Device Modeling Report

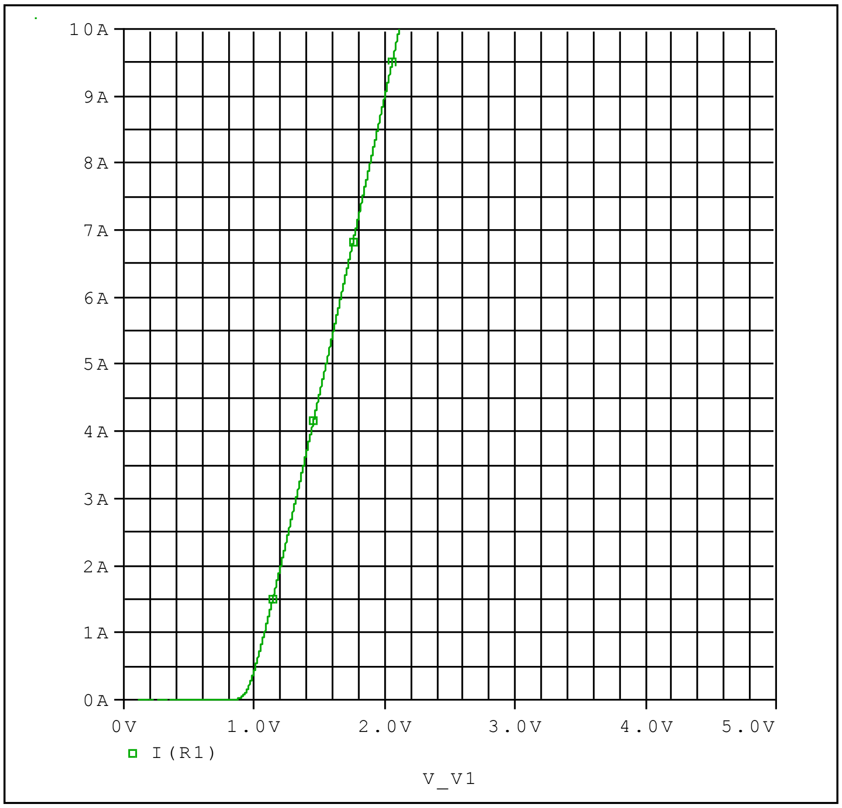
COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: CSD05120A
MANUFACTURER: Cree, Inc.
REMARK: Professional Model

Bee Technologies Inc.

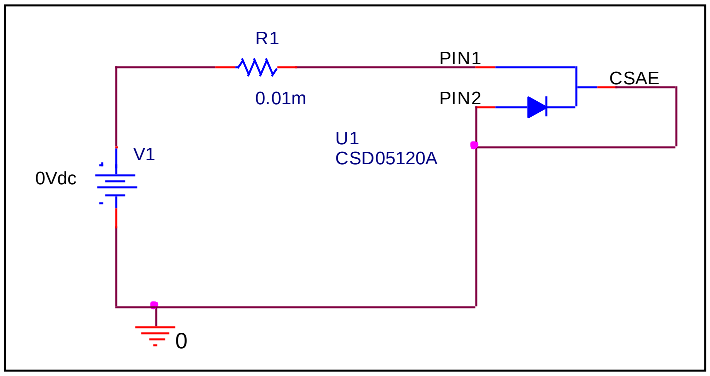
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

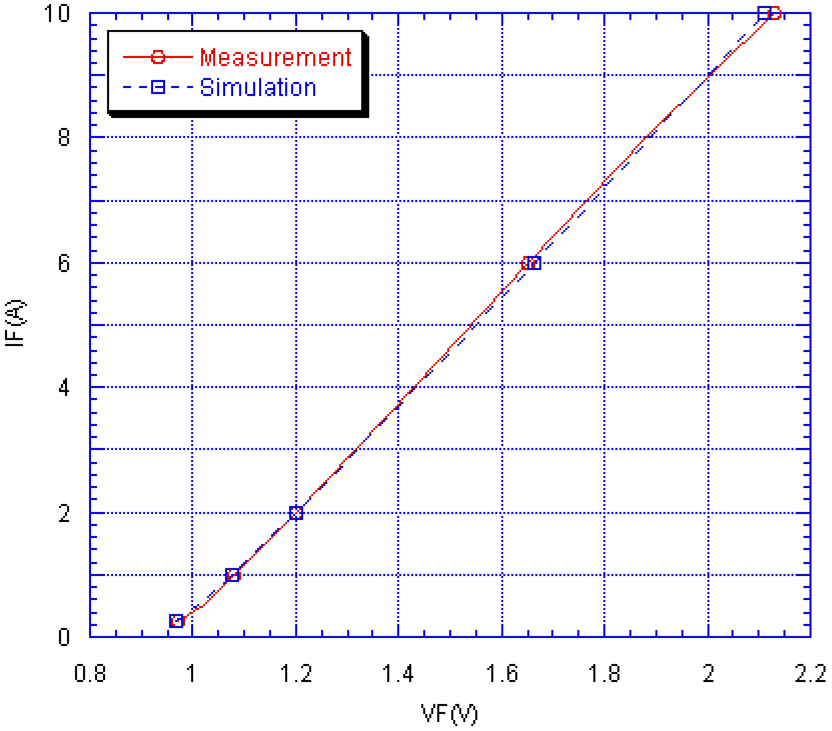


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

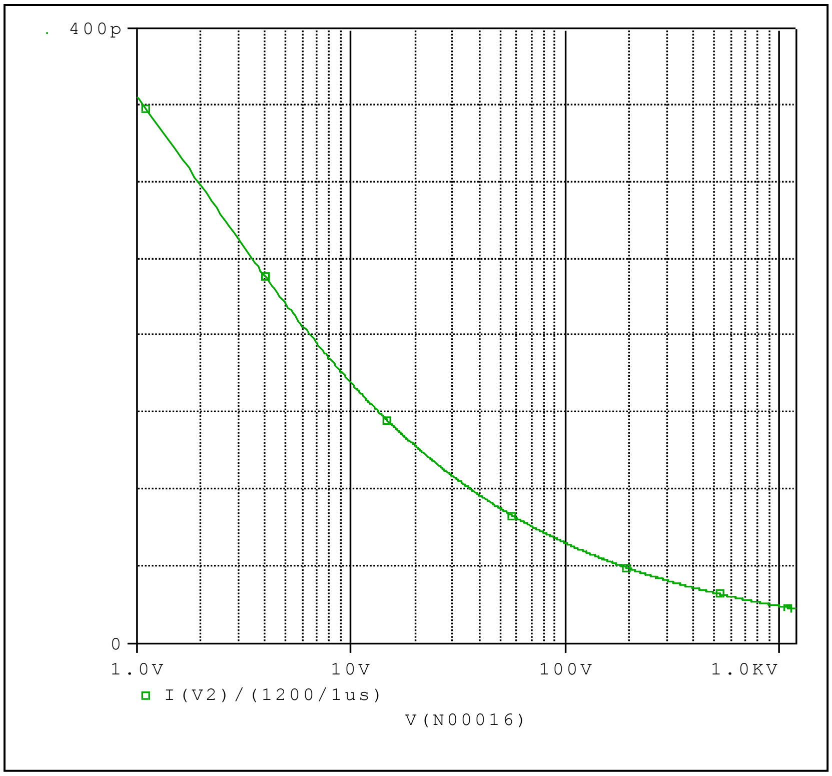


Simulation Result

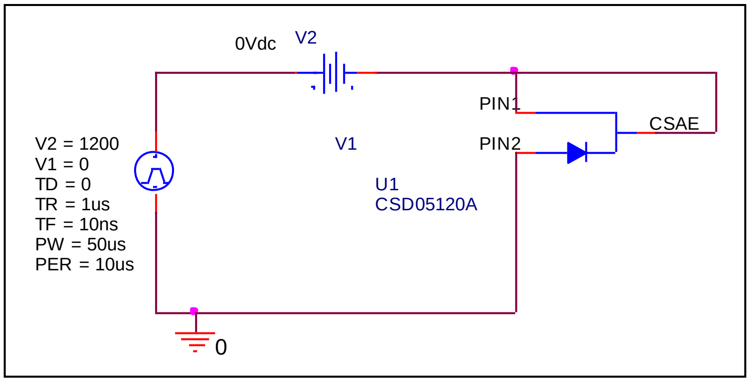
I_F(A)	V_F(V)		Error(%)
	Measurement	Simulation	
0.25	0.970	0.967	-0.310
0.5	1.020	1.009	-1.090
1	1.080	1.078	-0.186
2	1.200	1.202	0.166
4	1.430	1.436	0.418
6	1.650	1.663	0.782
8	1.880	1.888	0.424
10	2.130	2.112	-0.852

Junction Capacitance Characteristic

Circuit Simulation Result

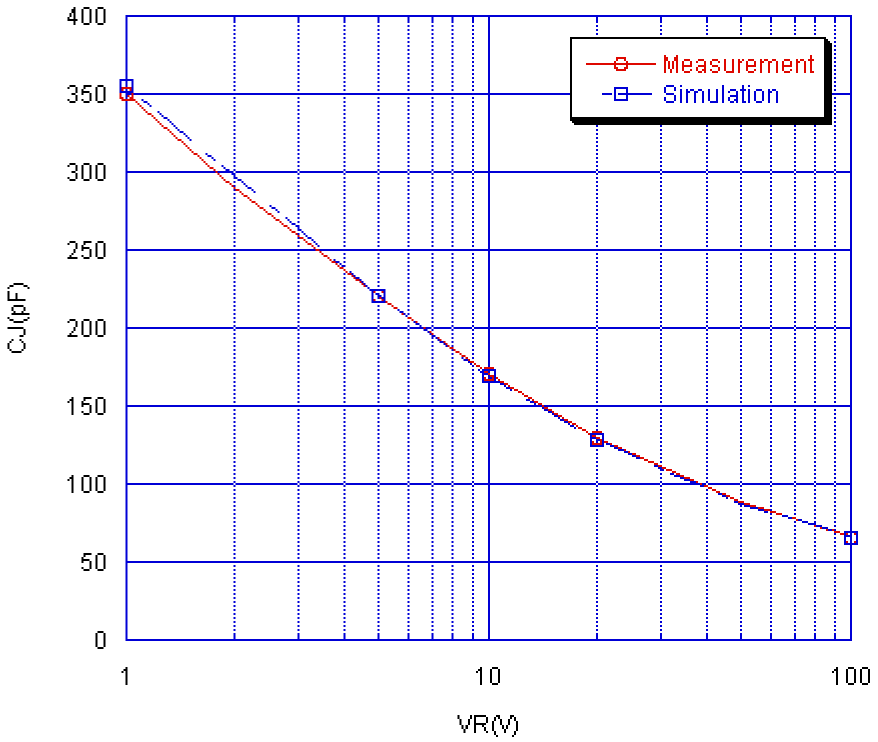


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

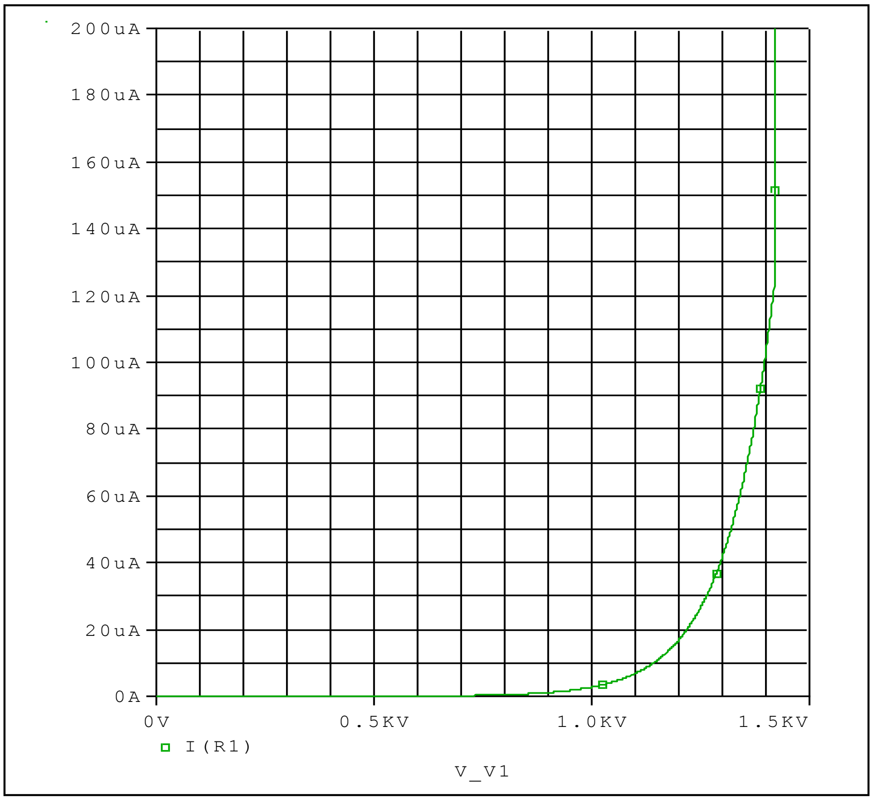


Simulation Result

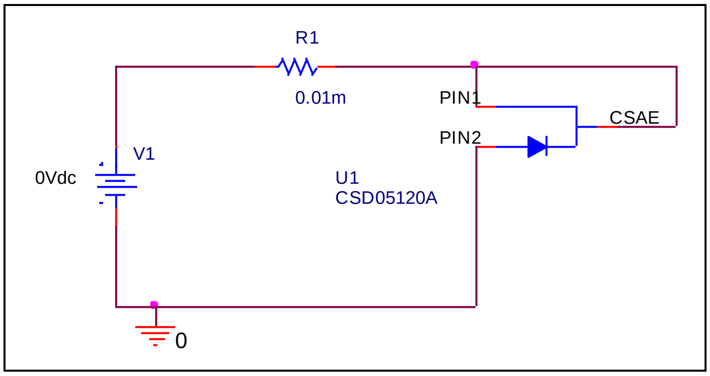
V_R(V)	Cj (pF)		Error(%)
	Measurement	Simulation	
1	350.000	355.000	1.408
2	290.000	297.000	2.357
5	220.000	219.888	-0.051
10	170.000	169.200	-0.473
20	130.000	128.000	-1.563
50	88.000	87.800	-0.228
100	65.000	65.200	0.307

Reverse Characteristic

Circuit Simulation Result

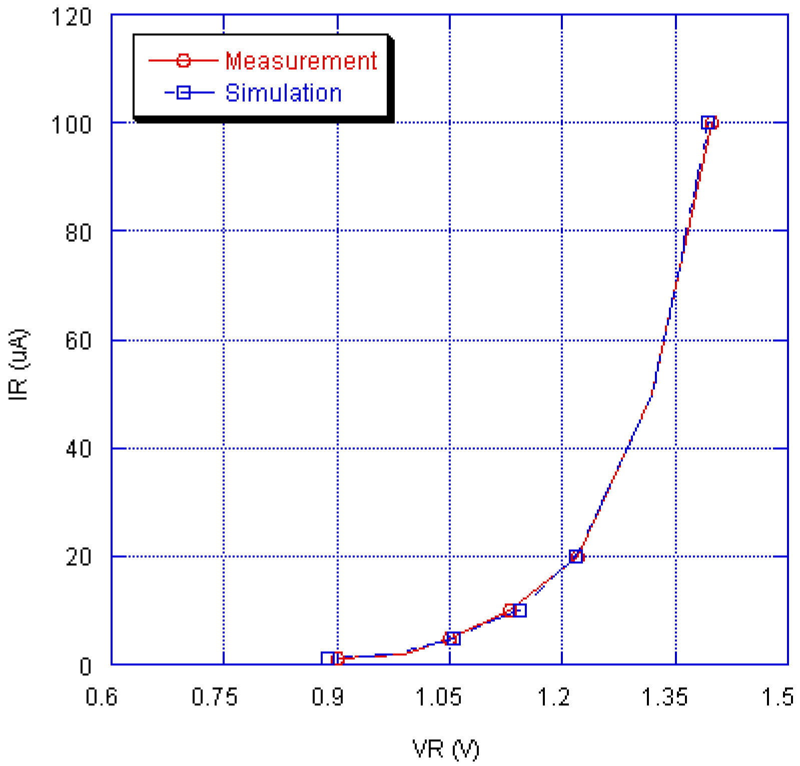


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

I_R(uA)	V_R(V)		Error(%)
	Measurement	Simulation	
1	0.900	0.887	-1.466
2	0.990	0.970	-2.062
5	1.050	1.055	0.474
10	1.130	1.142	1.051
20	1.220	1.218	-0.164
50	1.320	1.319	-0.076
100	1.400	1.393	-0.503