.91	17.5	-35	120.17	0.54	0.5	-0.55	15.5	2.7	$0.42
OPA171AID	Open Design		1	SOIC	3	2.5	23.87	-8.99	79.48	0.16199	0.475	-1.25	36	2.7	$0.48
TLV271QDBVRQ1	Open Design		1	SOT-23	3	2.5	33.42	-24.99	187.37	1.08	0.55	-2.5	16	2.7	$0.30
TLV271QDRG4Q1	Open Design		1	SOIC	3	2.5	33.42	-24.99	187.37	1.08	0.55	-2.5	16	2.7	$0.30
TLV271QDRQ1	Open Design		1	SOIC	3	2.5	33.42	-24.99	187.37	1.08	0.55	-2.5	16	2.7	$0.30
LMC8101MMX/NOPB	Open Design		1	VSSOP	1	0.83	15.91	-24.99	110.92	2.16	0.7	-3.5	10	2.7	$0.46
LMC8101MM/NOPB	Open Design		1	VSSOP	1	0.83	15.91	-24.99	110.92	2.16	0.7	-3.5	10	2.7	$0.46
TLV272QDRQ1	Open Design		2	SOIC	3	2.5	33.42	-24.99	187.37	1.08	0.55	-2.5	16	2.7	$0.35
TLV272QDRG4Q1	Open Design		2	SOIC	3	2.5	33.42	-24.99	187.37	1.08	0.55	-2.5	16	2.7	$0.35
TLC081IDR	Open Design		1	SOIC	10	8.33	254.64	-9.49	85.43	0.64799	1.8	-1.95	16	4.5	$0.53
TLV271IDBVT	Open Design		1	SOT-23	3	2.5	33.42	-24.99	208.51	1.08	0.55	-2.5	16	2.7	$0.30
OPA171AIDRLT	Open Design		1	SC-70	3	2.5	23.87	-8.99	79.48	0.16199	0.475	-1.25	36	2.7	$0.54
LMC7111BIM5	Open Design		1	SOT-23	0.05	0.04	0.42	-34.99	75.81	1.08	0.025	-4.5	11	2.7	$0.54
TLV271ID	Open Design		1	SOIC	3	2.5	33.42	-24.99	208.51	1.08	0.55	-2.5	16	2.7	$0.31
TLV272IDR	Open Design		2	SOIC	3	2.5	33.42	-24.99	208.51	1.08	0.55	-2.5	16	2.7	$0.32
LMC8101TP/NOPB	Open Design		1	DSBGA	1	0.83	15.91	-24.99	110.92	2.16	0.7	-3.5	10	2.7	$0.52
LMC7101AIM5	Open Design		1	SOT-23	1.1	0.91	17.5	-15	120.17	0.54	0.5	-0.55	15.5	2.7	$0.52

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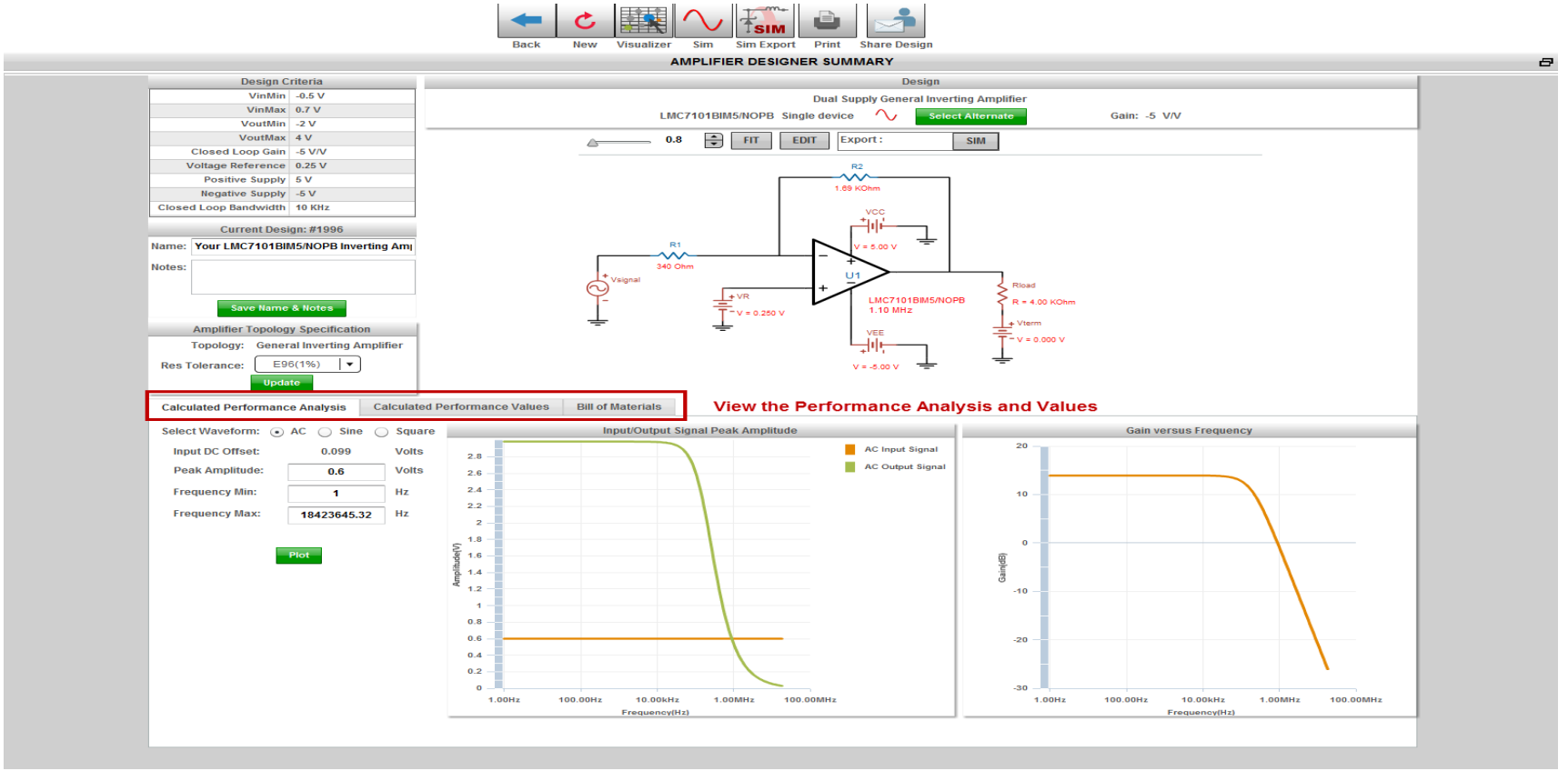

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