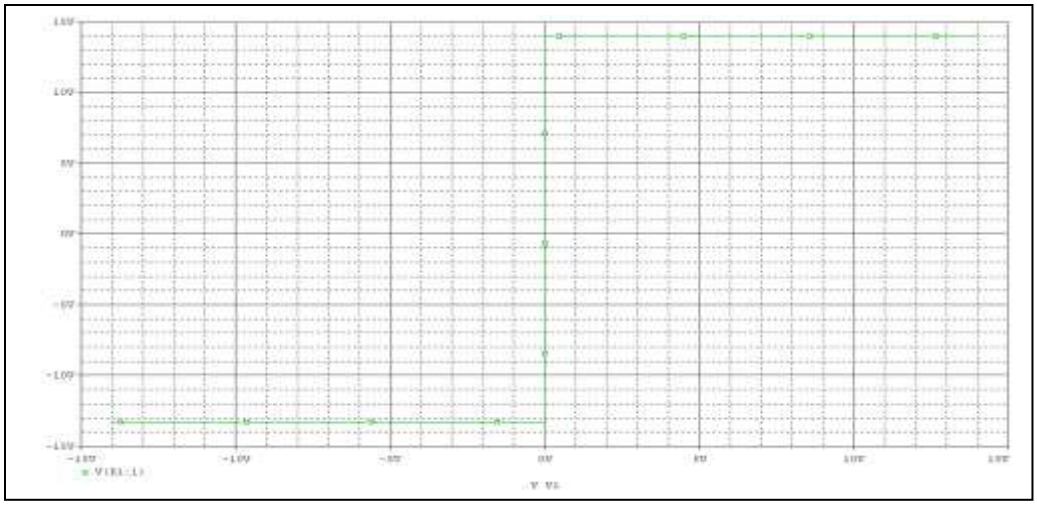
Device Modeling Report

COMPONENTS: Operational Amplifier PJFET Input
PART NUMBER: uPC4093C
MANUFACTURER: NEC ELECTRONICS

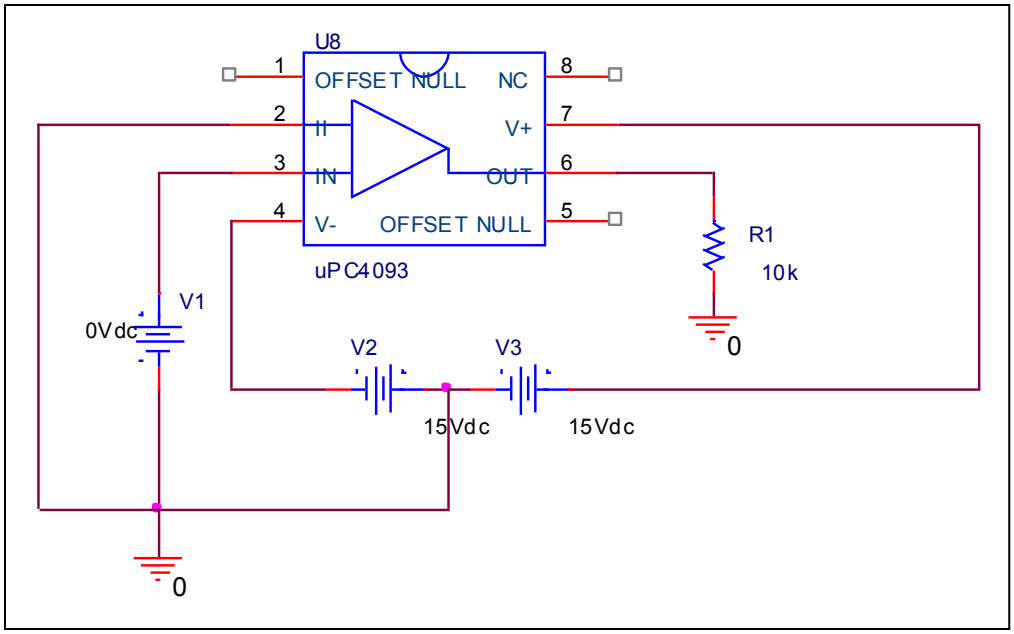
Bee Technologies Inc.

Output Voltage Swing (±Vpwr = ±15)

Circuit Simulation Result



Evaluation circuit

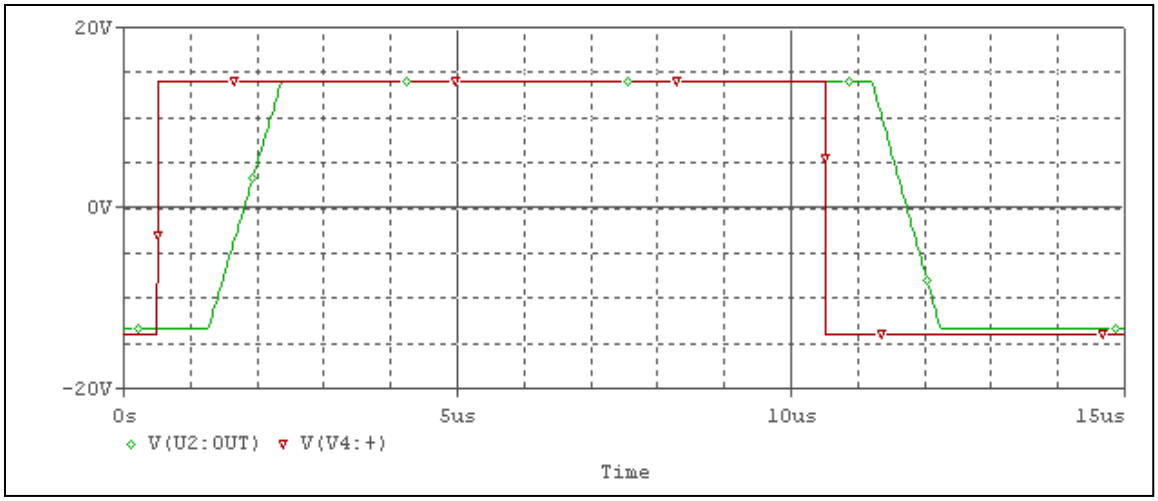


Compare Measurement vs. Simulation

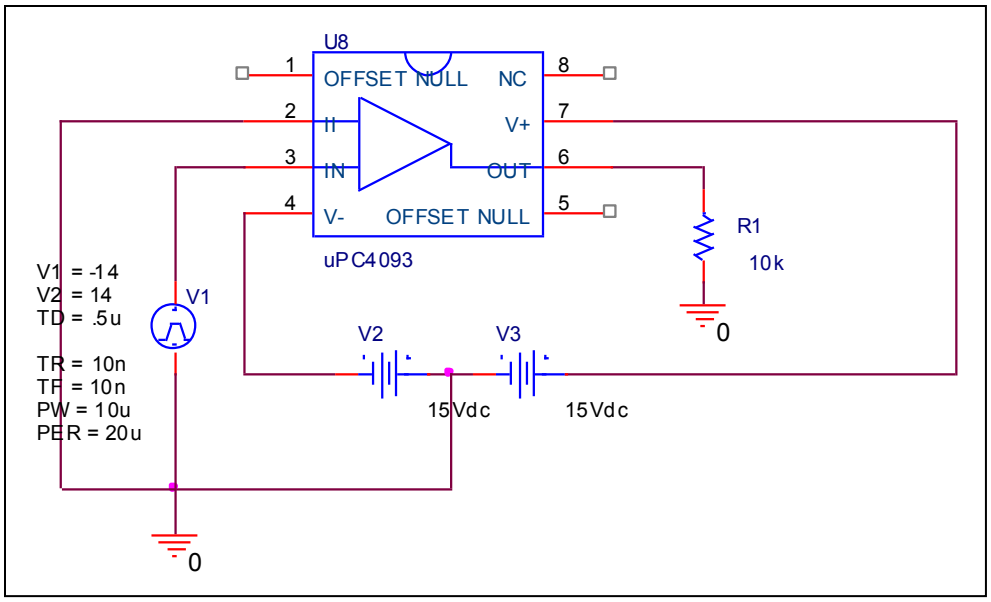
	Measurement		Simulation		Error	
+Vout	14	V	13.986	V	0.1	%
-Vout	-13.3	V	-13.287	V	1.3	%

Slew Rate

Circuit Simulation Result



Evaluation circuit

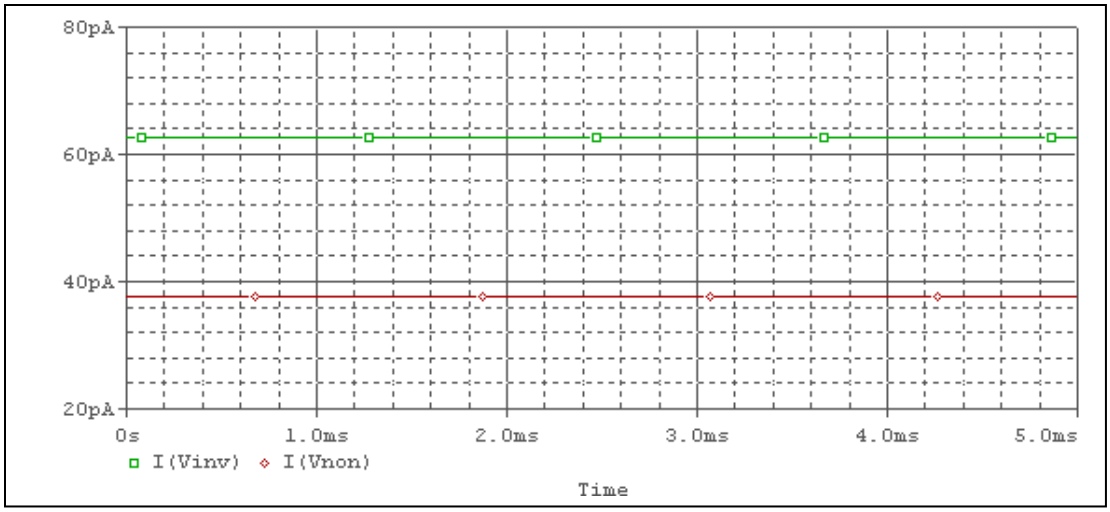


Compare Measurement vs. Simulation

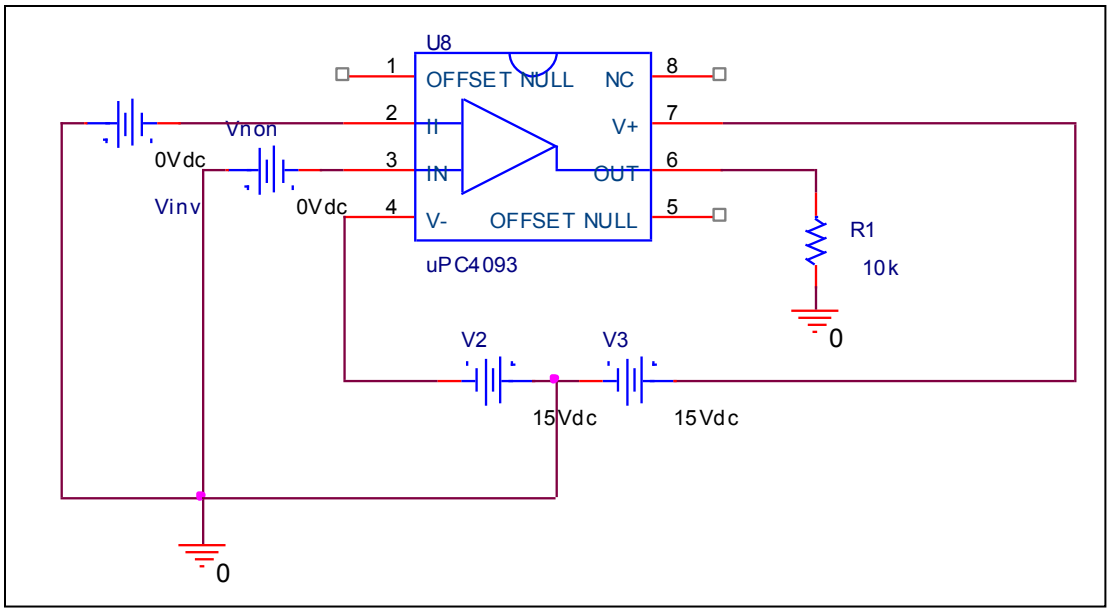
	Measurement		Simulation		Error	
+SR	+25	V/us	+24.912	V/us	0.352	%
-SR	-25	V/us	-26.5	V/us	6	%

Input Bias Current

Circuit Simulation Result



Evaluation circuit

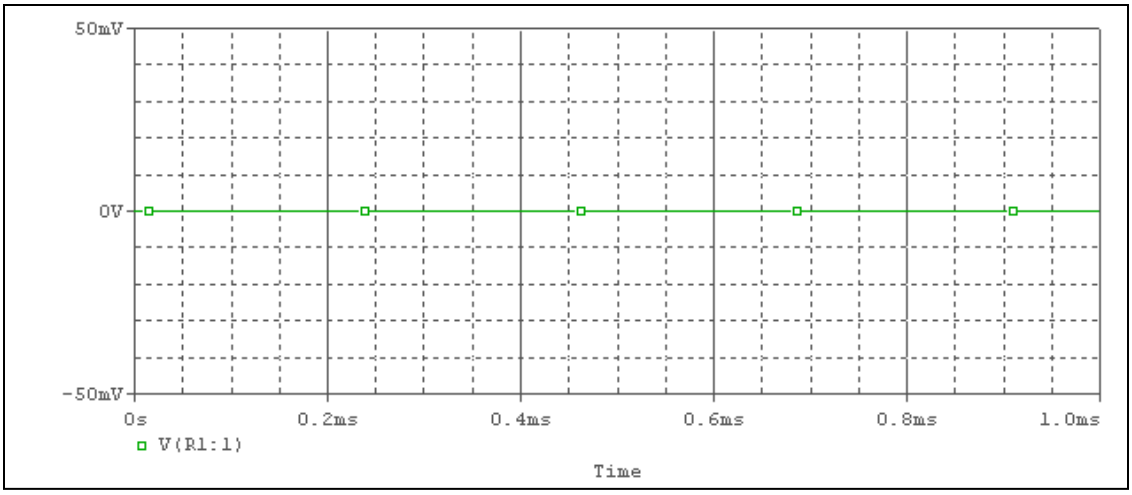


Compare Measurement vs. Simulation

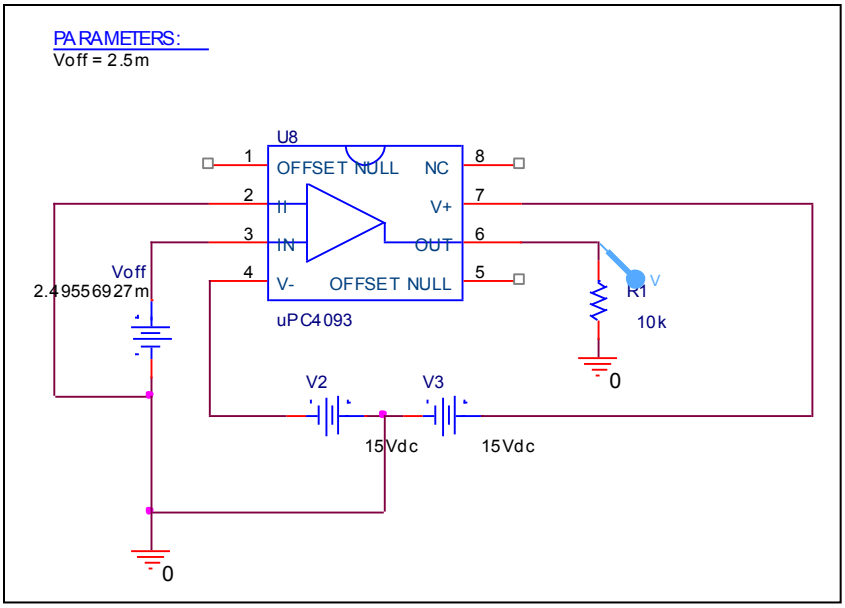
	Measurement		Simulation		Error	
Ib	50	pA	50.198	nA	0.396	%
Ibos	25	pA	25.004	nA	0.016	%

Input Offset Voltage

Circuit Simulation Result



Evaluation circuit

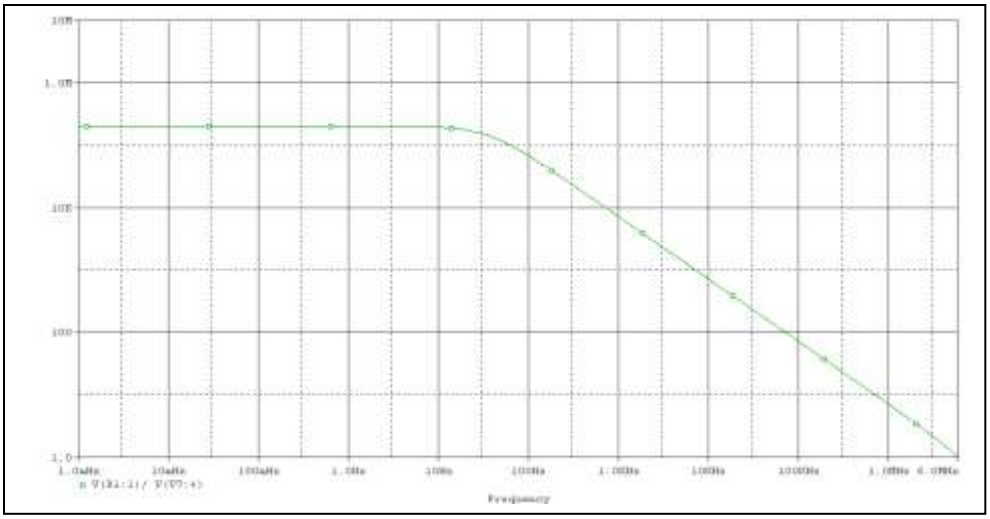


Compare Measurement vs. Simulation

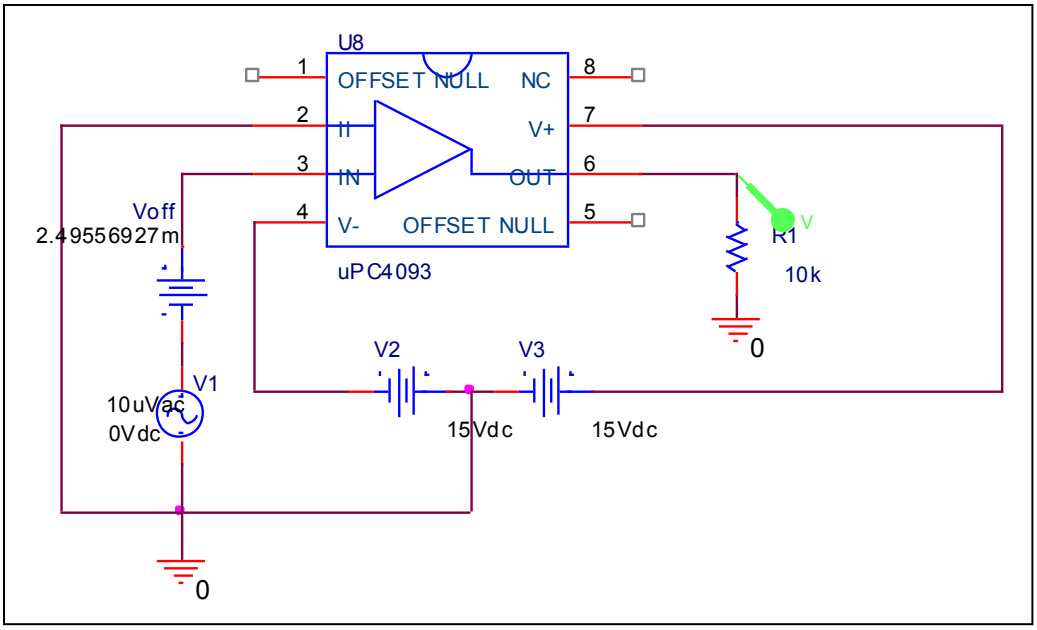
	Measurement		Simulation		Error	
Vos	2.5	mV	2.49556927	mV	0.1772292	%

Open Loop Gain (DC) and Unity Gain Frequency

Circuit Simulation Result



Evaluation circuit

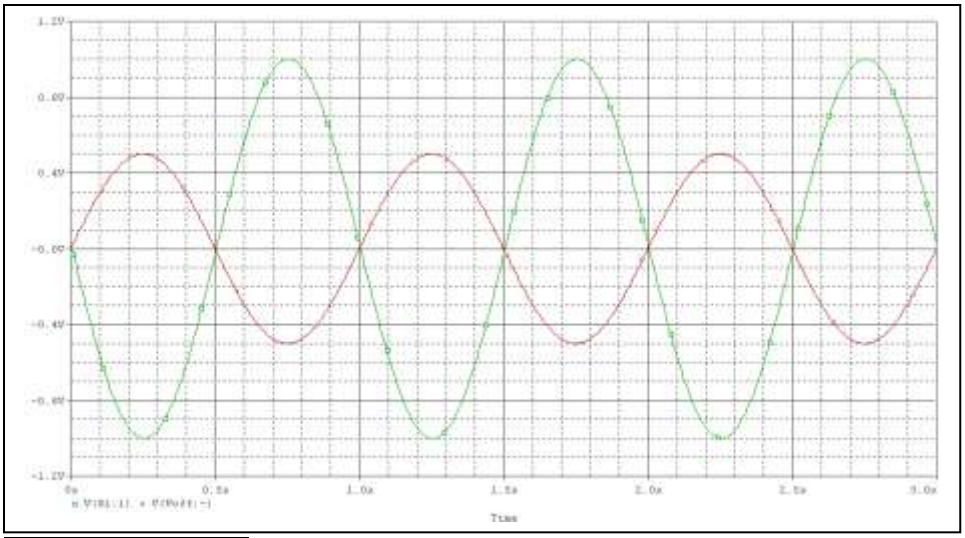


Compare Measurement vs. Simulation

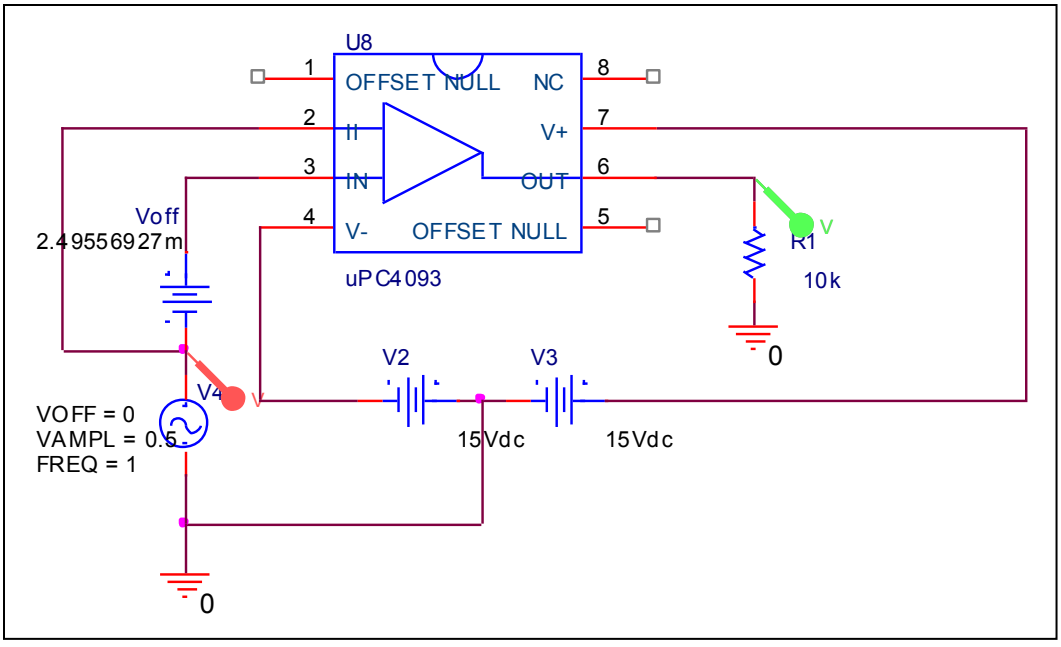
	Measurement		Simulation		Error	
Av-dc	200	V/mV	200.927	V/mV	0.4635	%
f-0db	6	MHz	6	MHz	0	%

Common - Mode Rejection Ratio – CMRR

Circuit Simulation Result



Evaluation circuit



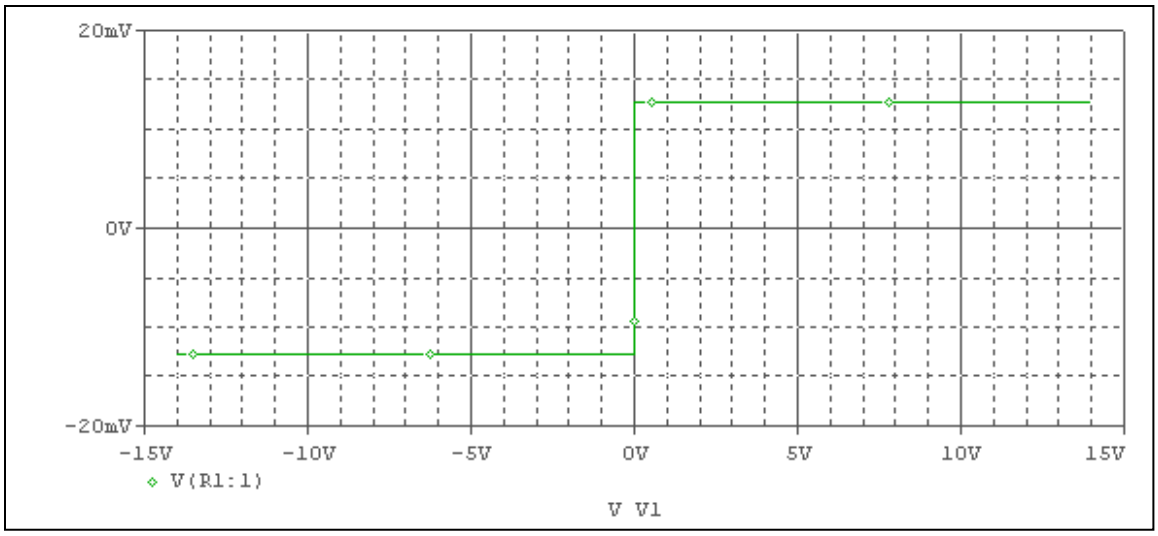
Common-model gain = 2.0019 V/V
CMRR = 200927 / 2.0019 = 100368.15, 20log10(100368.15) = 100.0319dB

Compare Measurement vs. Simulation

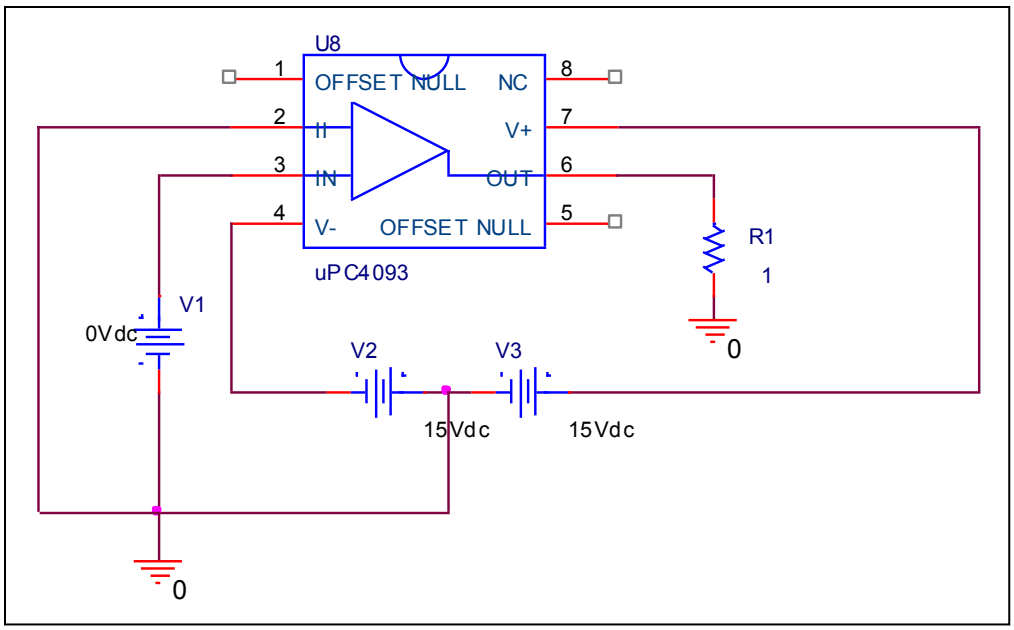
	Measurement		Simulation		Error	
CMRR	100	dB	100.0319	dB	0.0319	%

Output Short Circuit Current

Circuit Simulation Result



Evaluation circuit



Ios is calculated by maximum power dissipation : Ios = P / Vp-p = 350m/27.3
Ios = 12.82mA

Compare Measurement vs. Simulation

	Measurement		Simulation		Error	
Ios	12.82	mA	12.786	mA	0.2652	%