Device Modeling Report

COMPONENTS : VOLTAGE COMPARATOR
PART NUMBER : LM311M
MANUFACTURER : NATIONAL

Bee Technologies Inc.

BJT MODEL

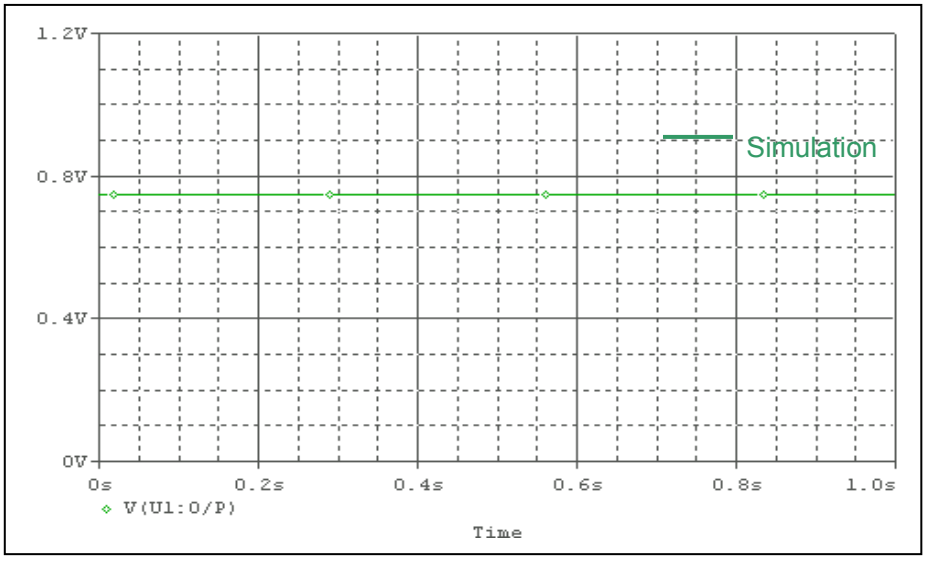
Pspice model parameter	Model description
IS	Saturation Current
BF	Ideal Maximum Forward Beta
CJC	Zero-bias Collector-Base Junction Capacitance
TF	Forward Transit Time
TR	Reverse Transit Time

DIODE MODEL

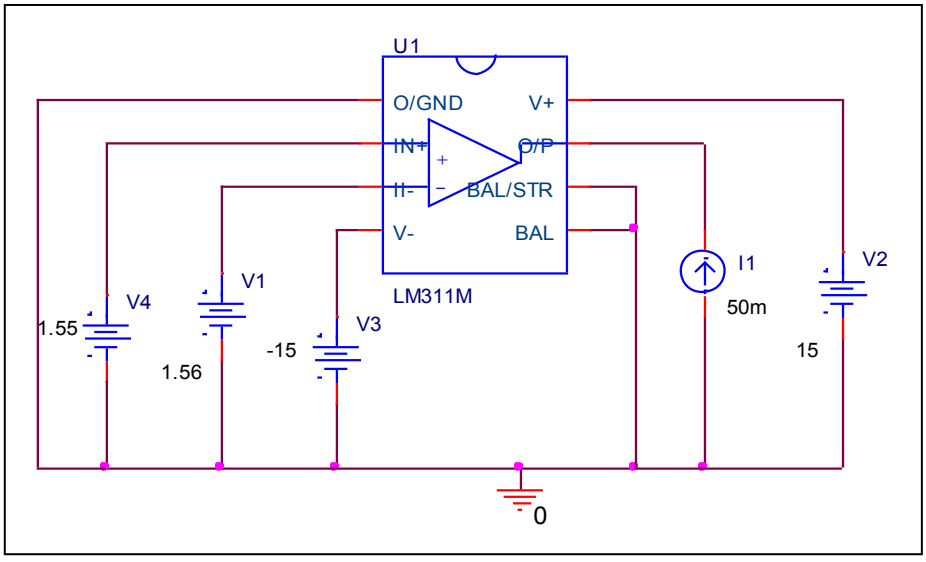
Pspice model parameter	Model description
IS	Saturation Current
RS	Series Resistance

Output Low Voltage

Simulation result



Evaluation Circuit

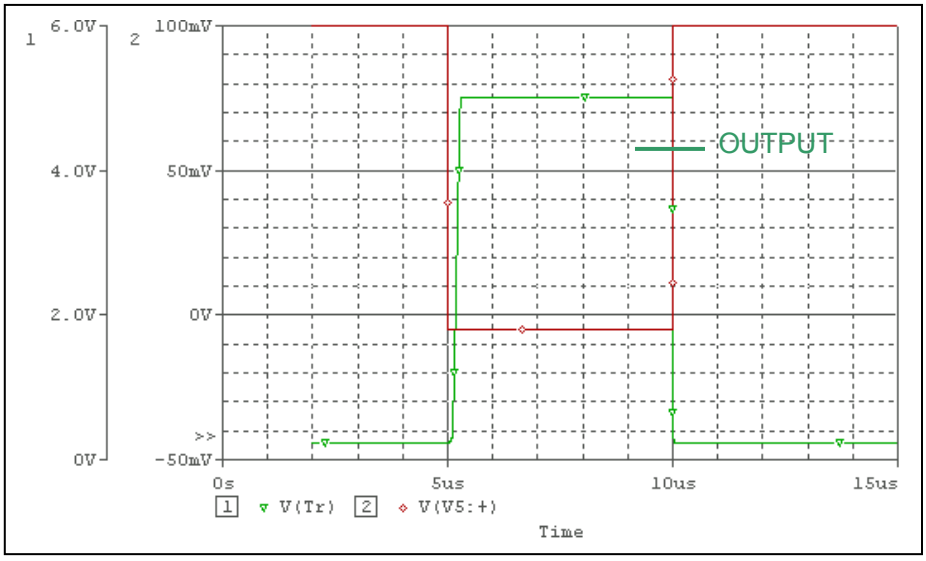


Compasion Table

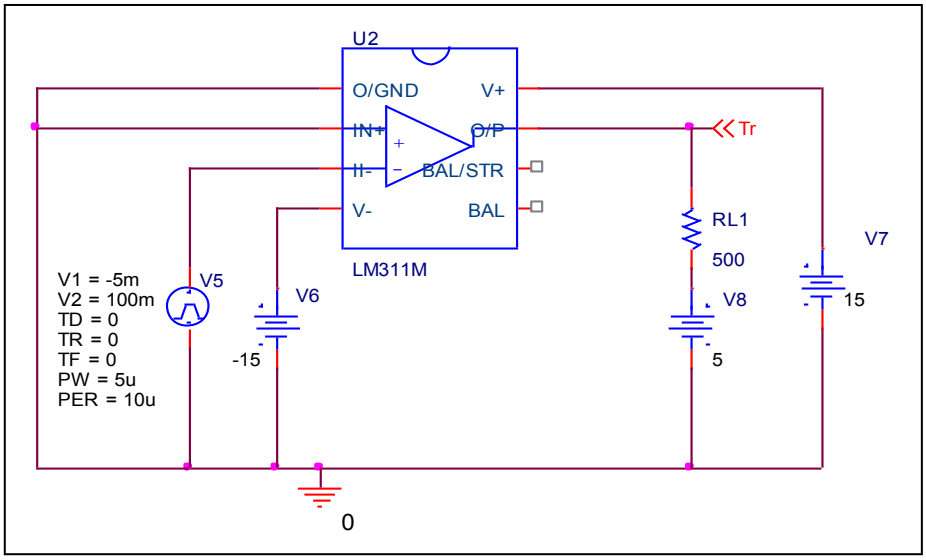
I_O = 50mA	Measurement	Simulation	%Error
V_{ol} (V)	0.75	0.749735	-0.035

Response time (Rise time and Transition time)

Simulation result



Evaluation Circuit

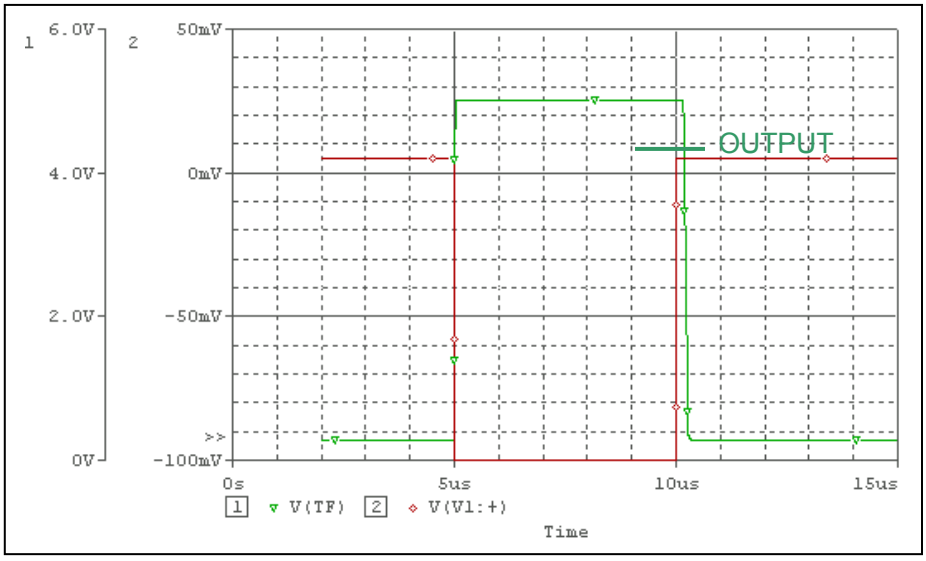


Compasion Table

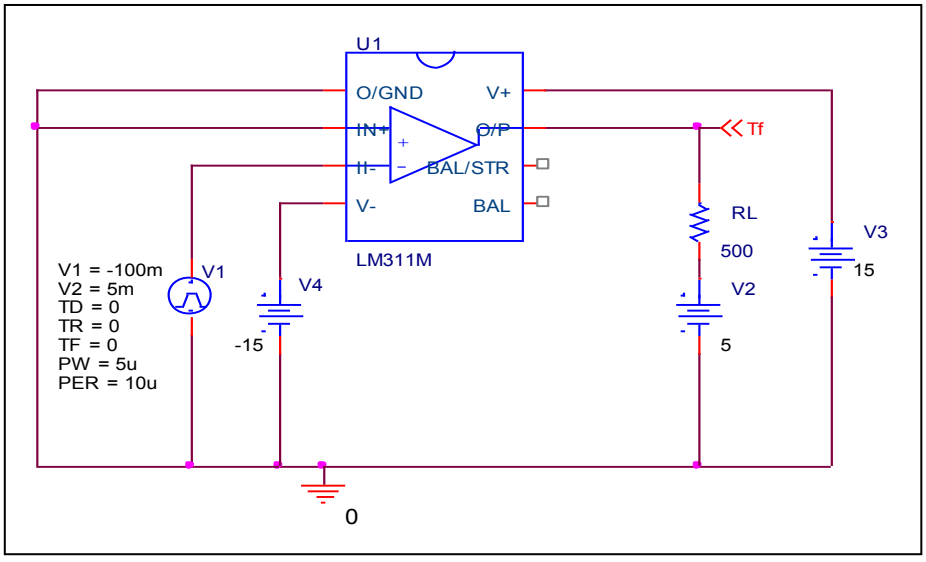
	Measurement	Simulation	% Error
Rising delay time (us)	0.125	0.124079	-0.737
Transition time (us)	0.140	0.13897	-0.736

Response time (Falling time)

Simulation result



Evaluation Circuit

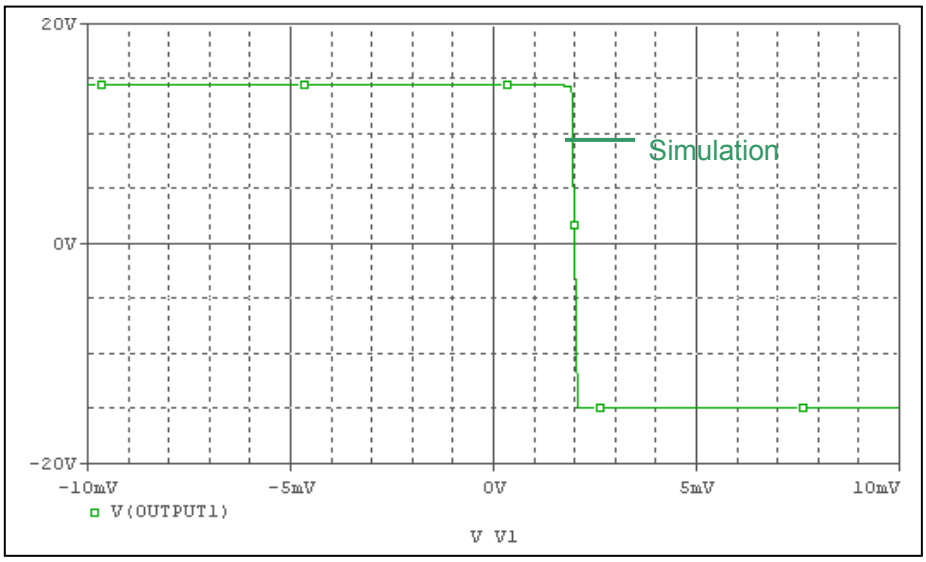


Compasion Table

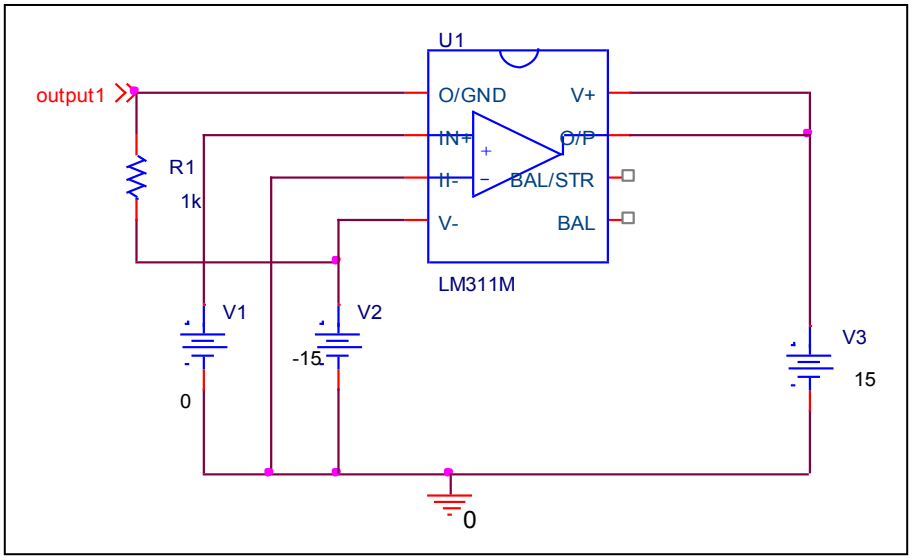
	Measurement	Simulation	% Error
Falling delay time (us)	0.175	0.174974	-0.015

Input Offset Voltage Characteristics

Simulation result



Evaluation Circuit

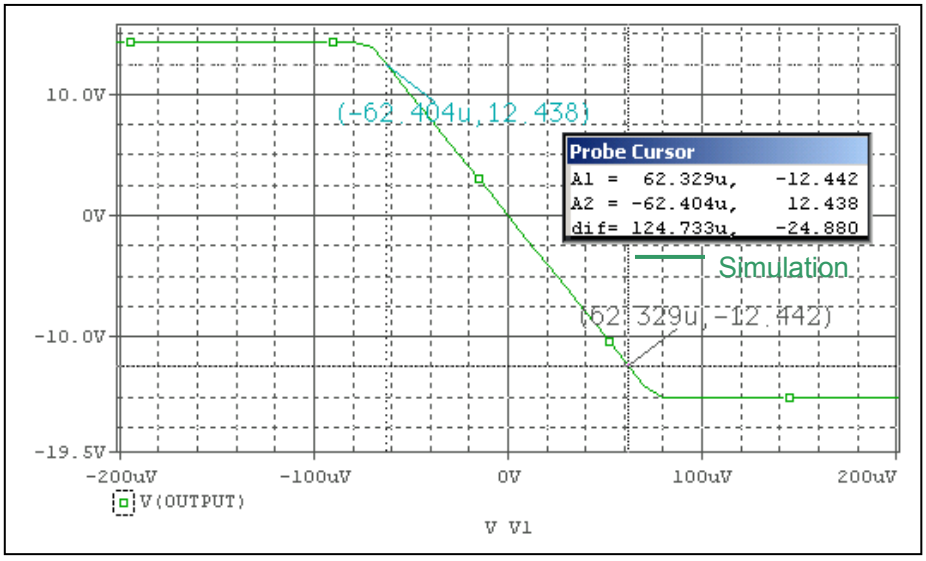


Compasion Table

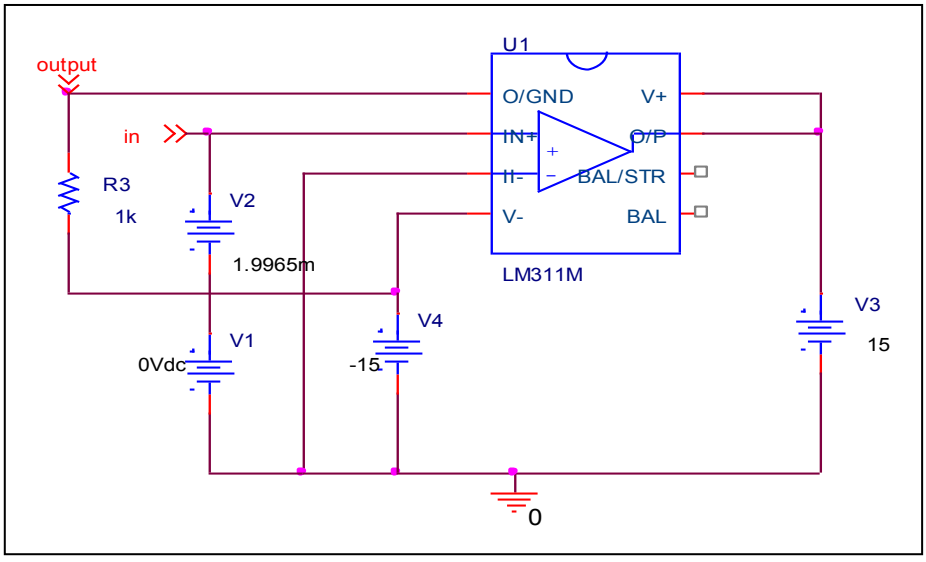
	Measurement	Simulation	%Error
V_{io}(mV)	2	1.9965	-0.175

Av Characteristics

Simulation result



Evaluation Circuit



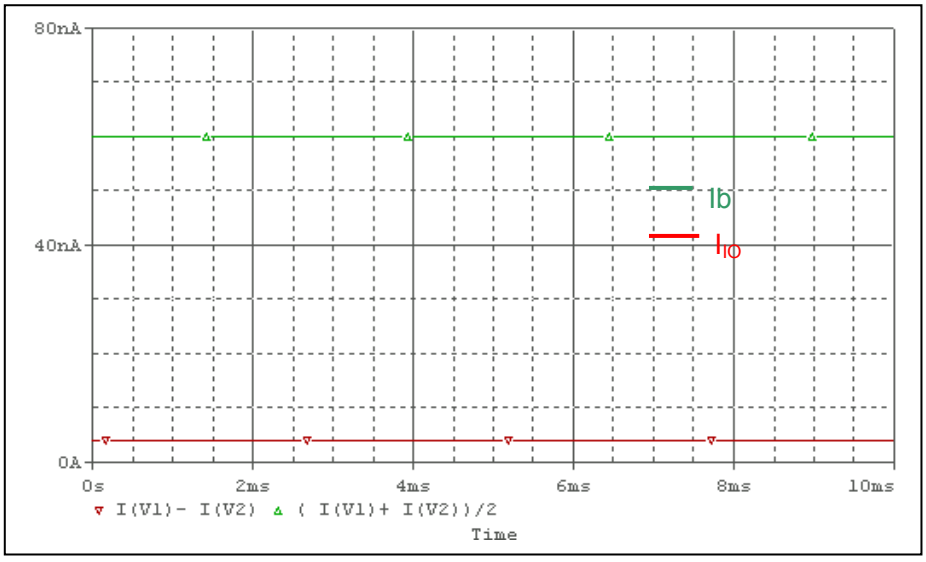
Av = 24.880 / 124.733u

Compasion Table

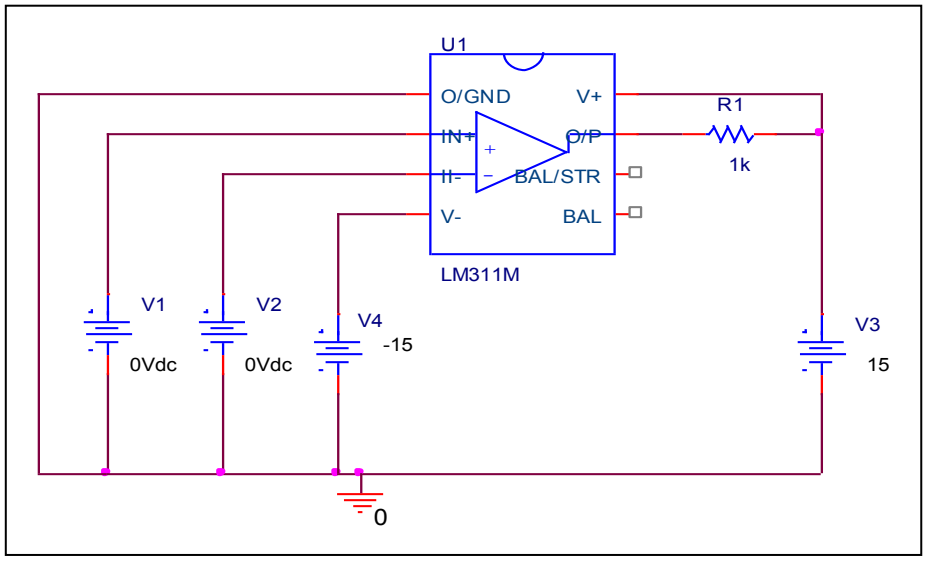
R_L = 1kΩ	Measurement	Simulation	%Error
Av (V/mV)	200	199.466	-0.267

Input Bias Current Characteristics

Simulation result



Evaluation Circuit



Compasion Table

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