Device Modeling Report

COMPONENTS:
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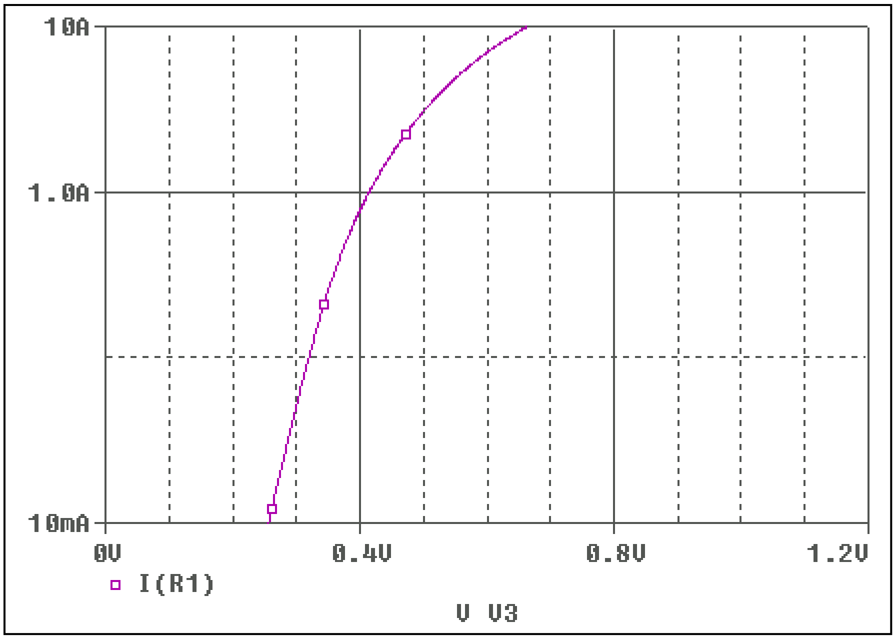
Bee Technologies Inc.

DIODE SPICE MODEL

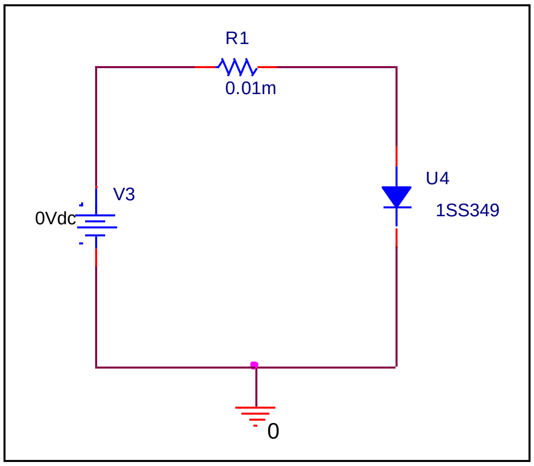
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a positive value)
IBV	Reverse Breakdown Current(a positive value)
TT	Transit Time
EG	Energy-band Gap

Forward Current Characteristic

Circuit Simulation Result

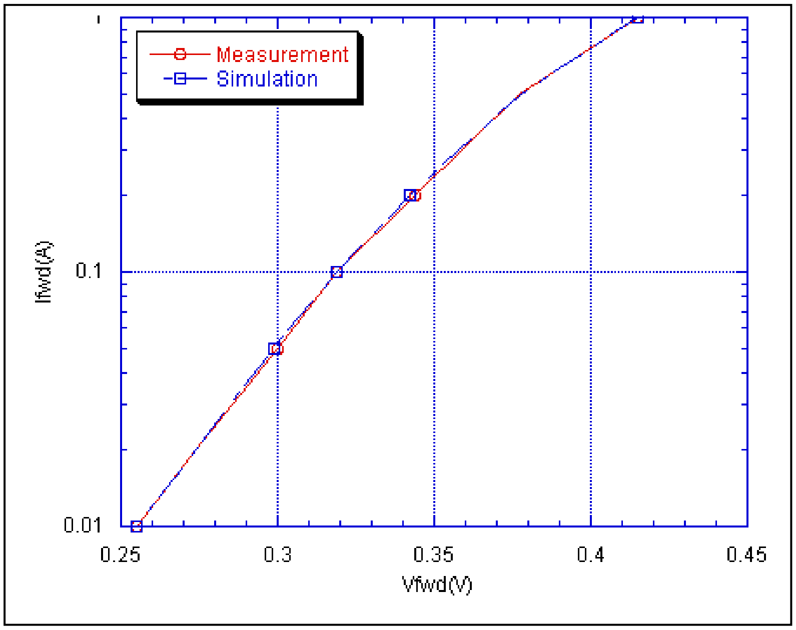


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

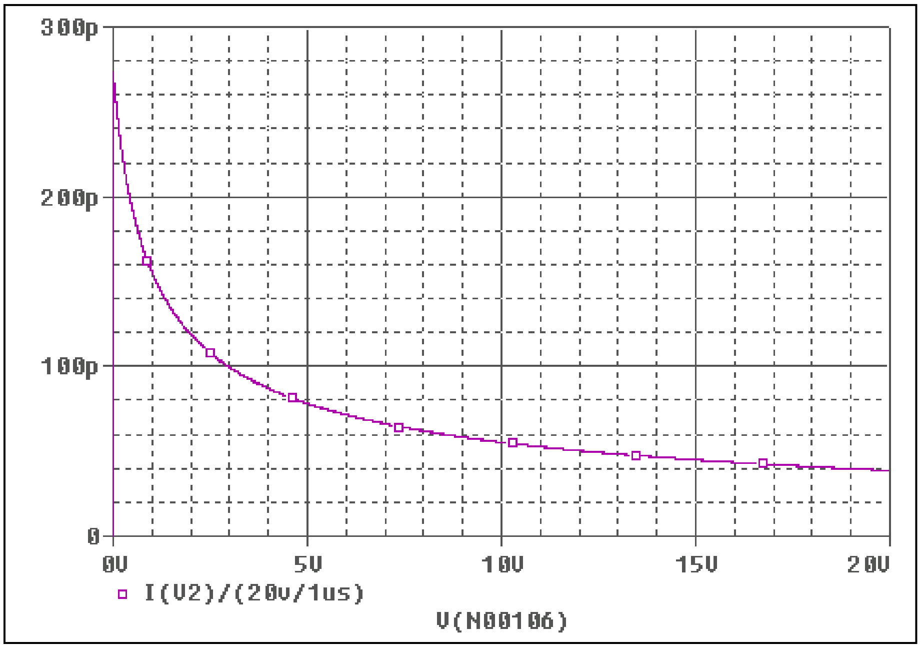


Simulation Result

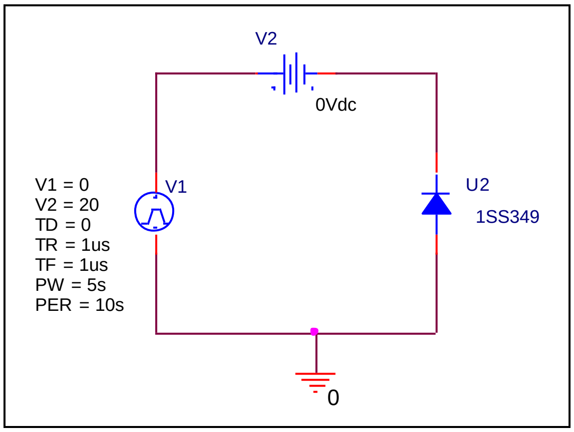
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.257	0.255	-0.78
0.02	0.275	0.274	-0.36
0.05	0.300	0.299	-0.33
0.1	0.320	0.319	-0.31
0.2	0.344	0.342	-0.58
0.5	0.377	0.378	0.27
1	0.416	0.415	-0.24

Junction Capacitance Characteristic

Circuit Simulation Result



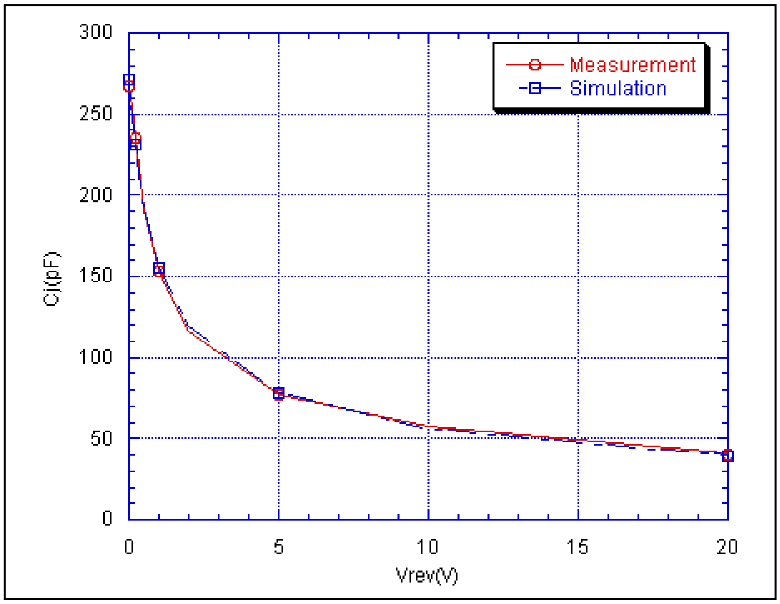
Evaluation Circuit



V1 = 0
V2 = 20
TD = 0
TR = 1us
TF = 1us
PW = 5s
PER = 10s

Comparison Graph

Circuit Simulation Result

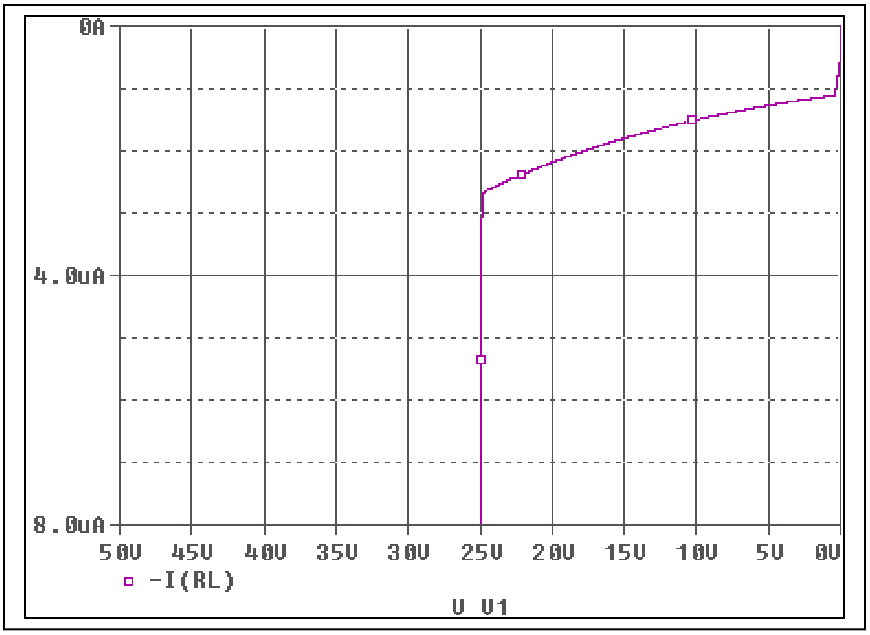


Simulation Result

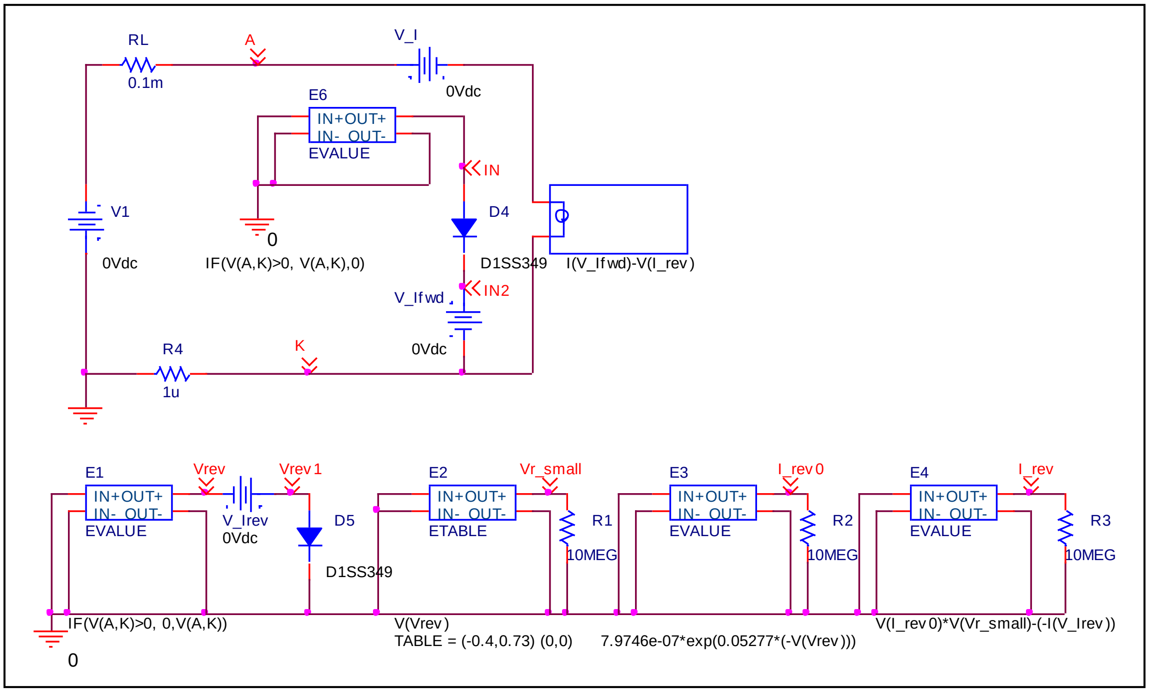
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	267.605	271.600	1.49
0.1	254.373	249.593	-1.88
0.2	235.613	230.580	-2.14
0.5	190.842	192.148	0.68
1	152.713	154.828	1.38
2	115.885	118.750	2.47
5	77.354	78.011	0.85
10	57.421	55.277	-3.73
20	40.519	38.720	-4.44

Reverse Characteristic

Circuit Simulation Result

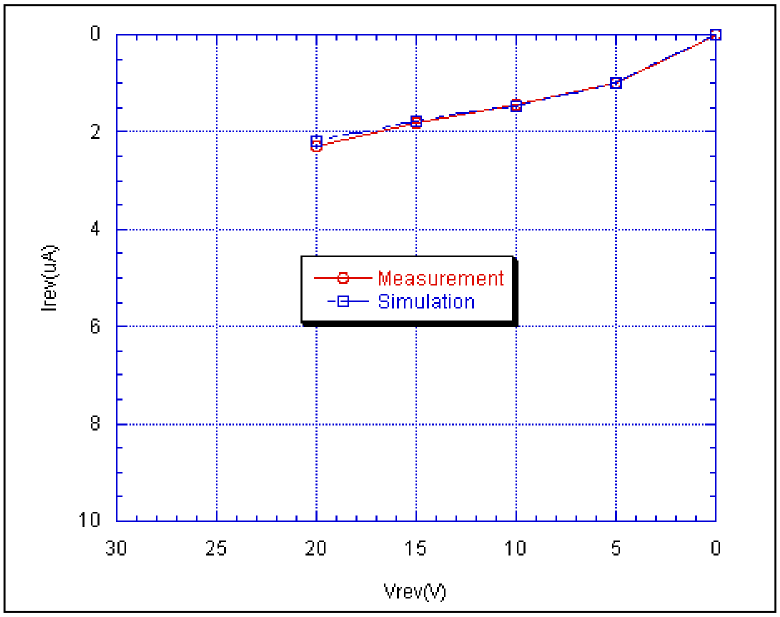


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

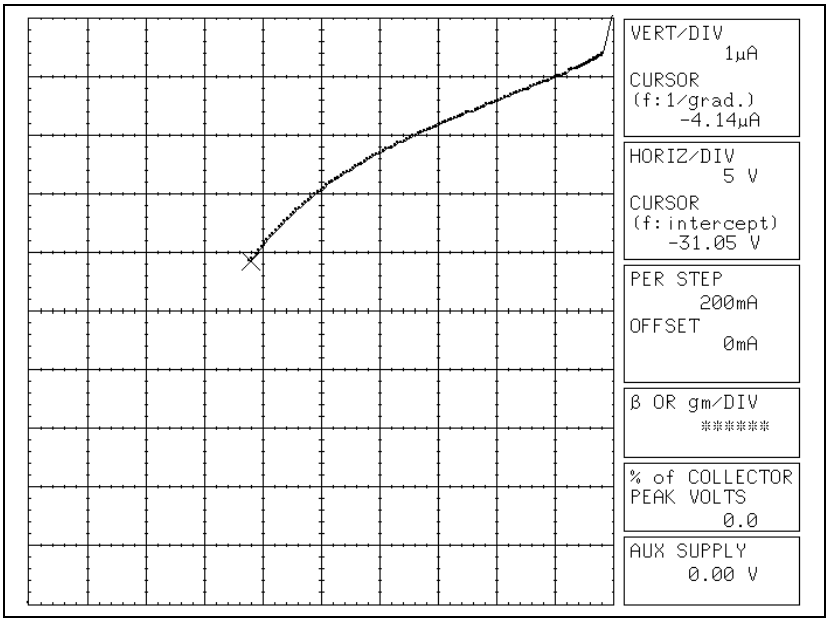


Simulation Result

Vrev(V)	Irev(uA) Measurement	Irev(uA) Simulation	%Error
20	2.300	2.200	-4.35
15	1.800	1.790	-0.56
10	1.450	1.490	2.76

Reverse Characteristic

Reference



VERT/DIV
1µA
CURSOR
(f:1/grad.)
-4.14µA

HORIZ/DIV
5 V
CURSOR
(f:intercept)
-31.05 V

PER STEP
200mA
OFFSET
0mA

ß OR gm/DIV
******

% of COLLECTOR
PEAK VOLTS
0.0

AUX SUPPLY
0.00 V