

Device Modeling Report

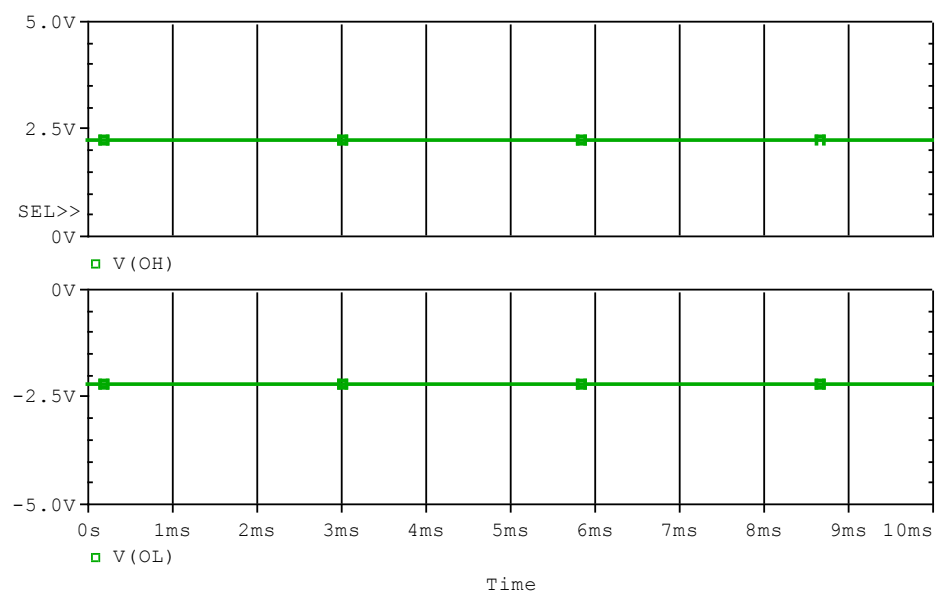
COMPONENTS: OPERATIONAL AMPLIFIER
PART NUMBER: BA2115F
MANUFACTURER: ROHM CO., LTD.



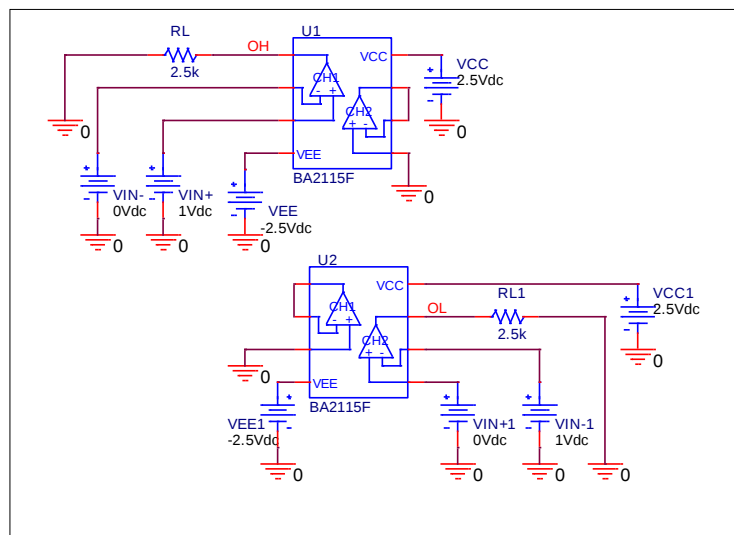
Bee Technologies Inc.

Output Voltage Swing

Simulation result



Evaluation circuit

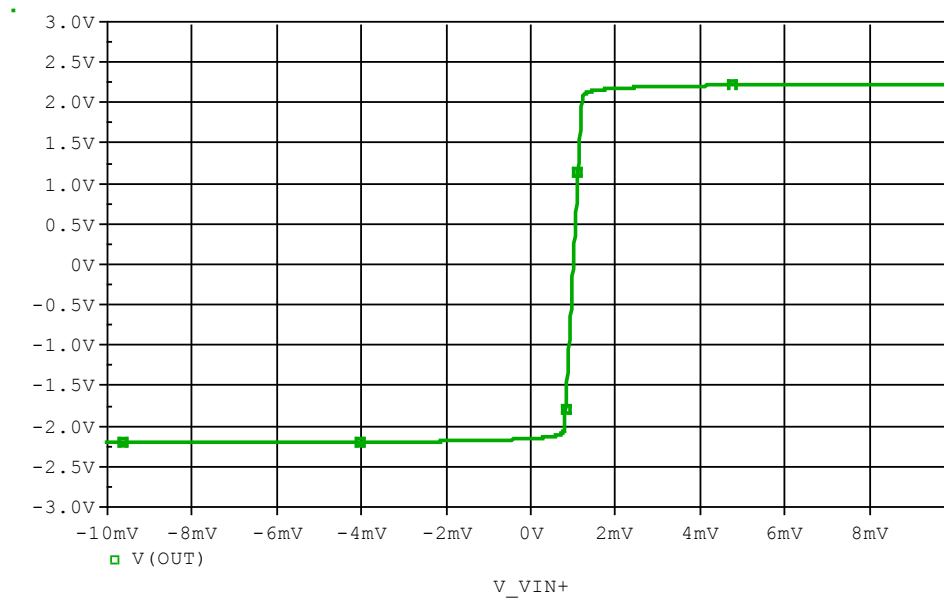


Comparison table

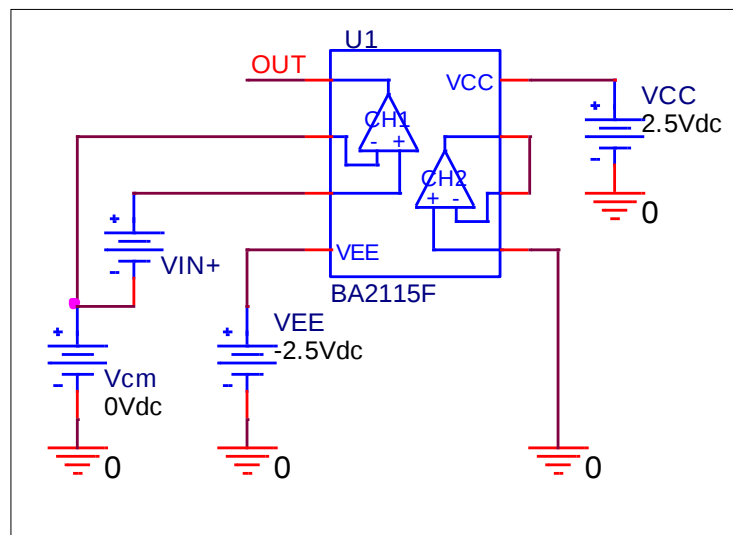
Parameter	Measurement	Simulation	%Error
VOH (V)	2.200	2.201	0.04
VOL (V)	-2.200	-2.201	0.04

Input Offset Voltage

Simulation result



Evaluation circuit

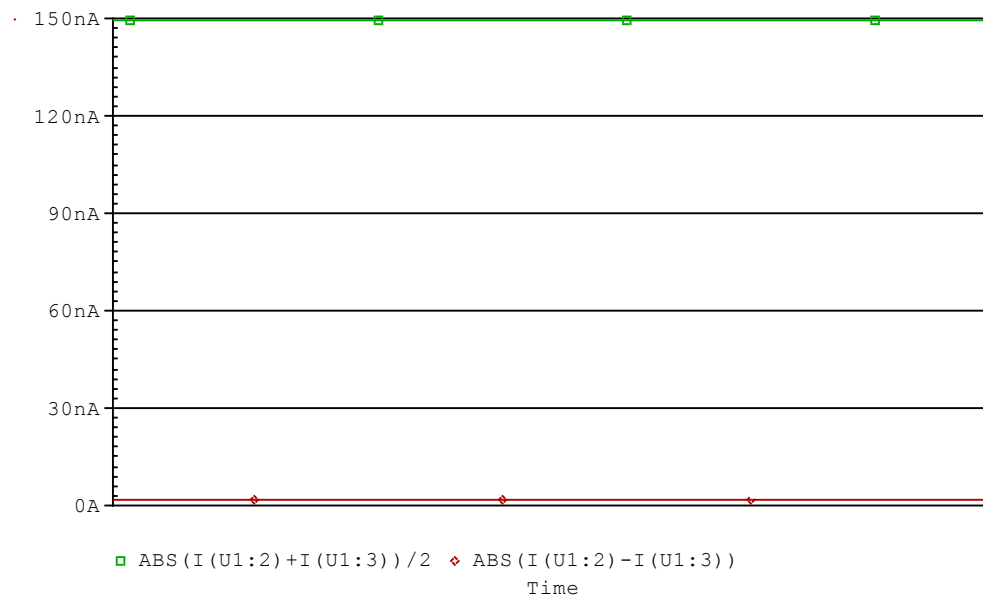


Comparison table

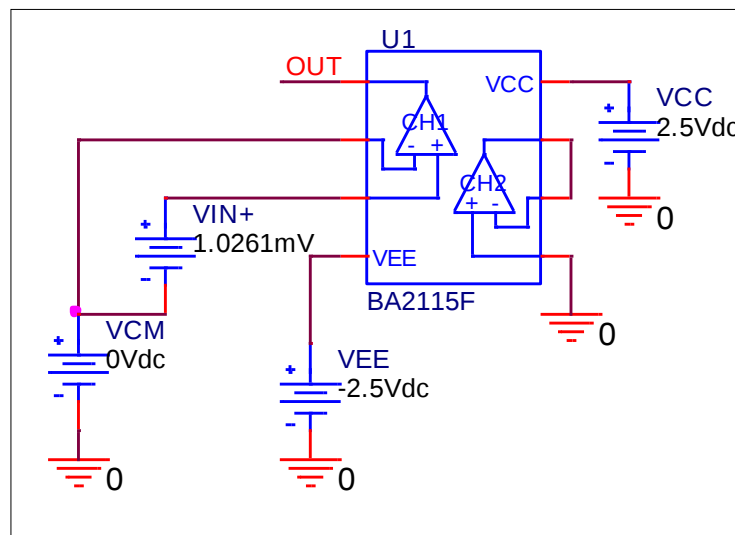
Parameter	Measurement	Simulation	%Error
V_{io} (mV)	1.000	1.026	2.61

Input Current Ib, Ibos

Simulation result



Evaluation circuit

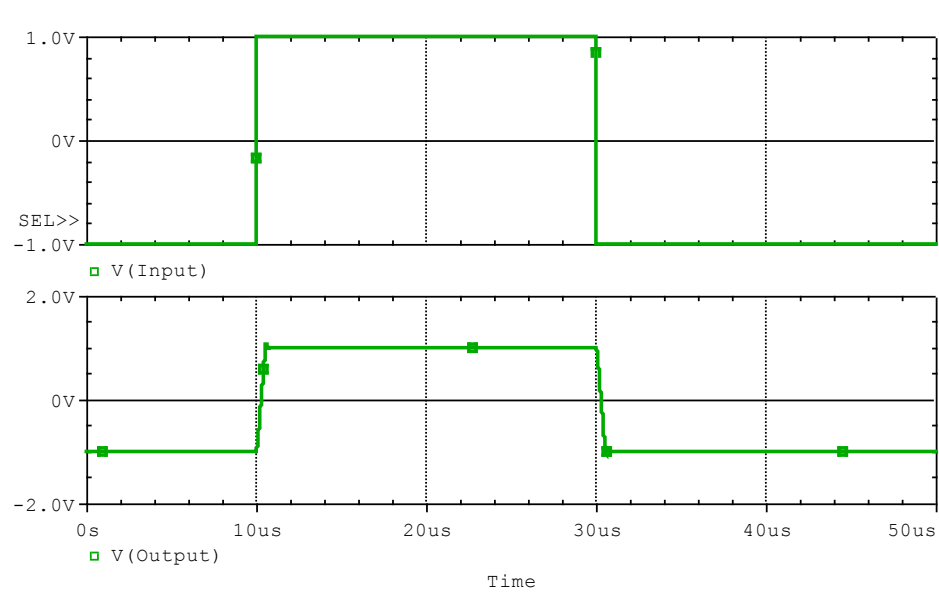


Comparison table

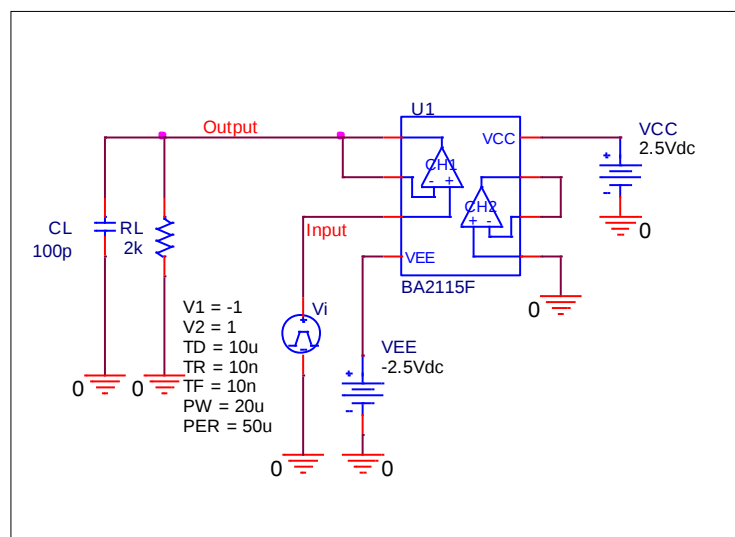
Parameter	Measurement	Simulation	%Error
I _{io} (nA)	2.000	2.015	0.74
I _b (nA)	150.000	149.478	-0.35

Slew Rate

Simulation result



Evaluation circuit

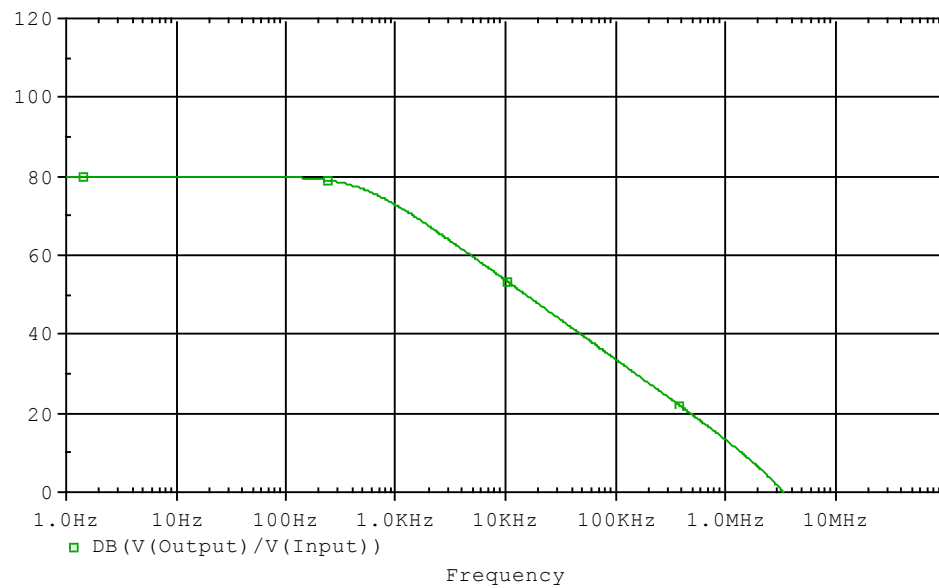


Comparison table

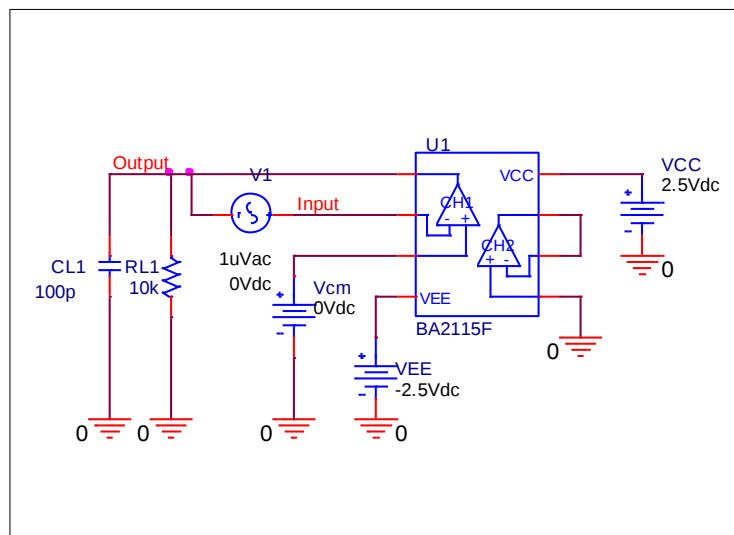
Parameter	Measurement	Simulation	%Error
Slew Rate (V/us)	4.000	3.990	-0.25

Open loop voltage gain

Simulation result



Evaluation circuit

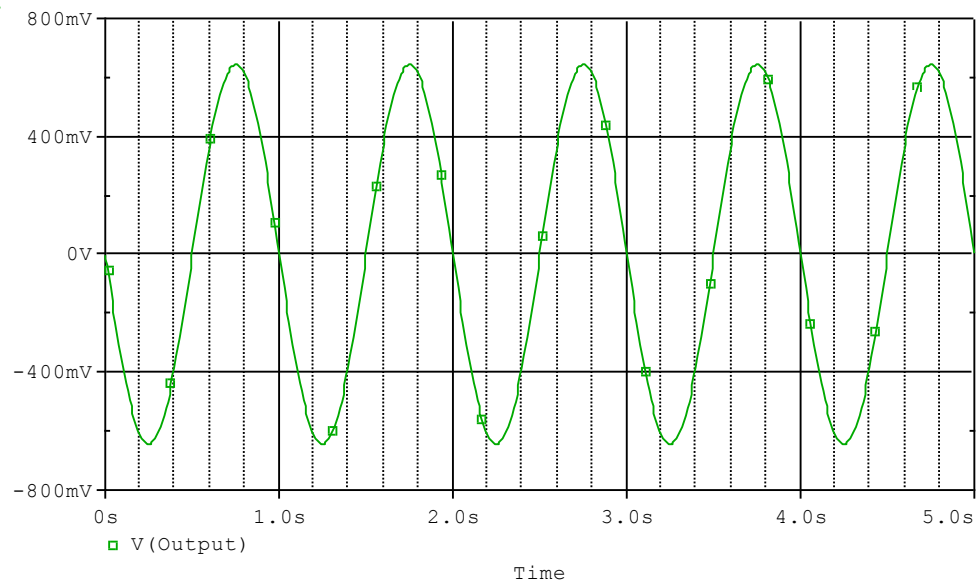


Comparison table

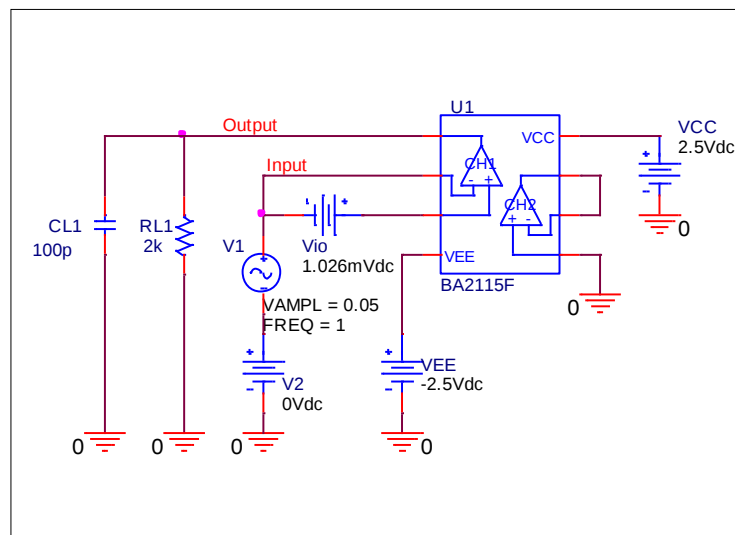
Parameter	Measurement	Simulation	%Error
Ft (MHz)	3.400	3.401	0.02
AV (db)	80.000	79.930	-0.09

Common-mode rejection voltage gain

Simulation result



Evaluation circuit



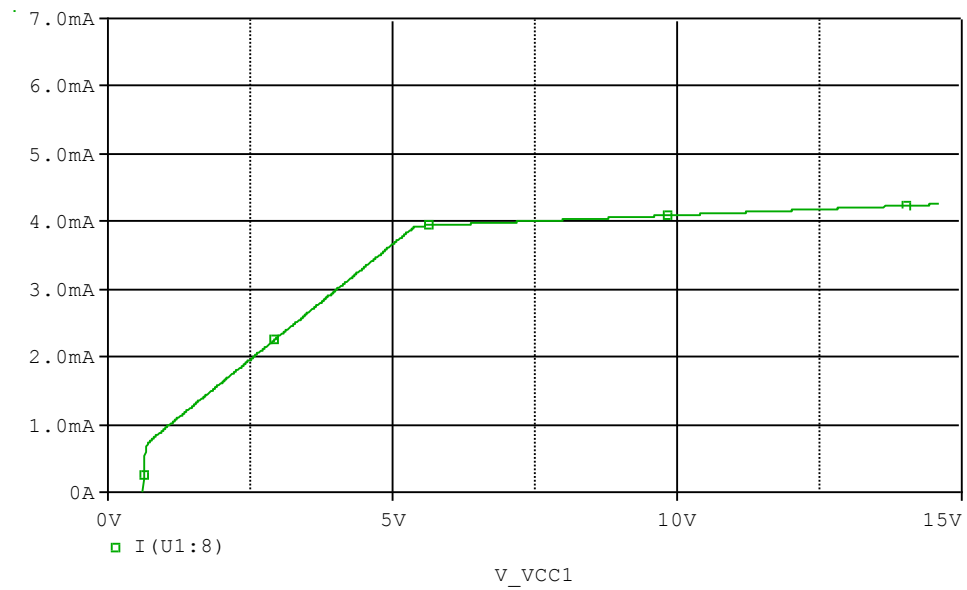
Comparison table

Common mode gain = 0.012865 V/mV
 $CMRR = 20\log(80/0.012865) = 75.874$

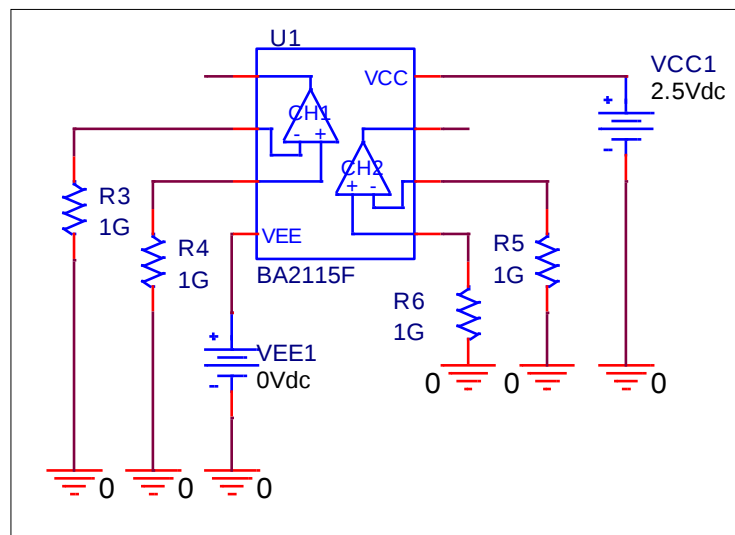
Parameter	Measurement	Simulation	%Error
CMRR(dB)	74.000	75.874	2.53

Supply Current

Simulation result



Evaluation circuit

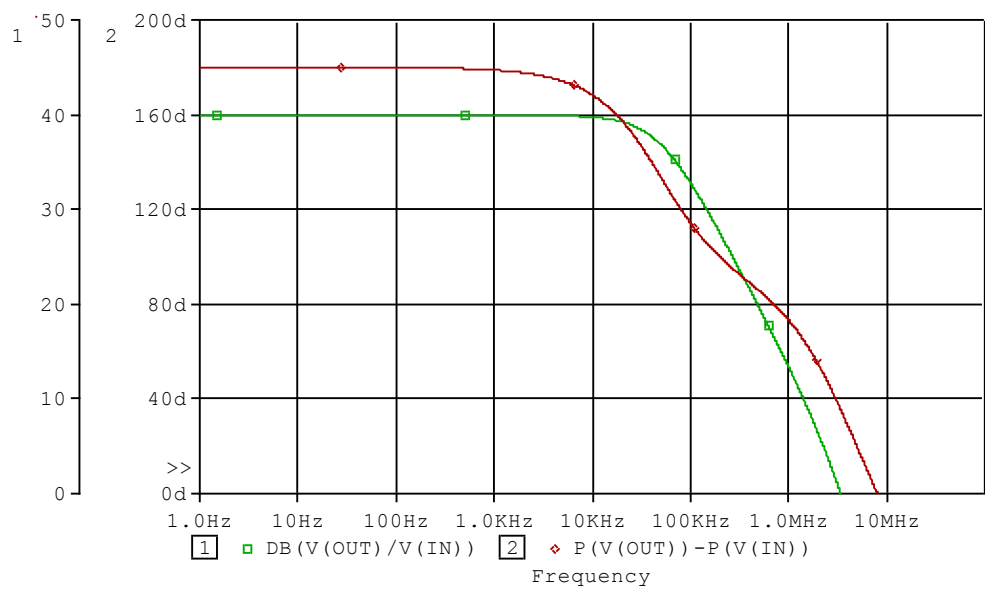


Comparison table

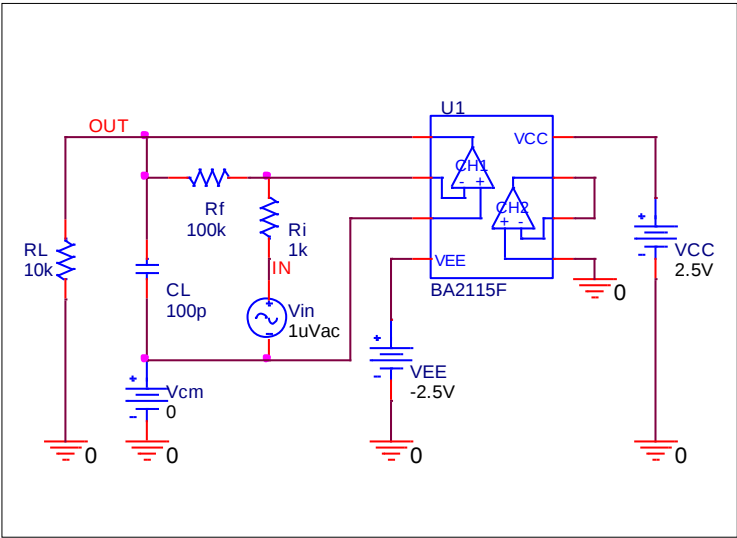
Parameter	Measurement	Simulation	%Error
ICC (mA)	4.250	4.250	0.00

Gain Bandwidth Product

Simulation result



Evaluation circuit



Comparison table

VCC=2.5[V], VEE=-2.5[V], Av=40[dB]

Parameter	Measurement	Simulation	%Error
Ft (MHz)	3.400	3.3939	-0.18
Phase margin θ (°)	35.000	35.519	1.48