Device Modeling Report

COMPONENTS: VOLTAGE COMPARATOR (CMOS)
PART NUMBER: LMC6762
MANUFACTURER: NATIONAL

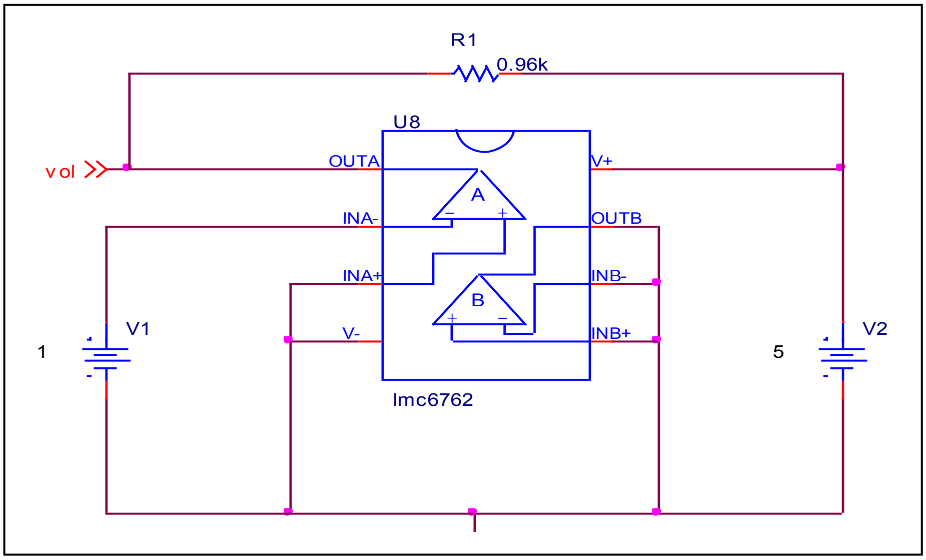
Bee Technologies Inc.

MOSFET MODEL

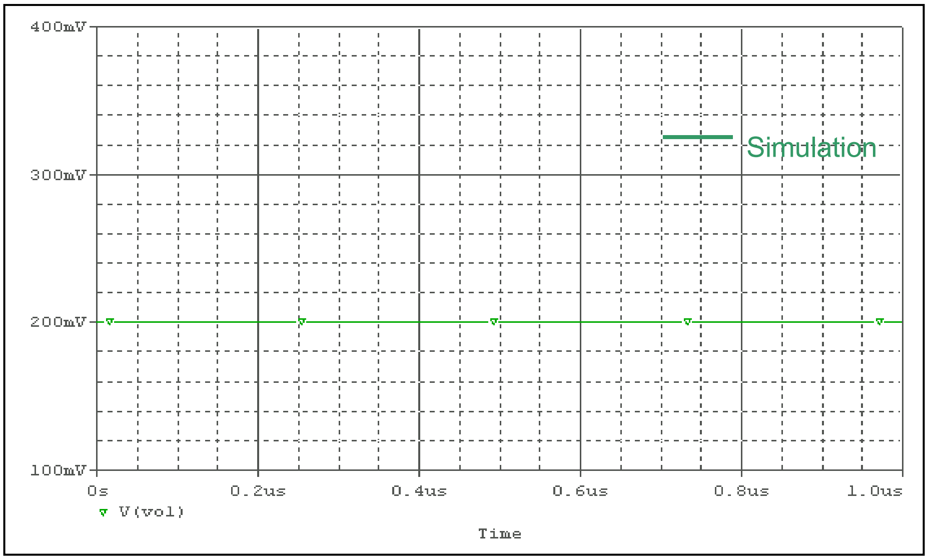
Pspice model parameter	Model description
LEVEL	
L	Channel Length
W	Channel Width
KP	Transconductance
RS	Source Ohmic Resistance
RD	Ohmic Drain Resistance
VTO	Zero-bias Threshold Voltage
RDS	Drain-Source Shunt Resistance
TOX	Gate Oxide Thickness
CGSO	Zero-bias Gate-Source Capacitance
CGDO	Zero-bias Gate-Drain Capacitance
CBD	Zero-bias Bulk-Drain Junction Capacitance
MJ	Bulk Junction Grading Coefficient
PB	Bulk Junction Potential
FC	Bulk Junction Forward-bias Capacitance Coefficient
RG	Gate Ohmic Resistance
IS	Bulk Junction Saturation Current
N	Bulk Junction Emission Coefficient
RB	Bulk Series Resistance
PHI	Surface Inversion Potential
GAMMA	Body-effect Parameter
DELTA	Width effect on Threshold Voltage
ETA	Static Feedback on Threshold Voltage
THETA	Modility Modulation
KAPPA	Saturation Field Factor
VMAX	Maximum Drift Velocity of Carriers
XJ	Metallurgical Junction Depth
UO	Surface Mobility

Output Low Voltage

Evaluation Circuit



Simulation result

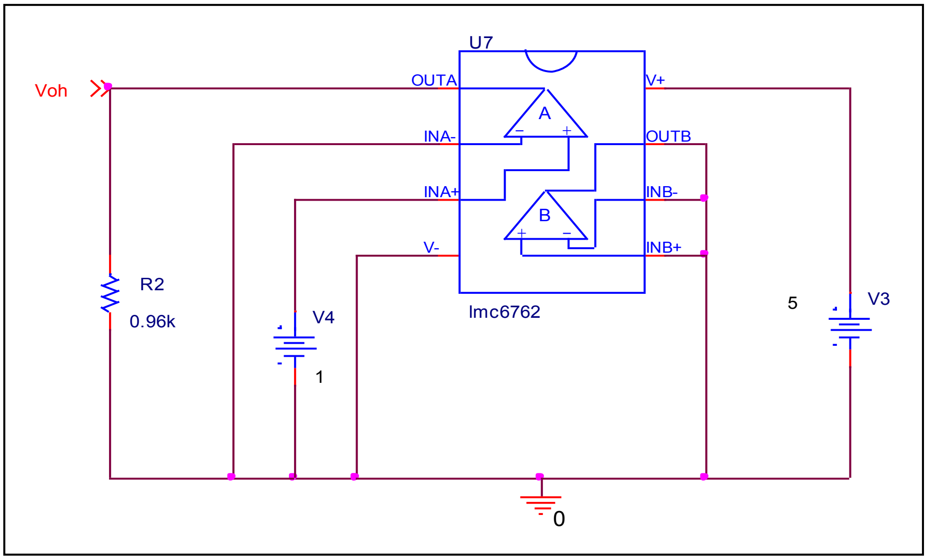


Compasion Table

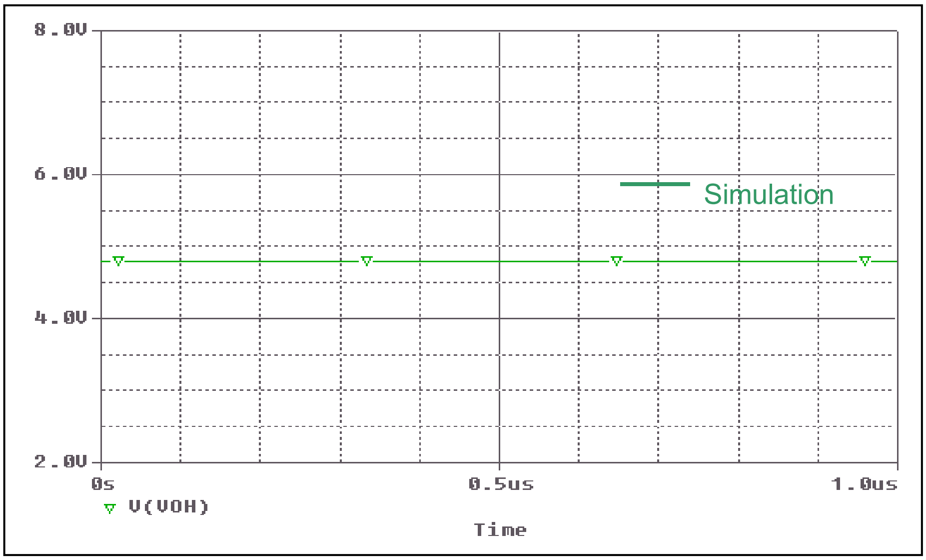
V+=5V,I_{LOAD}=5mA	Measurement	Simulation	%Error
V_{ol} (V)	0.2	0.20	0

Output high Voltage

Evaluation Circuit



Simulation result

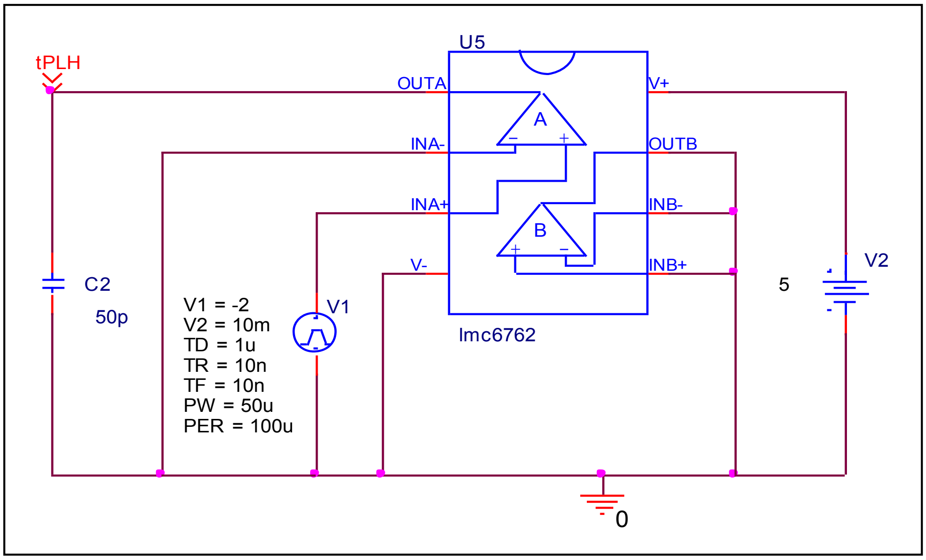


Compasion Table

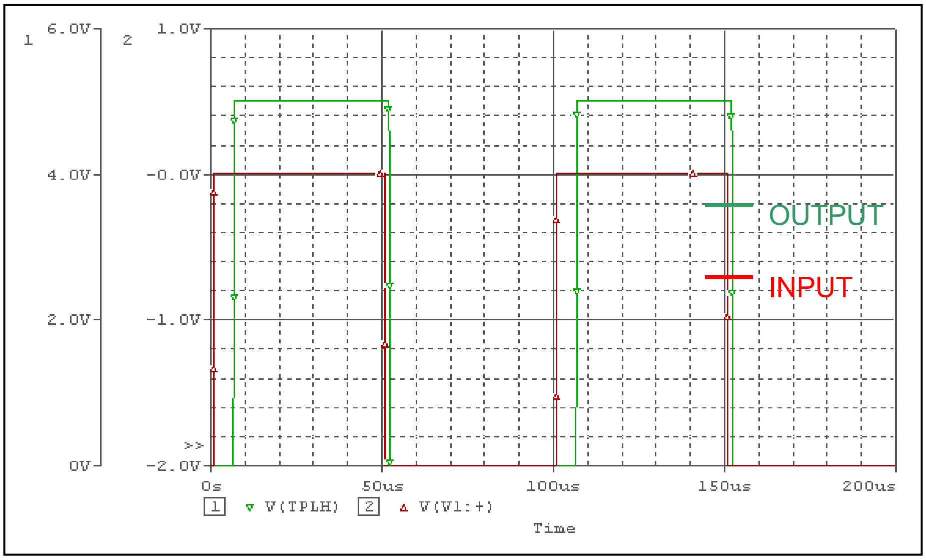
V+=5V,I_{LOAD}=5mA	Measurement	Simulation	%Error
V_{oh}(V)	4.8	4.8	0

Propagation Delay Time (Low to High) and Rise time

Evaluation Circuit



Simulation result

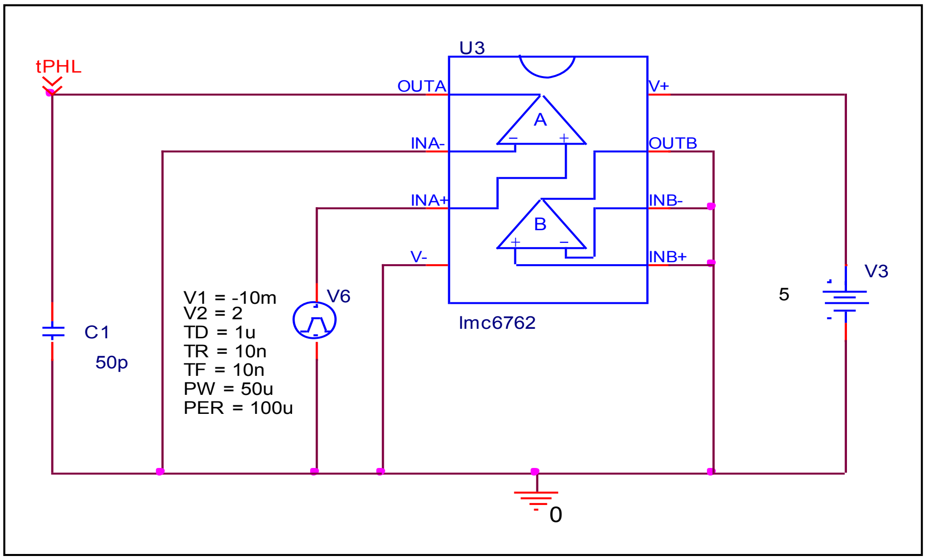


Compasion Table

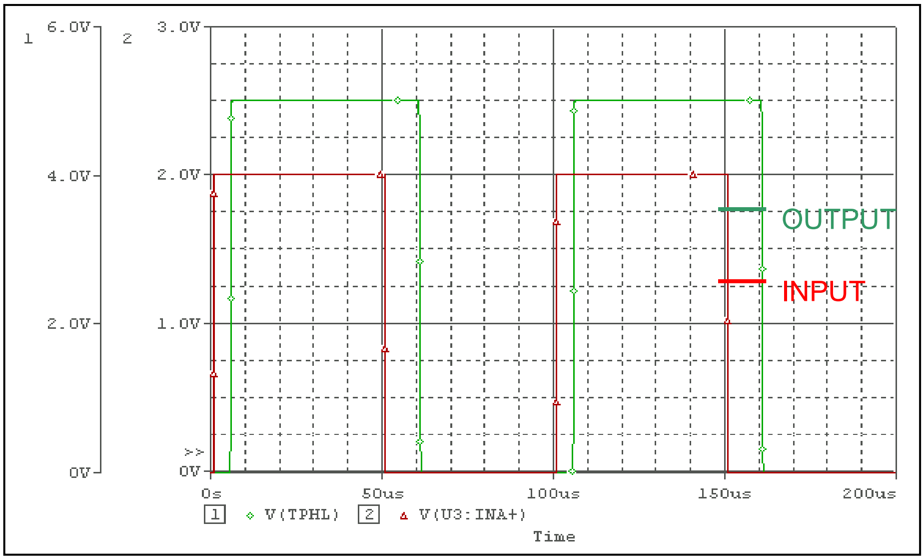
C_L=50pF	Measurement	Simulation	% Error
t_{PLH} (us)	6	5.7511	-4.148
t_r (us)	0.3	0.29612	-1.293

Propagation Delay Time (High to Low) and Fall time

Evaluation Circuit



Simulation result

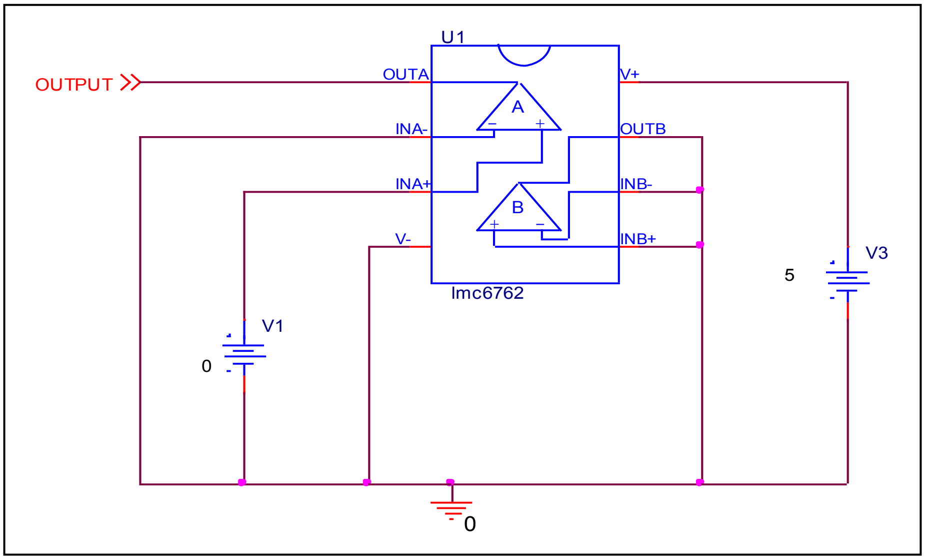


Compasion Table

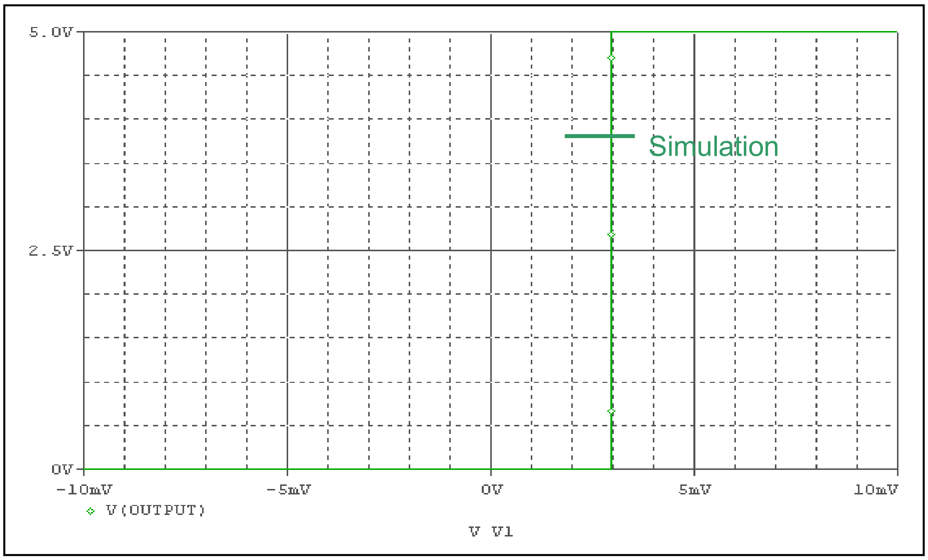
	Measurement	**Simulation**	**% Error**
t_{PHL} (us)	10	9.904	-0.960
t_f (us)	0.3	0.307405	2.468

Input Offset Voltage Characteristics

Evaluation Circuit



Simulation result

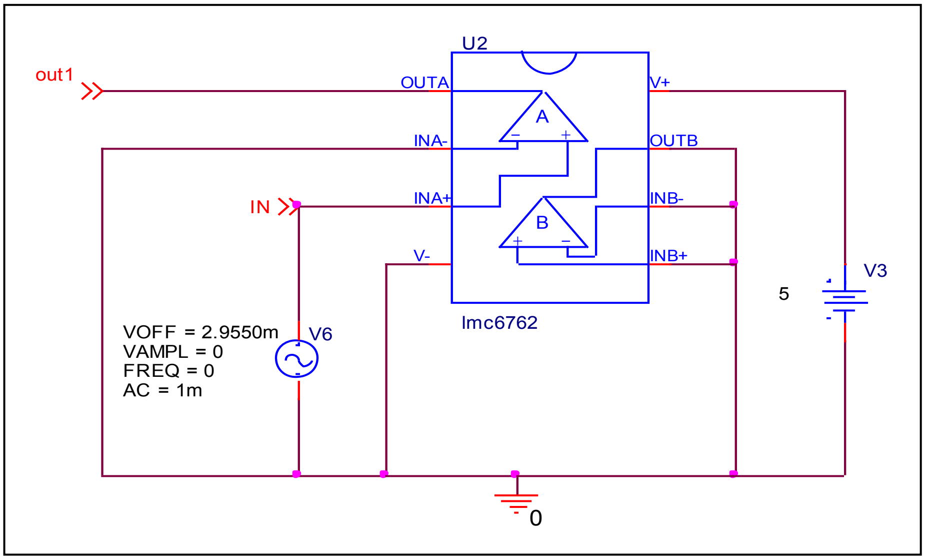


Compasion Table

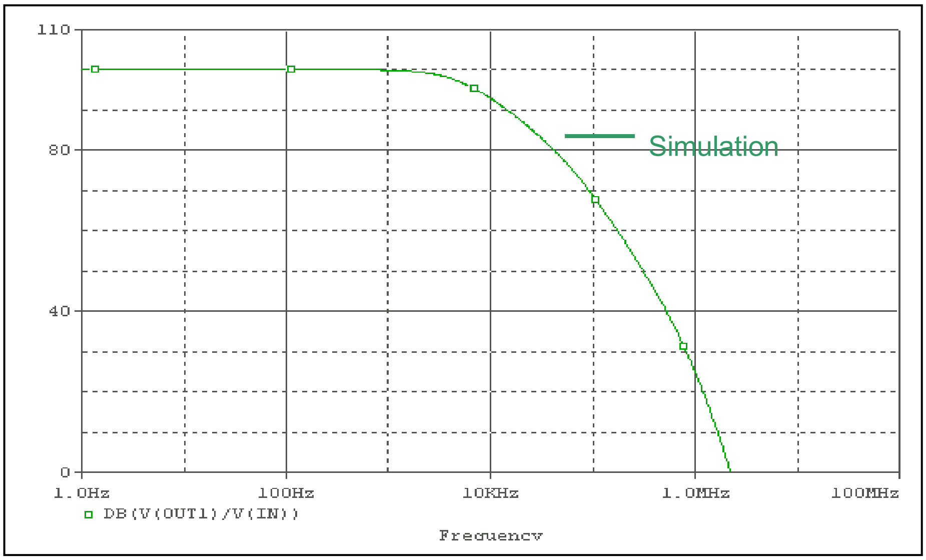
	Measurement	**Simulation**	**%Error**
V_{io} mV)	3	2.995	-0.167

Voltage Gain Characteristics

Evaluation Circuit



Simulation result

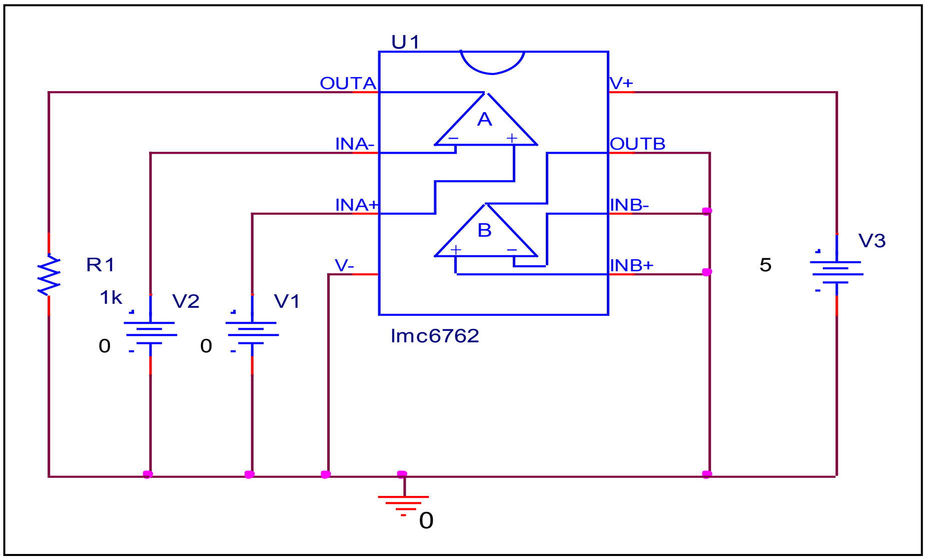


Compasion Table

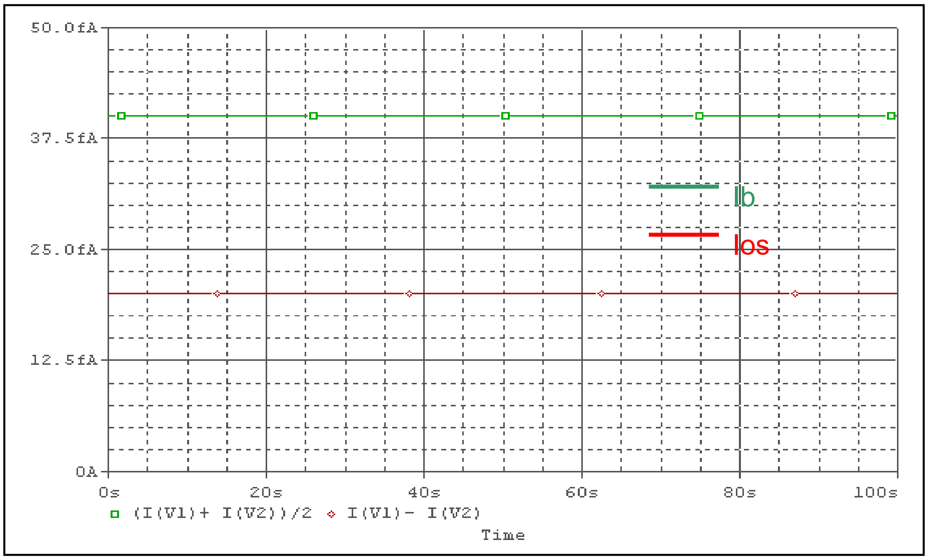
	Data Sheet	Simulation	%Error
Av	100	100.05	0.05

Input Bias Current and Input Offset Current Characteristics

Evaluation Circuit



Simulation result



Compasion Table

	Measurement	Simulation	% Error
Ib (pA)	0.04	0.04	0
Ios(pA)	0.02	0.02	0