

Device Modeling Report

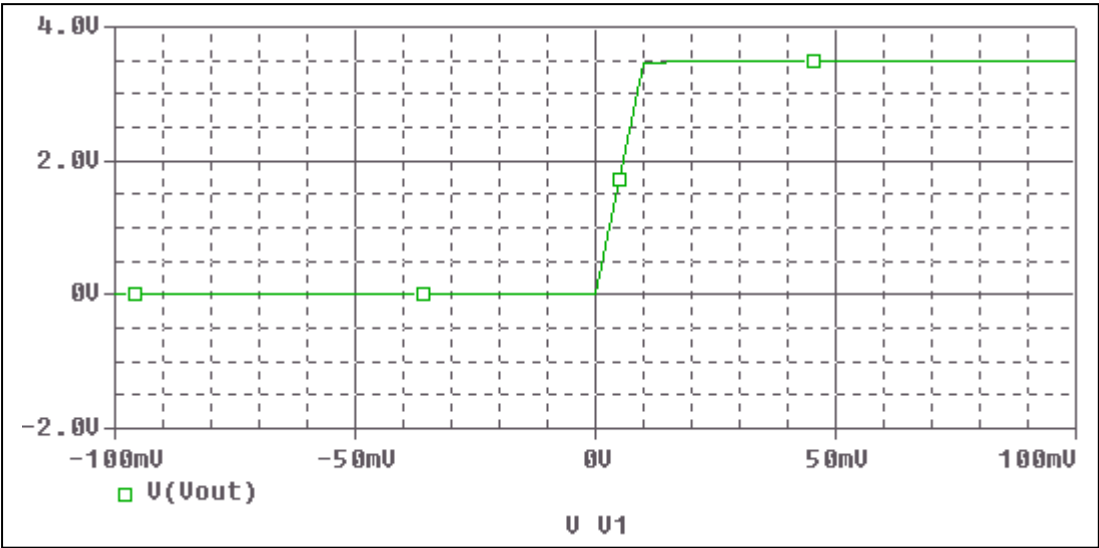
COMPONENTS:MOSFET: OPERATIONAL AMPLIFIER
PART NUMBER:uPC358C
MANUFACTURER:NEC ELECTRONICS



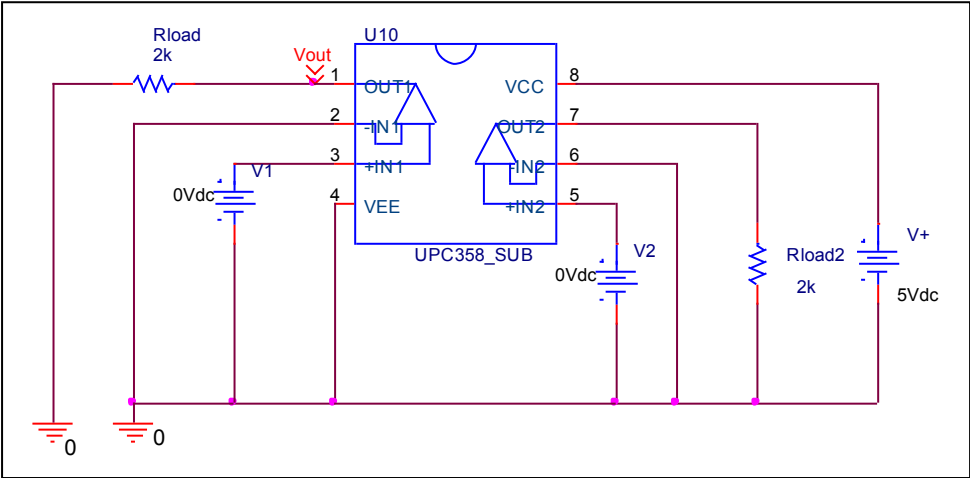
Bee Technologies Inc.

Output Voltage Swing, +Vout and –Vout

Simulation result



Evaluation circuit

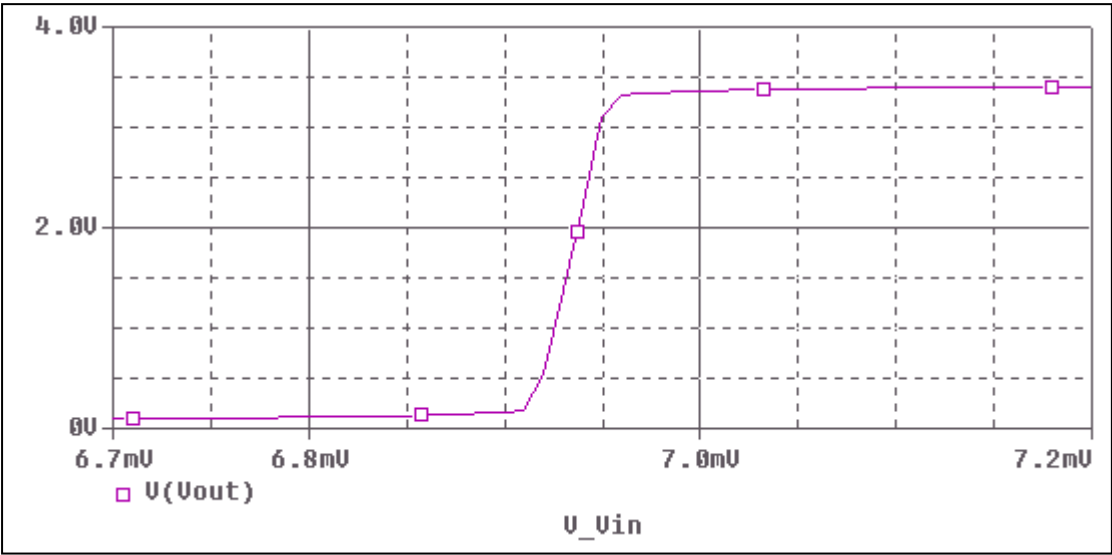


These simulation results are compared with $\pm V_{out}$

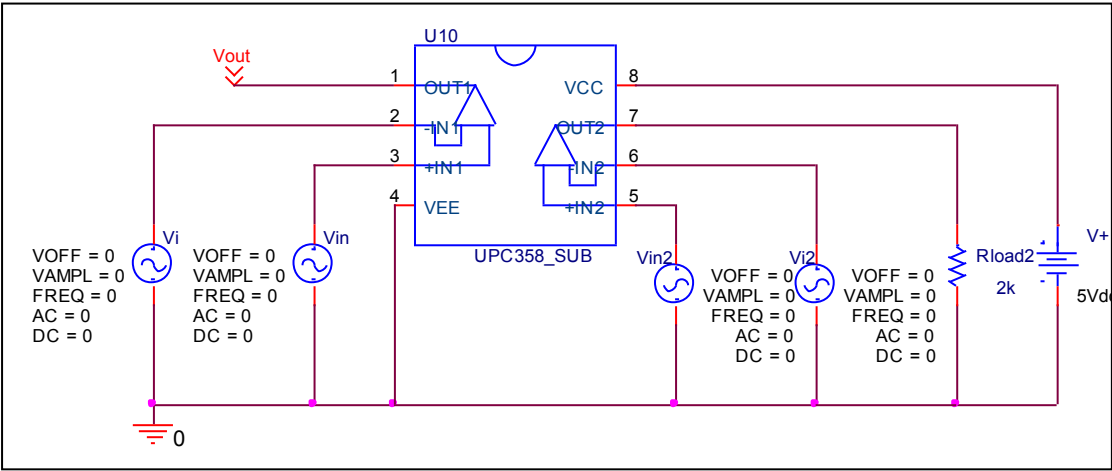
Output Voltage Swing	Data sheet	Simulation	%Error
+Vout(V)	3.5	3.51	0.285
-Vout(V)	0	0	0

Input Offset Voltage

Simulation result



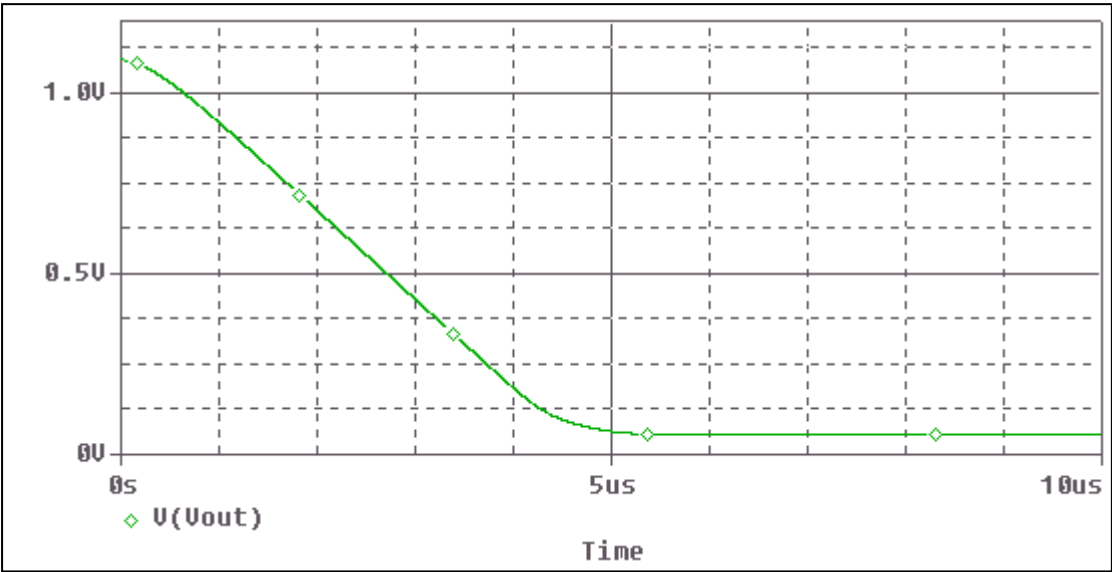
Evaluation circuit



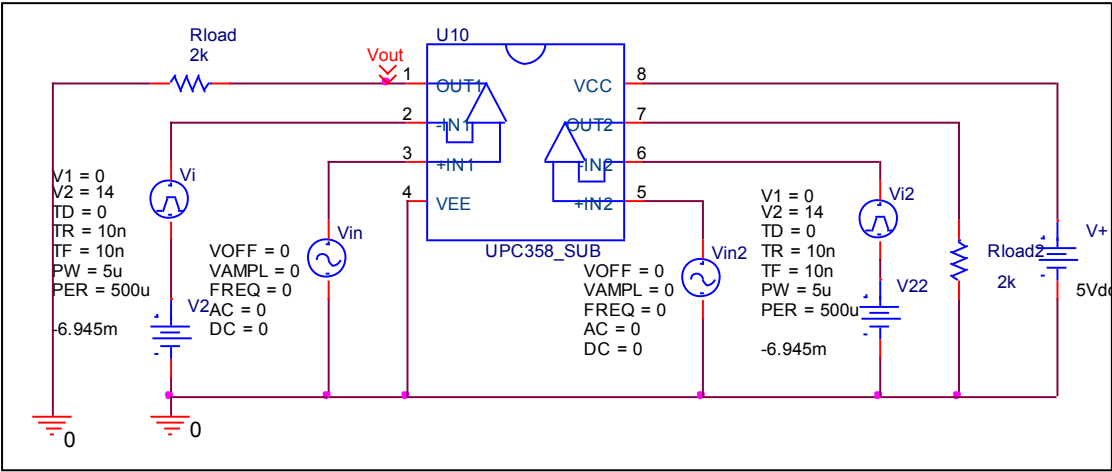
	Measurement		Simulation		Error	
Vos	7	mV	6.945	mV	0.78	%

Slew Rate, +SR, -SR

Simulation result



Evaluation circuit

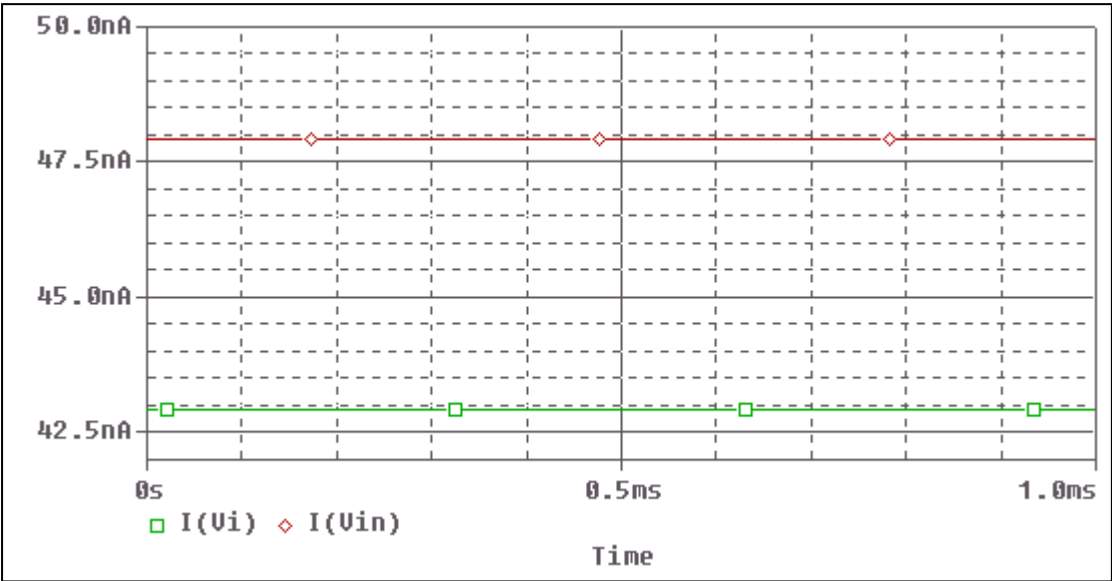


Output voltage change 0.25V in 1 us (If no good can change **C2** of Spice Model Editor)

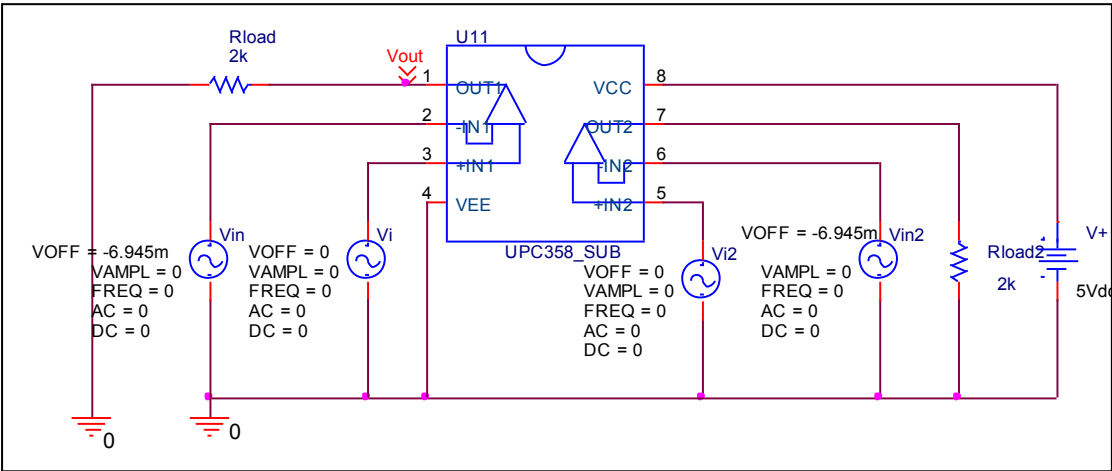
Slew Rate(v/us)	Data sheet	Simulation	%Error
	0.25	0.244	2.4

Input current Ib, Ibos

Simulation result



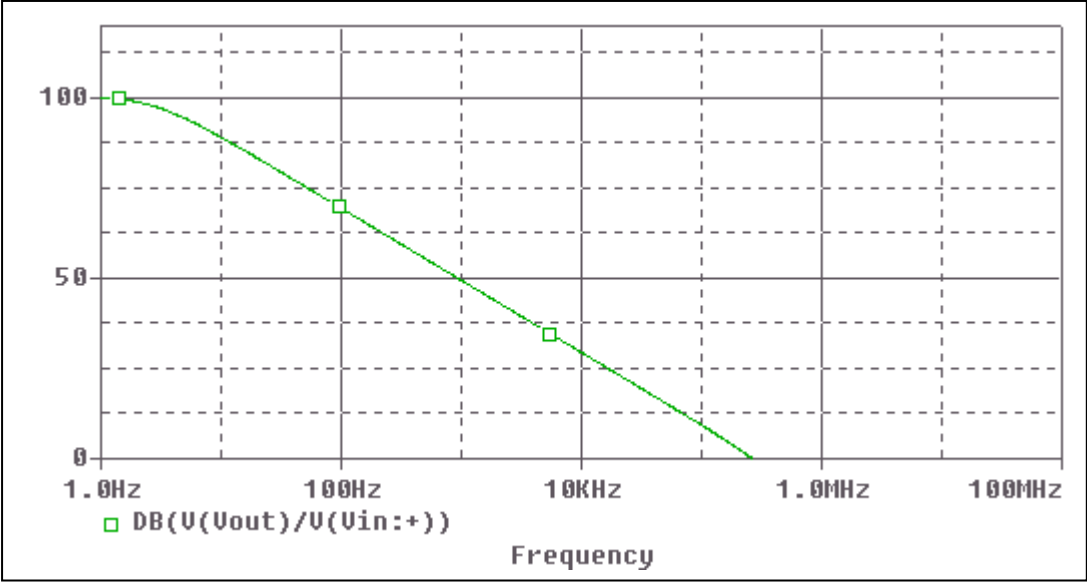
Evaluation circuit



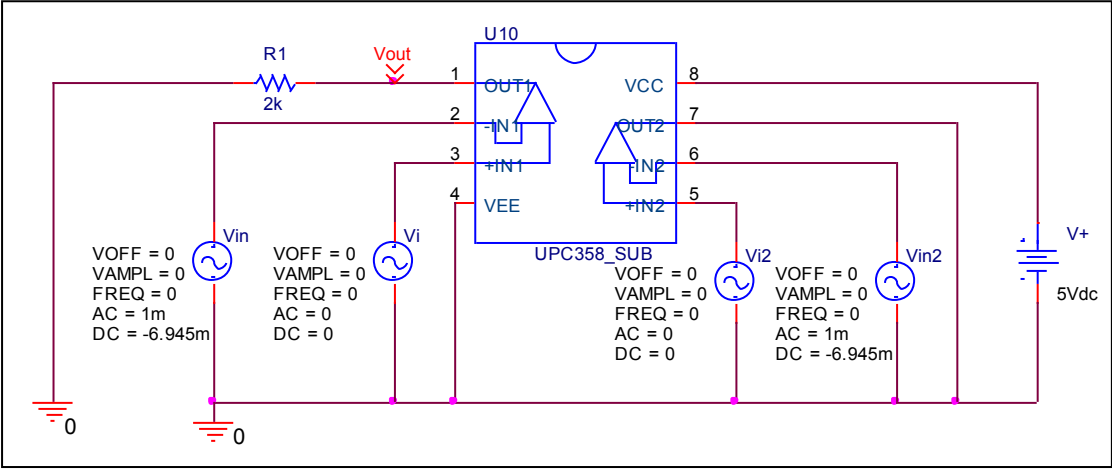
	Data sheet	Simulation	%Error
Ib(nA)	45	45.423	0.941
Ibos(nA)	5	4.973	0.54

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

Simulation result



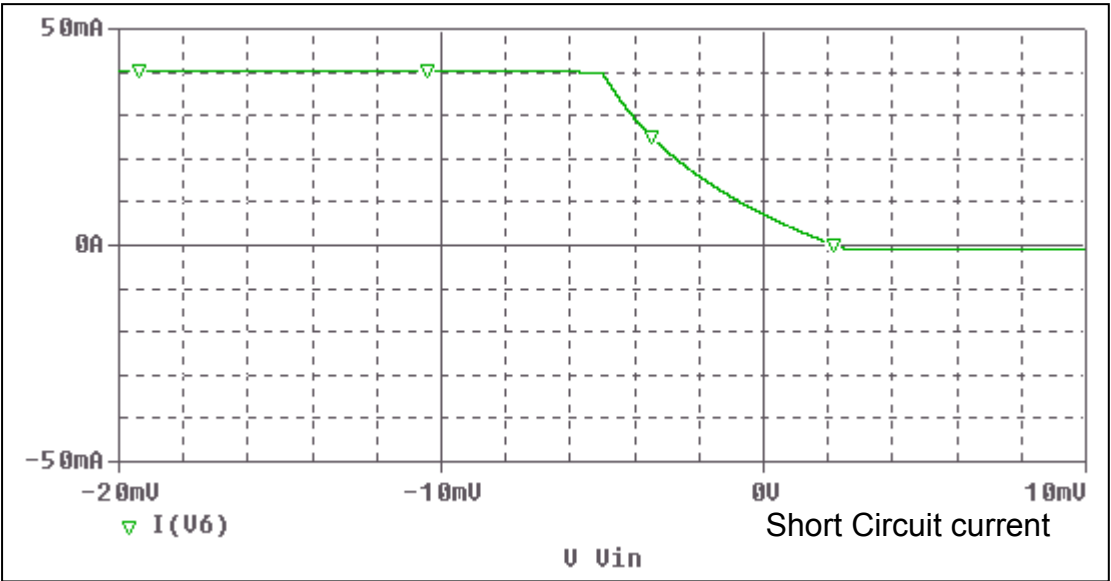
Evaluation circuit



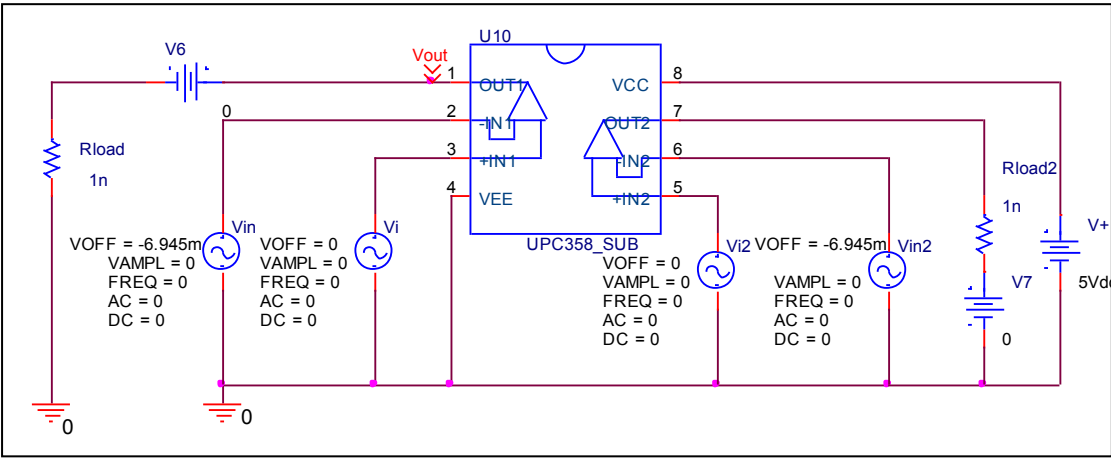
	Data sheet	Simulation	%Error
f-0dB(MHz)	0.3	0.29	3.33
Av-dc	100000	102329	2.329

Output Short Circuit Current - Ios

Simulation result



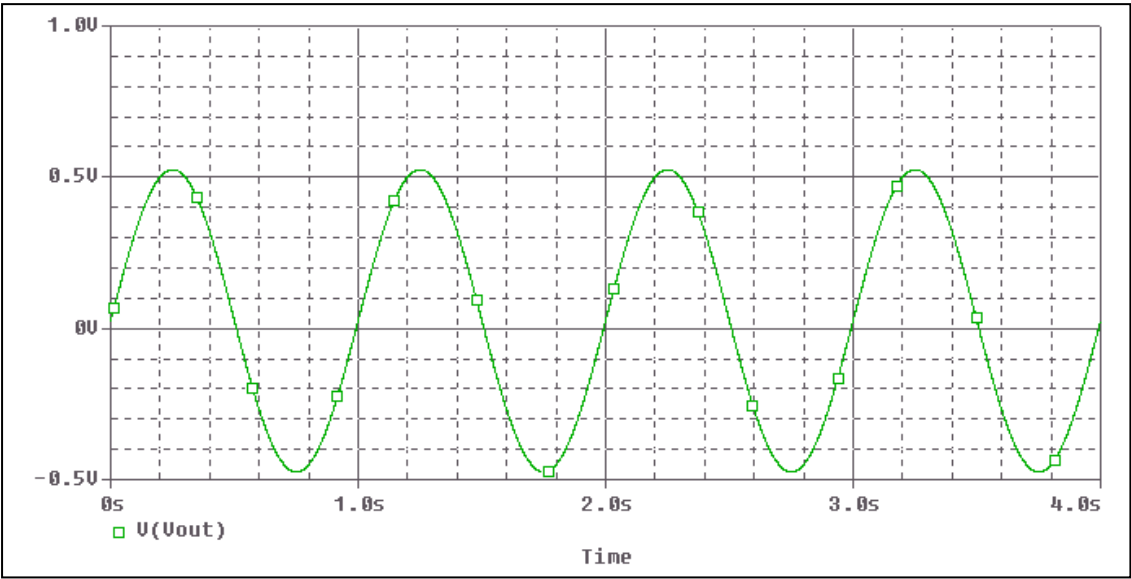
Evaluation circuit



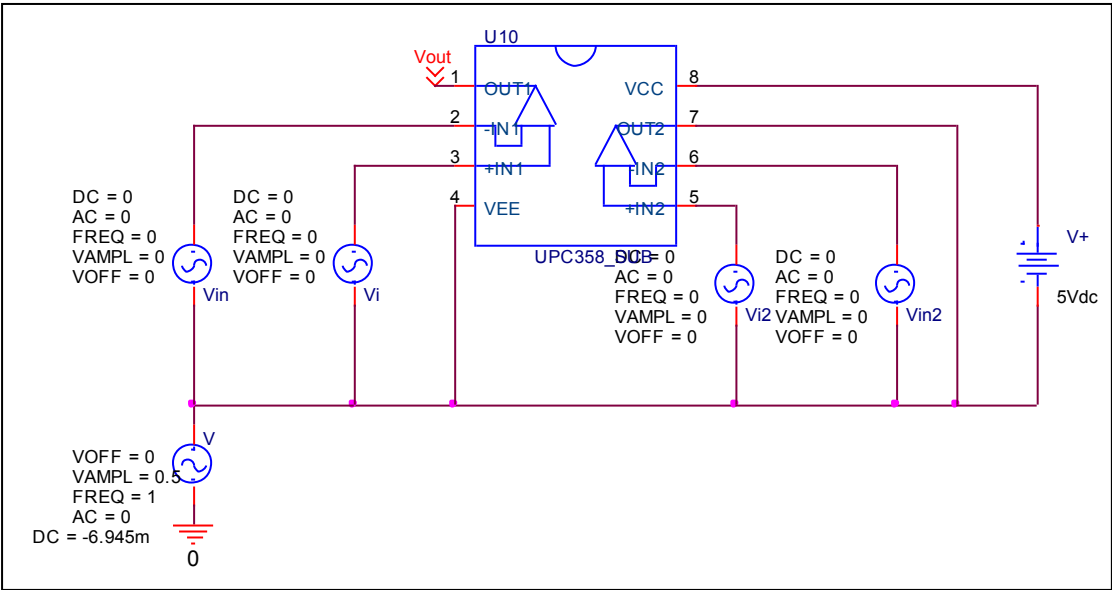
Short Circuit Current	Data sheet	Simulation	%Error
	40mA	40.11mA	0.275

Common-Mode Rejection Voltage gain

Simulation result



Evaluation circuit



Common mode gain=1/0.03162
Common Mode Reject Ratio=102329/31.62=3236.2

CMRR	Data sheet	Simulation	%Error
	3162.3	3236.2	2.336