Device Modeling Report

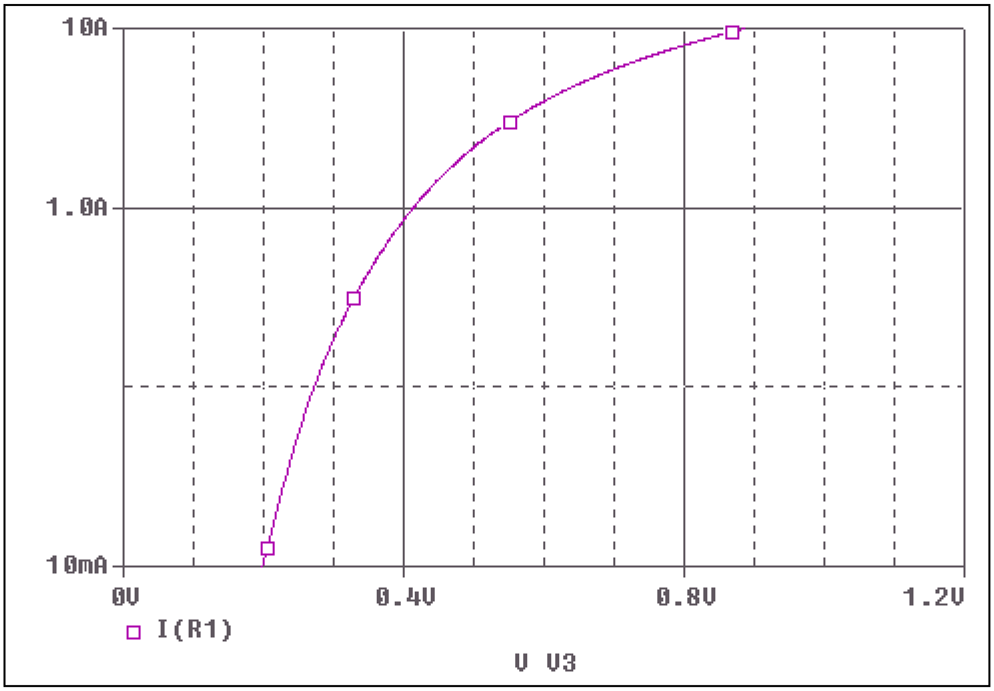
COMPONENTS:DIODE/ SCHOTTKY RECTIFIER
PART NUMBER: 1N5819
MANUFACTURER: ON SEMICONDUCTOR

Bee Technologies Inc.

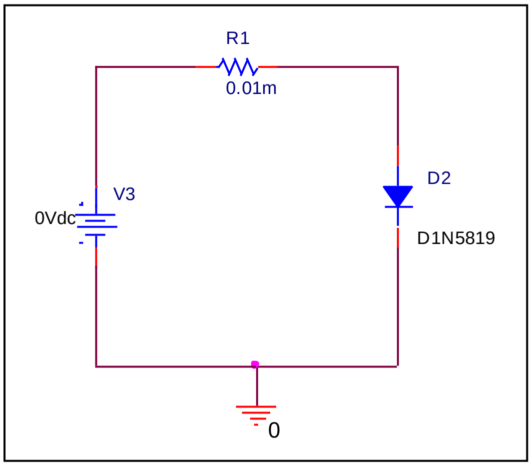
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

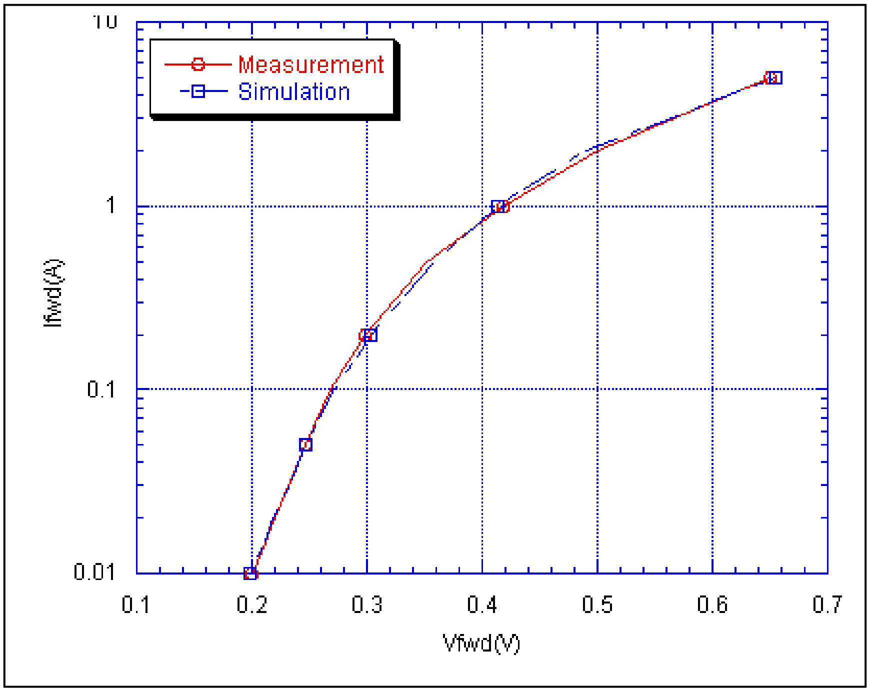


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

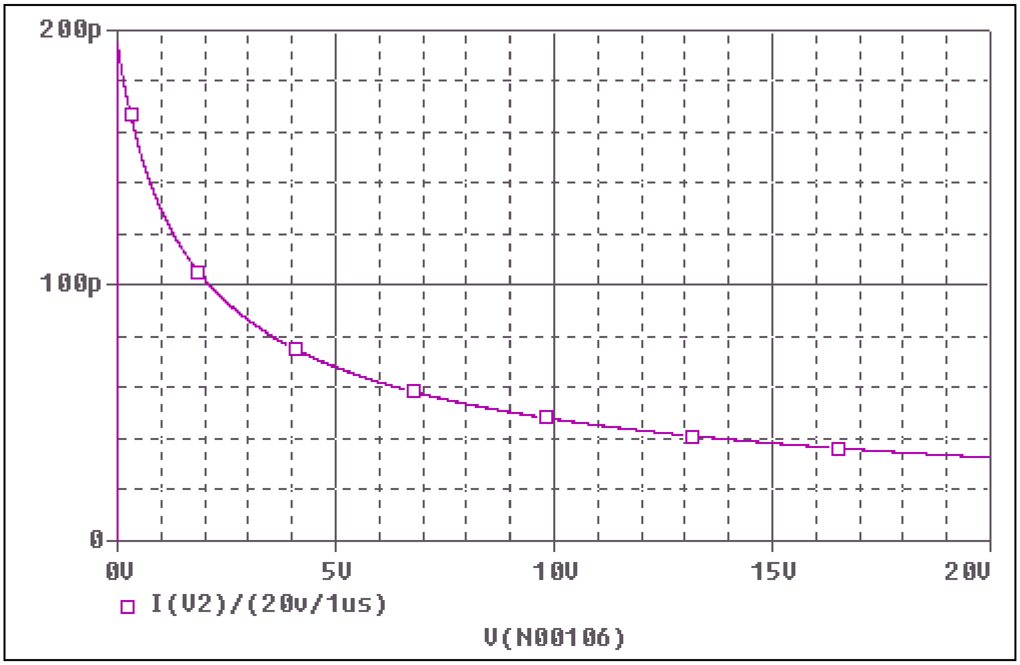


Simulation Result

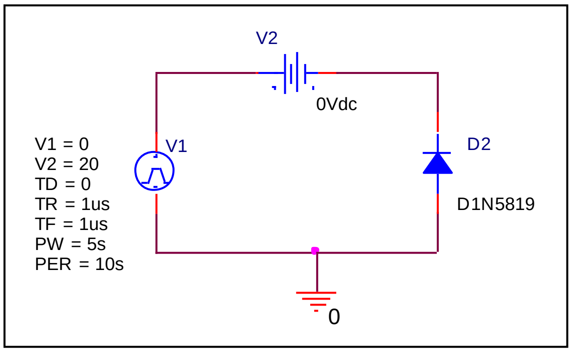
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.20	0.20	-1.01
0.02	0.22	0.22	-0.92
0.05	0.25	0.25	-0.41
0.1	0.27	0.27	1.11
0.2	0.30	0.30	1.32
0.5	0.35	0.36	1.68
1	0.42	0.41	-1.21
2	0.50	0.49	-2.25
5	0.65	0.66	0.76

Junction Capacitance Characteristic

Circuit Simulation Result

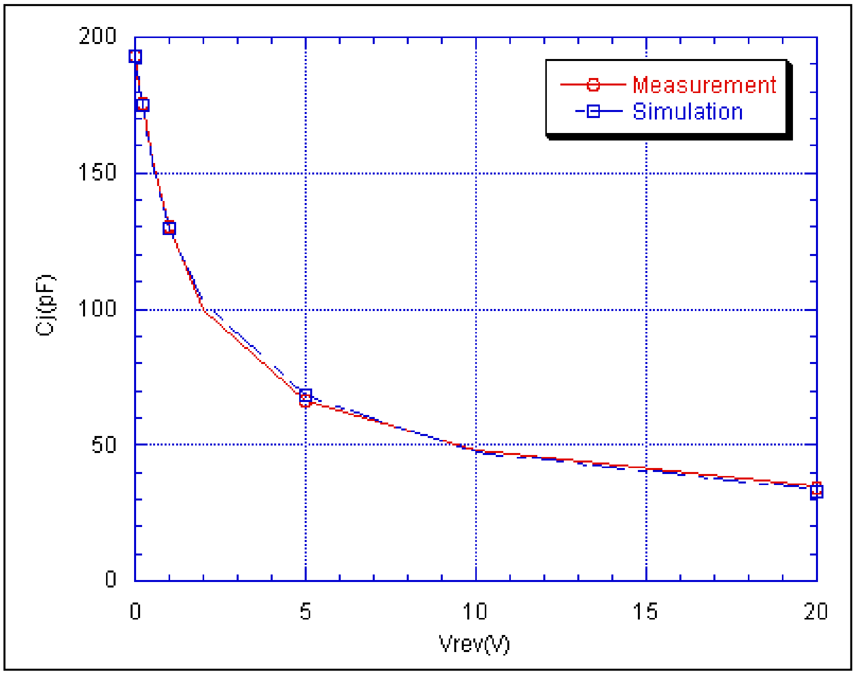


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	193.17	193.17	0.00
0.1	181.27	183.93	1.45
0.2	175.69	174.61	-0.61
0.5	155.55	153.29	-1.47
1	130.64	129.74	-0.70
2	99.58	102.24	2.61
5	65.99	68.15	3.17
10	48.00	47.73	-0.58
20	34.32	32.72	-4.89