Device Modeling Report

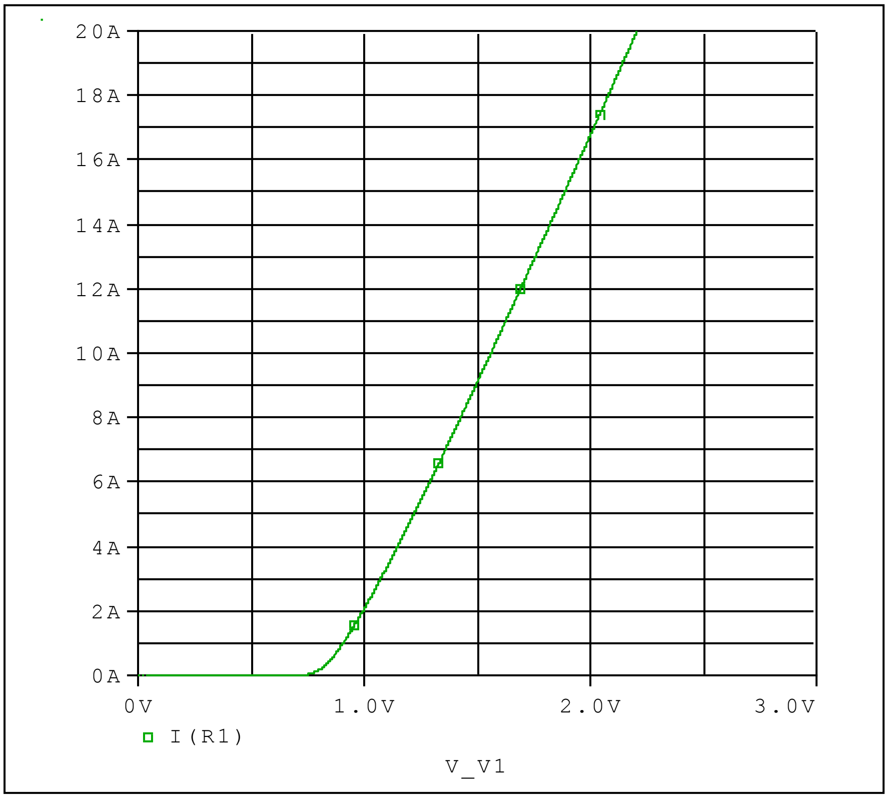
COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: CSD20120D
MANUFACTURER: Cree, Inc.
REMARK: Professional Model

Bee Technologies Inc.

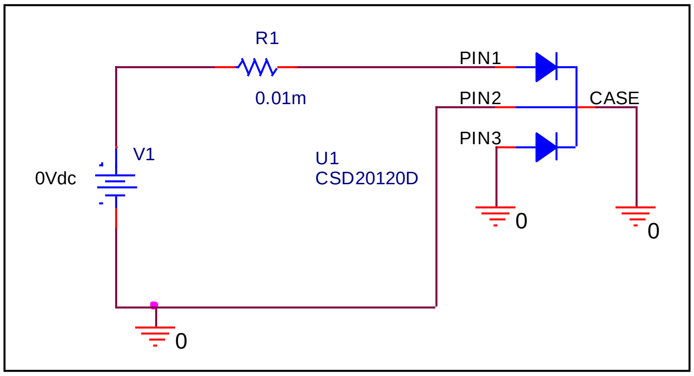
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

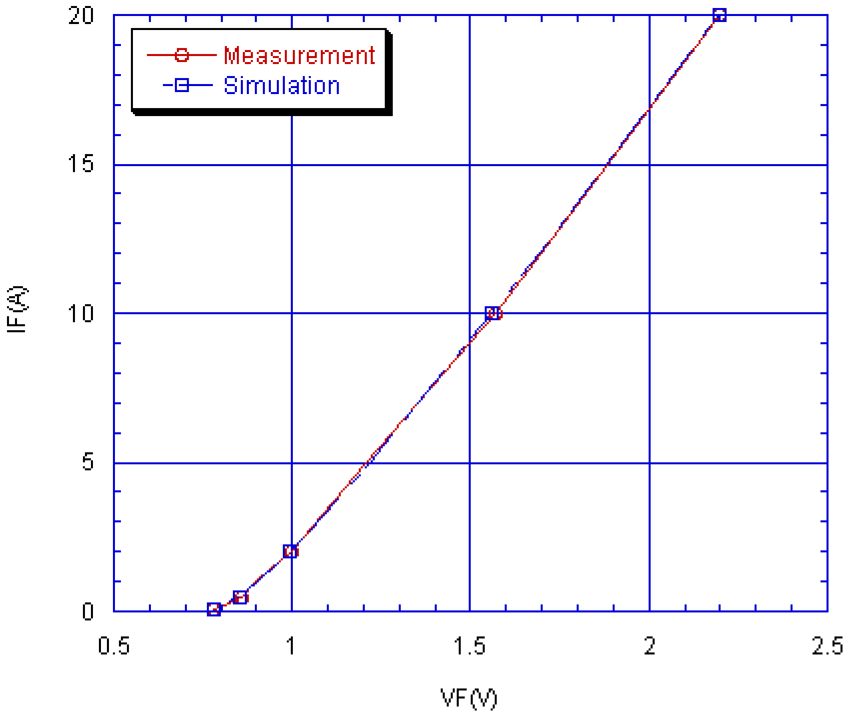


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

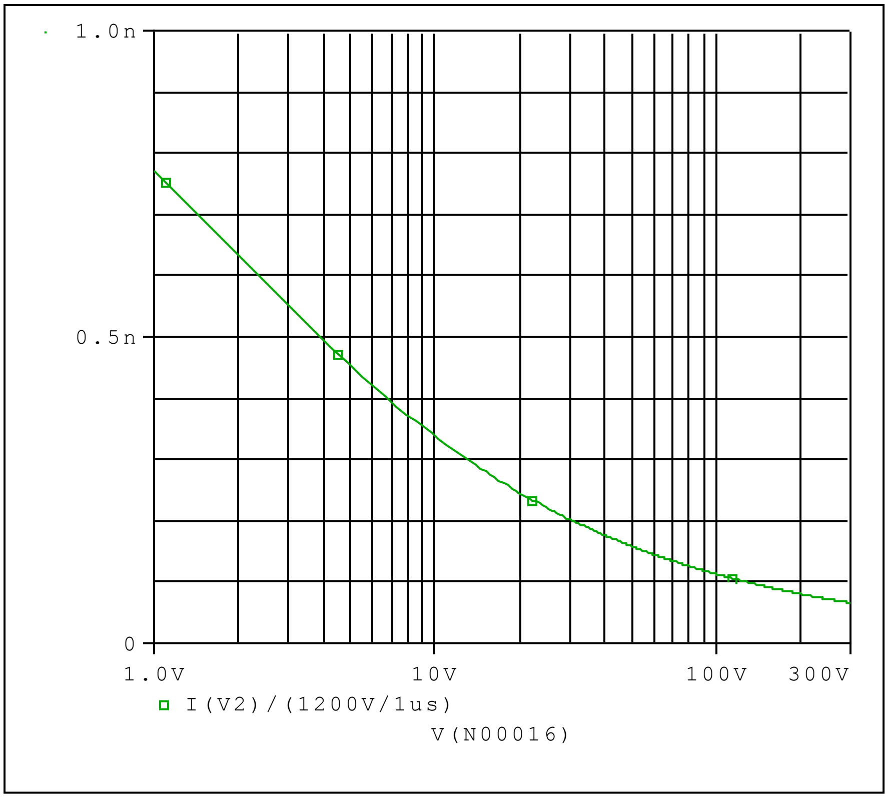


Simulation Result

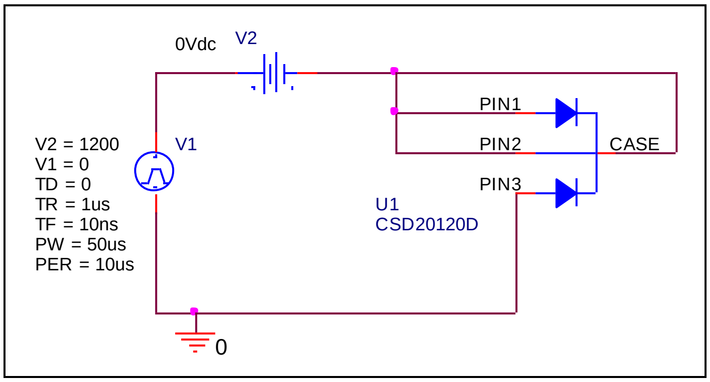
I_F(A)	V_F(V)		Error(%)
	Measurement	Simulation	
0.1	0.780	0.783	0.383
0.2	0.810	0.808	-0.248
0.5	0.860	0.854	-0.703
1	0.900	0.906	0.662
2	1.000	0.996	-0.402
5	1.205	1.220	1.230
10	1.570	1.560	-0.641
20	2.200	2.198	-0.105

Junction Capacitance Characteristic

Circuit Simulation Result

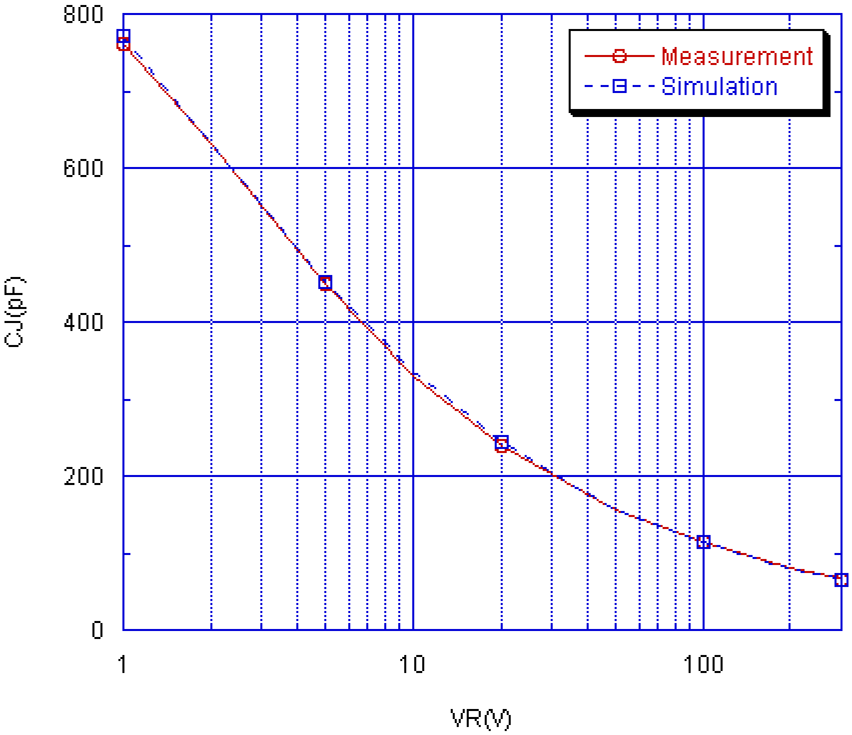


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

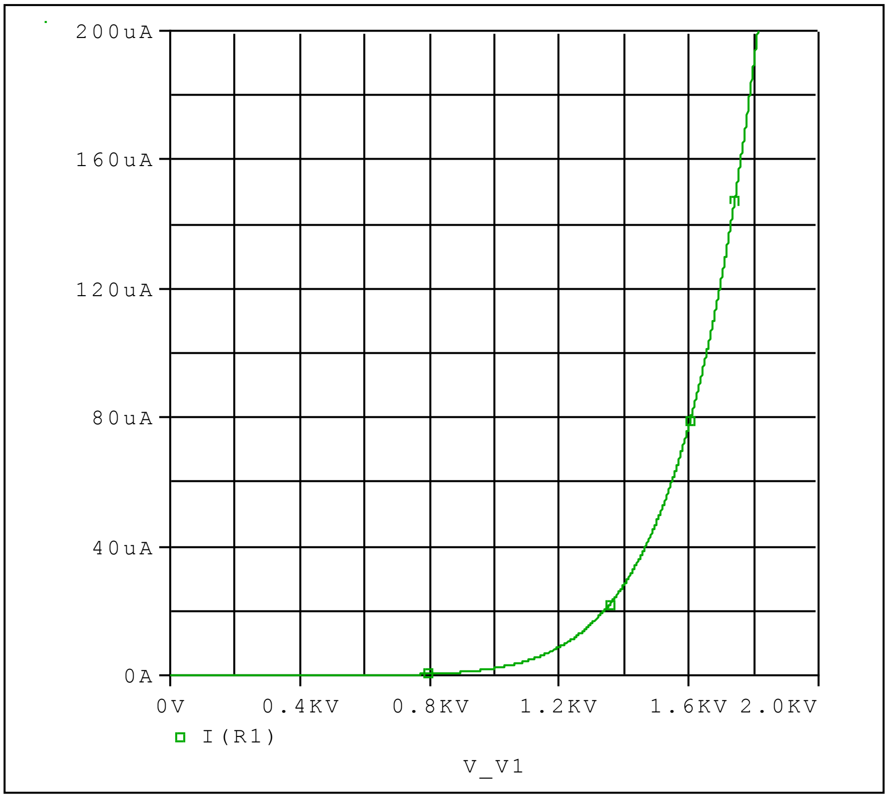


Simulation Result

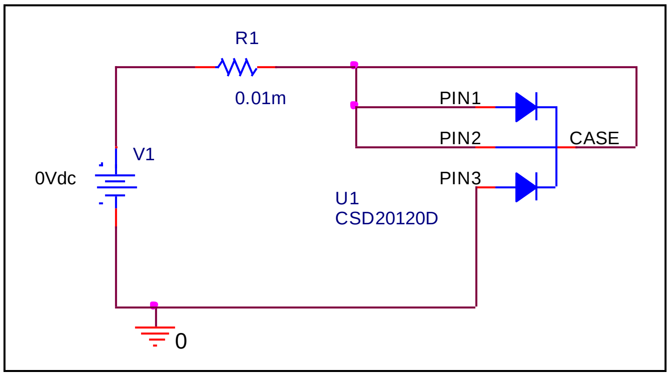
V_R(V)	Cj (pF)		Error(%)
	Measurement	Simulation	
1	760.000	771.000	1.427
2	630.000	631.000	0.158
5	450.000	452.000	0.442
10	330.000	334.000	1.198
20	240.000	243.000	1.235
50	155.000	156.000	0.641
100	115.000	114.000	-0.877
200	80.000	80.100	0.125
300	65.000	65.300	0.459

Reverse Characteristic

Circuit Simulation Result

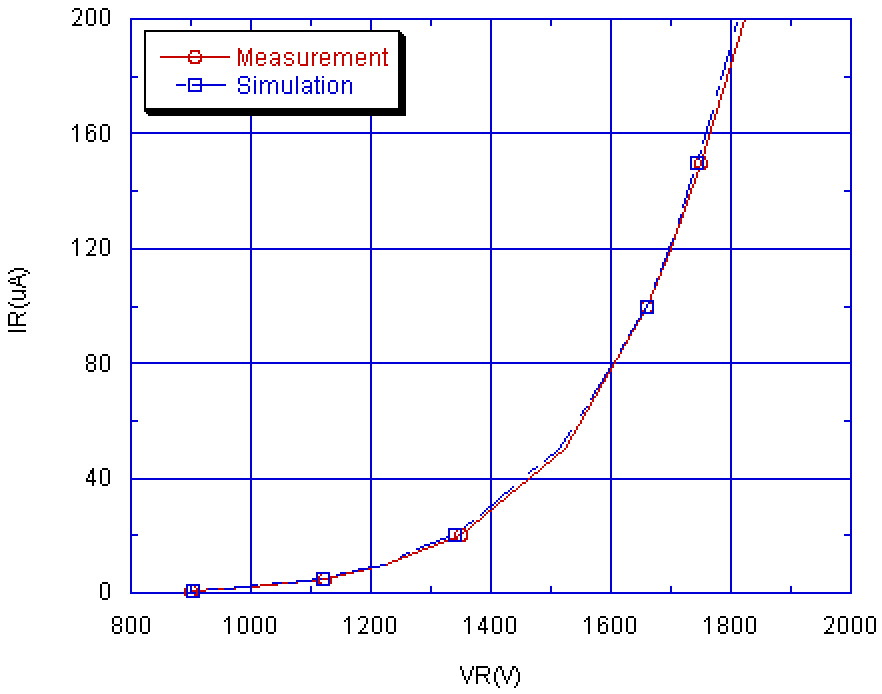


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

I_R(uA)	V_R(V)		Error(%)
	Measurement	Simulation	
1	900.000	902.000	0.222
2	1000.000	989.000	-1.112
5	1125.000	1120.000	-0.446
10	1225.000	1222.000	-0.245
20	1350.000	1340.000	-0.746
50	1525.000	1512.000	-0.860
100	1660.000	1659.000	-0.060
200	1822.000	1812.000	-0.552