

Device Modeling Report

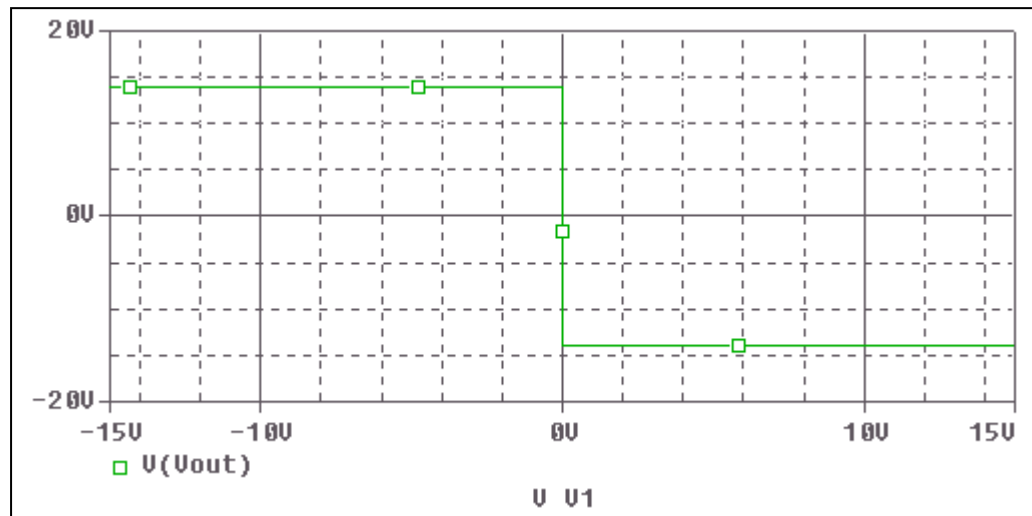
COMPONENTS:MOSFET: OPERATIONAL AMPLIFIER
PART NUMBER:NJM4565M
MANUFACTURER: NEW JAPAN RADIO CO.,LTD



Bee Technologies Inc.

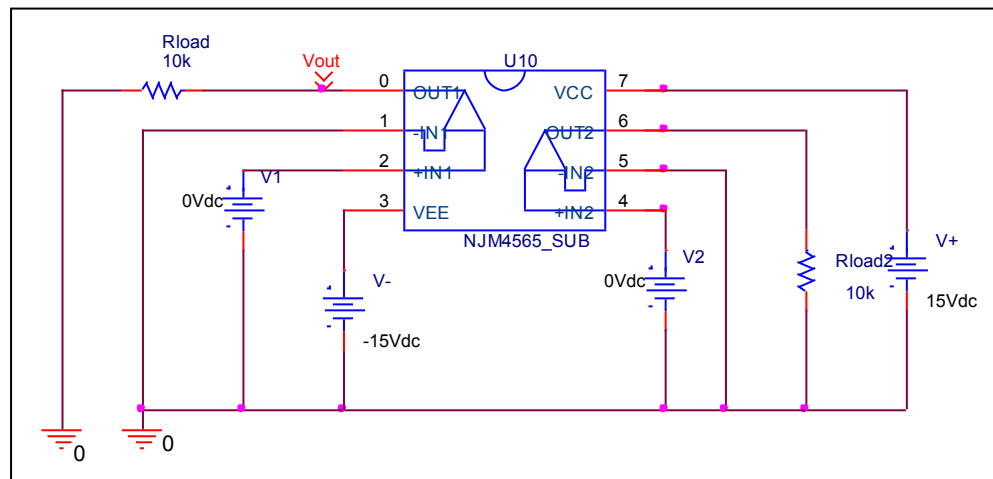
Output Voltage Swing, +Vout and -Vout

Simulation result



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

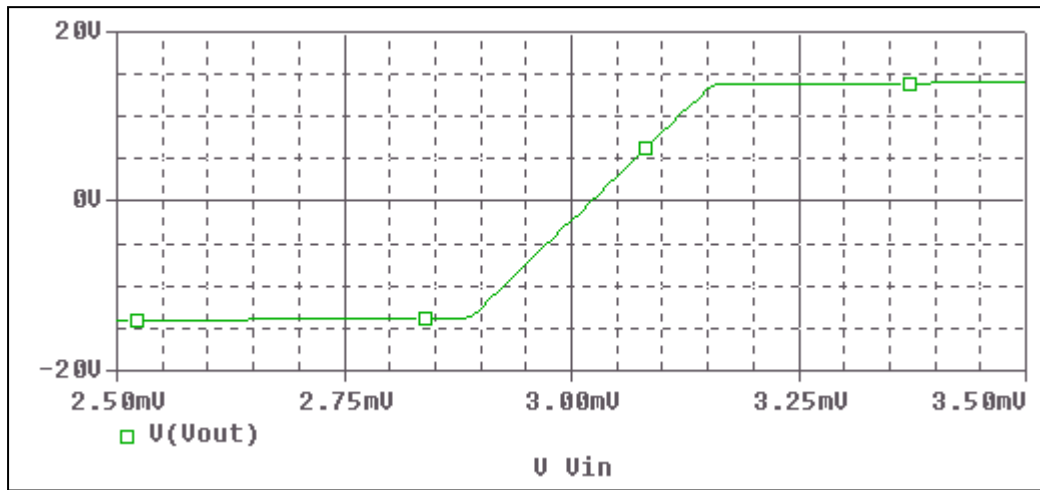
Evaluation circuit



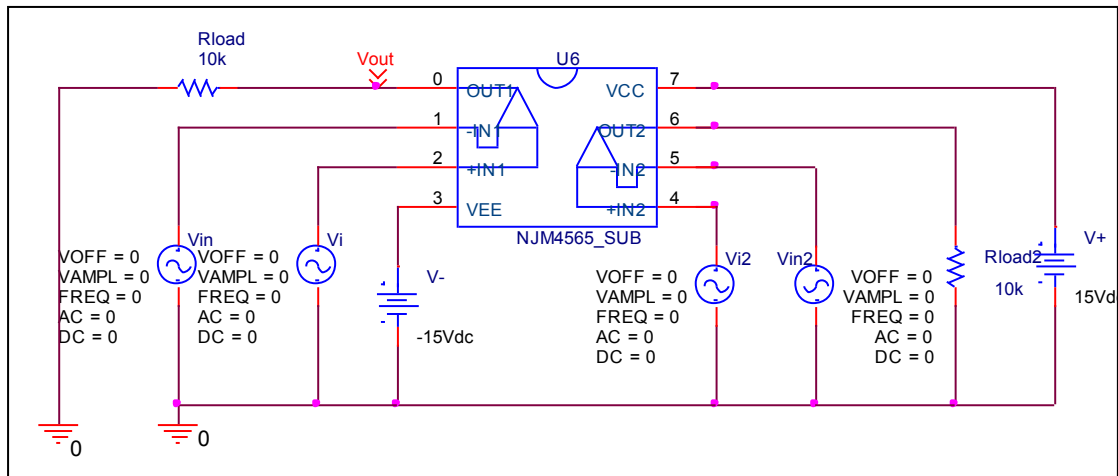
Output Voltage Swing	Data sheet	Simulation	%Error
+Vout(V)	+14	+13.995	0.035
-Vout(V)	-14	-13.995	0.035

Input Offset Voltage

Simulation result



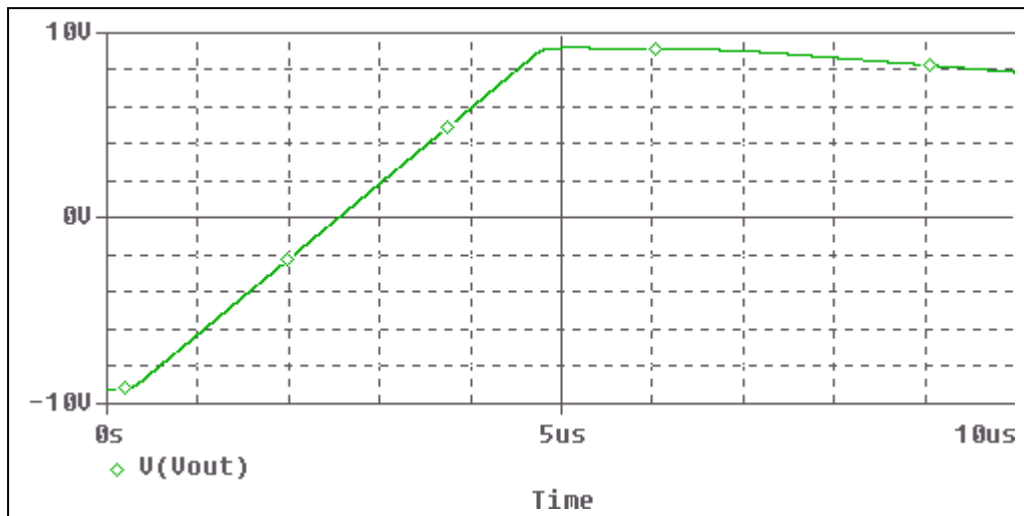
Evaluation circuit



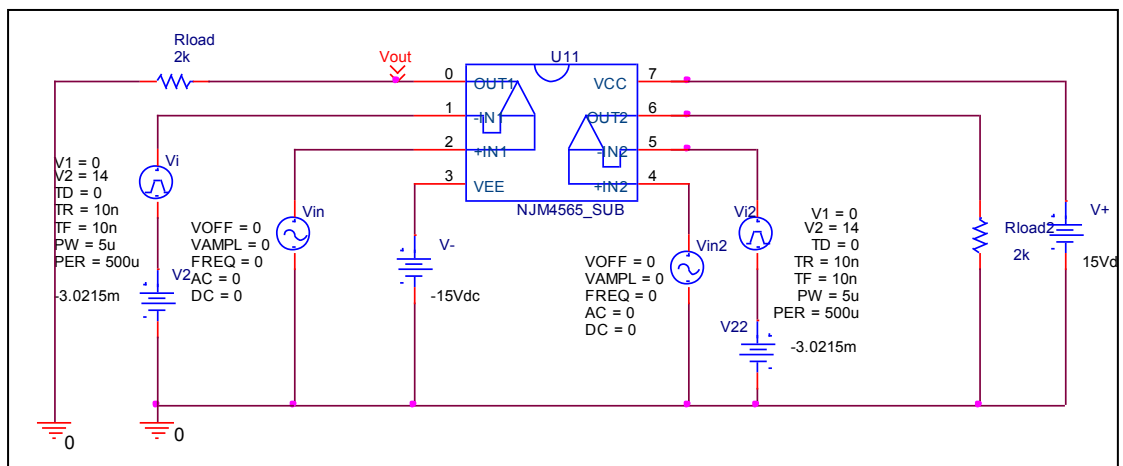
Vos	Measurement		Simulation		Error	
	3	mV	3.0215	mV	0.716	%

Slew Rate, +SR, -SR

Simulation result



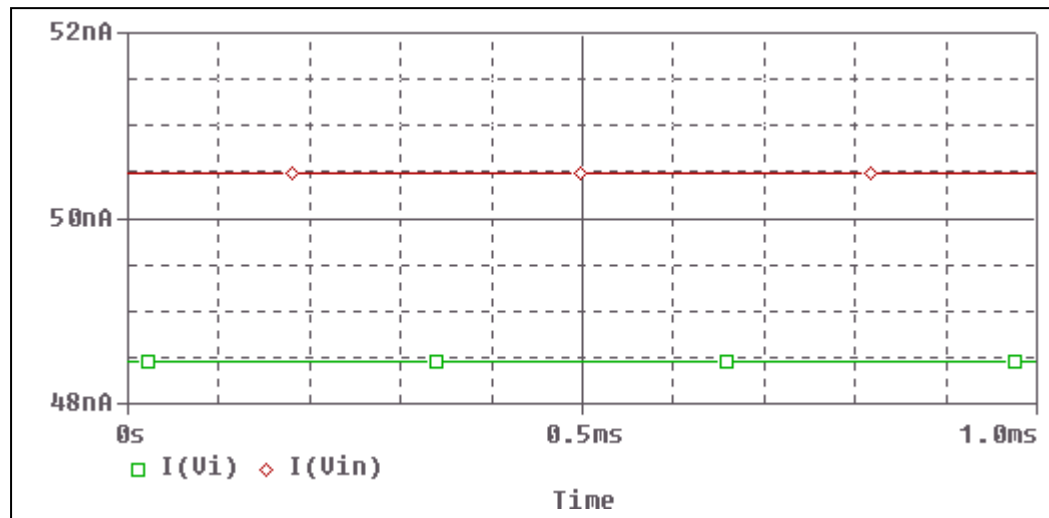
Evaluation circuit



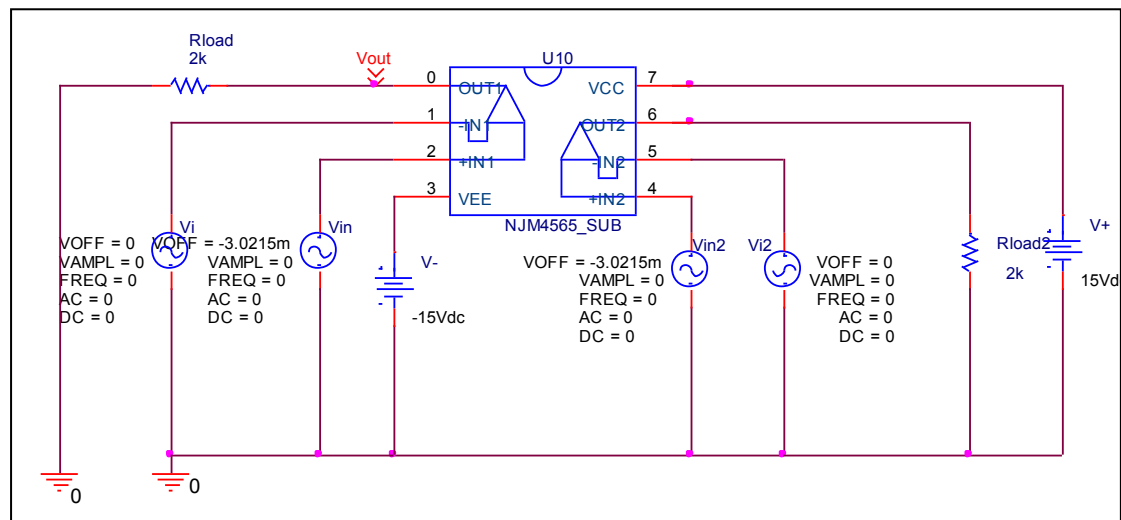
Slew Rate(v/us)	Data sheet	Simulation	%Error
		4V/us	4.06V/us

Input current Ib, Ibos

Simulation result



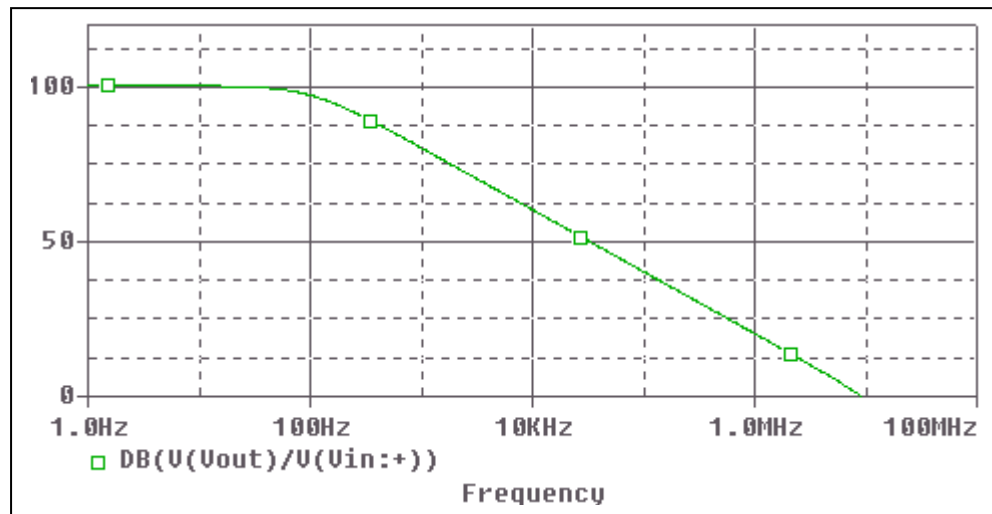
Evaluation circuit



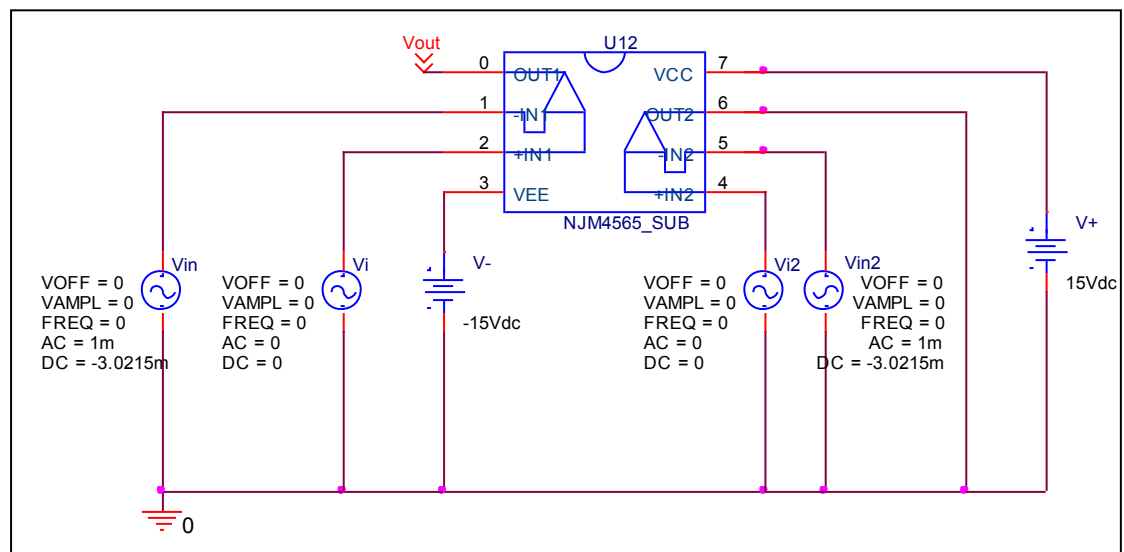
	Data sheet	Simulation	%Error
Ib(nA)	50	49.47	1.06
Ibos(nA)	2	2.035	1.75

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

Simulation result



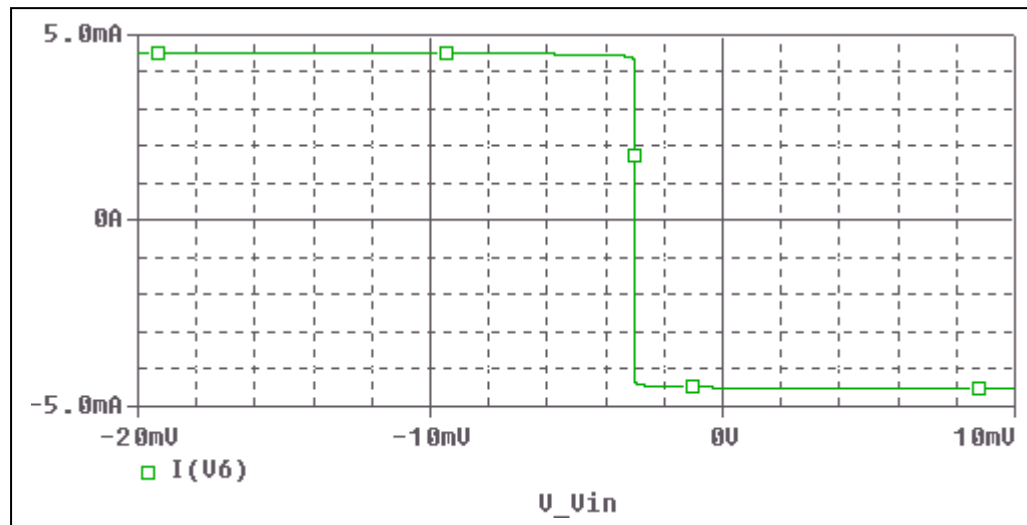
Evaluation circuit



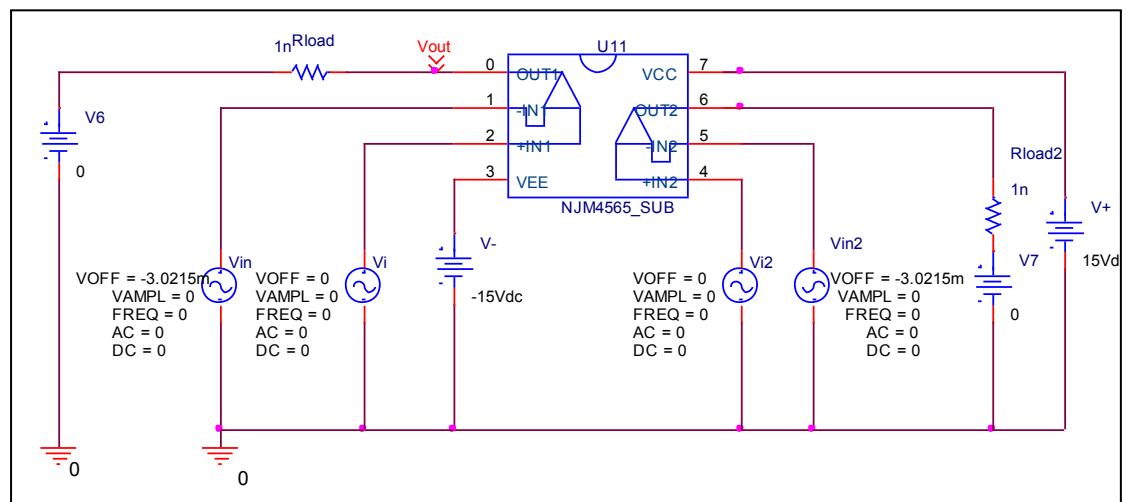
	Data sheet	Simulation	%Error
f-0dB(MHz)	10	10.6	4
Av-dc	100	100.3	0.3

Output Short Circuit Current - Ios

Simulation result



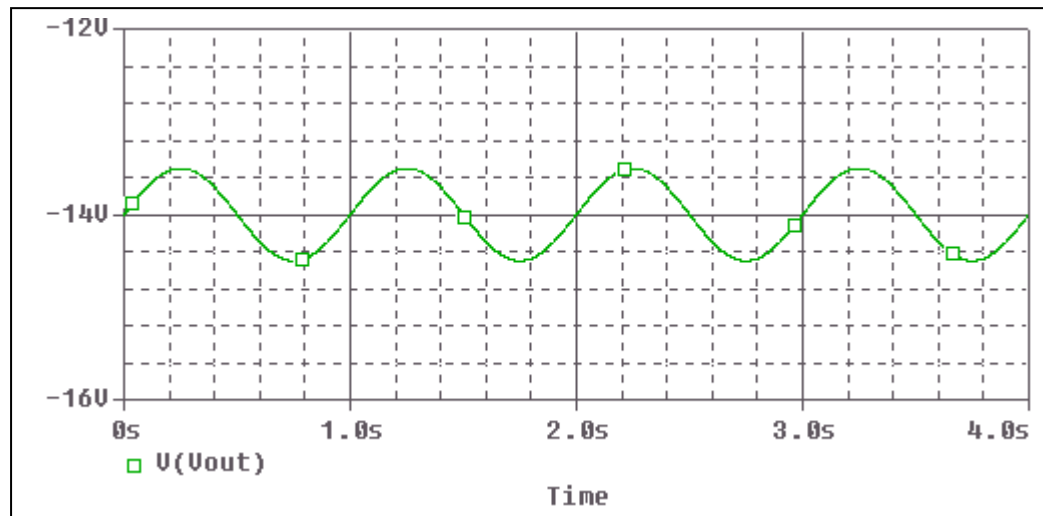
Evaluation circuit



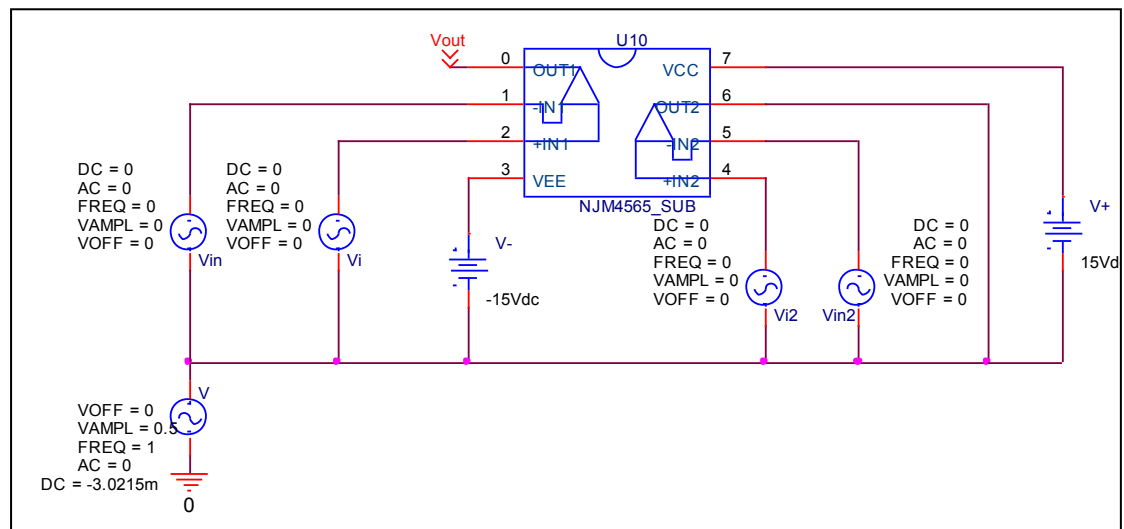
Short Circuit Current	Data sheet	Simulation	%Error
		4.5mA	4.51mA

Common-Mode Rejection Voltage gain

Simulation result



Evaluation circuit



Common mode gain=3.162/1

Common Mode Reject Ratio= $103514/3.16=32736$

CMRR	Data sheet	Simulation	%Error
		31623	32736