

Device Modeling Report

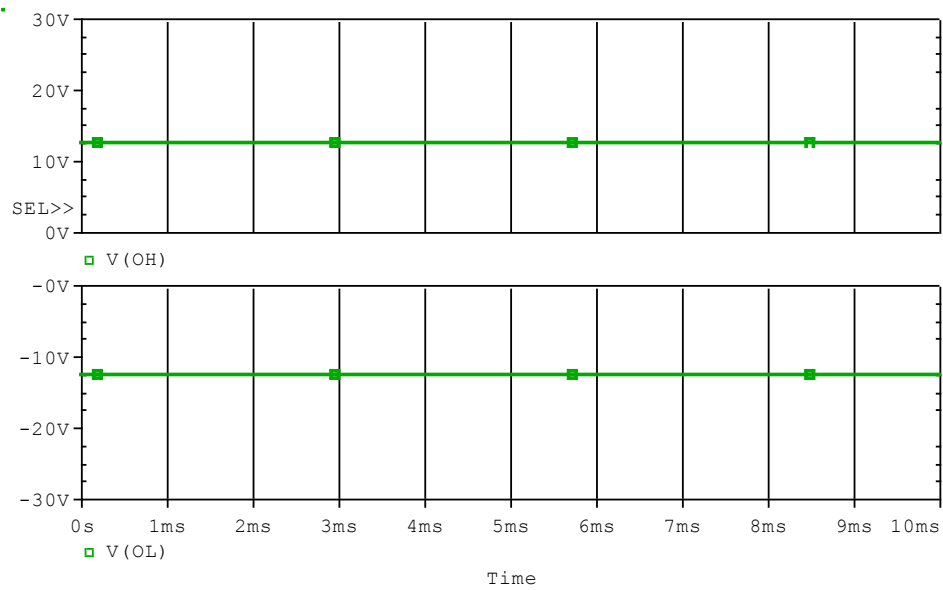
COMPONENTS: OPERATIONAL AMPLIFIER
PART NUMBER: BA14741F
MANUFACTURER: ROHM CO., LTD.



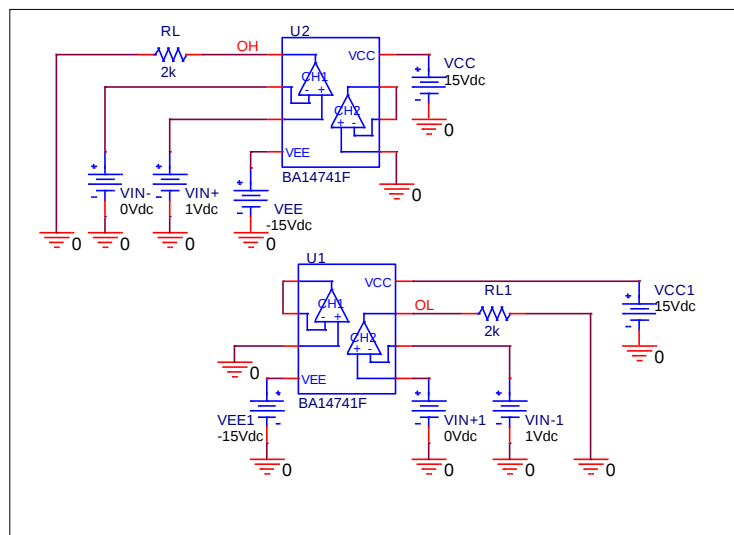
Bee Technologies Inc.

Output Voltage Swing

Simulation result



Evaluation circuit

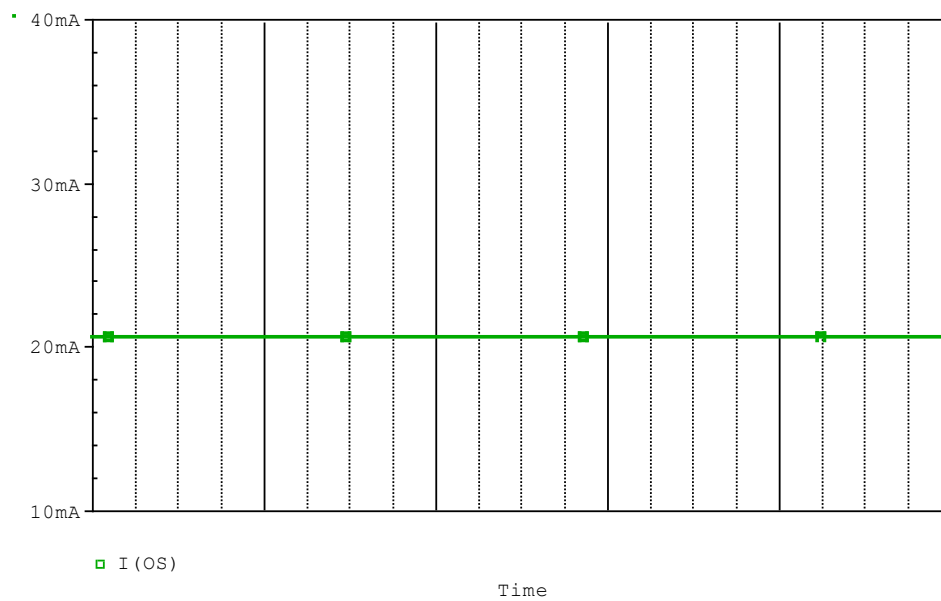


Comparison table

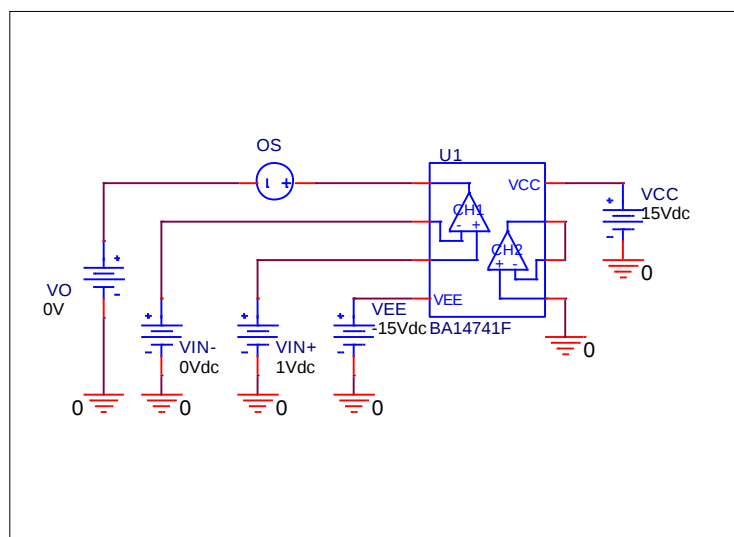
Parameter	Measurement	Simulation	%Error
VOH (V)	12.500	12.500	0.00
VOL (V)	-12.500	-12.500	0.00

Output Source Current

Simulation result



Evaluation circuit

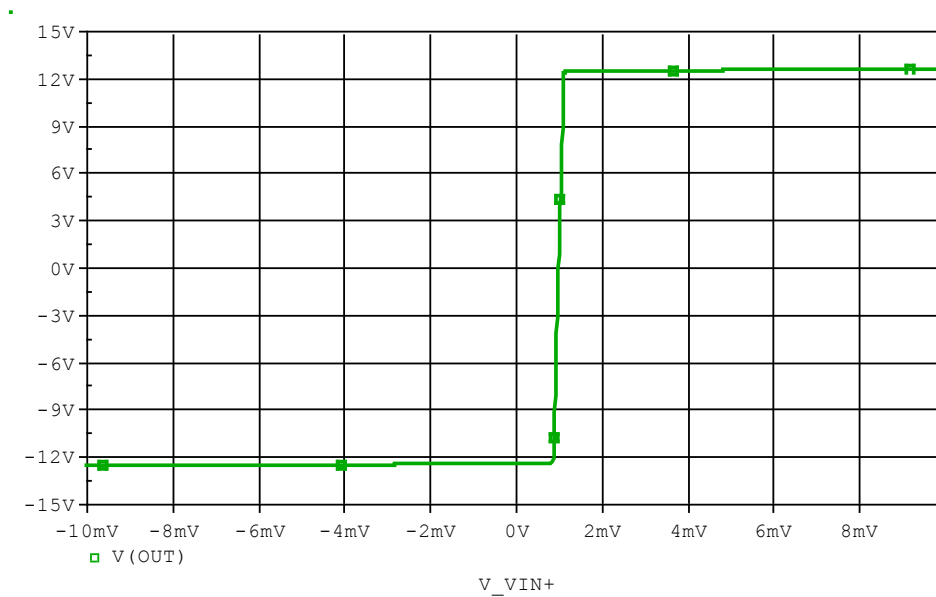


Comparison table

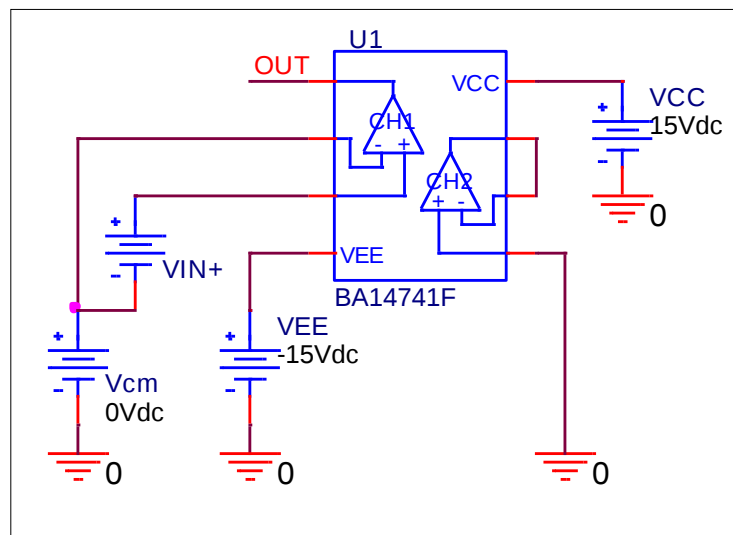
Parameter	Measurement	Simulation	%Error
IOH (mV)	20.000	20.630	3.15

Input Offset Voltage

Simulation result



Evaluation circuit

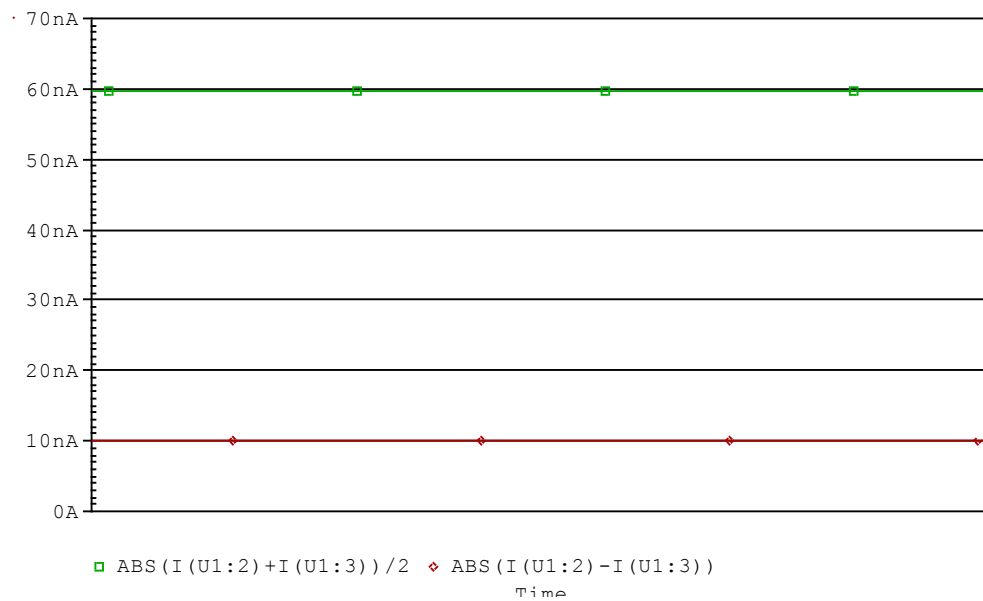


Comparison table

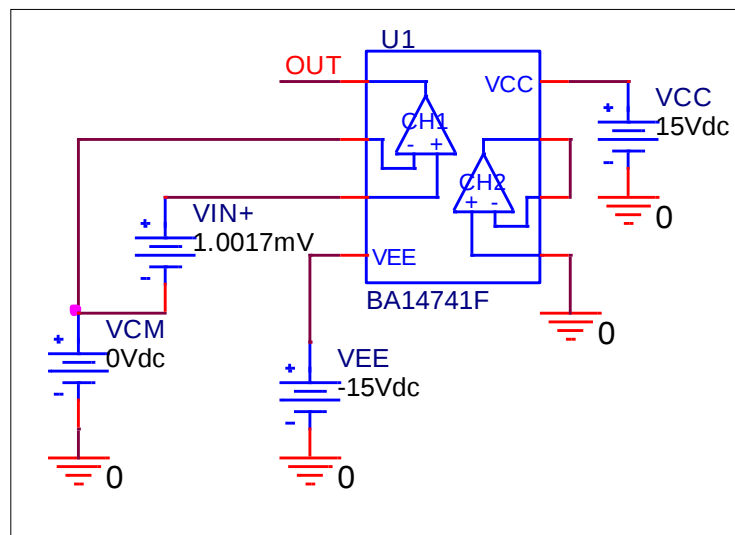
Parameter	Measurement	Simulation	%Error
V_{io} (mV)	1.000	1.002	0.17

Input Current Ib, Ibos

Simulation result



Evaluation circuit

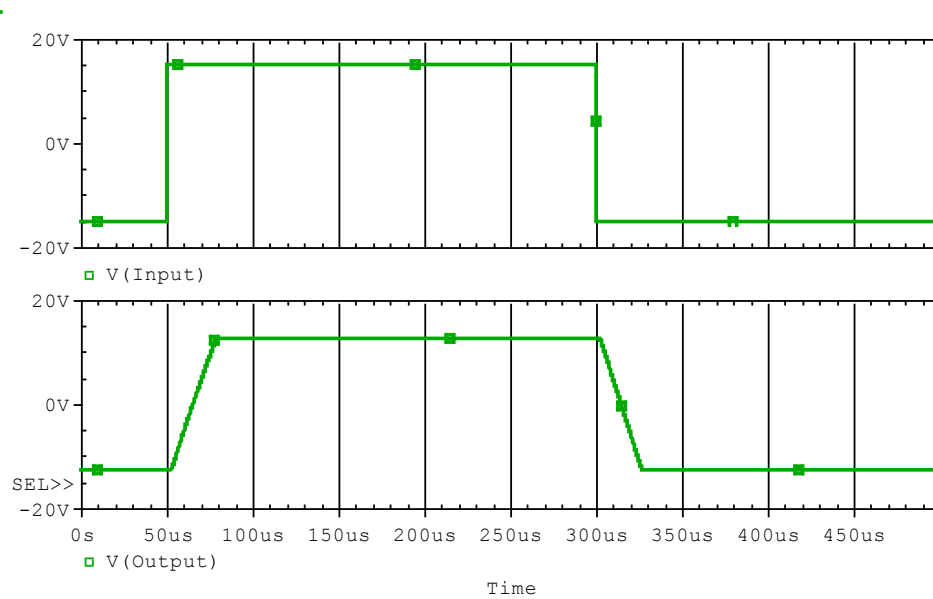


Comparison table

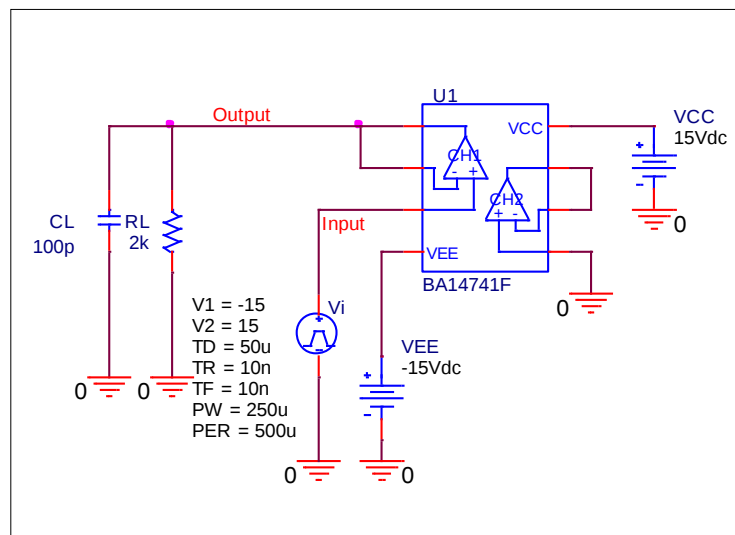
Parameter	Measurement	Simulation	%Error
Iio (nA)	10.000	9.984	-0.16
Ib (nA)	60.000	59.802	-0.33

Slew Rate

Simulation result



Evaluation circuit

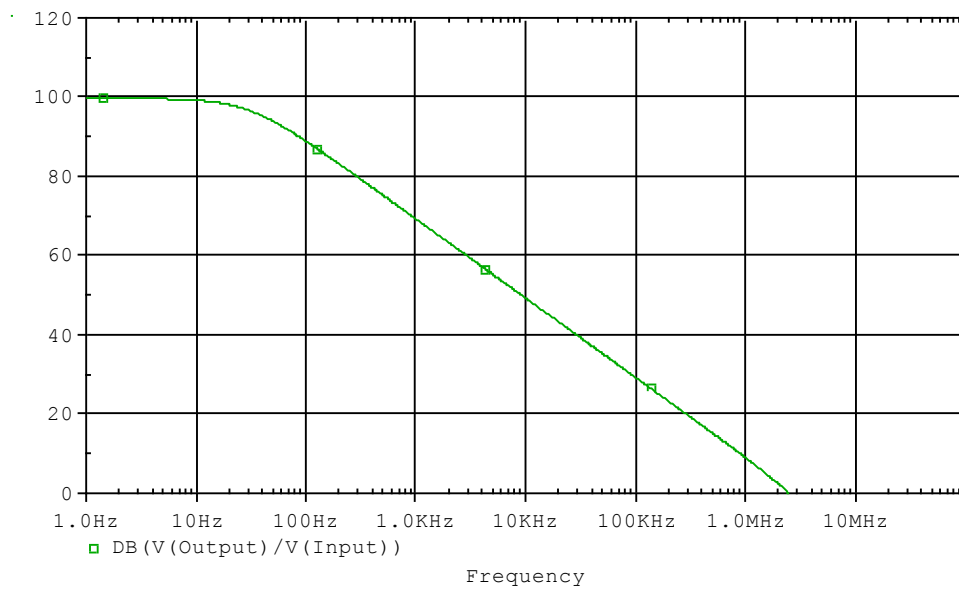


Comparison table

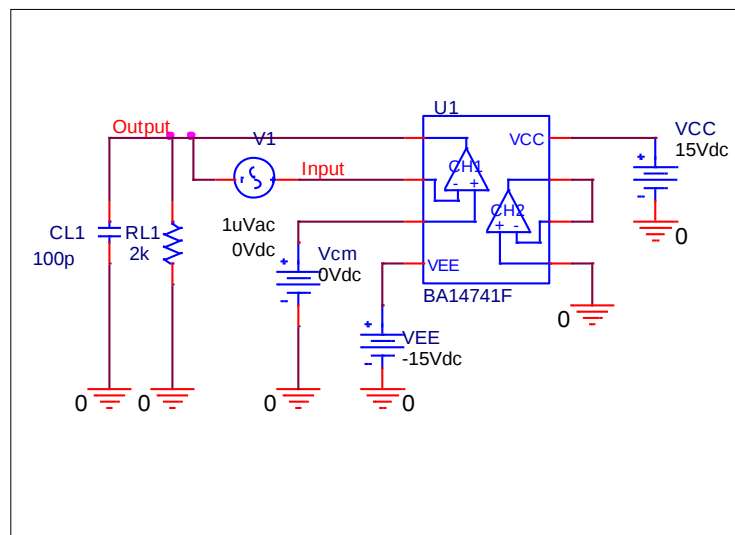
Parameter	Measurement	Simulation	%Error
Slew Rate (V/us)	1.000	0.971	-2.92

Open loop voltage gain

Simulation result



Evaluation circuit

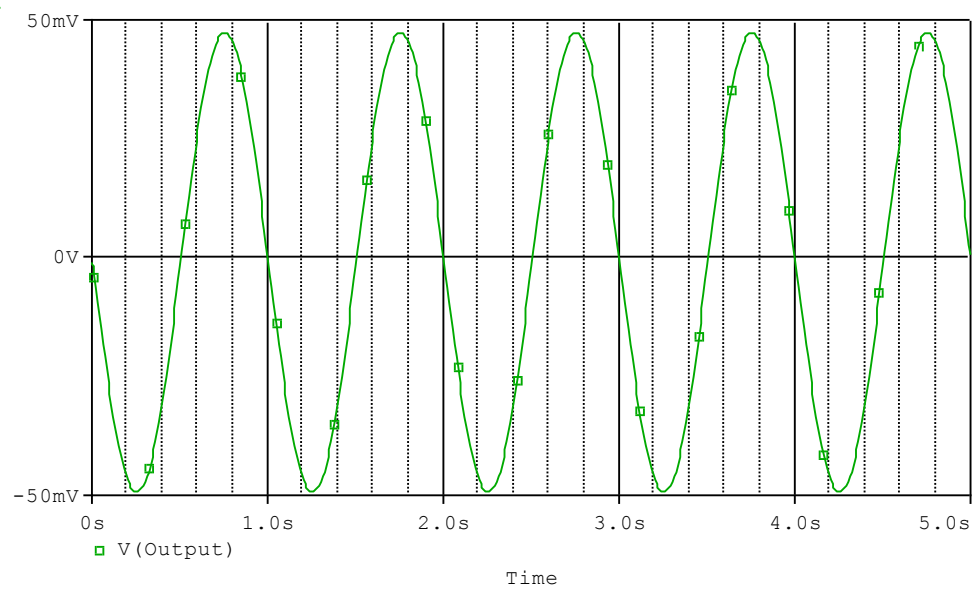


Comparison table

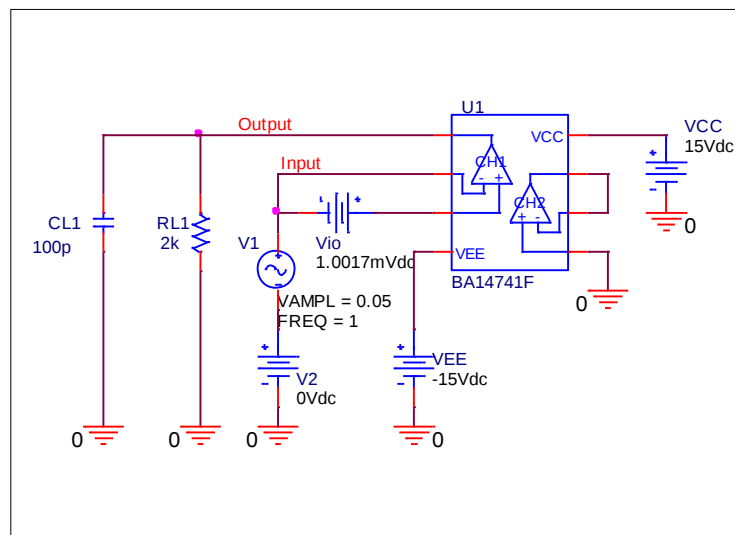
Parameter	Measurement	Simulation	%Error
Ft (MHz)	2.500	2.508	0.33
AV (db)	100.000	99.643	-0.36

Common-mode rejection voltage gain

Simulation result



Evaluation circuit



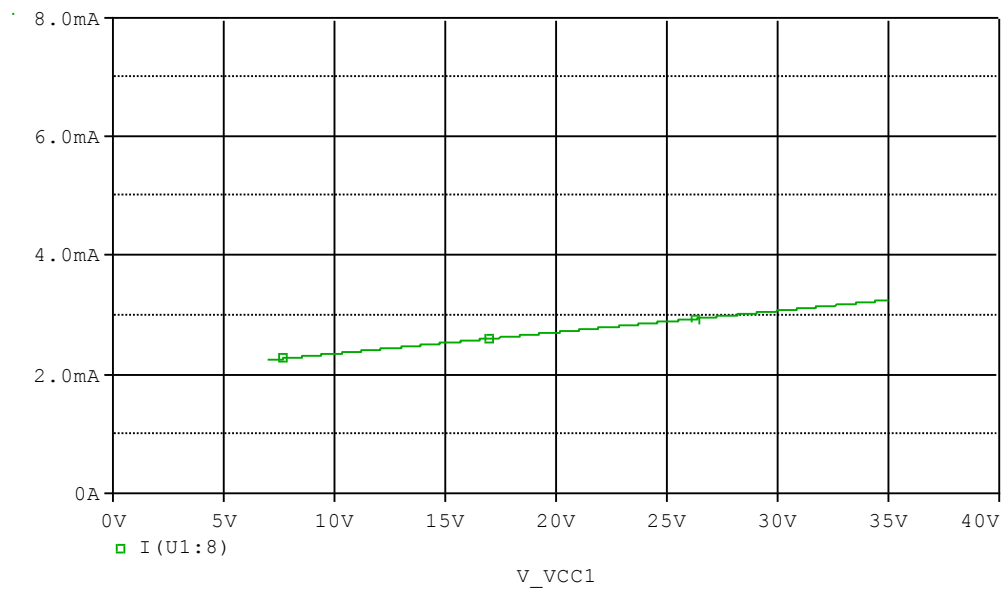
Comparison table

Common mode gain = 0.00096561 V/mV
 $CMRR = 20\log(100/0.00096561) = 100.304$

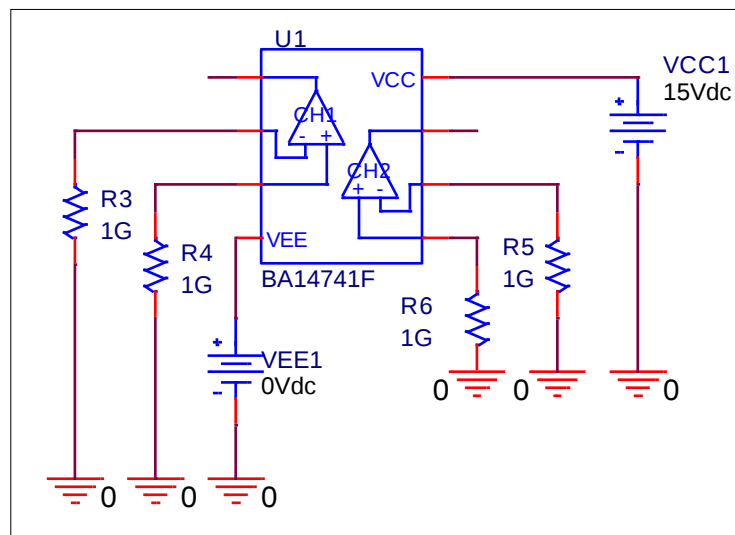
Parameter	Measurement	Simulation	%Error
CMRR(dB)	100.000	100.304	0.30

Supply Current

Simulation result



Evaluation circuit

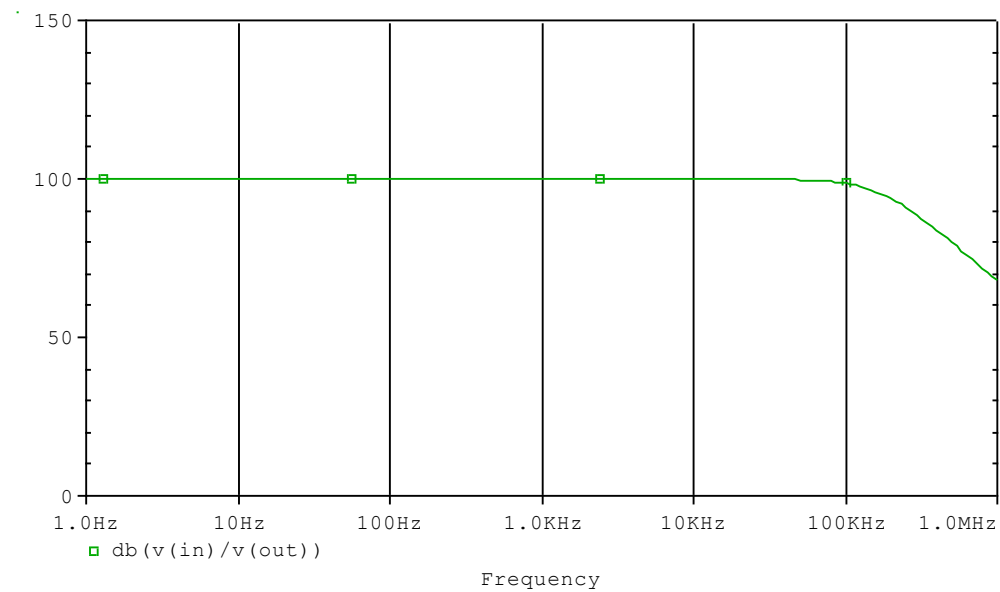


Comparison table

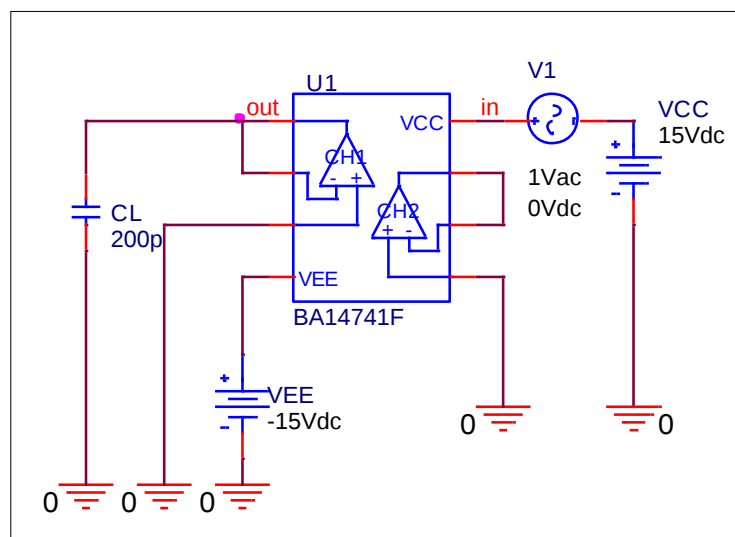
Parameter	Measurement	Simulation	%Error
ICC (mA)	3.250	3.250	0.00

Power supply rejection ration

Simulation result



Evaluation circuit

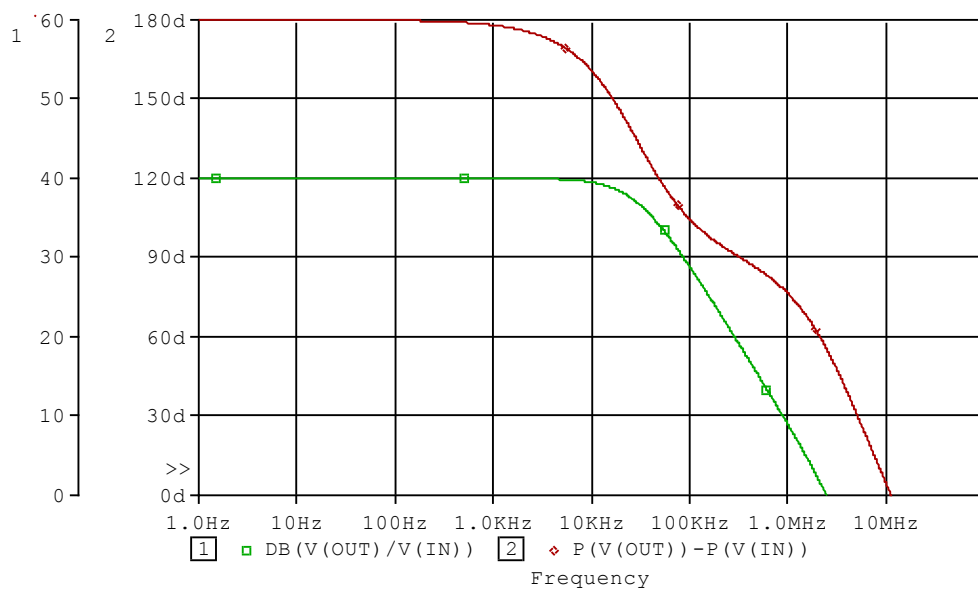


Comparison table

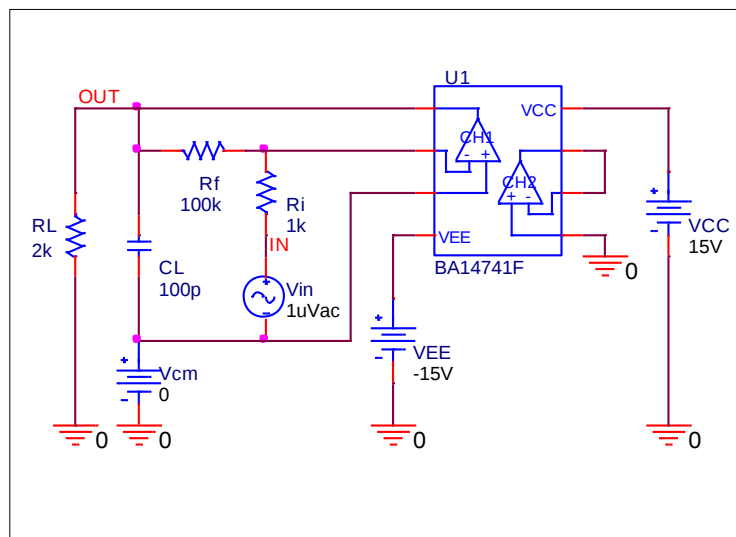
Parameter	Measurement	Simulation	%Error
PSRR (dB)	100.000	99.963	-0.04

Gain Bandwidth Product

Simulation result



Evaluation circuit



Comparison table

VCC=15[V], VEE=-15[V], Av=40[dB]

Parameter	Measurement	Simulation	%Error
Ft (MHz)	2.5000	2.4970	-0.12
Phase margin θ (°)	55.000	55.523	0.95