Device Modeling Report

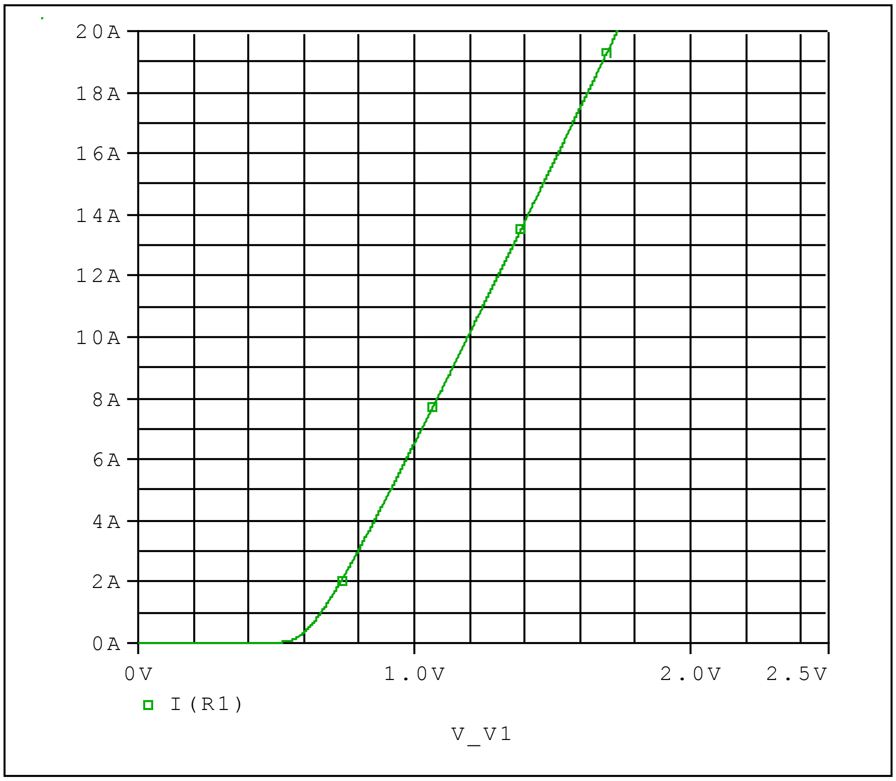
COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: CSD20030D
MANUFACTURER: Cree, Inc.
REMARK: Professional Model

Bee Technologies Inc.

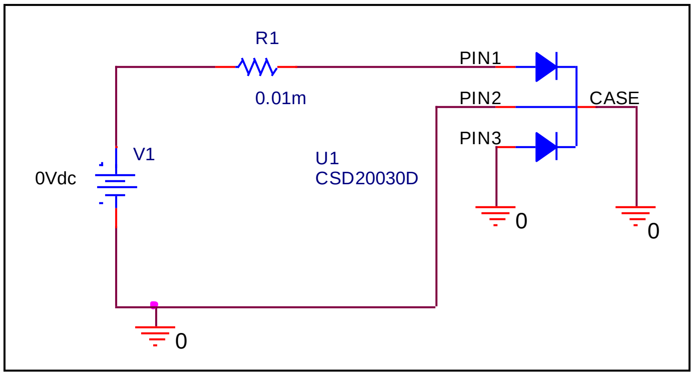
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

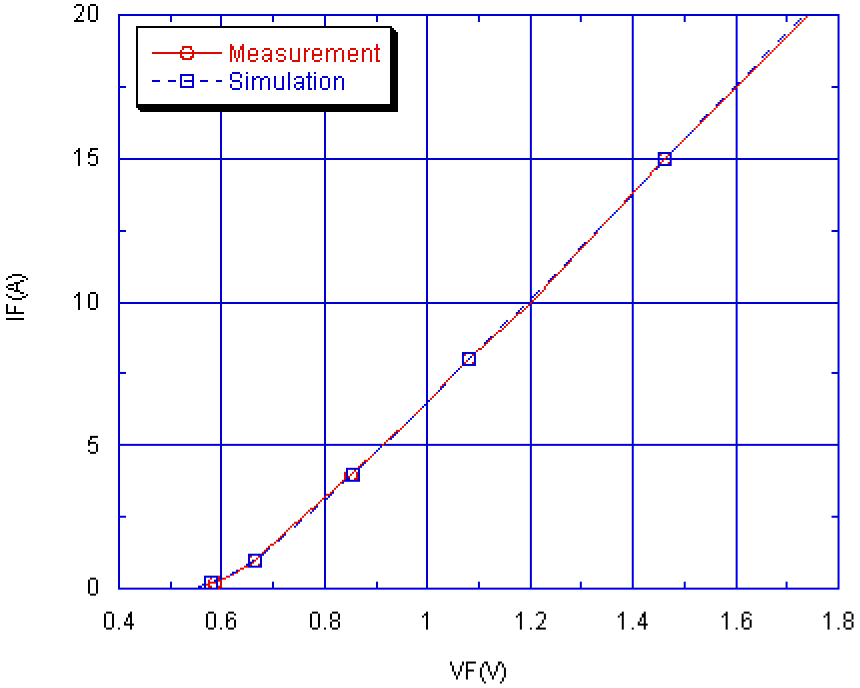


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

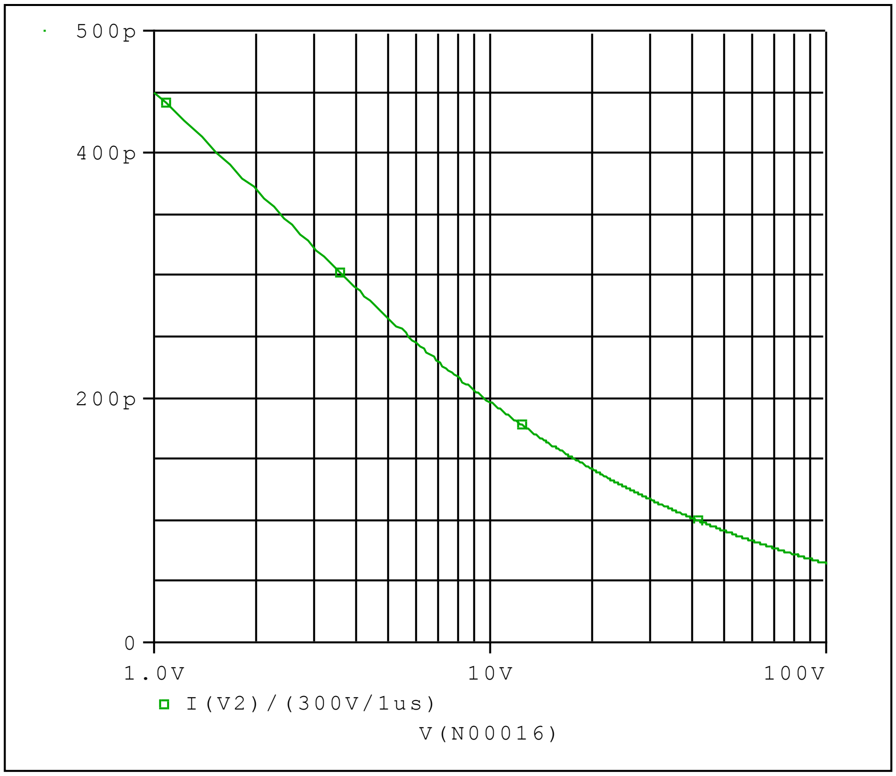


Simulation Result

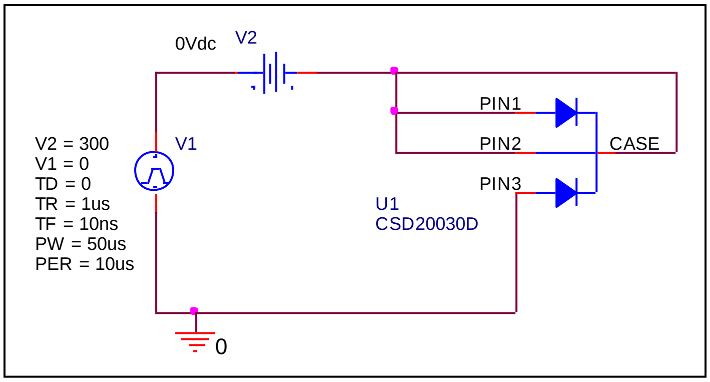
I_F(A)	V_F(V)		Error(%)
	Measurement	Simulation	
0.1	0.555	0.552	-0.543
0.2	0.585	0.579	-1.036
0.5	0.620	0.619	-0.162
1	0.665	0.663	-0.302
2	0.728	0.733	0.682
6	0.970	0.971	0.103
8	1.080	1.080	0.000
10	1.200	1.195	-0.418
20	1.740	1.735	-0.288

Junction Capacitance Characteristic

Circuit Simulation Result

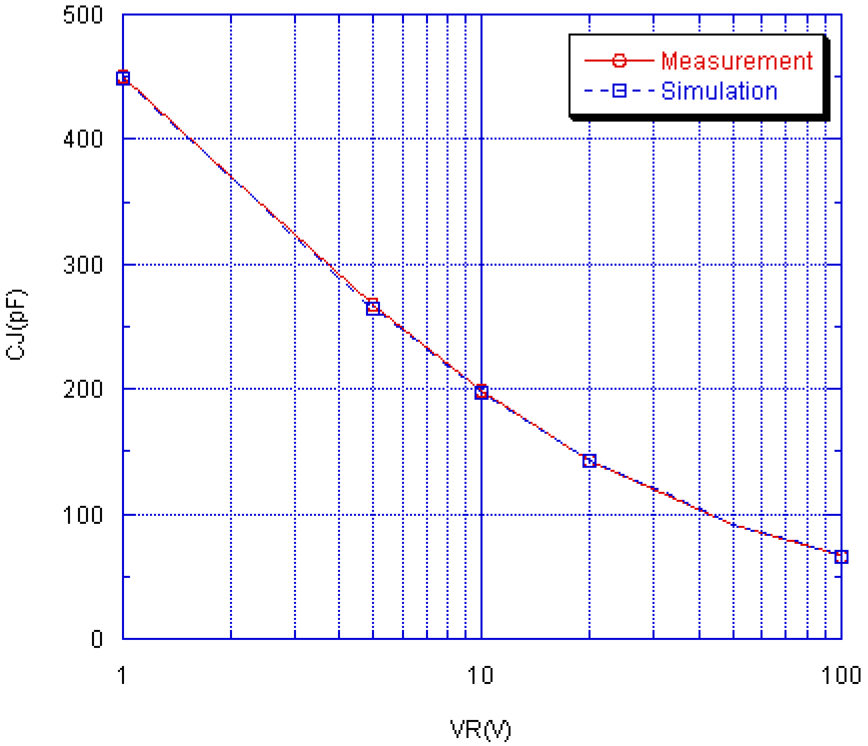


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

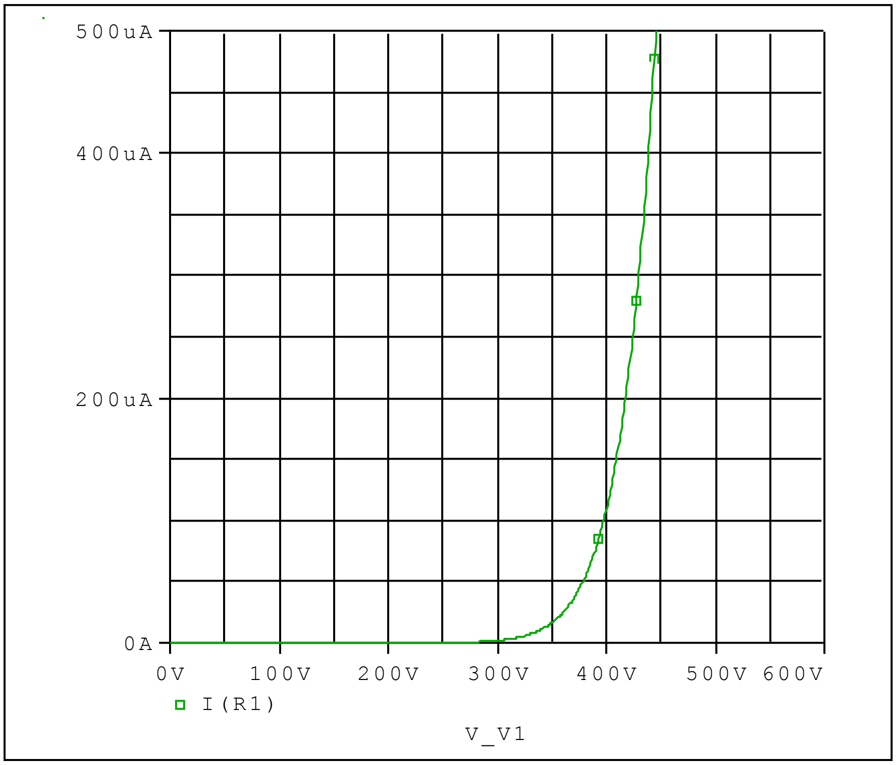


Simulation Result

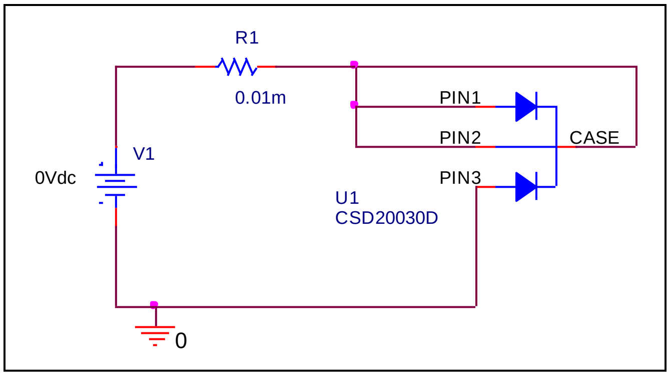
V_R(V)	Cj (pF)		Error(%)
	Measurement	Simulation	
1.000	450.000	449.000	0.222
2.000	370.000	371.000	0.270
5.000	267.000	265.000	0.749
10.000	199.000	197.000	1.005
20.000	143.000	142.500	0.350
50.000	92.000	91.200	0.870
100.000	66.000	65.000	1.515

Reverse Characteristic

Circuit Simulation Result

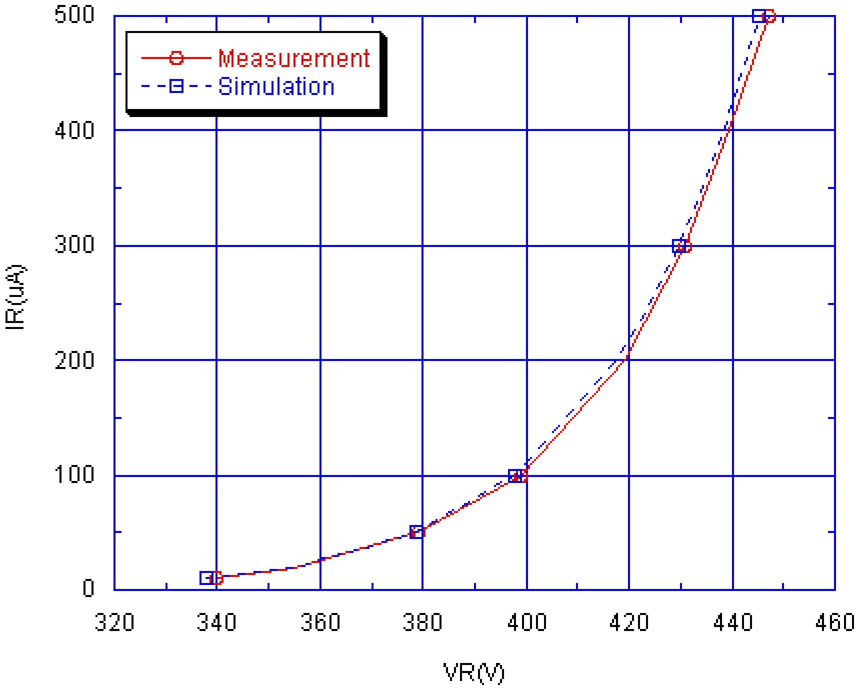


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

I_R(uA)	V_R(V)		Error(%)
	Measurement	Simulation	
10	340.000	338.000	-0.592
20	355.000	354.000	-0.282
50	379.000	378.700	-0.079
100	399.000	397.700	-0.327
200	419.000	417.600	-0.335
300	431.000	429.700	-0.303
400	439.500	438.500	-0.228
500	447.000	445.050	-0.438