

Device Modeling Report

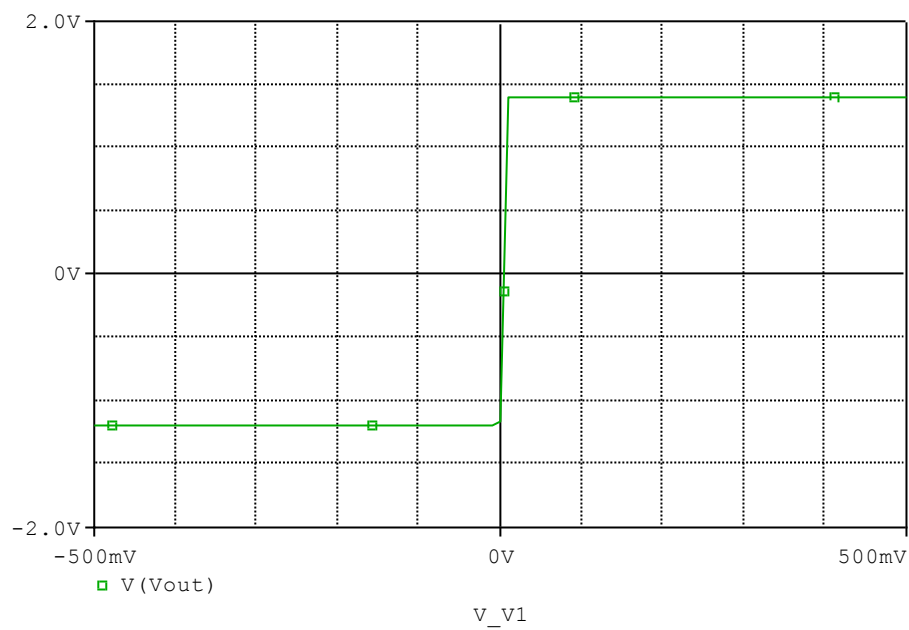
COMPONENTS:MOSFET: OPERATIONAL AMPLIFIER
PART NUMBER:NJM2138
MANUFACTURER: NEW JAPAN RADIO CO.,LTD



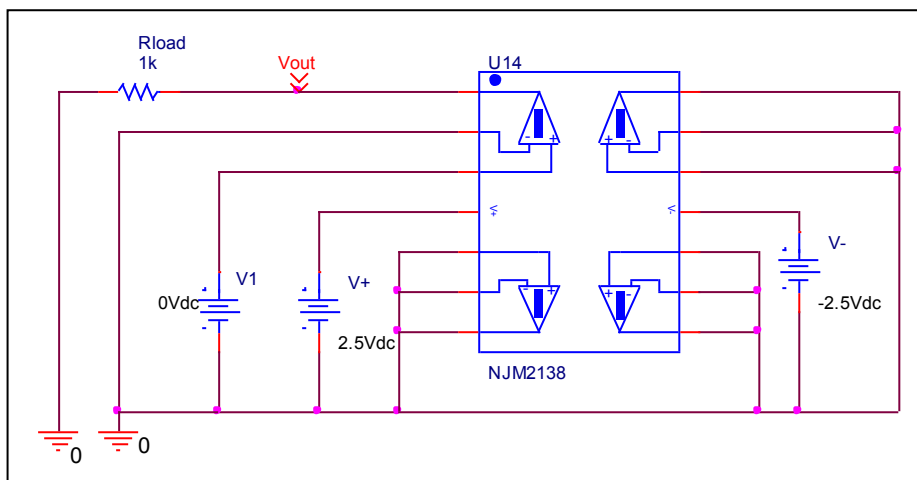
Bee Technologies Inc.

Output Voltage Swing, +Vout and -Vout

Simulation result



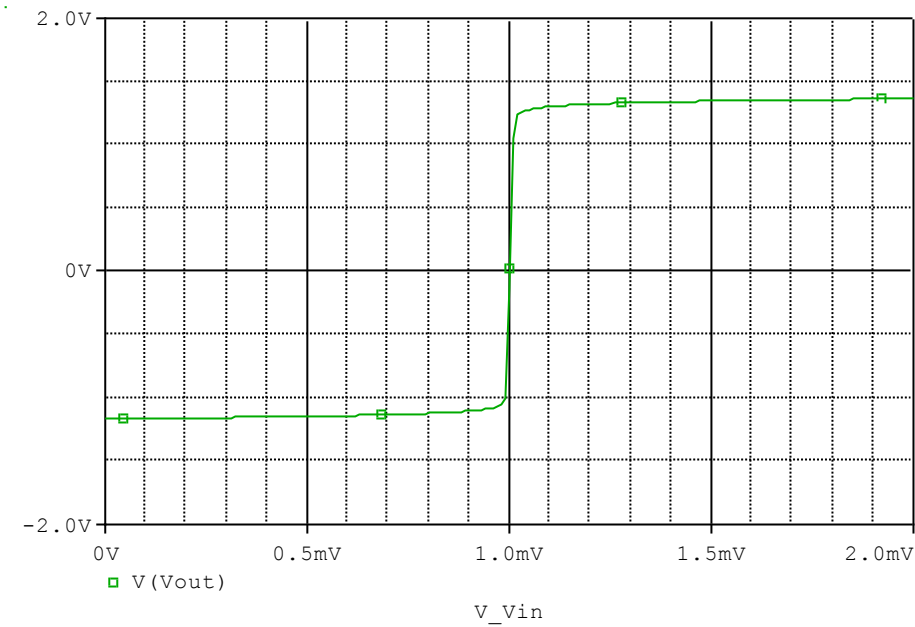
Evaluation circuit



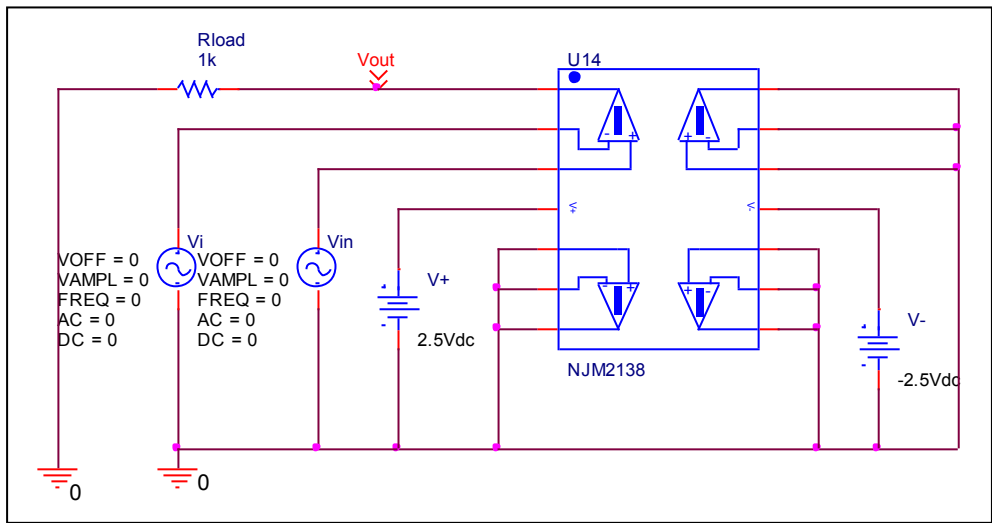
Output Voltage Swing	Data sheet	Simulation	%Error
+Vout(V)	1.400	1.400	0.000
-Vout(V)	1.200	1.200	0.000

Input Offset Voltage

Simulation result



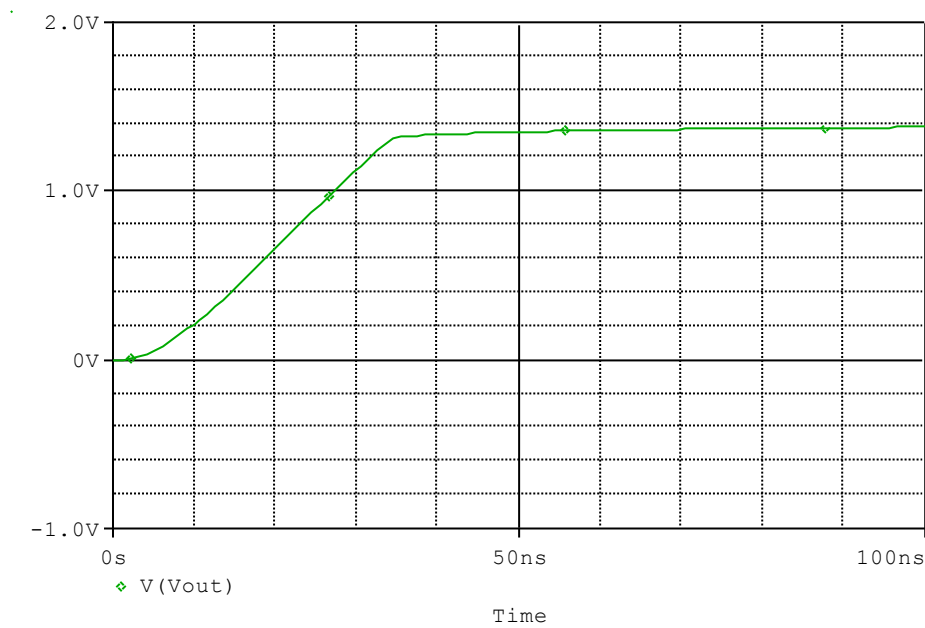
Evaluation circuit



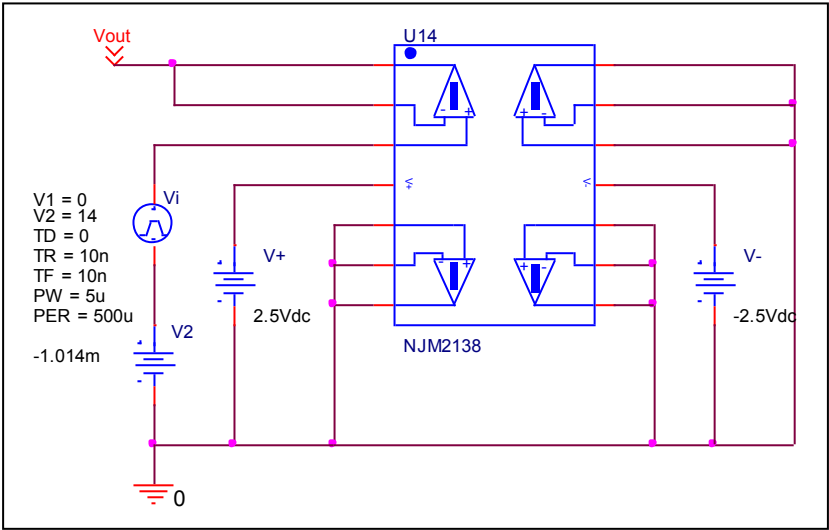
Vos	Measurement		Simulation		Error	
	1.000	mV	1.014	mV	1.400	%

Slew Rate, +SR, -SR

Simulation result



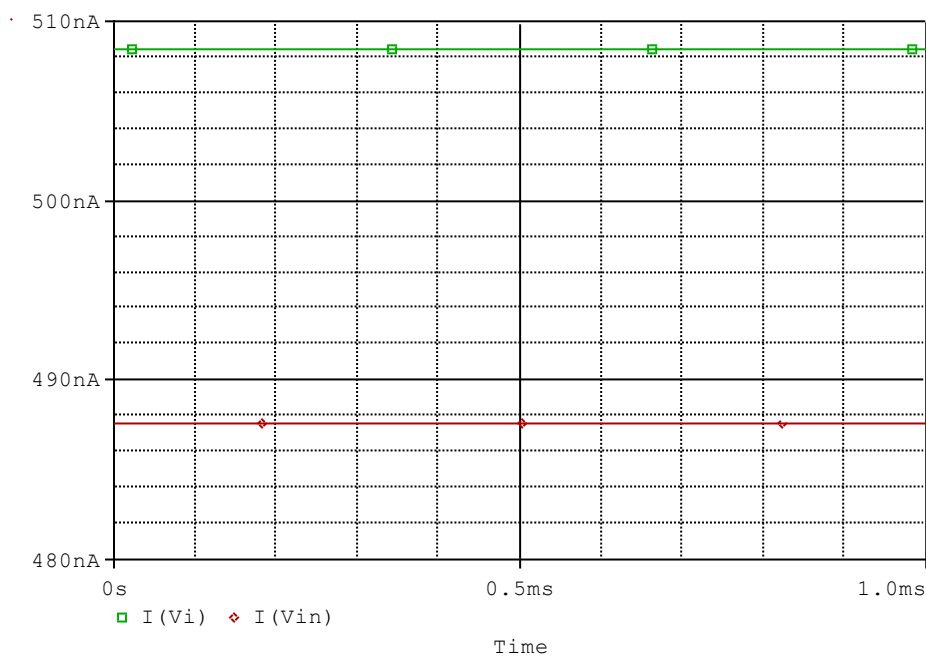
Evaluation circuit



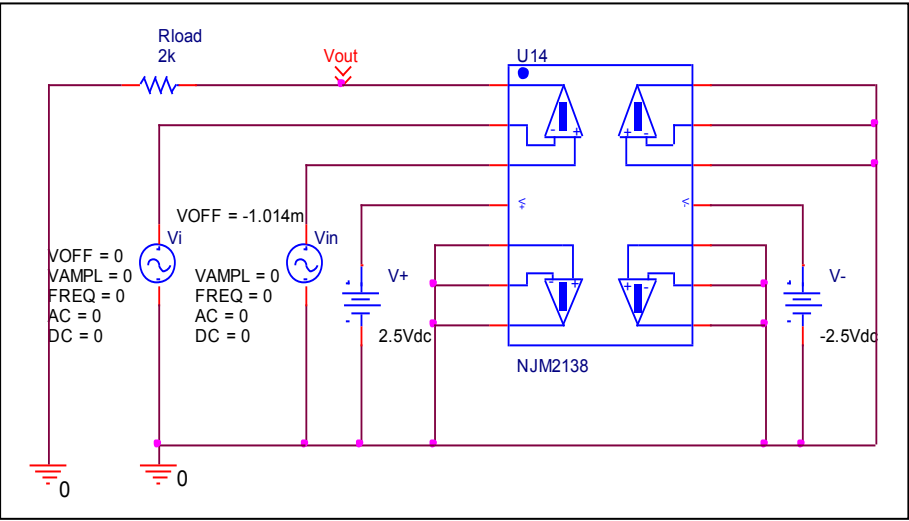
Slew Rate(v/us)	Data sheet	Simulation	%Error
	45.000V/us	44.600V/us	-0.889

Input current Ib, Ibos

Simulation result



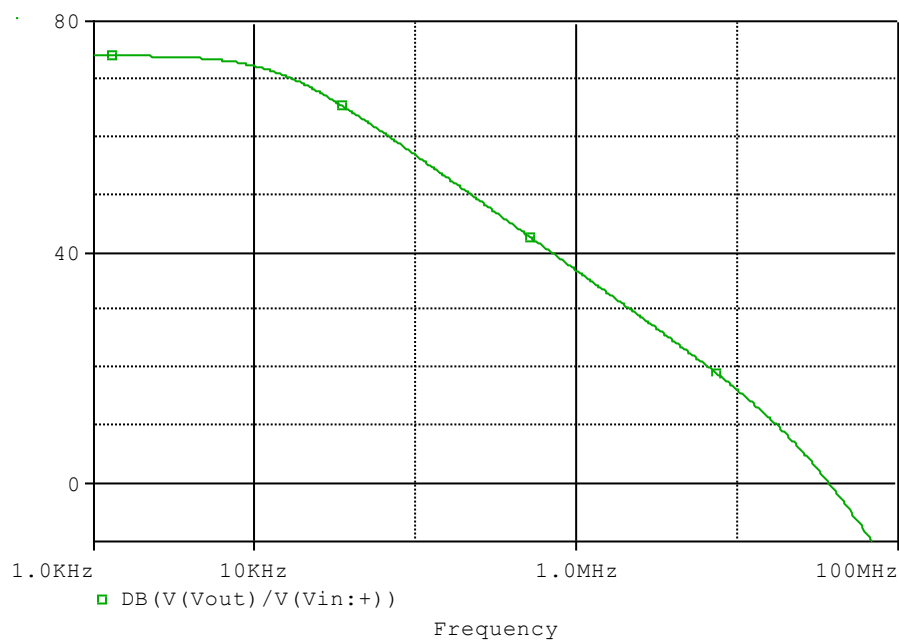
Evaluation circuit



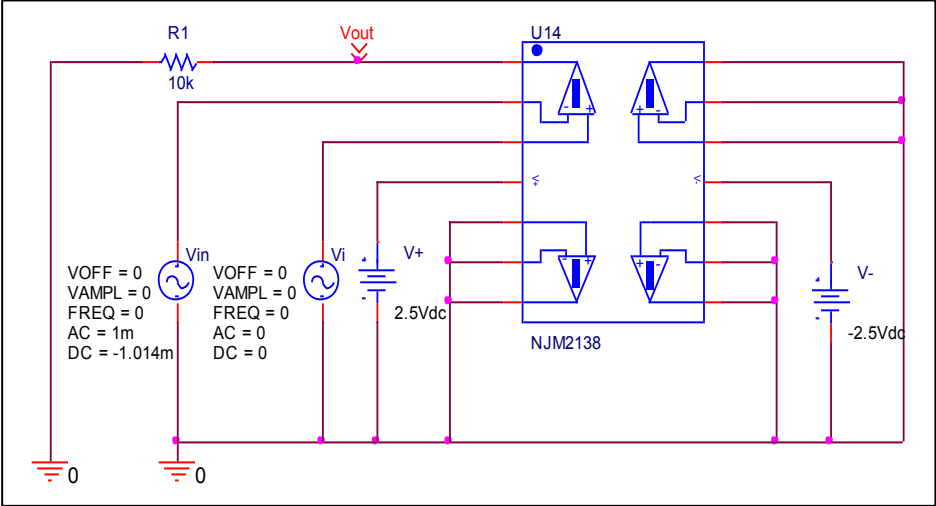
	Data sheet	Simulation	%Error
Ib(nA)	500.000	498.045	-0.391
Ibos(nA)	20.000	20.831	4.155

Open Loop Voltage

Simulation result



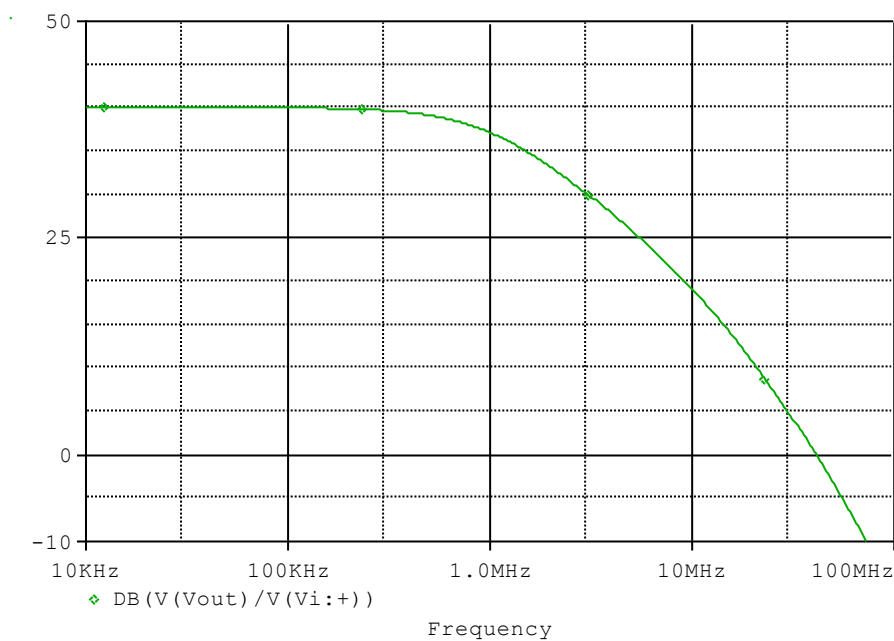
Evaluation circuit



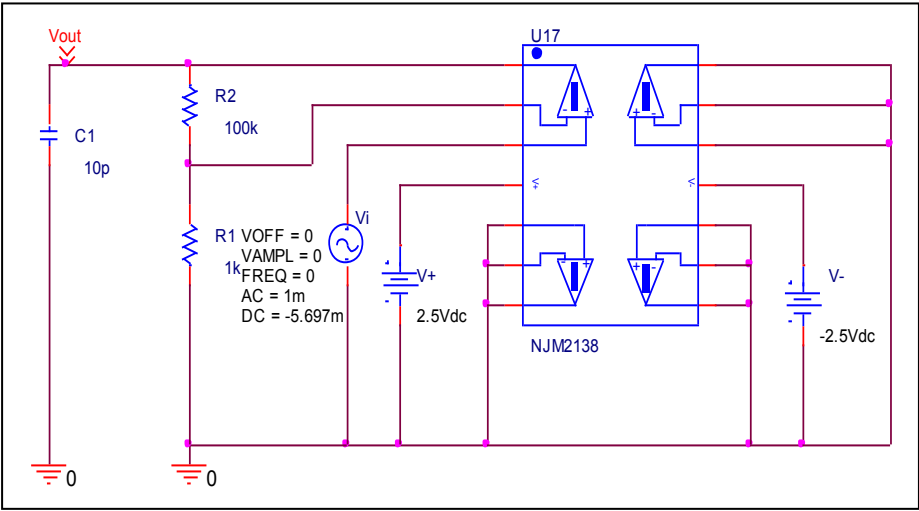
	Data sheet	Simulation	%Error
Av-dc(dB)	75.000	74.055	-1.260

Unity Gain Bandwidth

Simulation result



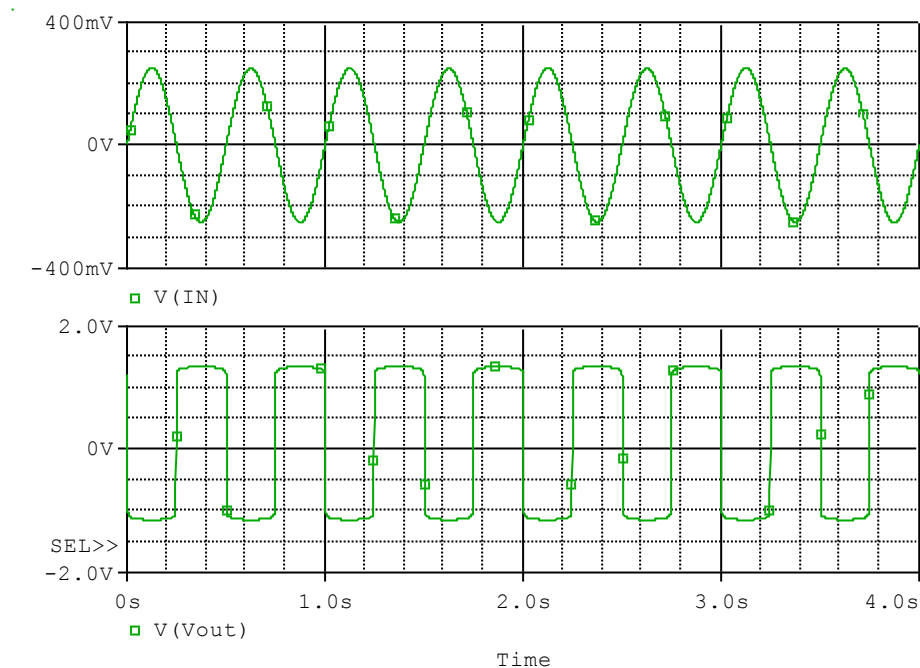
Evaluation circuit



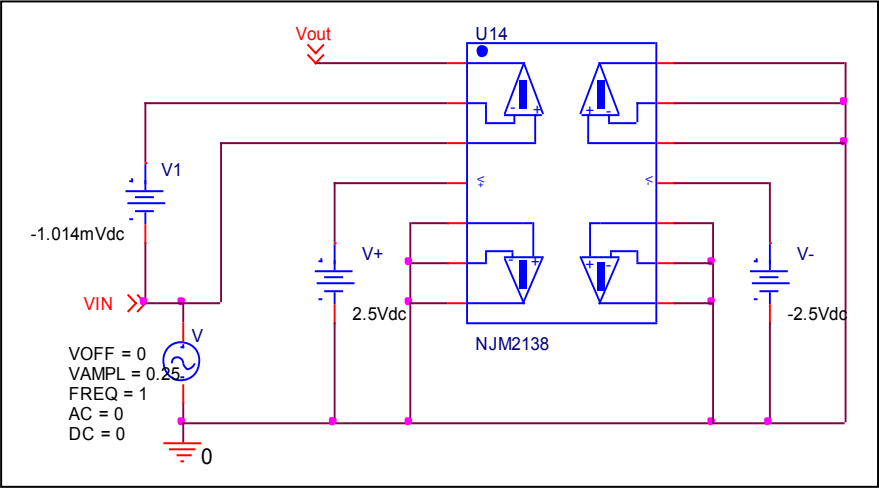
	Data sheet	Simulation	%Error
f-0dB(MHz)	40.000	40.561	1.403
Av-dc(dB)	40.000	40.077	0.192

Common-Mode Rejection Voltage gain

Simulation result



Evaluation circuit



Common Mode Reject Ratio= $5043.7/(2.485/0.5)=1014.83$

CMRR	Data sheet	Simulation	%Error
	60.000	60.127	0.212