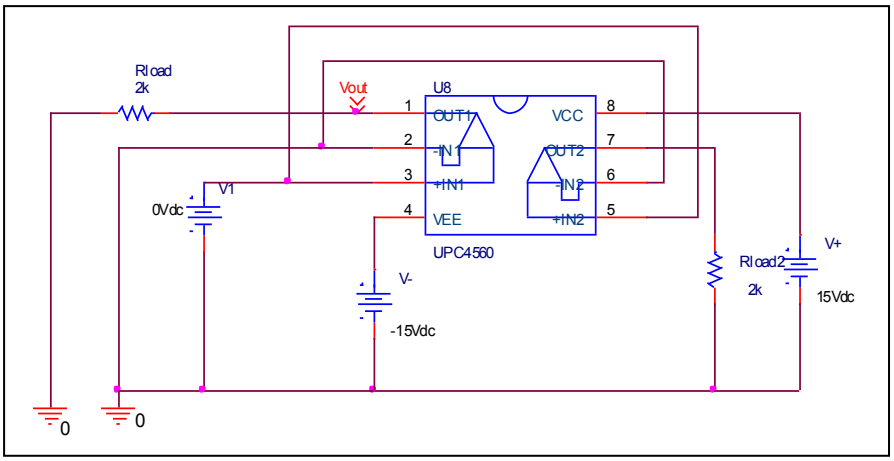
Device Modeling Report

COMPONENTS:MOSFET: OPERATIONAL AMPLIFIER
PART NUMBER:uPC4560G2
MANUFACTURER:NEC ELECTRONICS

Bee Technologies Inc.

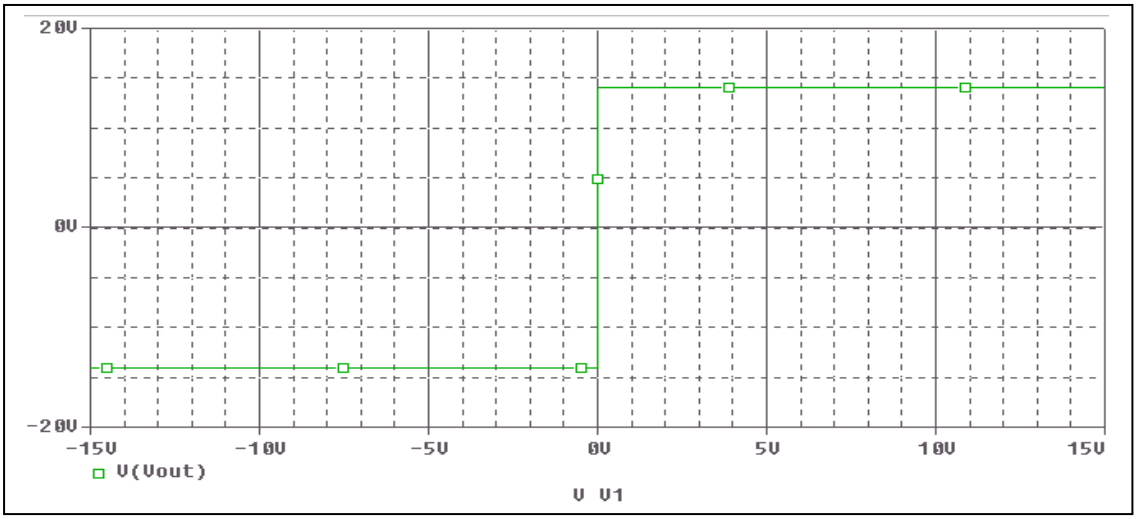
Output Voltage Swing, +Vout and –Vout

Evaluation circuit



The output voltage change of Opamp(open loop) when input DC voltage (Vin -Vi) is changed with the evaluation circuit is simulated

Simulation result

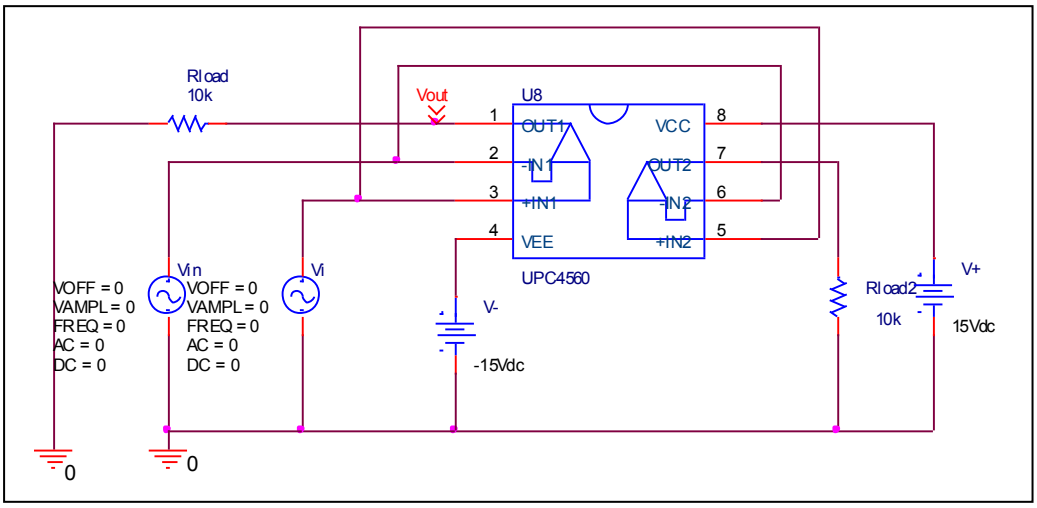


These simulation results are compared with +Vout

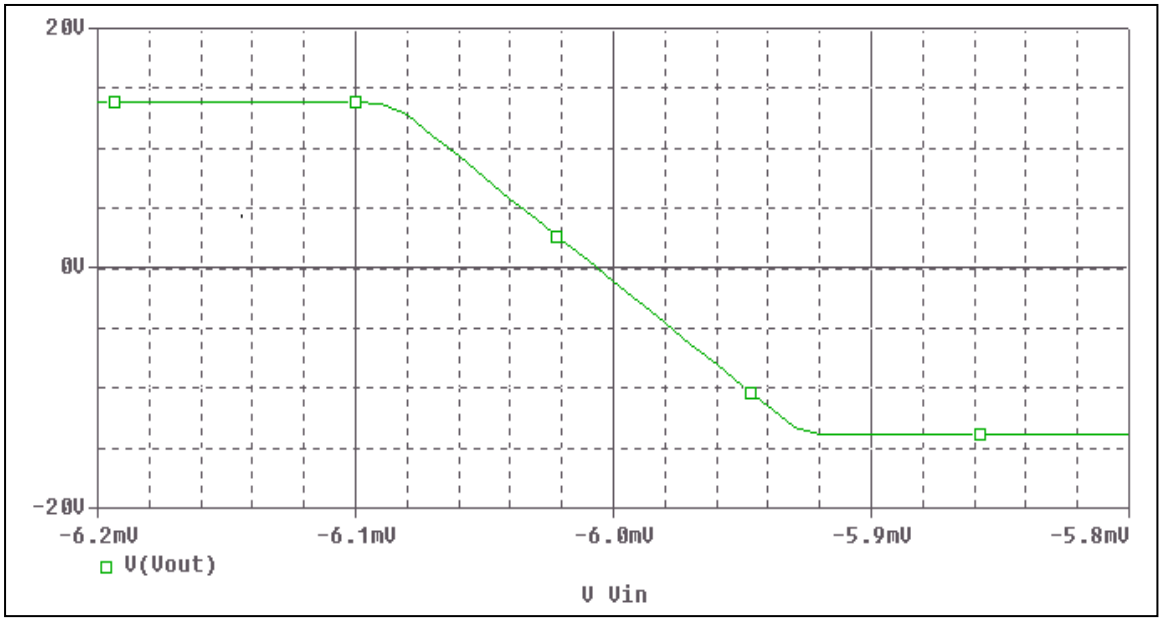
Output Voltage Swing	Data sheet	Simulation	%Error
+Vout(V)	+14	+13.996	0.02857
-Vout(V)	-14	-13.996	0.02857

Input Offset Voltage

Evaluation circuit



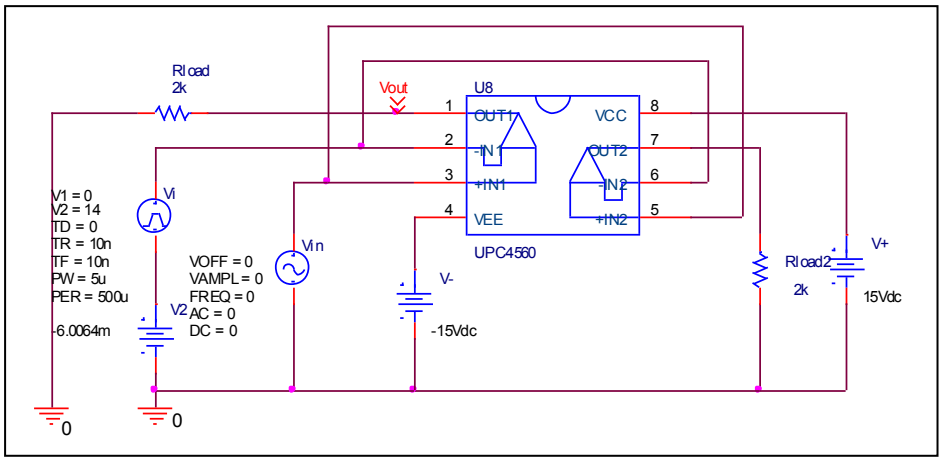
Simulation result



	Measurement		Simulation		Error	
Vos	6	mV	6.0064	mV	0.1066	%

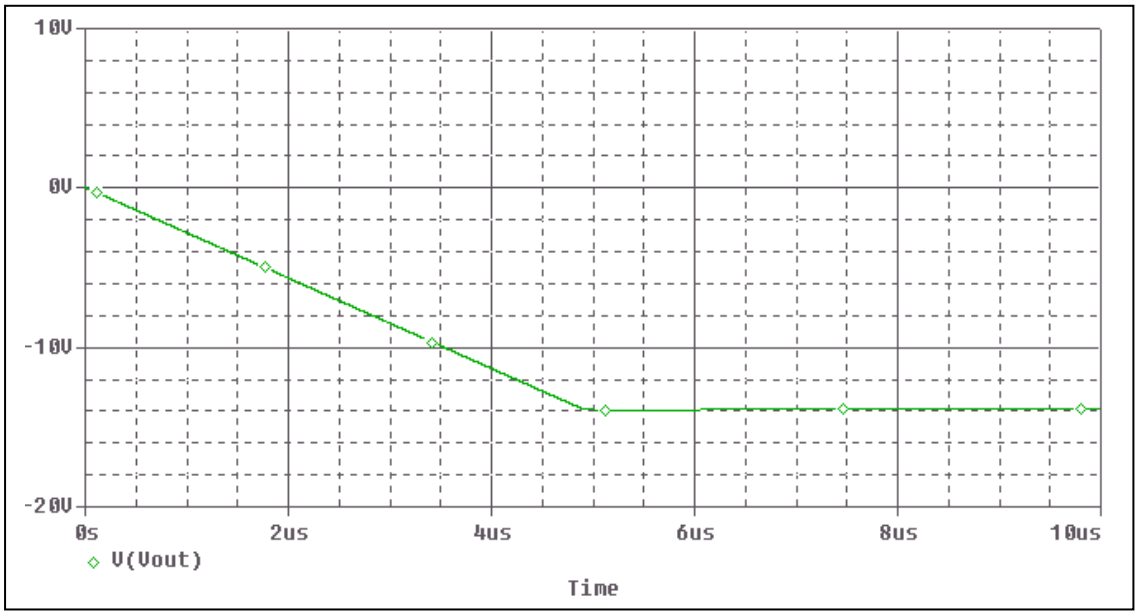
Slew Rate, +SR, -SR

Evaluation circuit



The output voltage change versus time (slope) of op-amp when input electric step voltage.

Simulation result

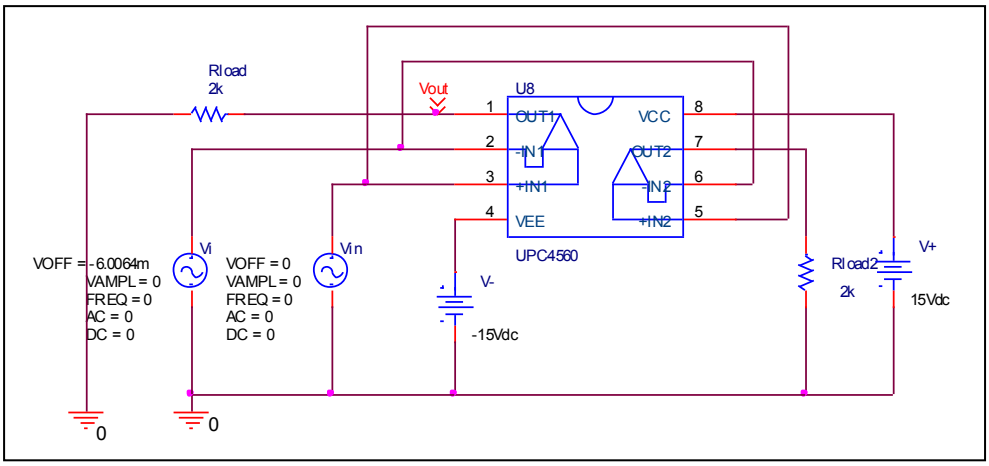


Output voltage change 2.8V in 1 us (If no good can change **C2** of Spice Model Editor)

Slew Rate(v/us)	Data sheet	Simulation	%Error
	2.8	2.8048	0.142

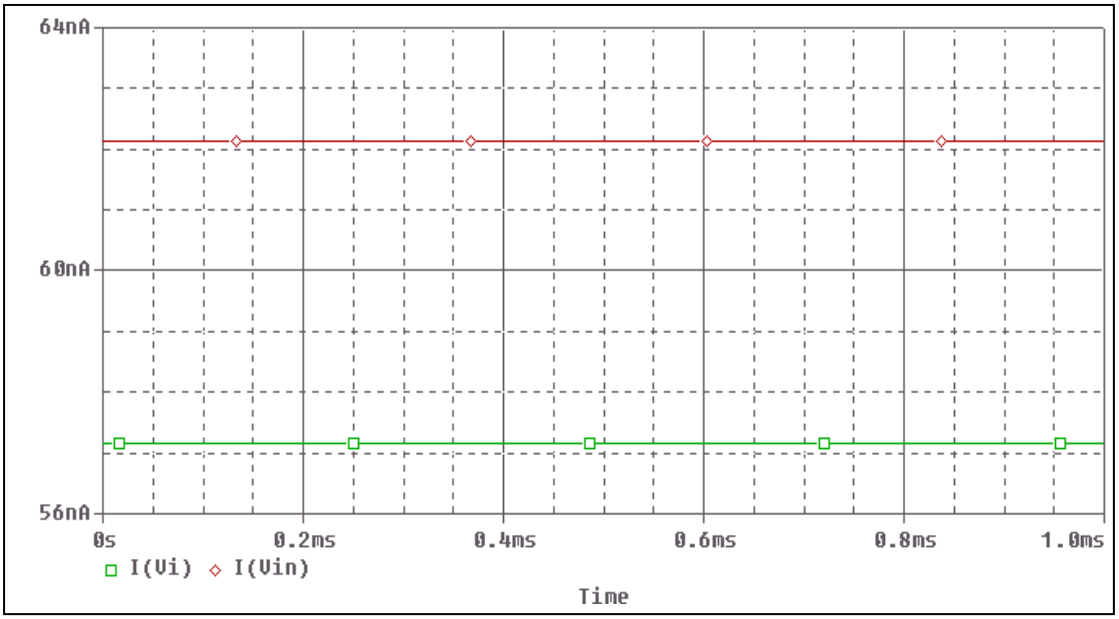
Input current Ib, Ibos

Evaluation circuit



The input offset current when supply voltage to op-amp

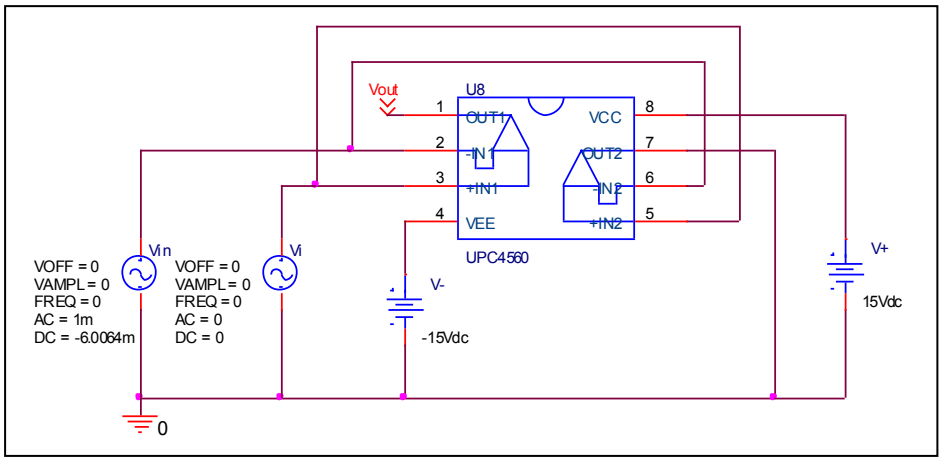
Simulation result



	Data sheet	Simulation	%Error
Ib(nA)	60	59.644	0.593
Ibos(nA)	5	4.986	0.28

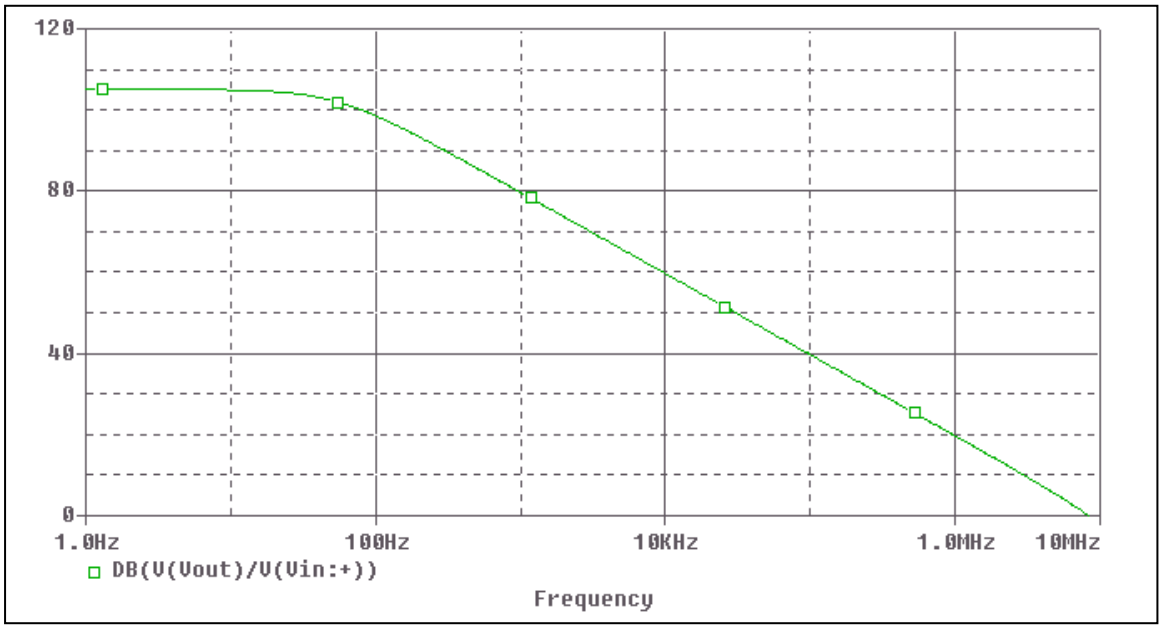
Open Loop Voltage Gain vs. Frequency , Av-dc, f-0dB

Evaluation circuit



The open loop voltage gain of op-amp when supply AC input voltage 1MHz frequecy

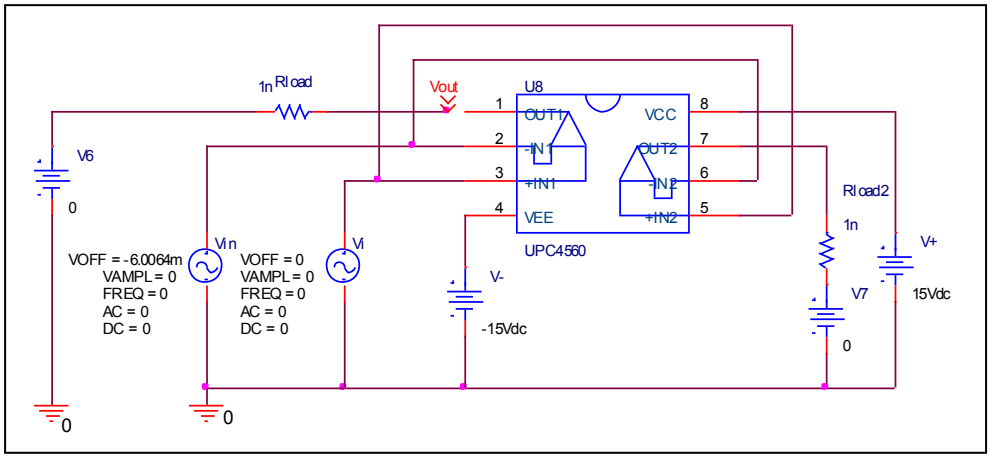
Simulation result



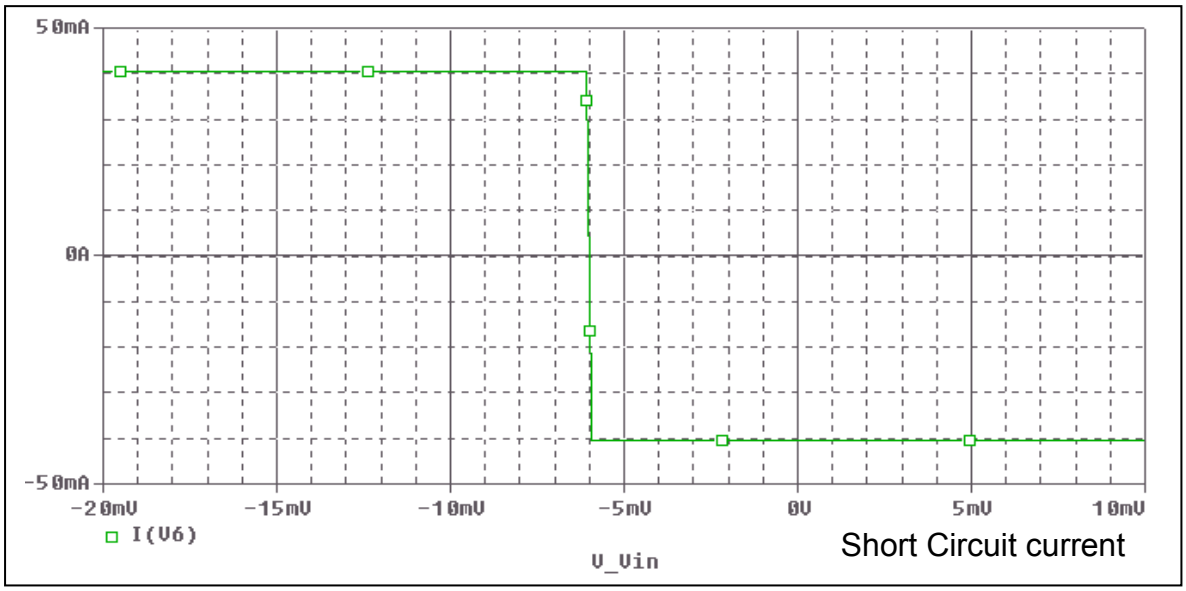
	Data sheet	Simulation	%Error
f-0dB(MHz)	8.5	8.31	2.35
Av-dc	180000	179411	0.327

Output Short Circuit Current - Ios

Evaluation circuit



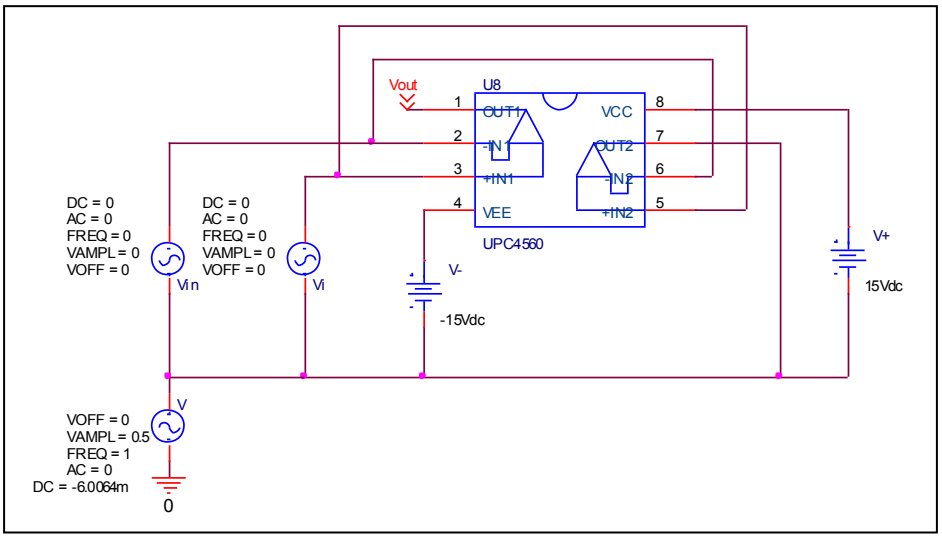
Simulation result



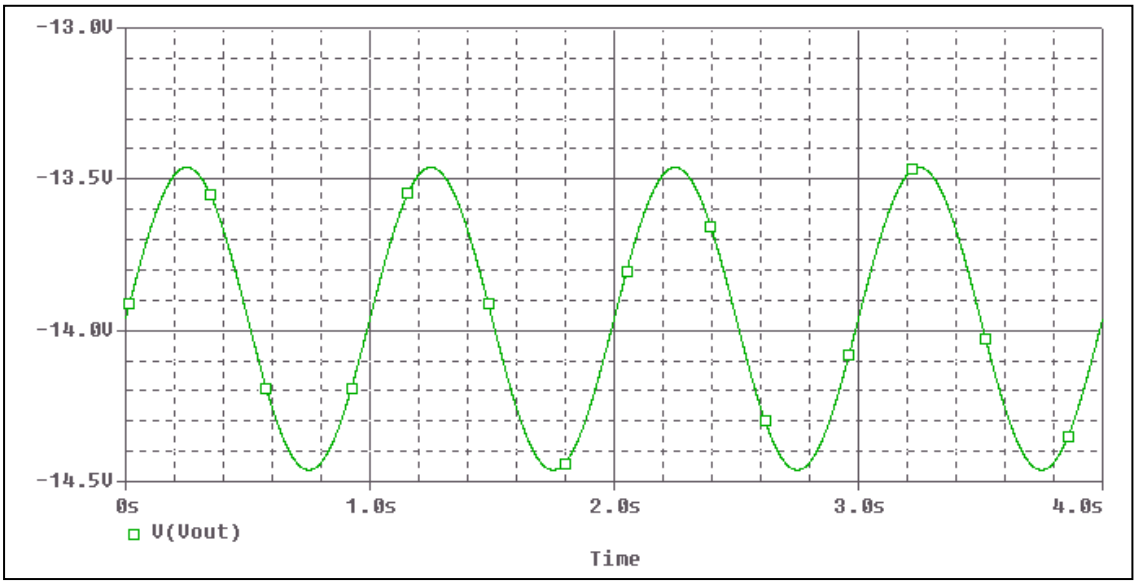
Short Circuit Current	Data sheet	Simulation	%Error
	40mA	40.621mA	1.55

Common-Mode Rejection Voltage gain

Evaluation circuit



Simulation result



Common mode gain=1/0.555
Common Mode Reject Ratio=179411/1.801=99617

CMRR	Data sheet	Simulation	%Error
	100000	99617	0.383