Device Modeling Report

COMPONENTS : VOLTAGE COMPARATOR
PART NUMBER : NJM311D
MANUFACTURER : NEW JAPAN RADIO

Bee Technologies Inc.

BJT MODEL

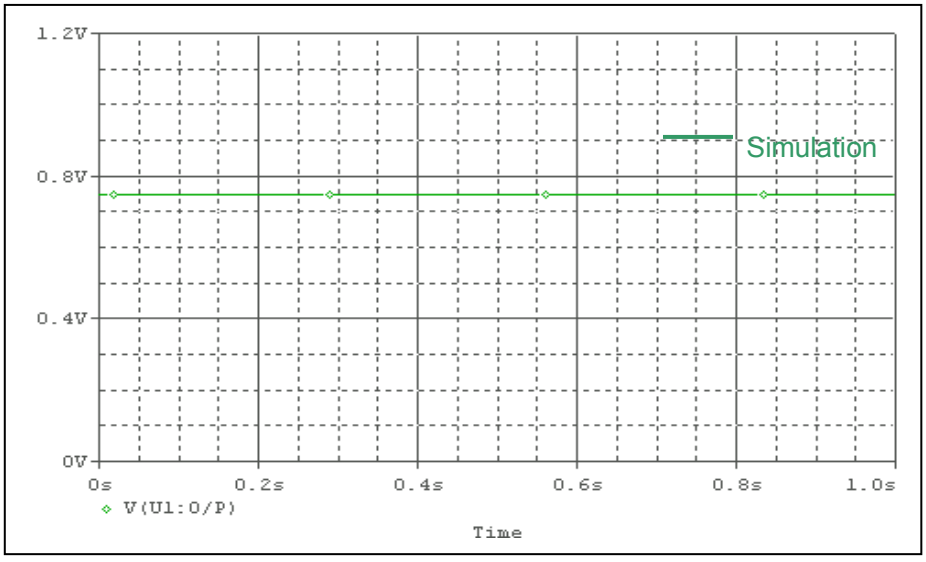
Pspice model parameter	Model description
IS	Saturation Current
BF	Ideal Maximum Forward Beta
CJC	Zero-bias Collector-Base Junction Capacitance
TF	Forward Transit Time
TR	Reverse Transit Time

DIODE MODEL

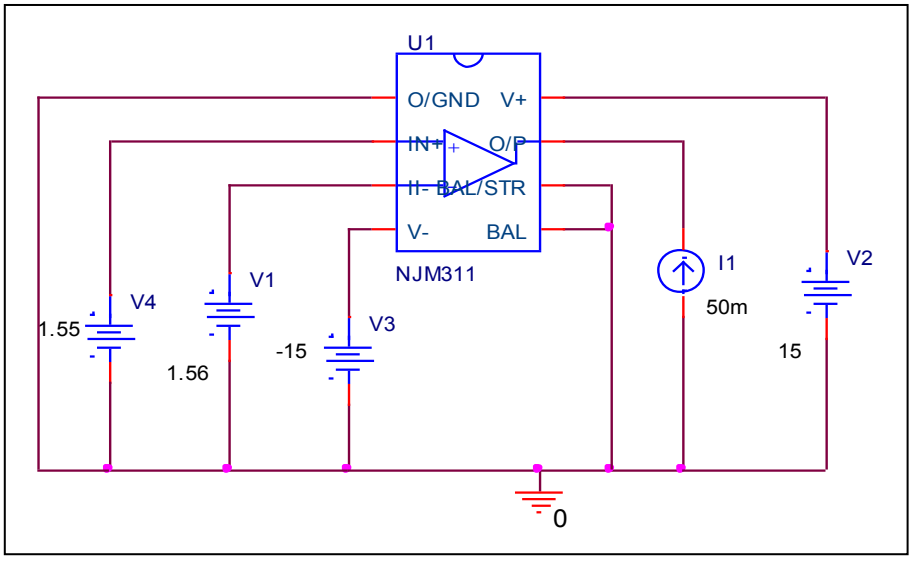
Pspice model parameter	Model description
IS	Saturation Current
RS	Series Resistance

Output Low Voltage

Simulation result



Evaluation Circuit

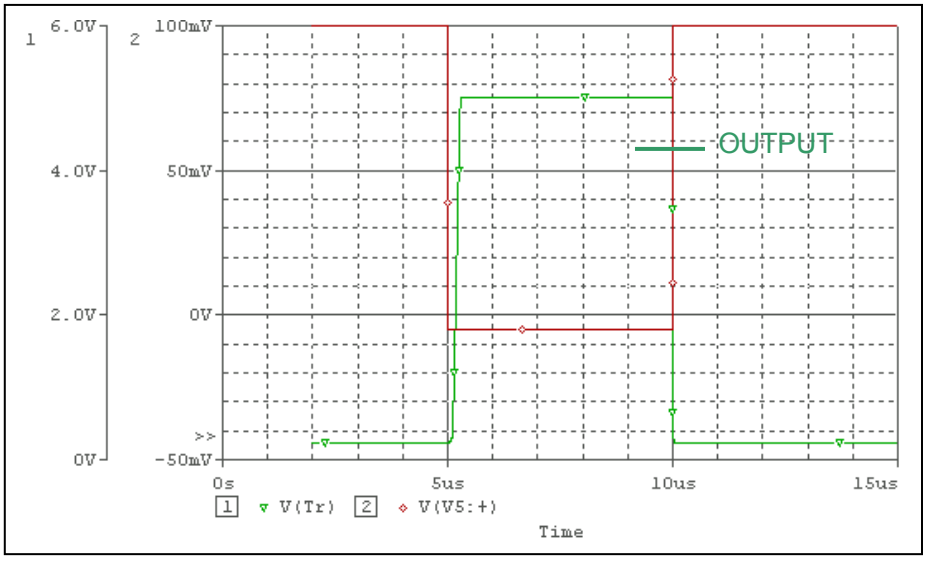


Comparison Table

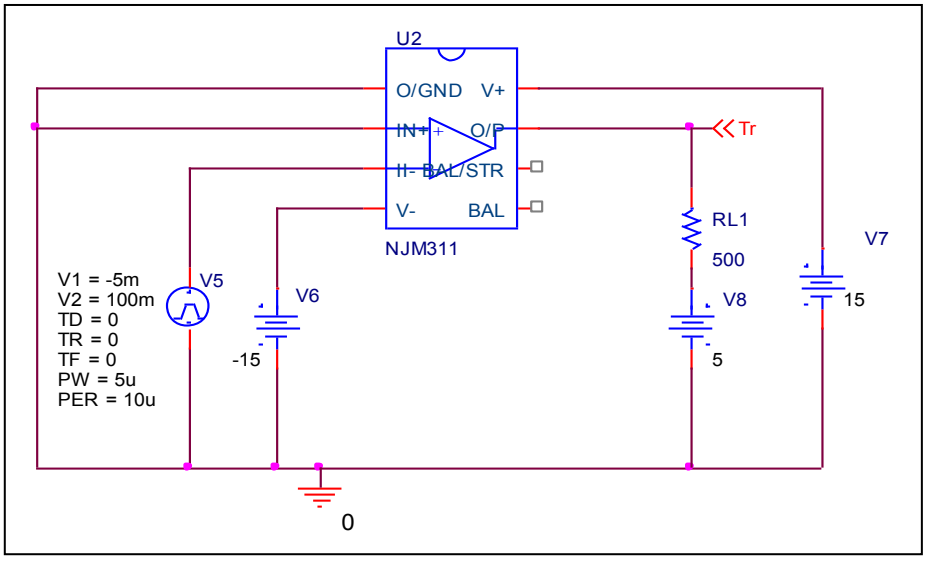
I_O = 50mA	Measurement	Simulation	%Error
V_{ol} (V)	0.75	0.749735	-0.035

Response time

Simulation result



Evaluation Circuit

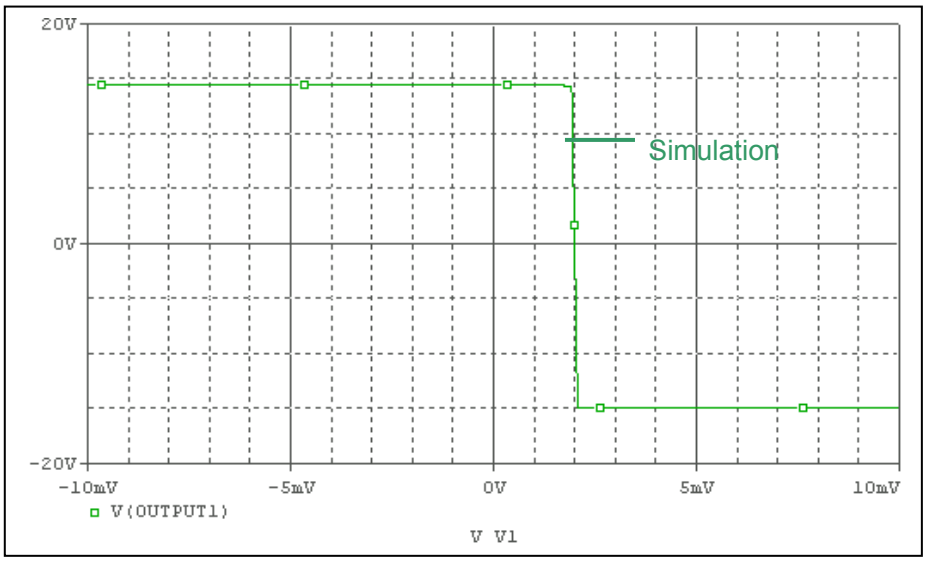


Comparison Table

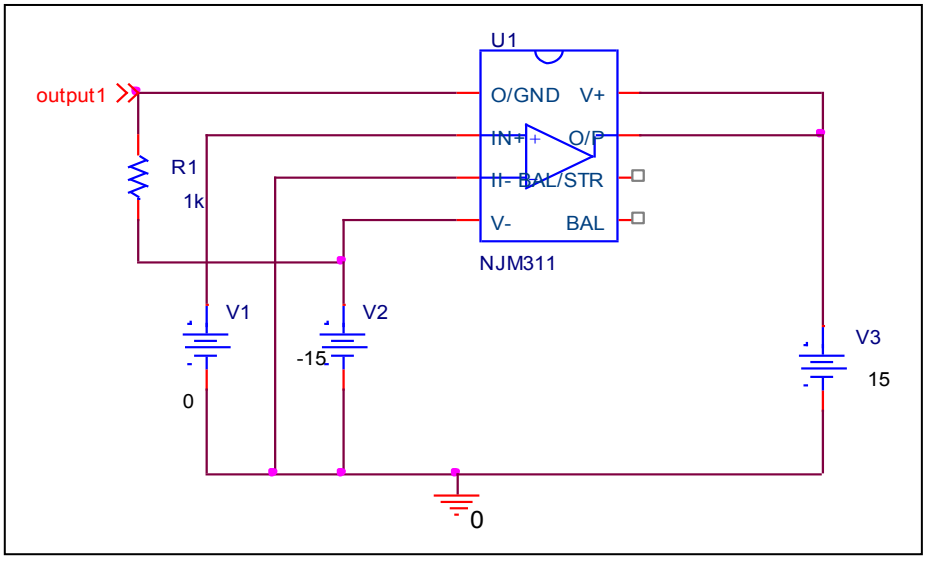
	Measurement	Simulation	% Error
Response time (ns)	200	193.370	-3.315

Input Offset Voltage Characteristics

Simulation result



Evaluation Circuit

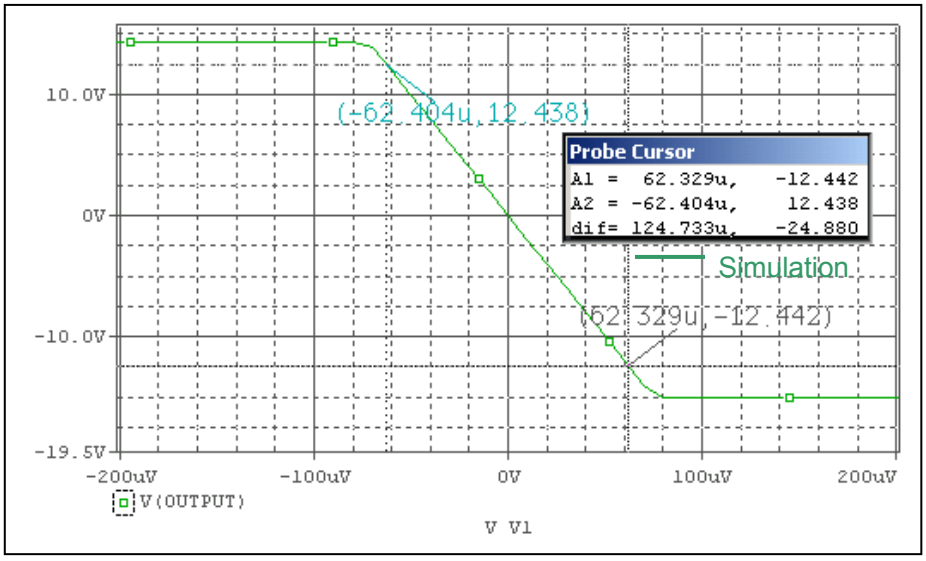


Comparison Table

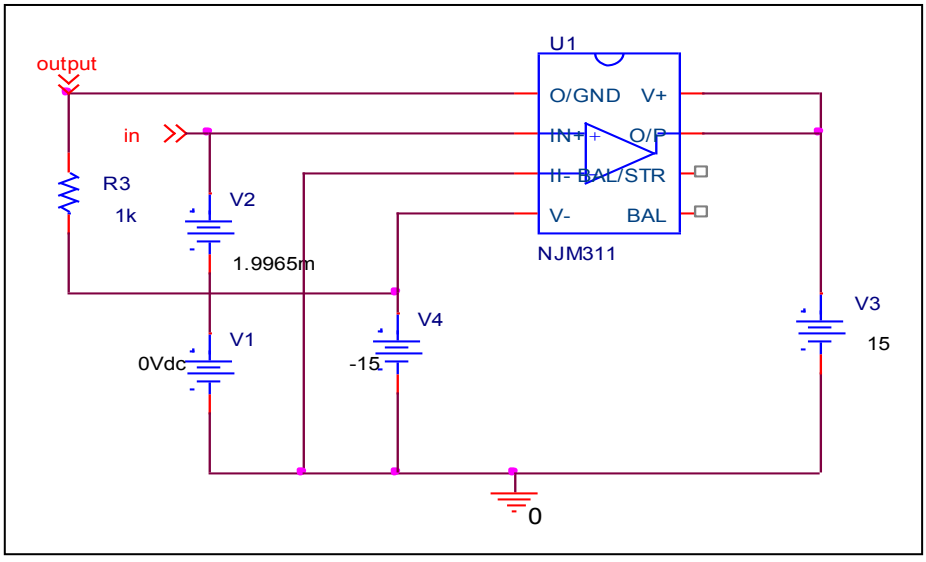
	Measurement	Simulation	%Error
V_{io}(mV)	2	1.9965	-0.175

Av Characteristics

Simulation result



Evaluation Circuit



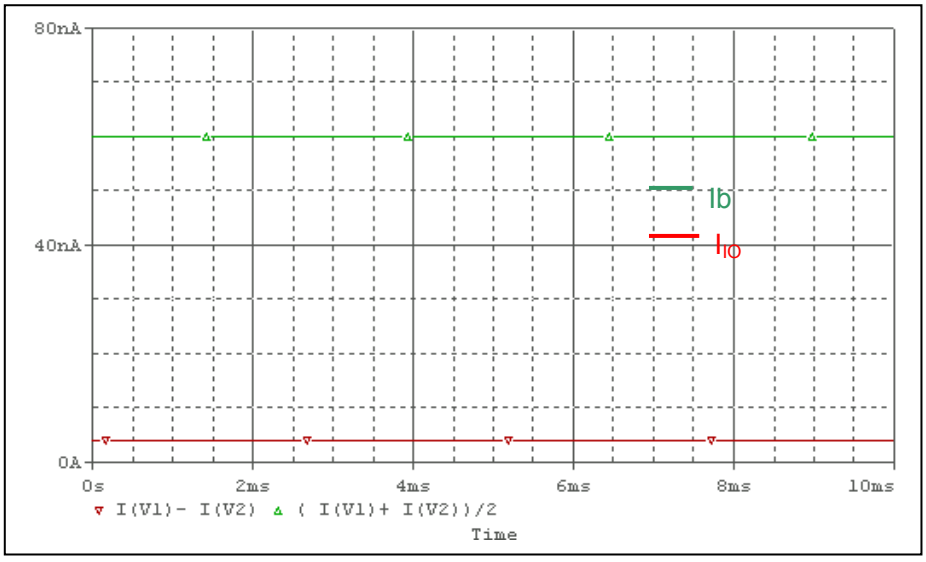
Av = 20*LOG(24.880/124.733u) dB

Comparison Table

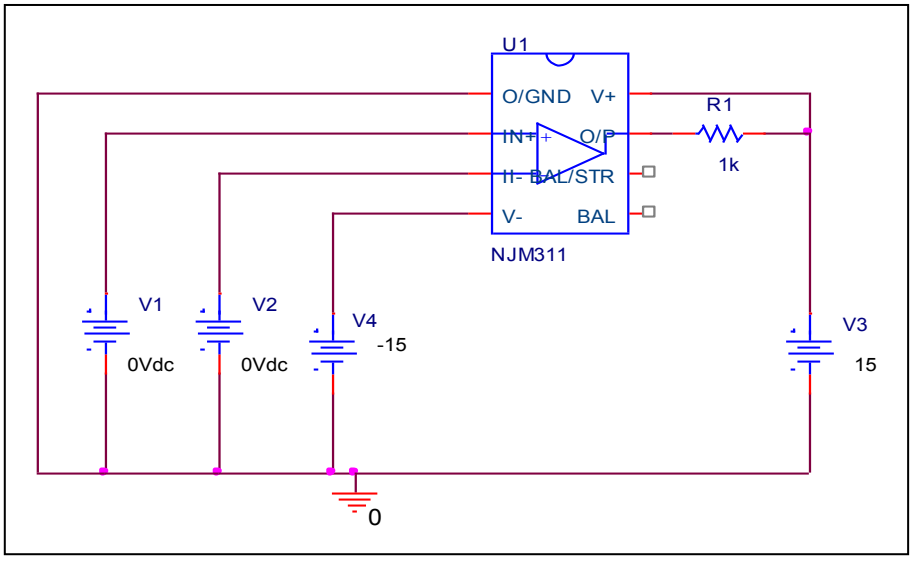
R_L = 1kΩ	Measurement	Simulation	%Error
Av (dB)	106	106	0

Input Bias Current Characteristics

Simulation result



Evaluation Circuit



Comparison Table

	Measurement	Simulation	% Error
Ib (nA)	100	100.059	0.059
I_{IO} (nA)	6	6.0075	0.125