

Device Modeling Report

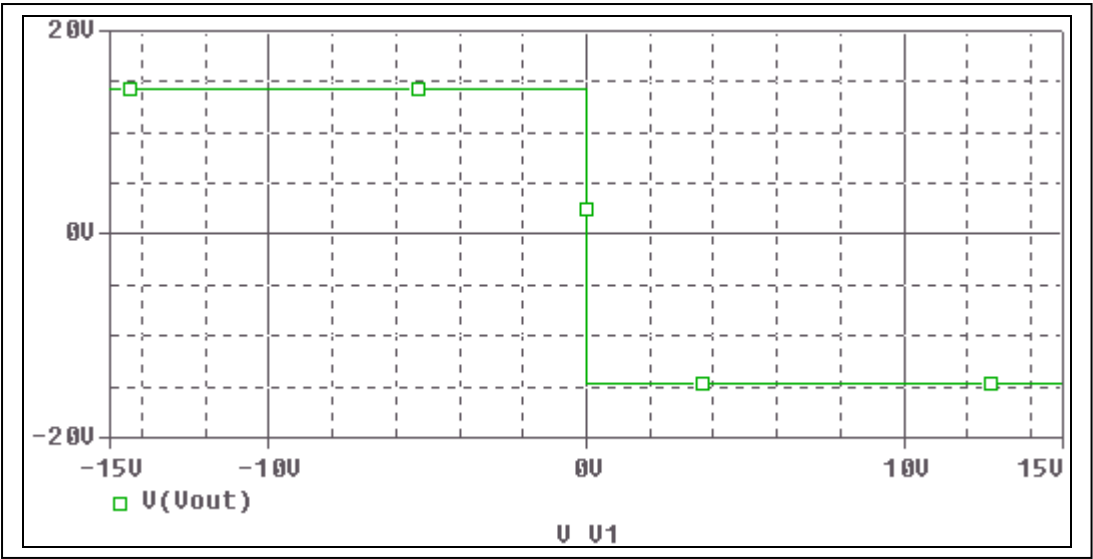
COMPONENTS: OPERATIONAL AMPLIFIER
PART NUMBER: MC33078
MANUFACTURER: STMicroelectronics



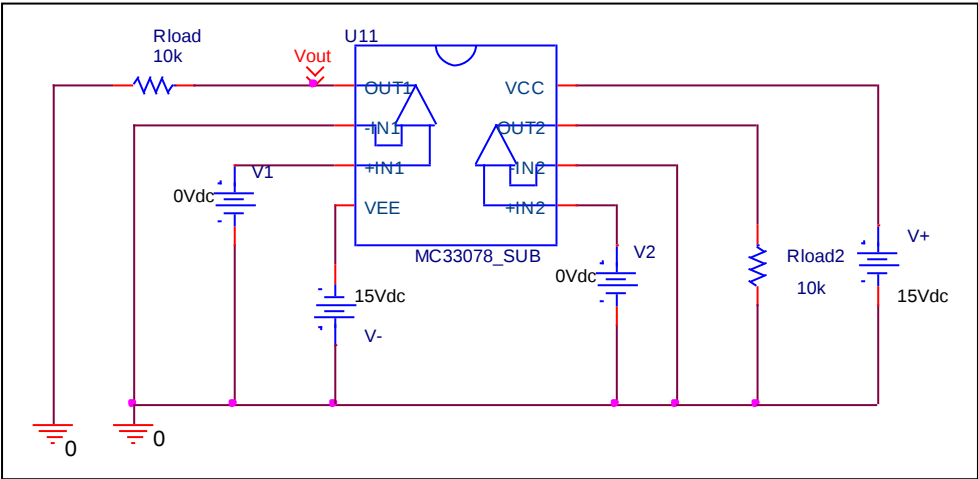
Bee Technologies Inc.

Output Voltage Swing, +Vout and -Vout

Simulation result



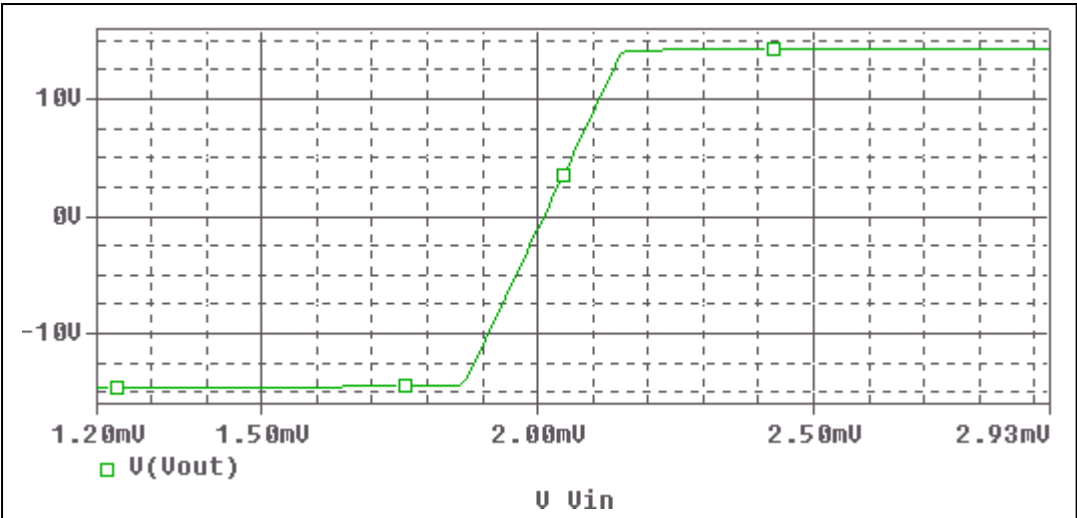
Evaluation circuit



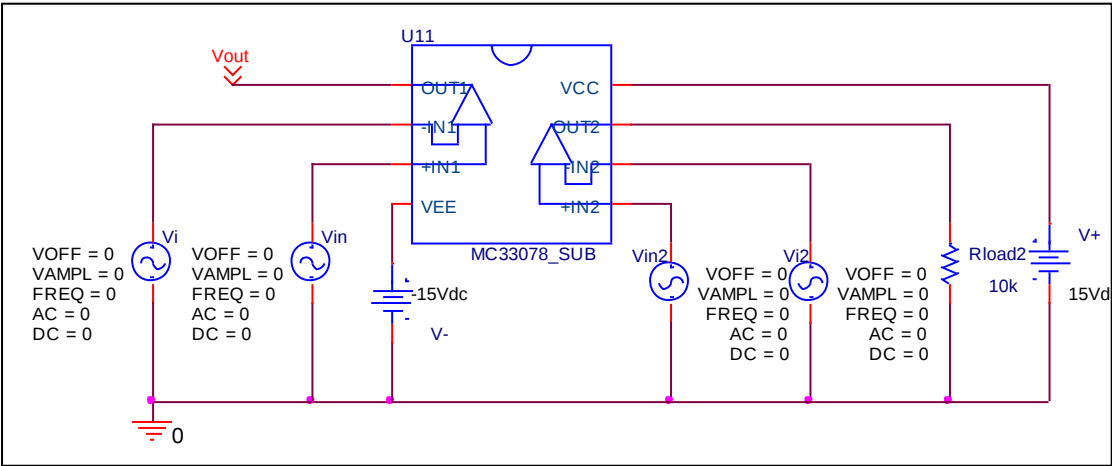
Output Voltage Swing	Data sheet	Simulation	%Error
+Vout(V)	+14.3	+14.309	0.062
-Vout(V)	-14.6	-14.609	0.061

Input Offset Voltage

Simulation result



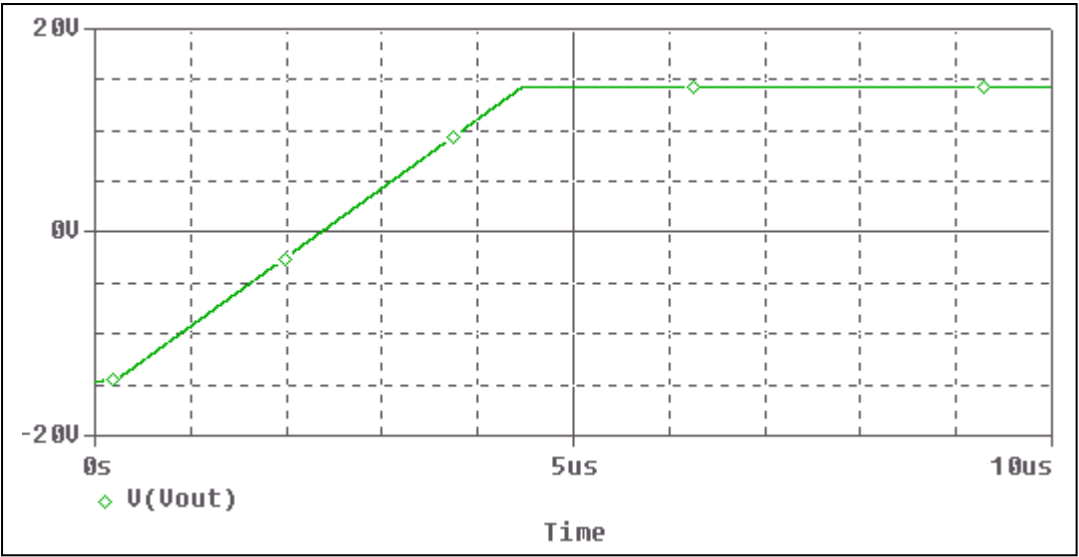
Evaluation circuit



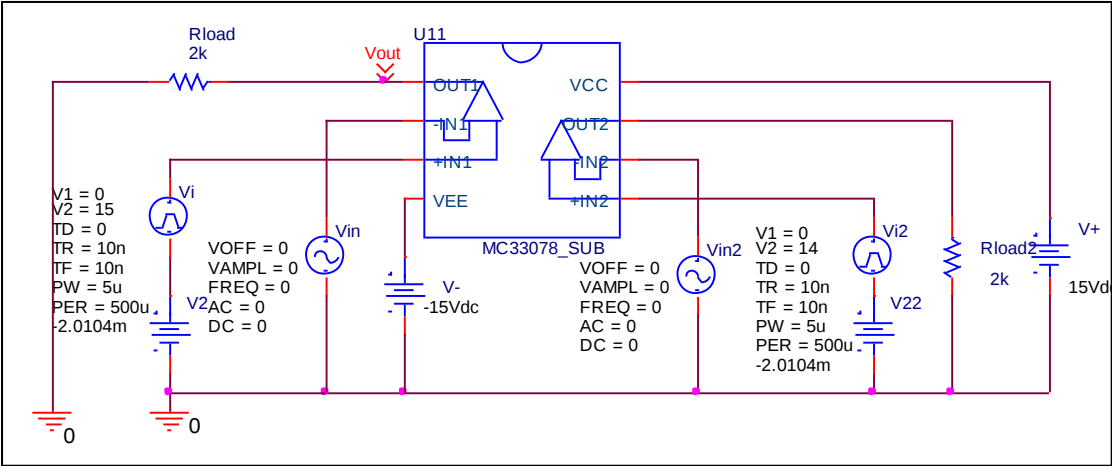
Vos	Measurement		Simulation		Error	
	2	mV	2.0104	mV	0.52	%

Slew Rate, +SR, -SR

Simulation result



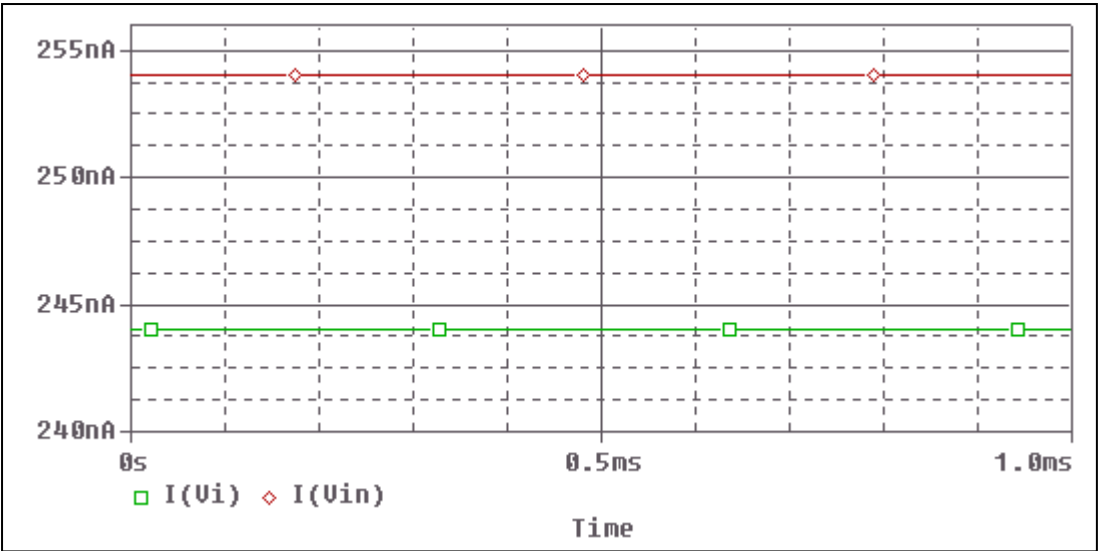
Evaluation circuit



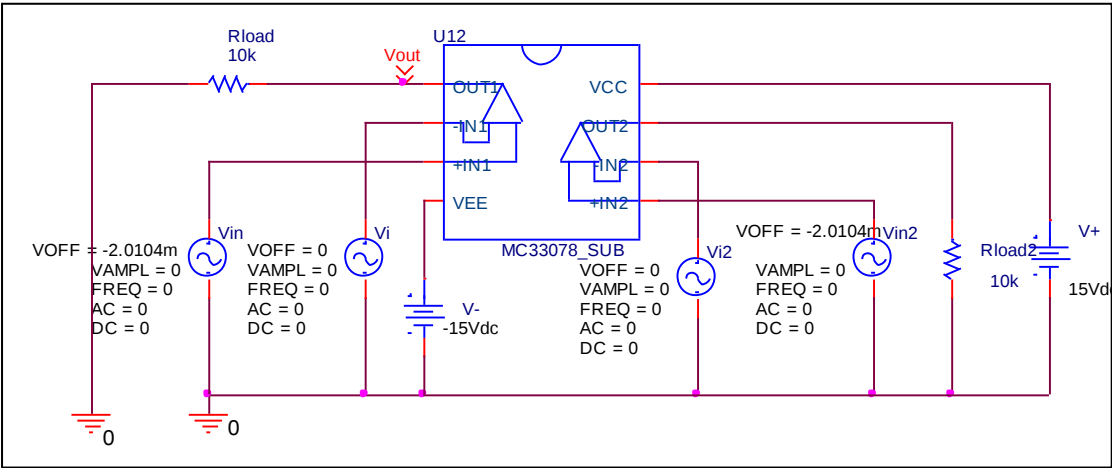
Slew Rate(v/us)	Data sheet	Simulation	%Error
	7V/us	6.787V/us	3.04

Input current Ib, Ibos

Simulation result



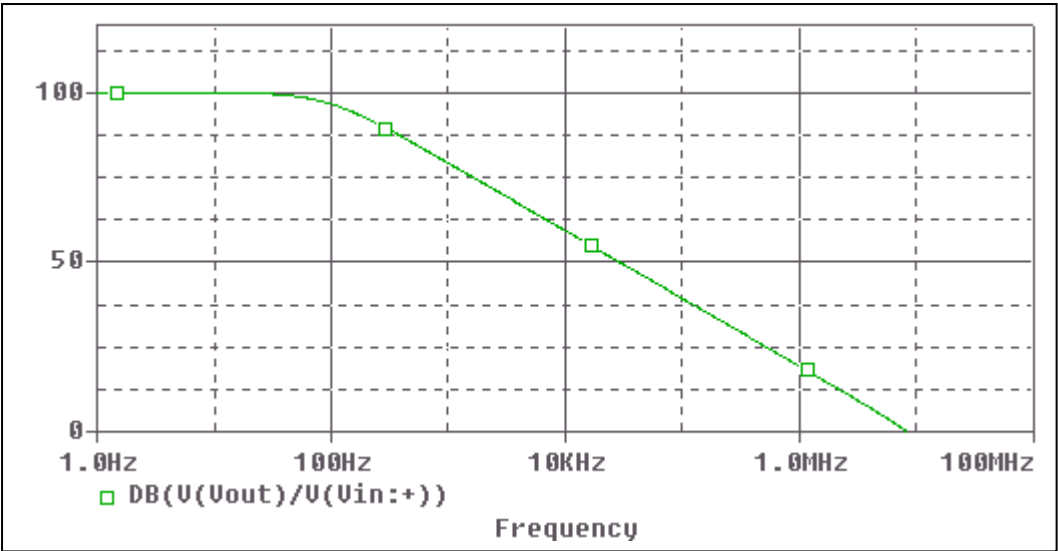
Evaluation circuit



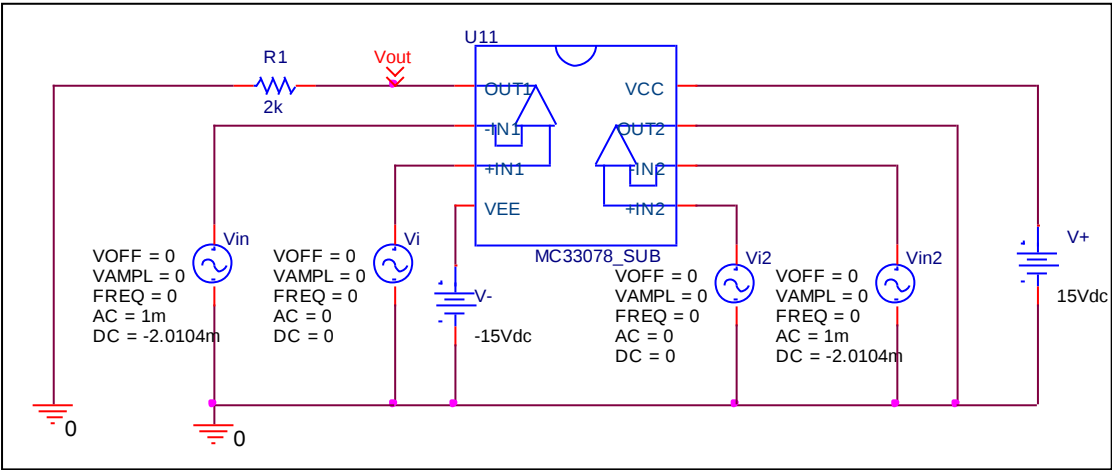
	Data sheet	Simulation	%Error
Ib(nA)	250	249	0.4
Ibos(nA)	10	10.007	0.07

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

Simulation result



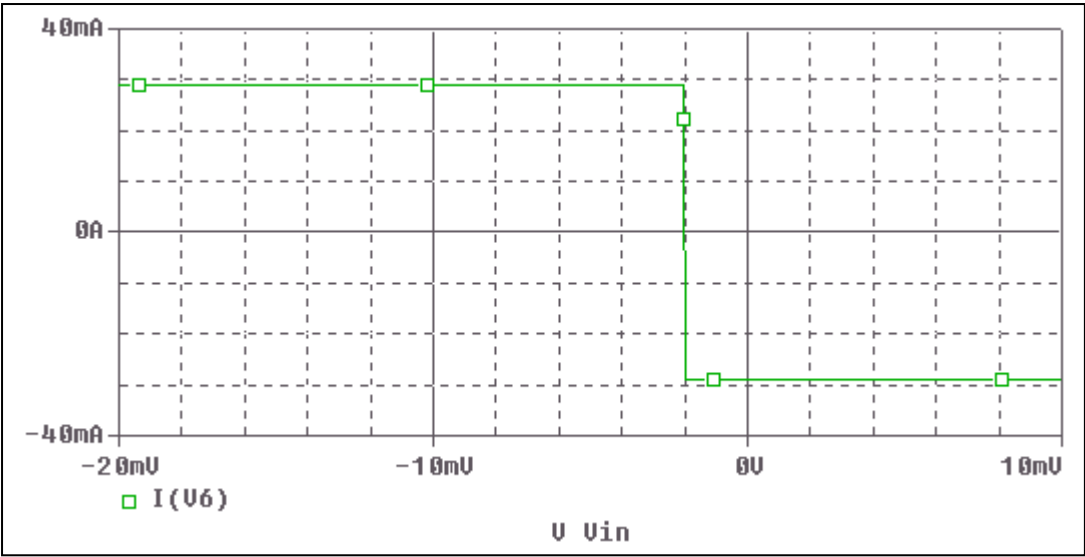
Evaluation circuit



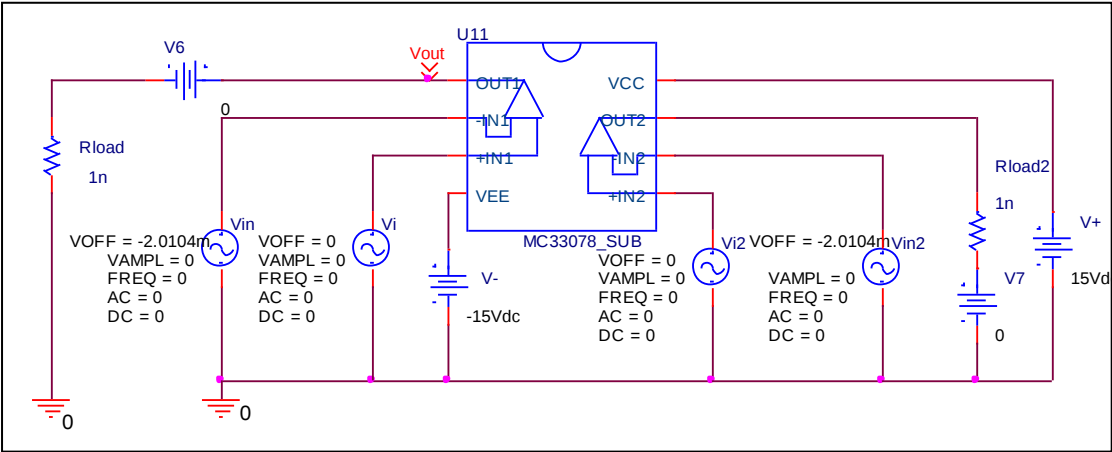
	Data sheet	Simulation	%Error
f-0dB(MHz)	9	8.688	3.466
Av-dc(dB)	100	100.108	0.108

Output Short Circuit Current - Ios

Simulation result



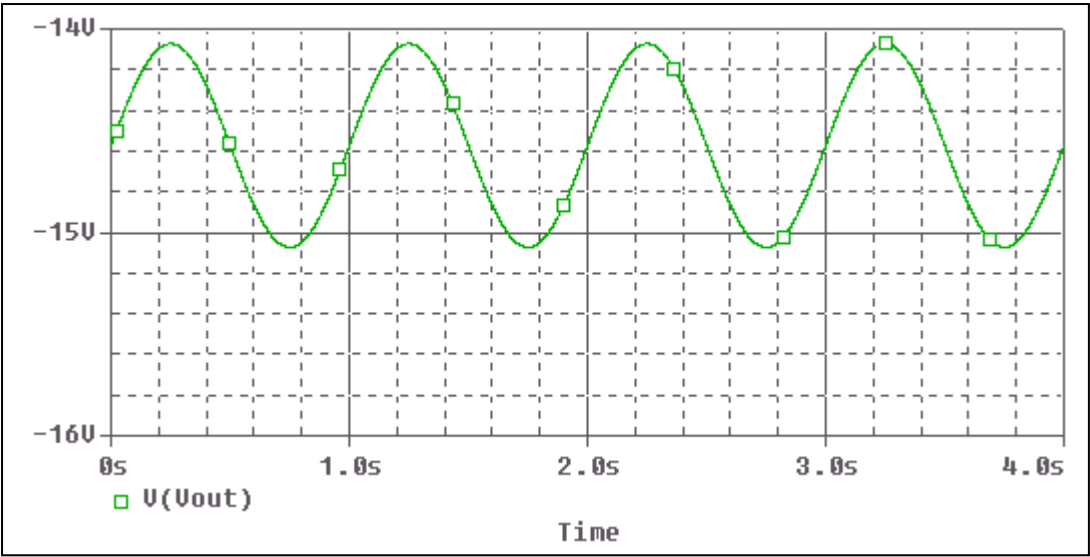
Evaluation circuit



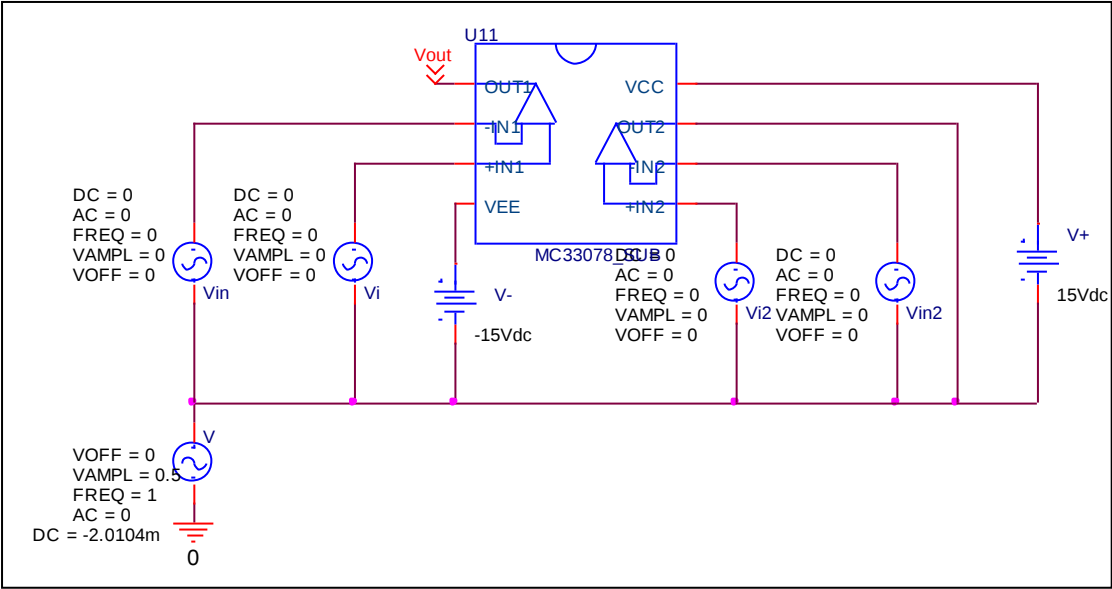
Short Circuit Current	Data sheet	Simulation	%Error
	29mA	29.089mA	0.306

Common-Mode Rejection Voltage gain

Simulation result



Evaluation circuit



Common mode gain=1/1
Common Mode Reject Ratio=101251/1=101251

CMRR	Data sheet	Simulation	%Error
	100000	101251	1.251