Device Modeling Report

COMPONENTS : VOLTAGE COMPARATOR
PART NUMBER : NJM319D
MANUFACTURER : NEW JAPAN RADIO

Bee Technologies Inc.

BJT MODEL

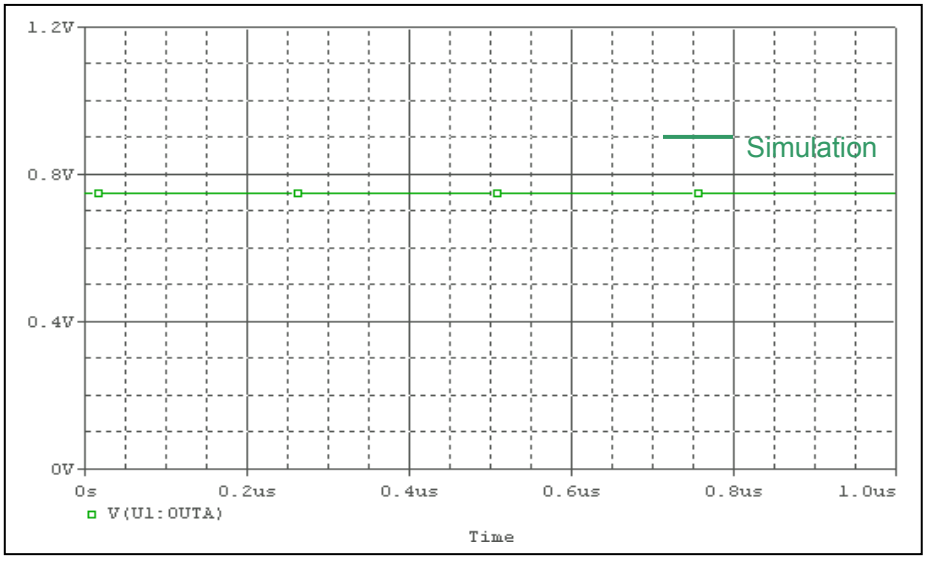
Pspice model parameter	Model description
IS	Saturation Current
BF	Ideal Maximum Forward Beta
CJC	Zero-bias Collector-Base Junction Capacitance
TF	Forward Transit Time
TR	Reverse Transit Time

DIODE MODEL

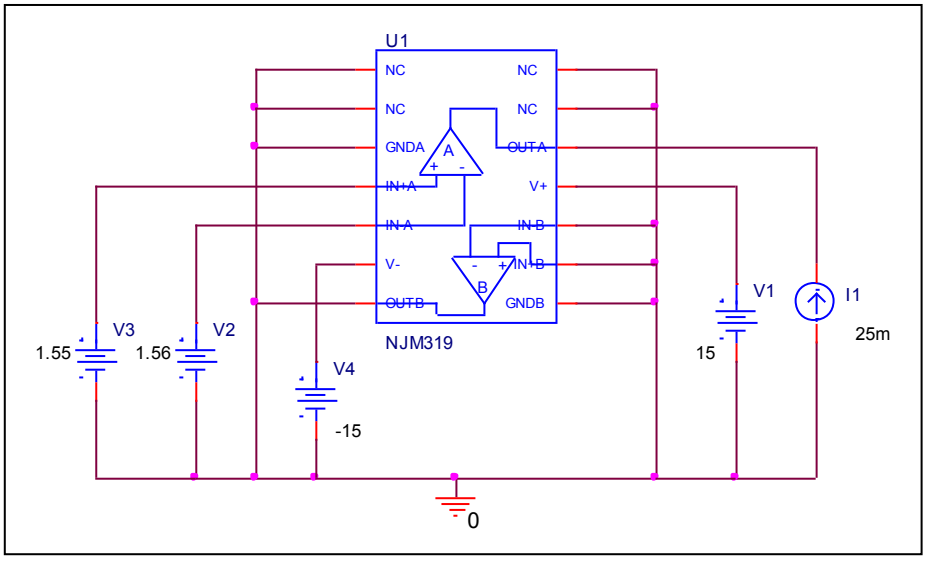
Pspice model parameter	Model description
IS	Saturation Current
RS	Series Resistance

Output Low Voltage

Simulation result



Evaluation Circuit

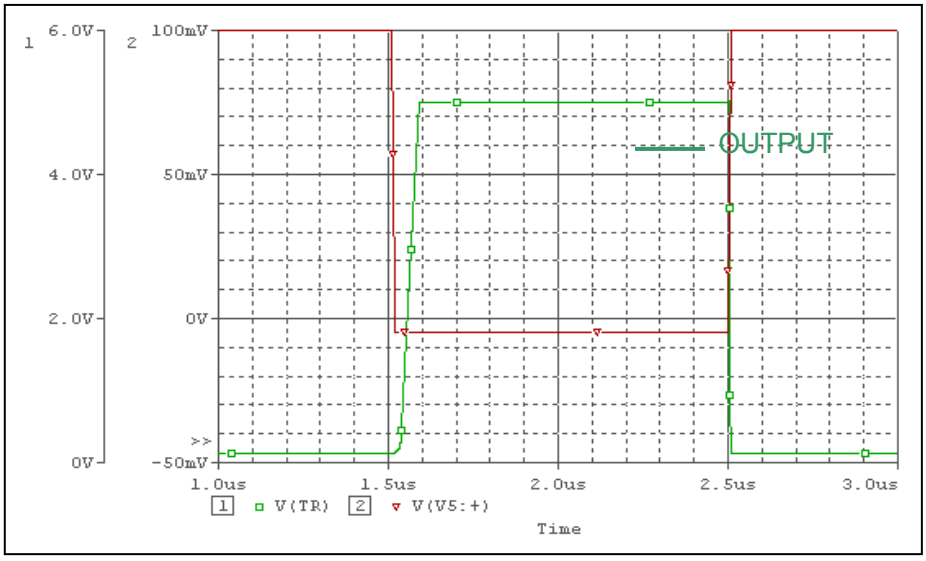


Comparison Table

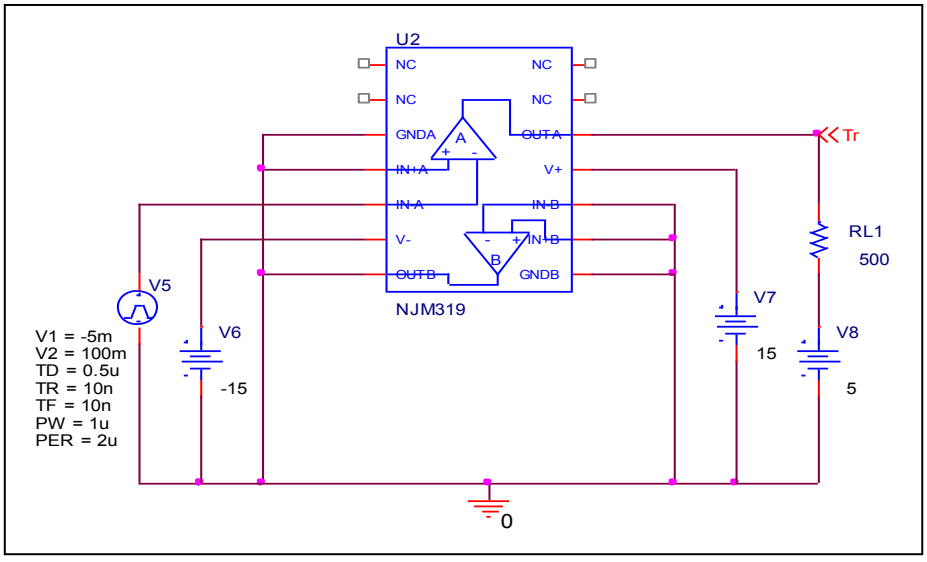
I_O = 25mA	Measurement	Simulation	%Error
V_{ol} (V)	0.75	0.749883	-0.016

Response time (Rise time and Transition time)

Simulation result



Evaluation Circuit

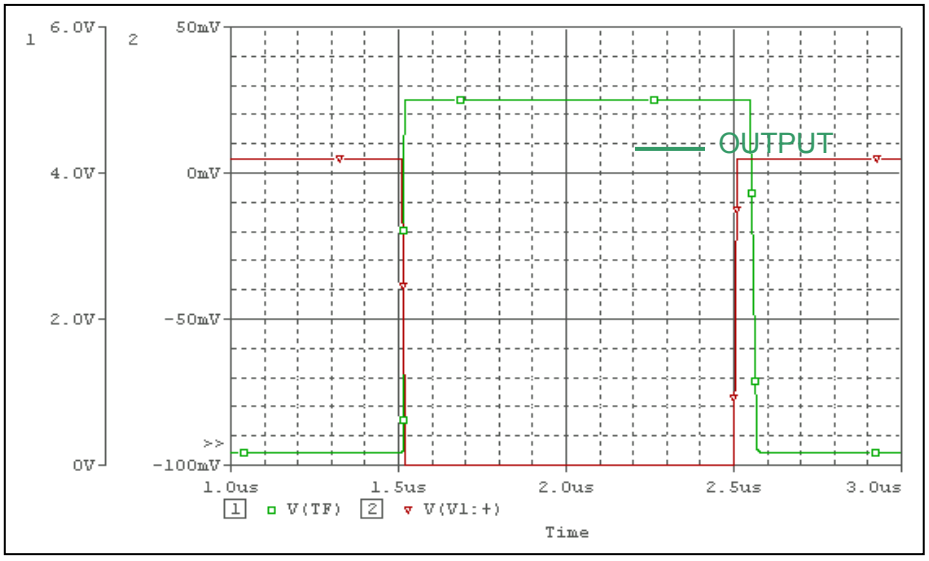


Comparison Table

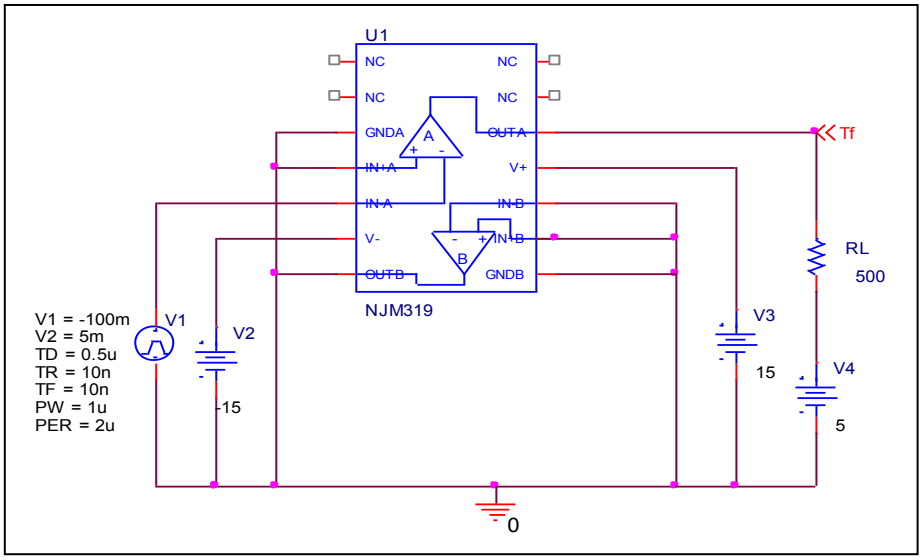
	Measurement	Simulation	% Error
Rising delay time (ns)	30	30.047	0.157
Transition time (ns)	45	45.047	0.104

Response time (Falling time)

Simulation result



Evaluation Circuit

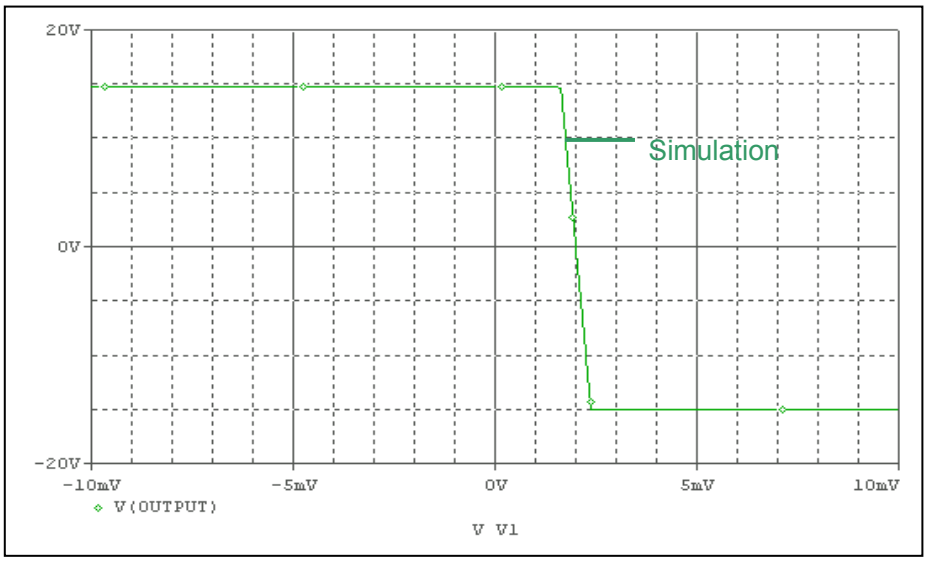


Comparison Table

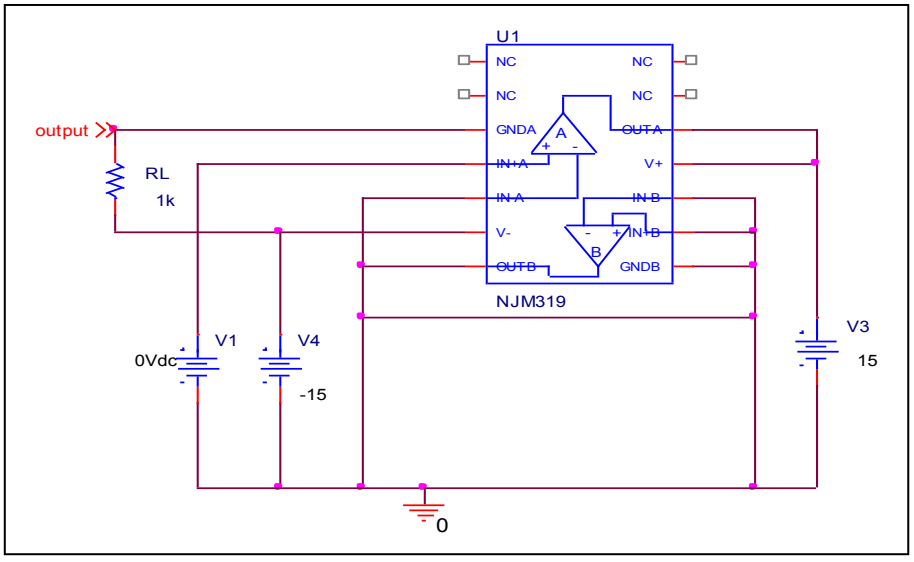
	Measurement	Simulation	% Error
Falling delay time (ns)	50	49.947	-0.106

Input Offset Voltage Characteristics

Simulation result



Evaluation Circuit

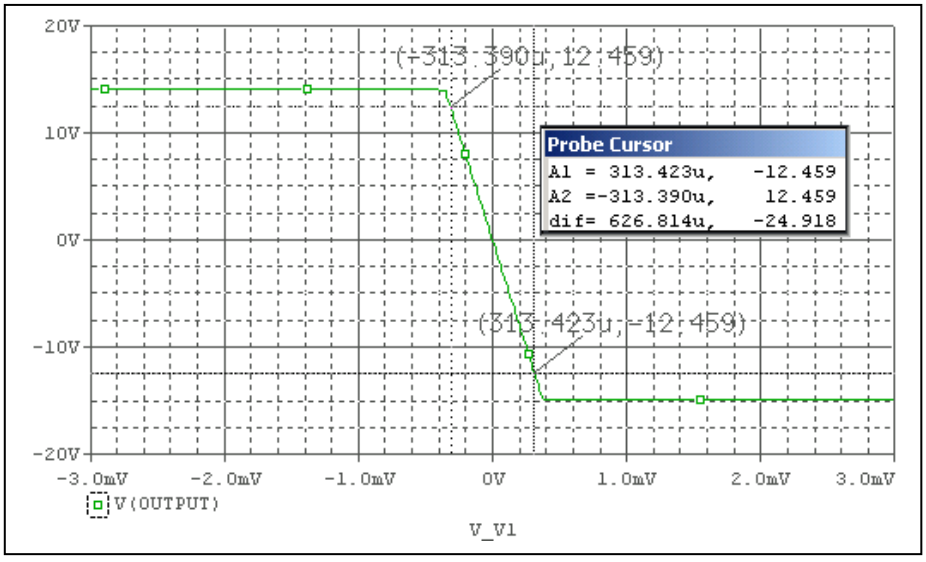


Comparison Table

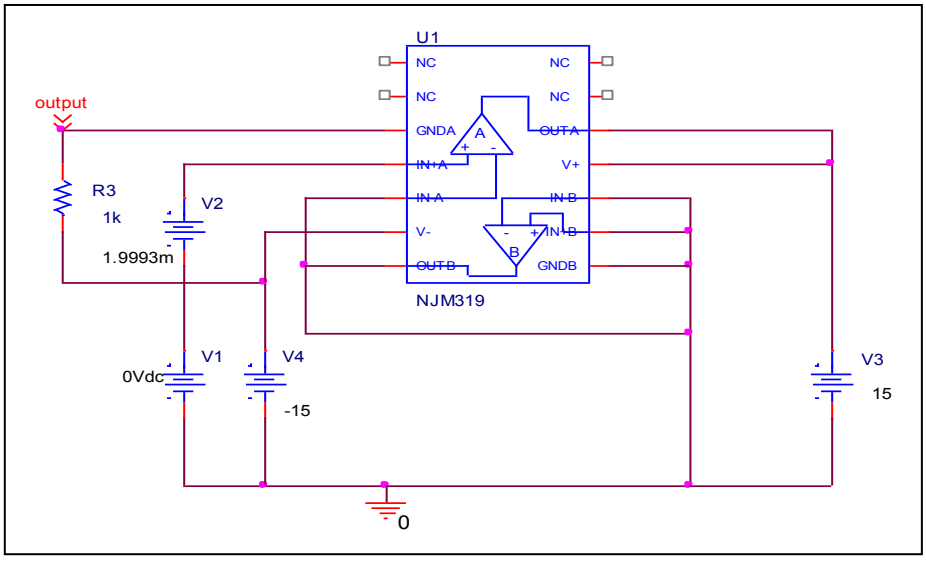
	Measurement	Simulation	%Error
V_{io}(mV)	2	1.9993	-0.035

Av Characteristics

Simulation result



Evaluation Circuit



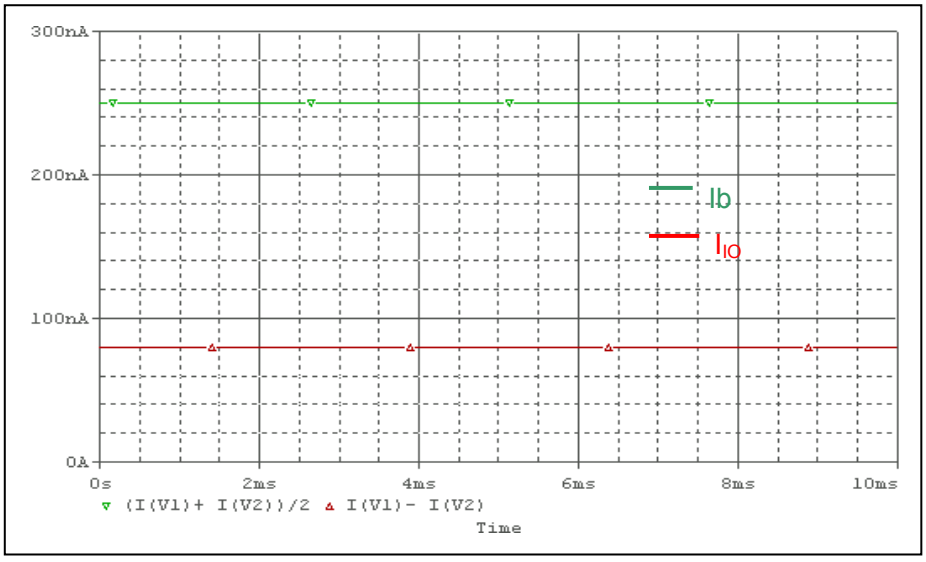
Av = 20*LOG(24.918 / 626.814u)

Comparison Table

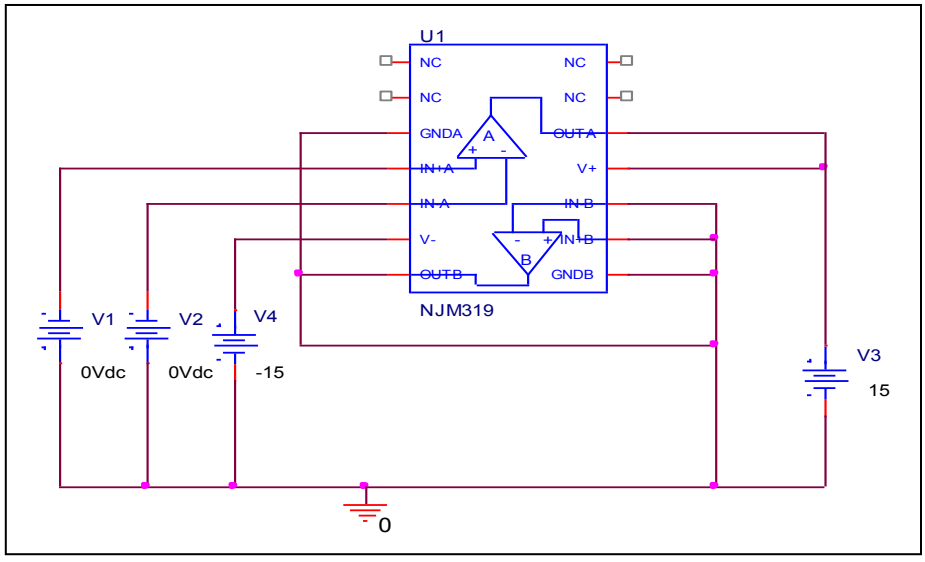
	Measurement	Simulation	%Error
Av (dB)	92	91.987	-0.014

Input Bias Current Characteristics

Simulation result



Evaluation Circuit



Comparison Table

	Measurement	Simulation	% Error
Ib (nA)	250	250.020	0.008
I_{IO} (nA)	80	79.988	-0.015