

Device Modeling Report

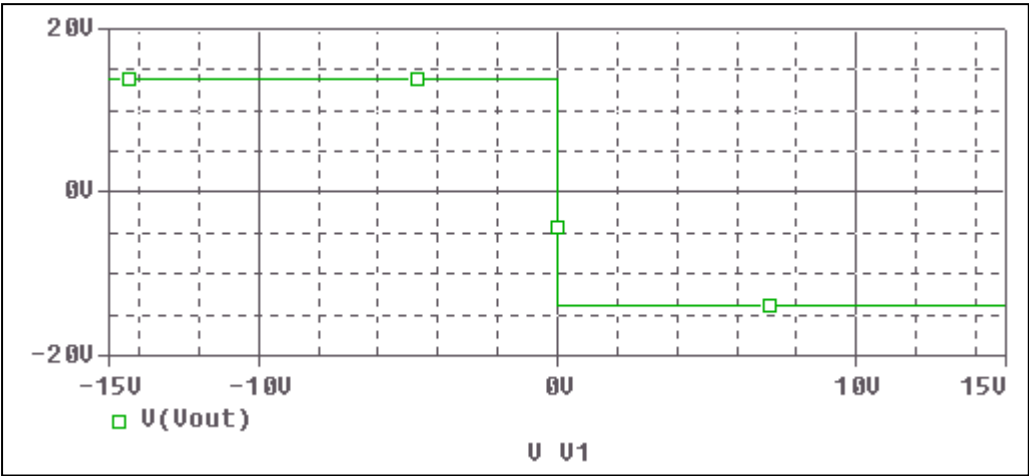
COMPONENTS:MOSFET: OPERATIONAL AMPLIFIER
PART NUMBER:NJM2147
MANUFACTURER: NEW JAPAN RADIO CO.,LTD



Bee Technologies Inc.

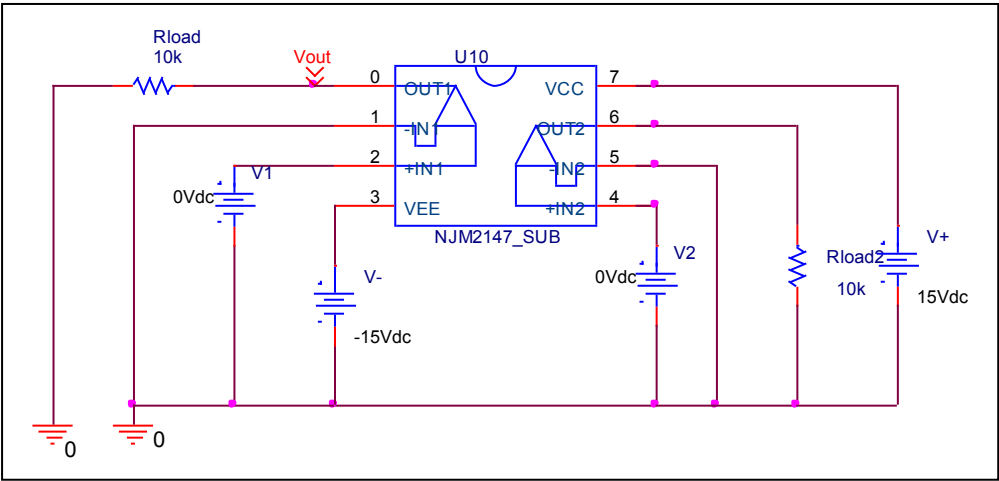
Output Voltage Swing, +Vout and –Vout

Simulation result



These simulation results are compared with $\pm V_{out}$

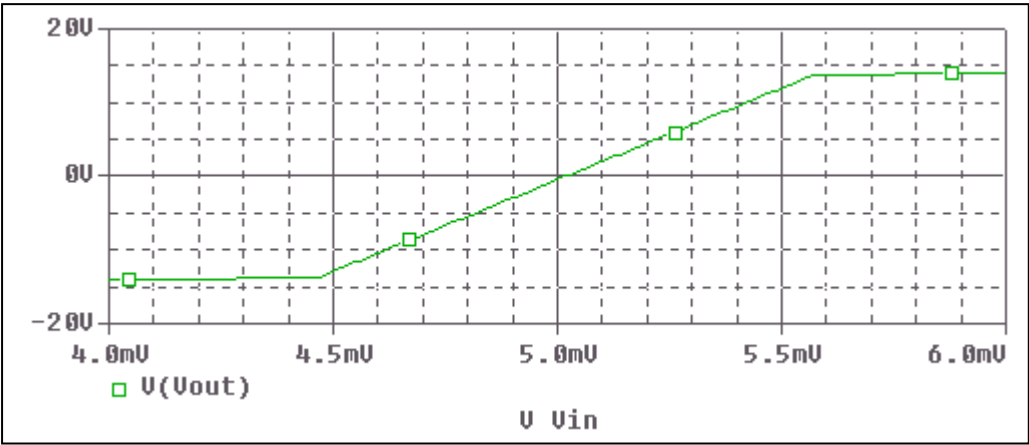
Evaluation circuit



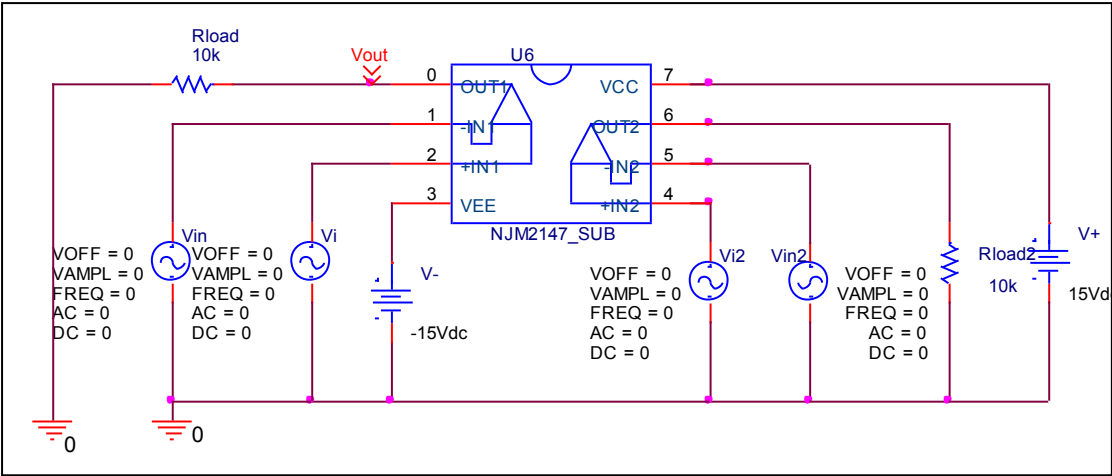
Output Voltage Swing	Data sheet	Simulation	%Error
+Vout(V)	+14	+13.994	0.042
-Vout(V)	-14	-13.994	0.042

Input Offset Voltage

Simulation result



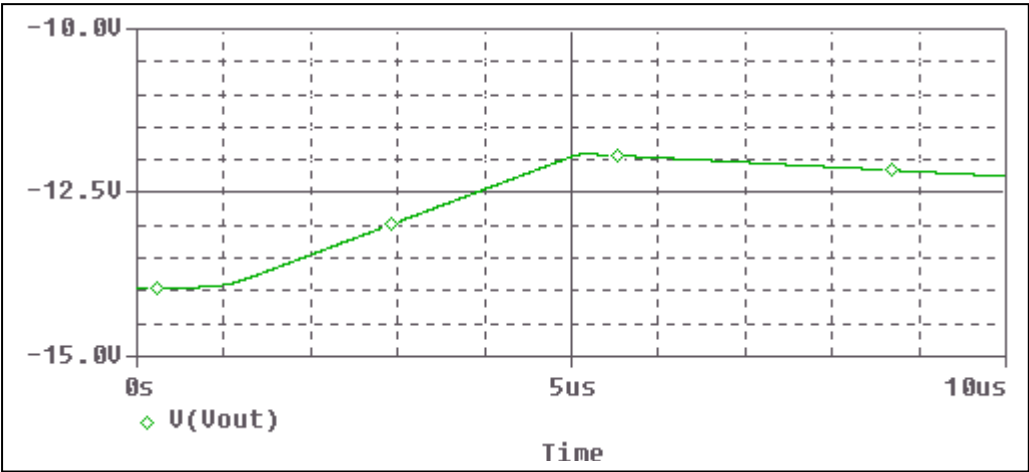
Evaluation circuit



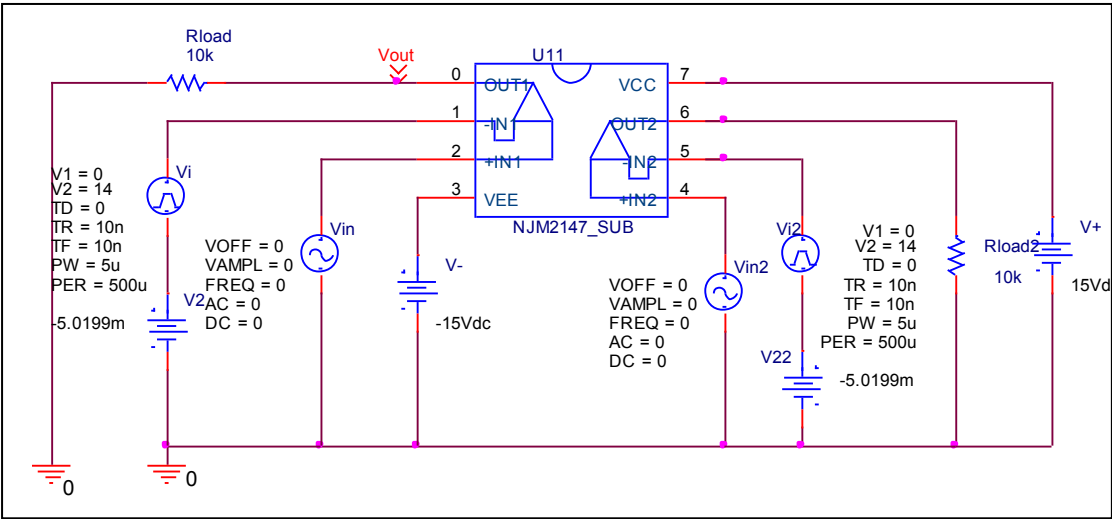
Vos	Measurement		Simulation		Error	
	5	mV	5.0199	mV	0.398	%

Slew Rate, +SR, -SR

Simulation result



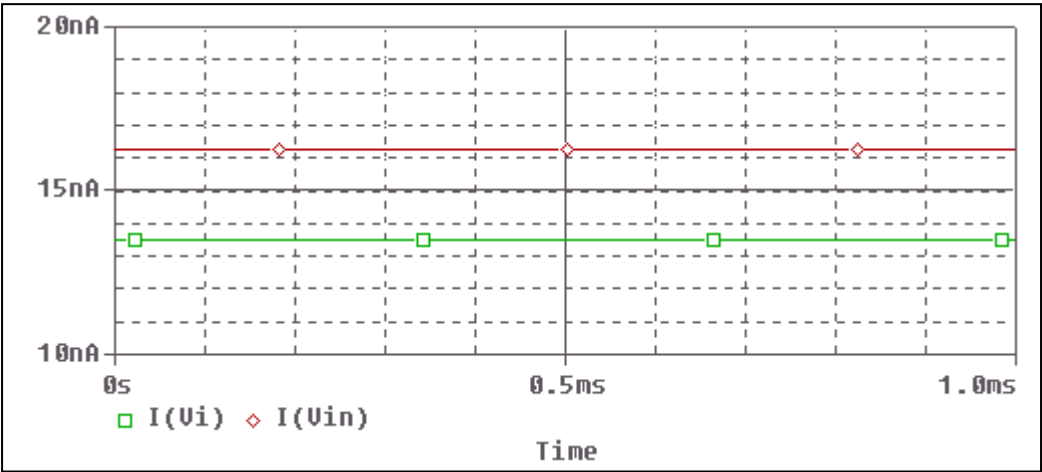
Evaluation circuit



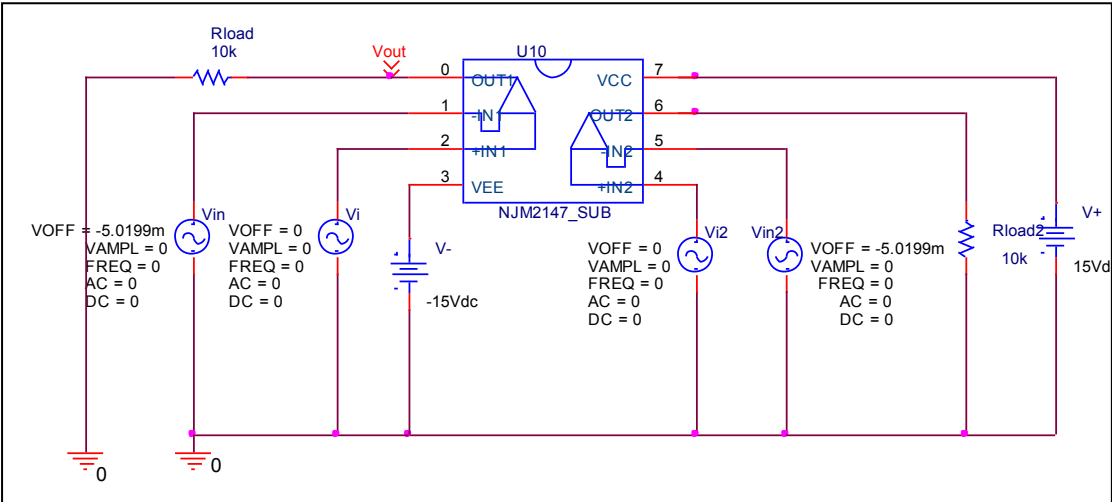
Slew Rate(v/us)	Data sheet	Simulation	%Error
	0.5V/us	0.499V/us	0.2

Input current Ib, Ibos

Simulation result



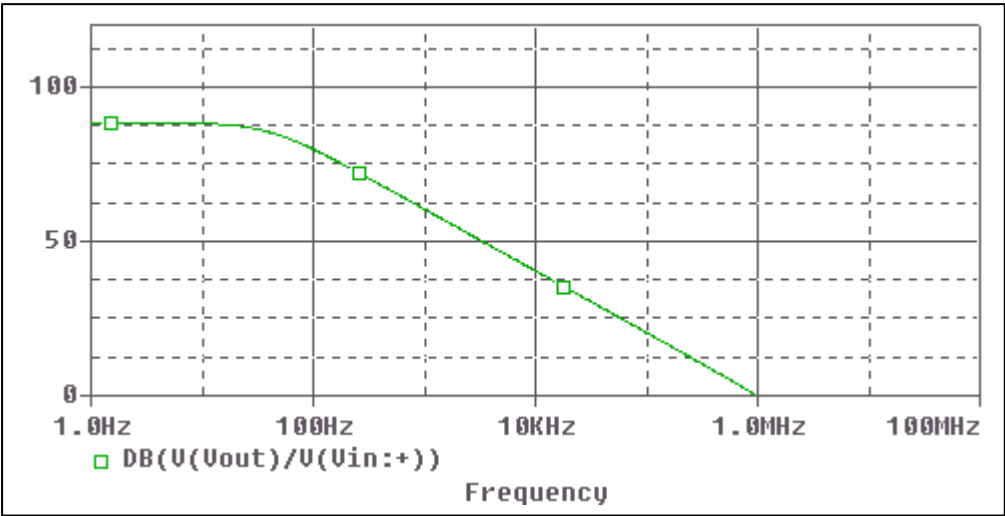
Evaluation circuit



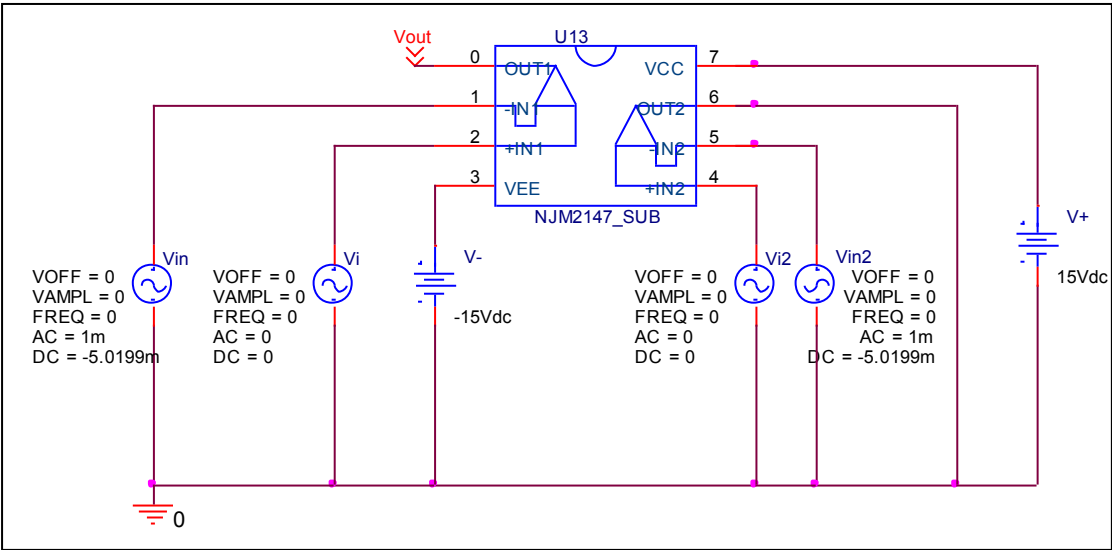
	Data sheet	Simulation	%Error
Ib(nA)	15	14.4	4
Ibos(nA)	80(Max)	2.76	-

Open Loop Voltage Gain vs. Frequency , Av-dc, f-0dB

Simulation result



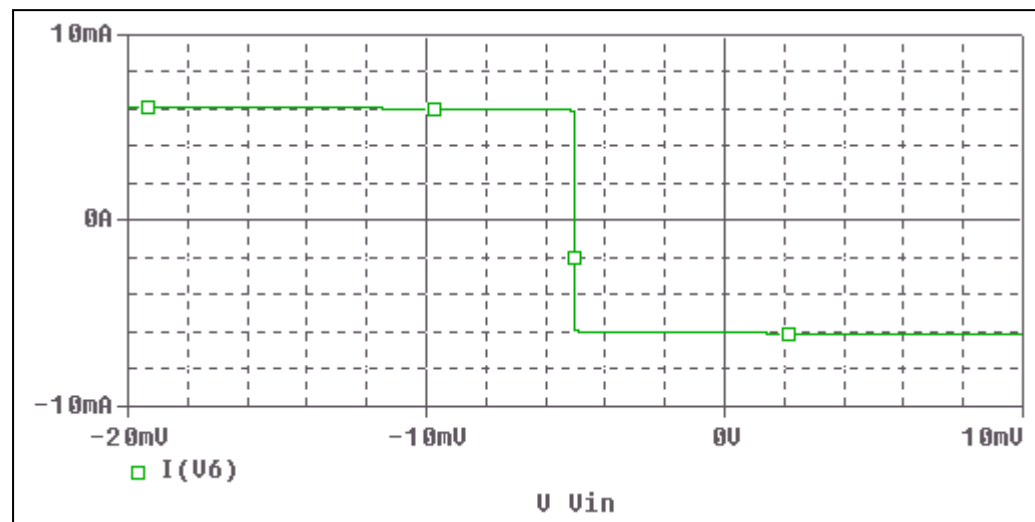
Evaluation circuit



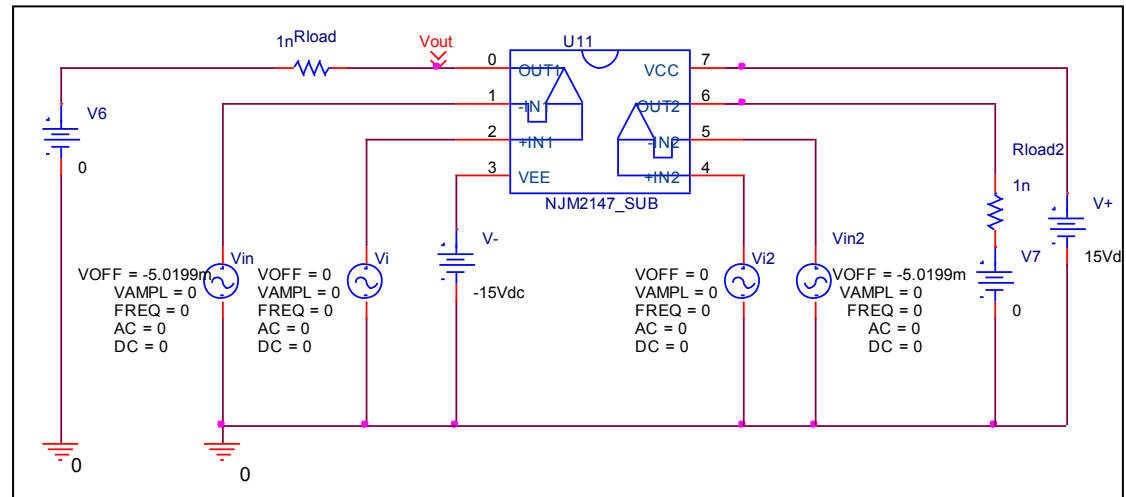
	Data sheet	Simulation	%Error
f-0dB(MHz)	1	0.964	3.6
Av-dc	88	88.3	0.34

Output Short Circuit Current - I_{os}

Simulation result



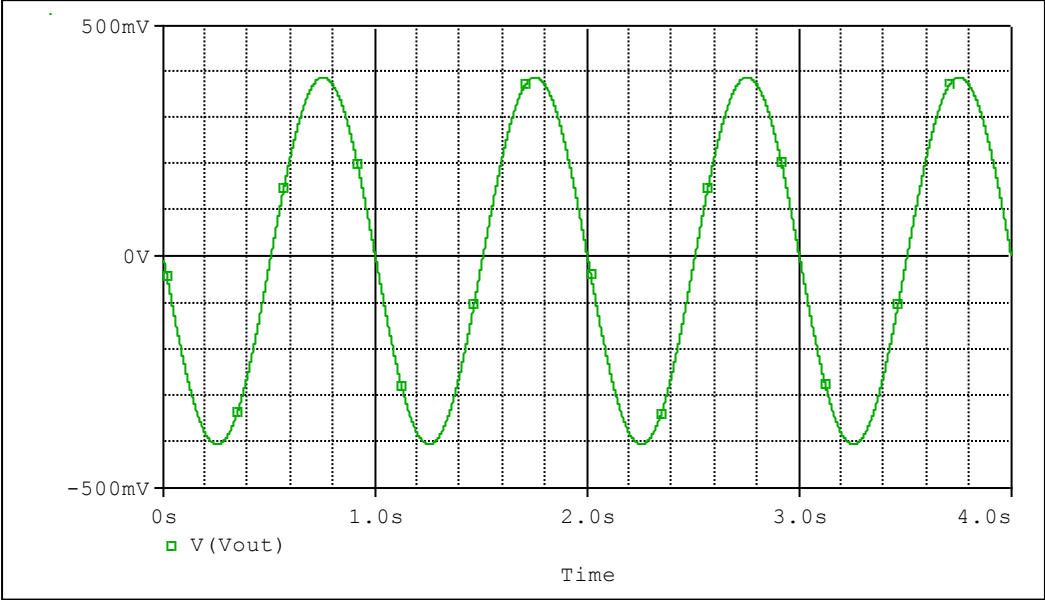
Evaluation circuit



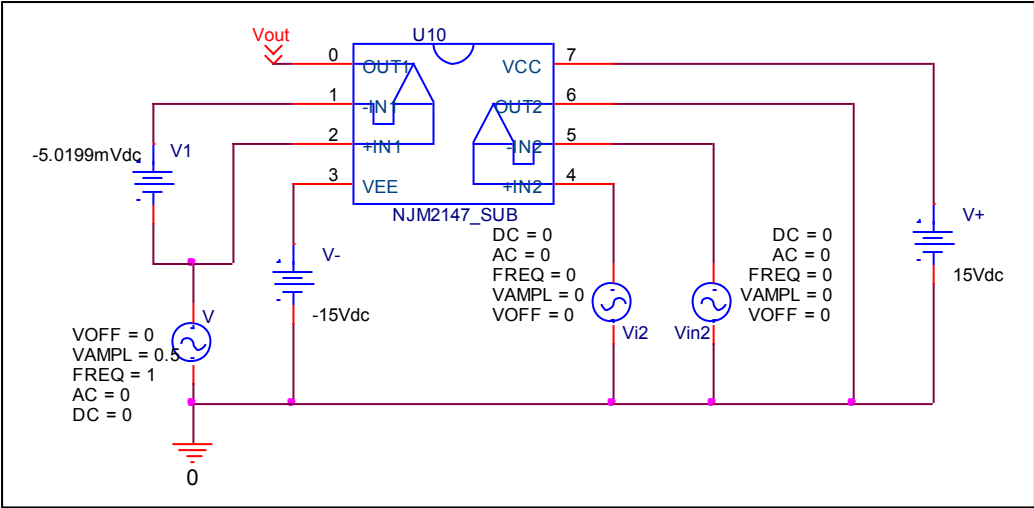
Short Circuit Current	Data sheet	Simulation	%Error
	6mA	6.03mA	0.5

Common-Mode Rejection Voltage gain

Simulation result



Evaluation circuit



Common Mode Reject Ratio= $26001.595/0.795=32706.409$

CMRR	Data sheet	Simulation	%Error
	90	90.292	0.324