

Device Modeling Report

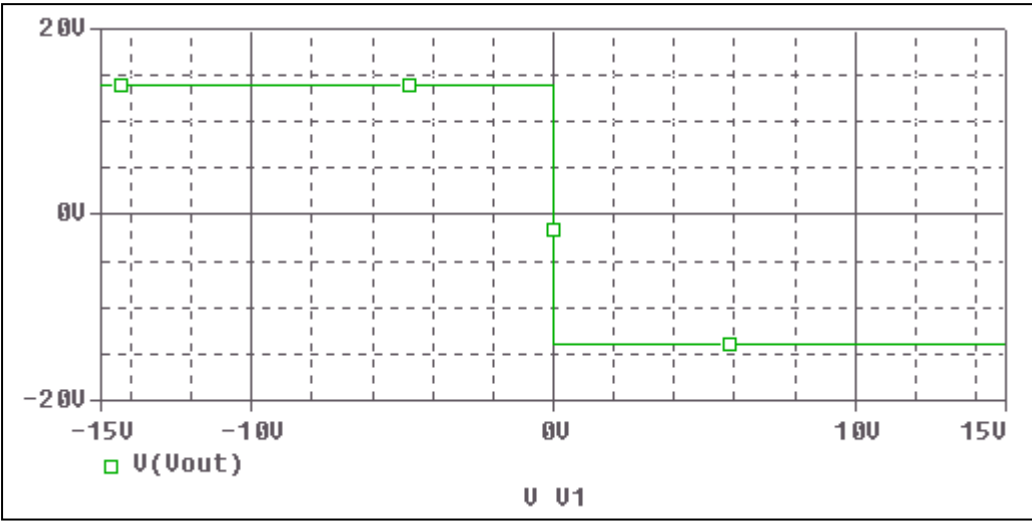
COMPONENTS:MOSFET: OPERATIONAL AMPLIFIER
PART NUMBER:NJM3404AV
MANUFACTURER: NEW JAPAN RADIO CO.,LTD



Bee Technologies Inc.

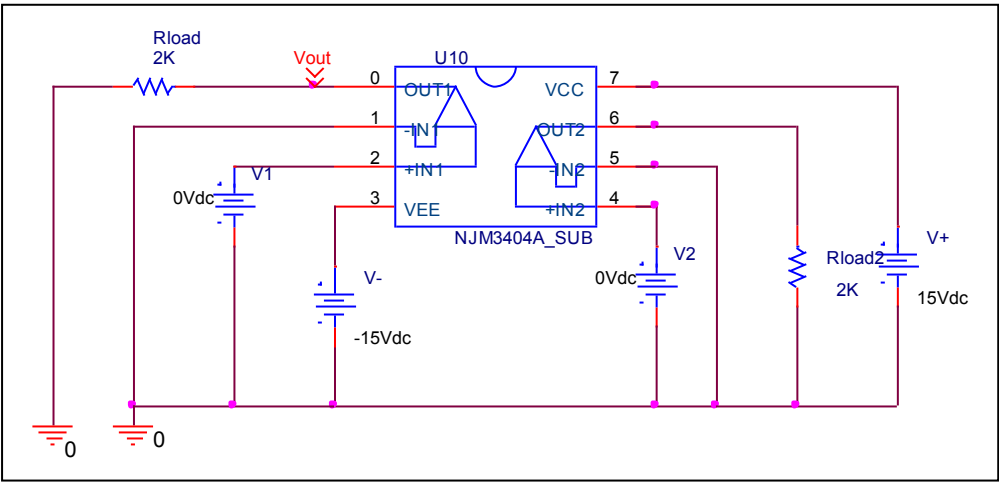
Output Voltage Swing, +Vout and –Vout

Simulation result



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

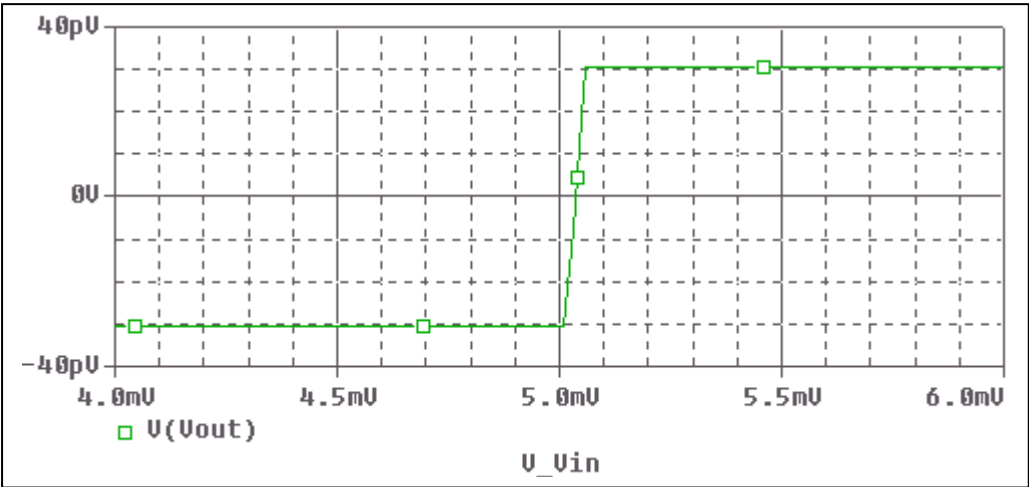
Evaluation circuit



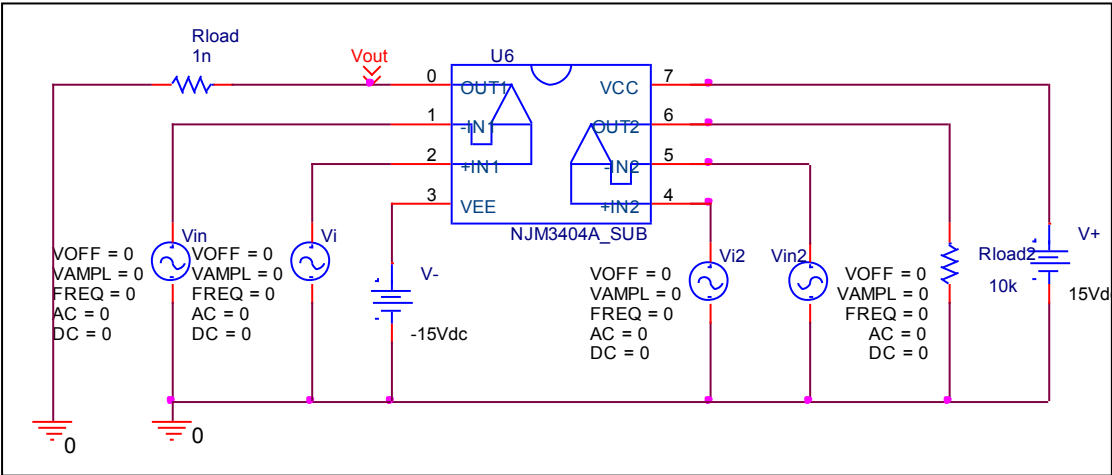
Output Voltage Swing	Data sheet	Simulation	%Error
+Vout(V)	+14	+14.004	0.028
-Vout(V)	-14	-14.004	0.028

Input Offset Voltage

Simulation result



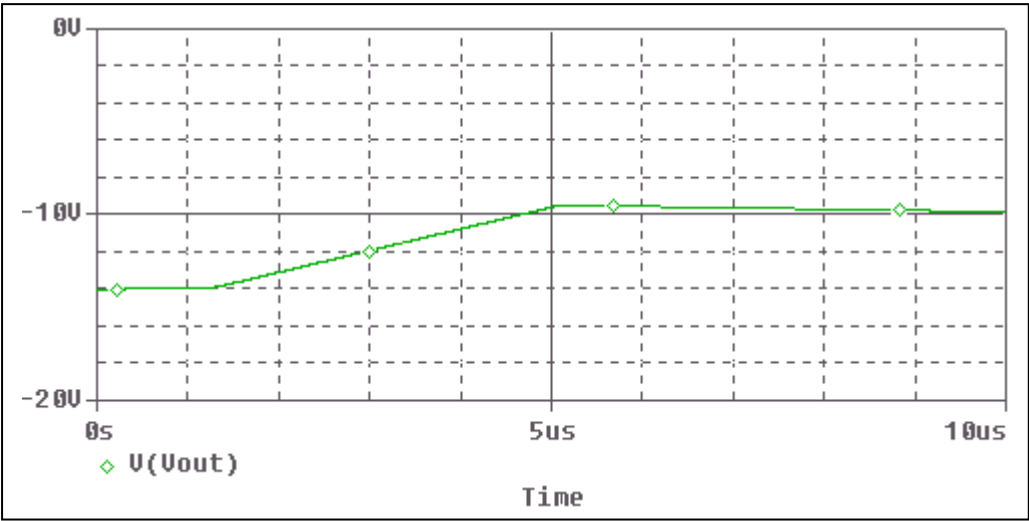
Evaluation circuit



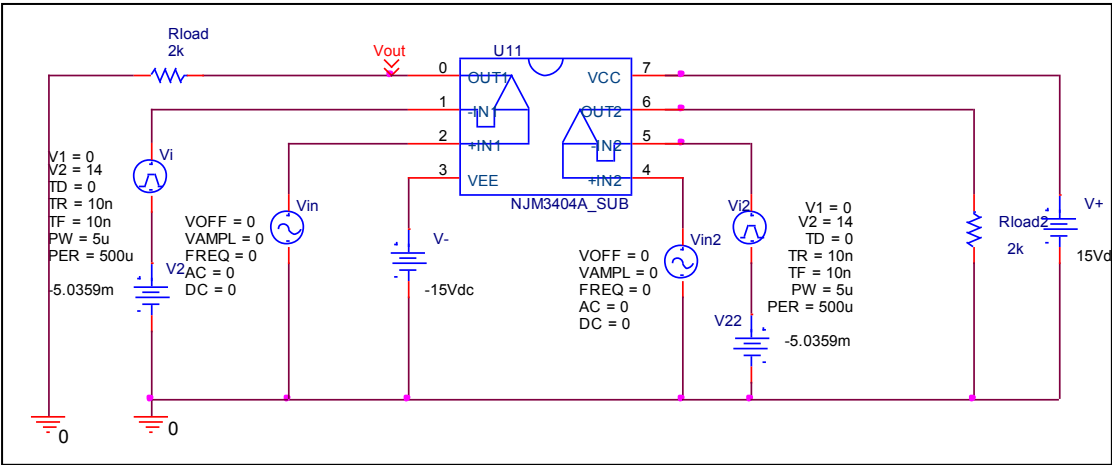
Vos	Measurement		Simulation		Error	
	5	mV	5.0359	mV	0.718	%

Slew Rate, +SR, -SR

Simulation result



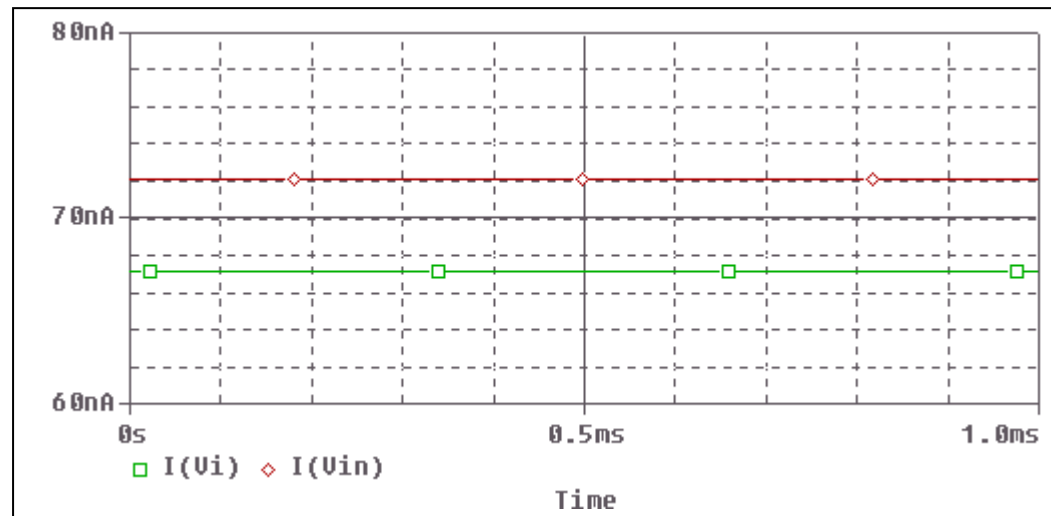
Evaluation circuit



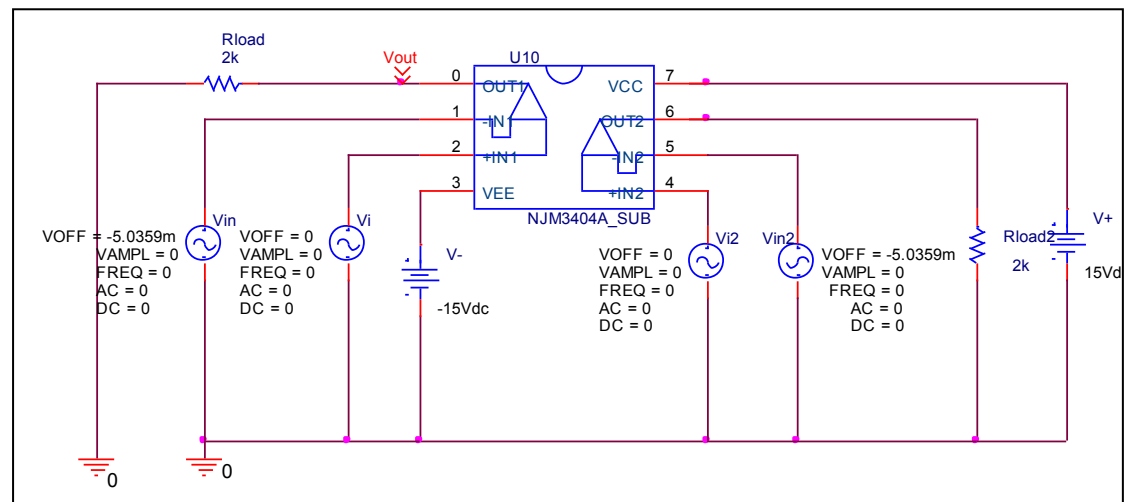
Slew Rate(v/us)	Data sheet	Simulation	%Error
	1.2V/us	1.16V/us	3.33

Input current I_b , I_{bos}

Simulation result



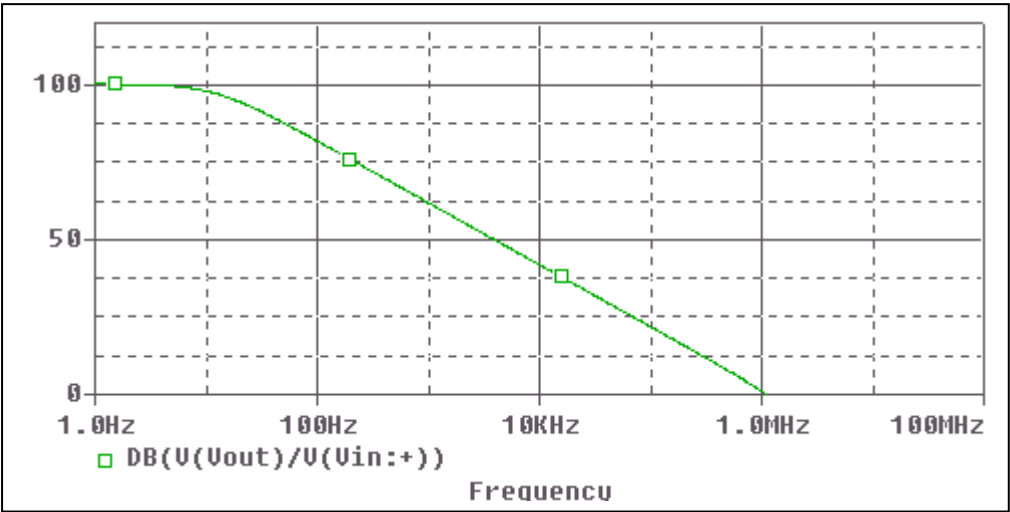
Evaluation circuit



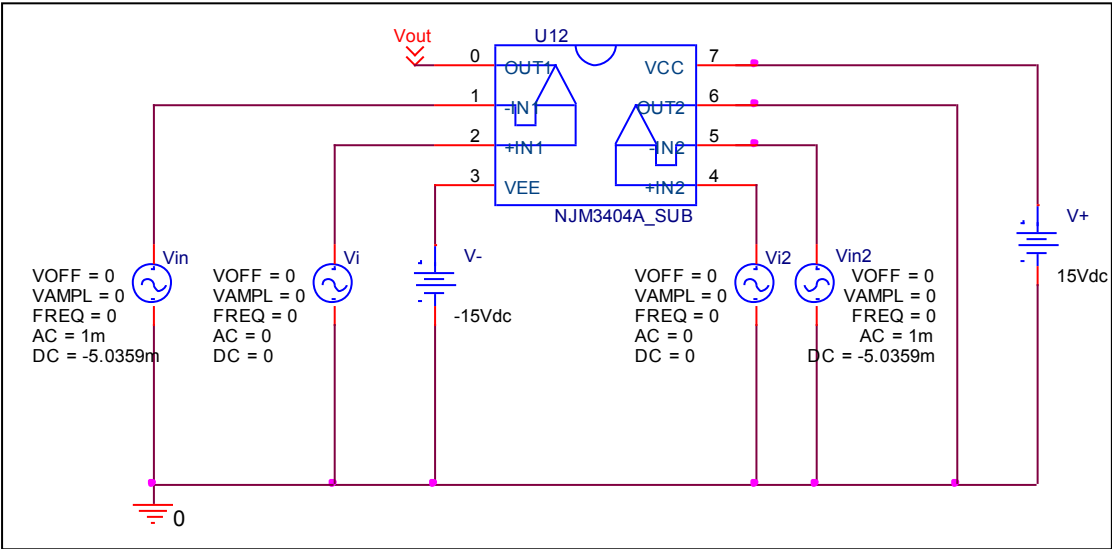
	Data sheet	Simulation	%Error
I _b (nA)	70	69.63	0.528
I _{bos} (nA)	5	5.03	0.6

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

Simulation result



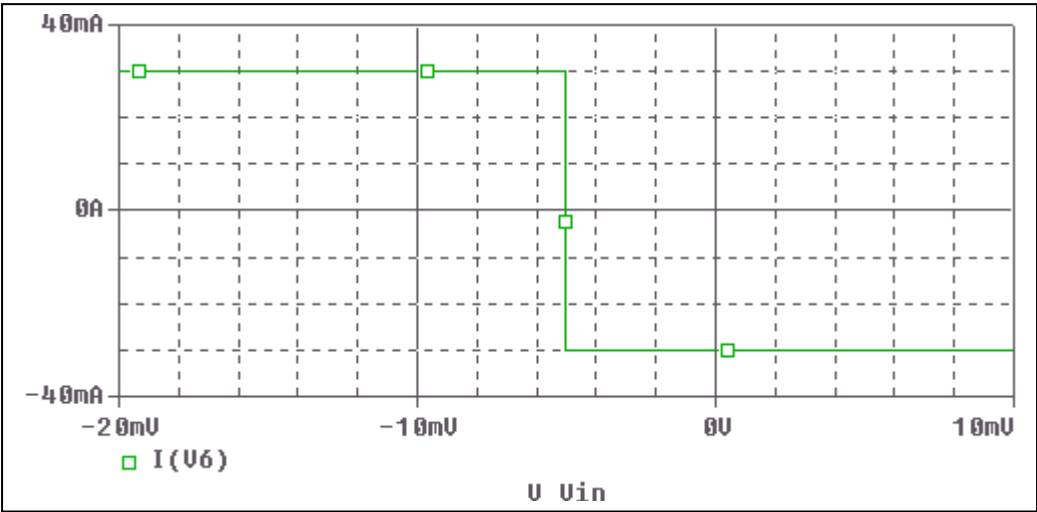
Evaluation circuit



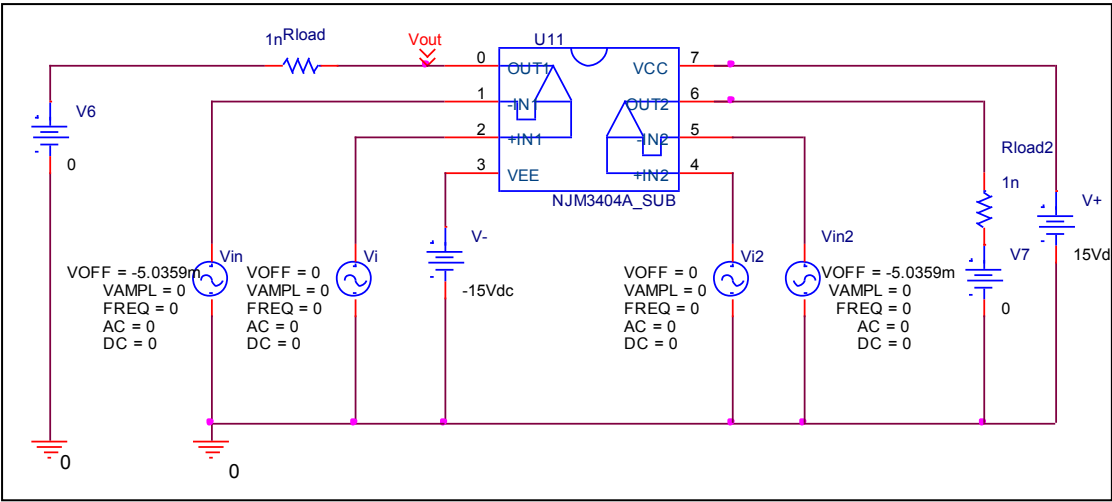
	Data sheet	Simulation	%Error
f-0dB(MHz)	1.2	1.156	3.6
Av-dc	100	100.2	0.2

Output Short Circuit Current - Ios

Simulation result



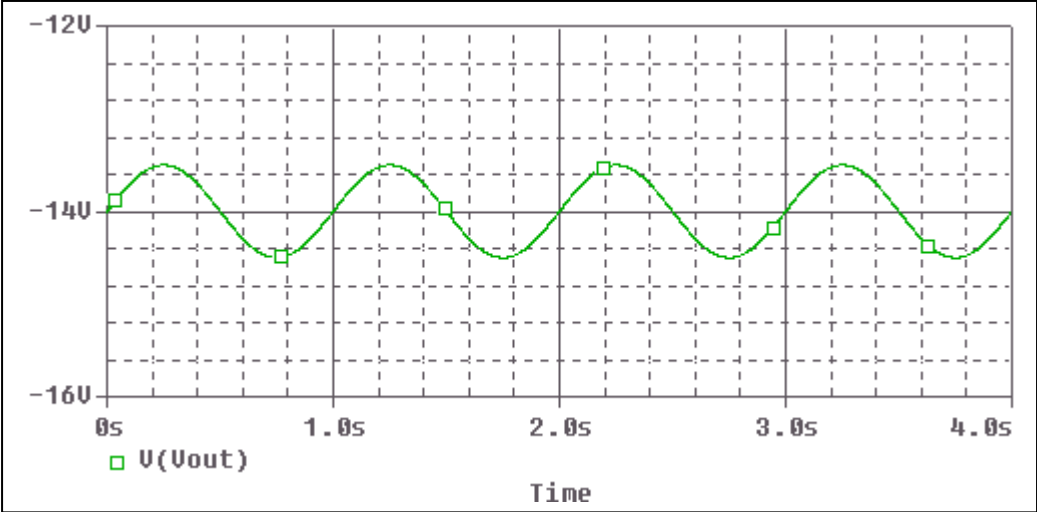
Evaluation circuit



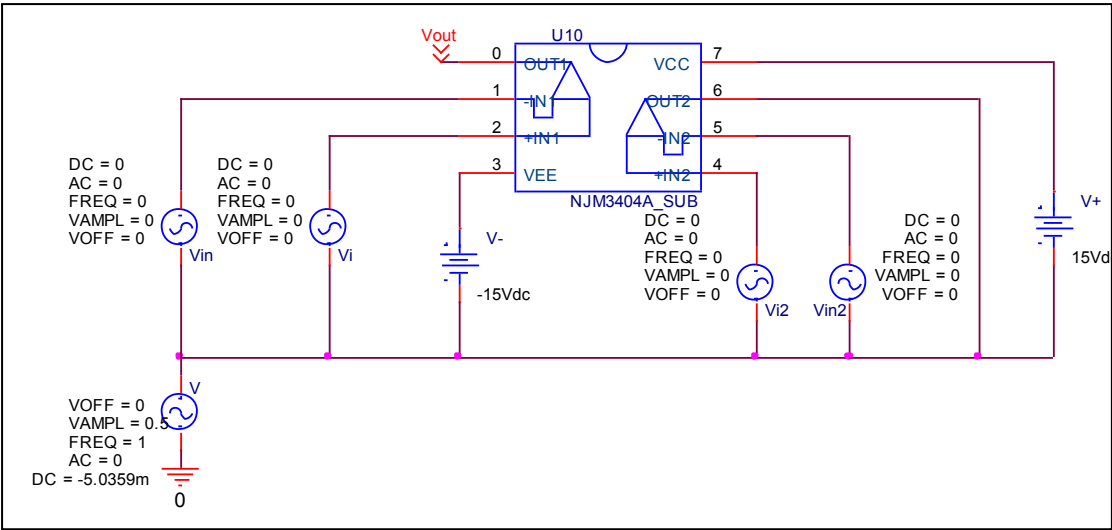
Short Circuit Current	Data sheet	Simulation	%Error
	30mA	30.039mA	0.13

Common-Mode Rejection Voltage gain

Simulation result



Evaluation circuit



Common mode gain=3.112/1
Common Mode Reject Ratio=102329.3/3.112=32882

CMRR	Data sheet	Simulation	%Error
	31623	32882	3.6