Device Modeling Report

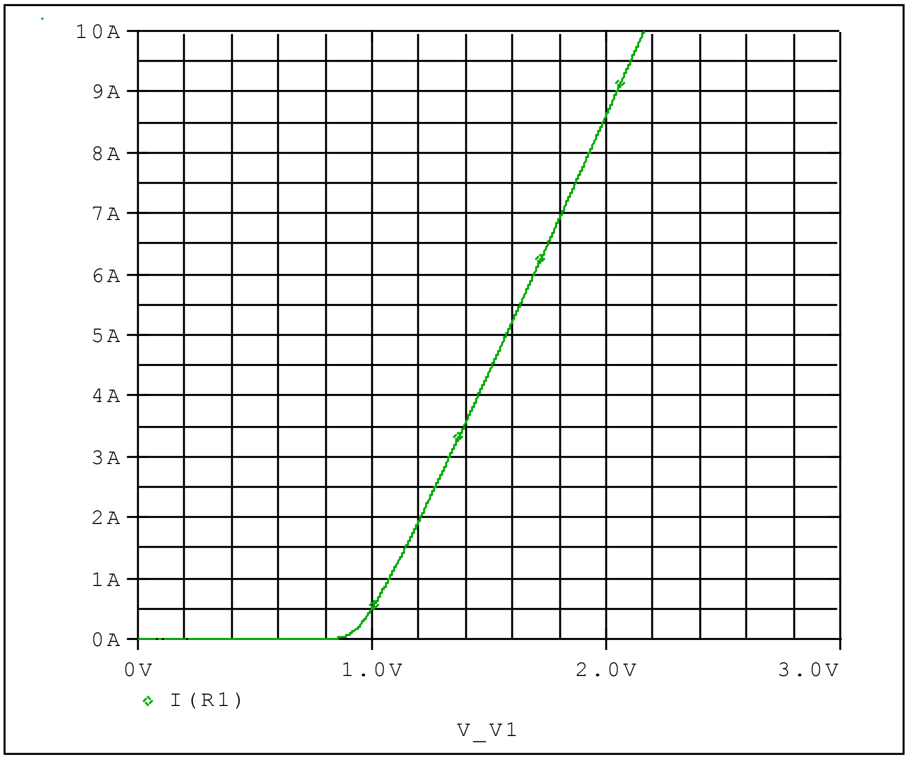
COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: CSD10120D
MANUFACTURER: Cree, Inc.
REMARK: Professional Model

Bee Technologies Inc.

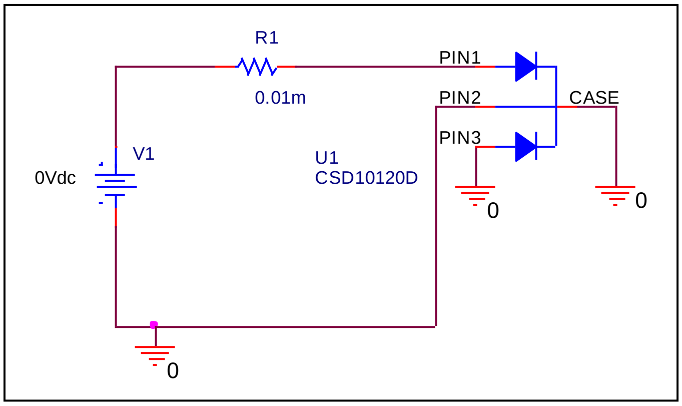
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result



Evaluation Circuit



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Comparison Graph

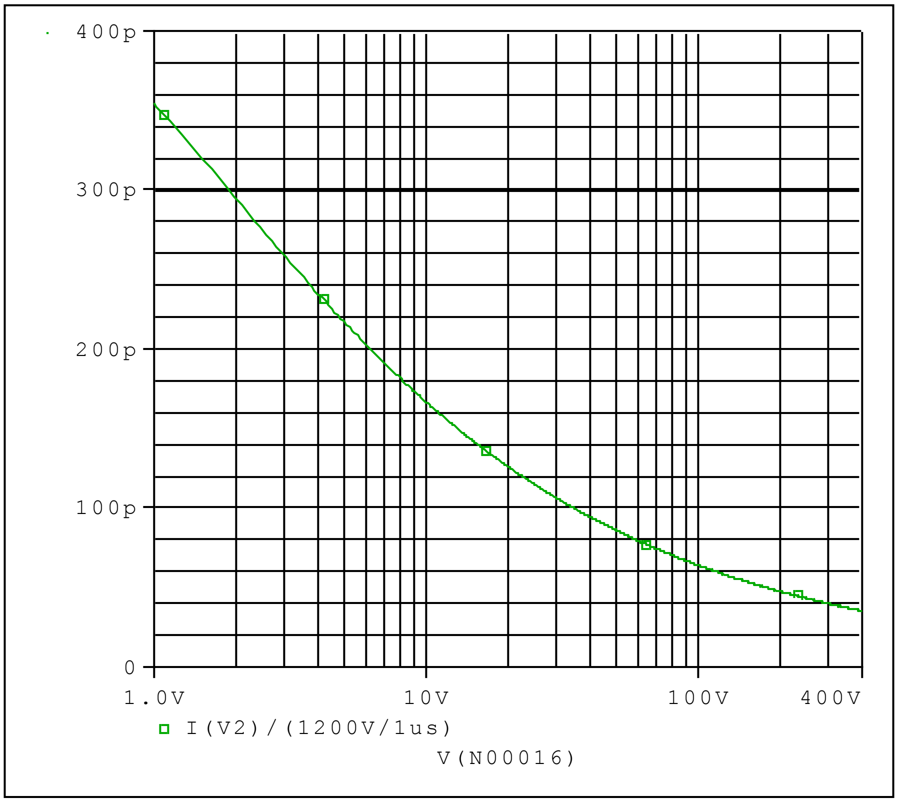
Circuit Simulation Result

Simulation Result

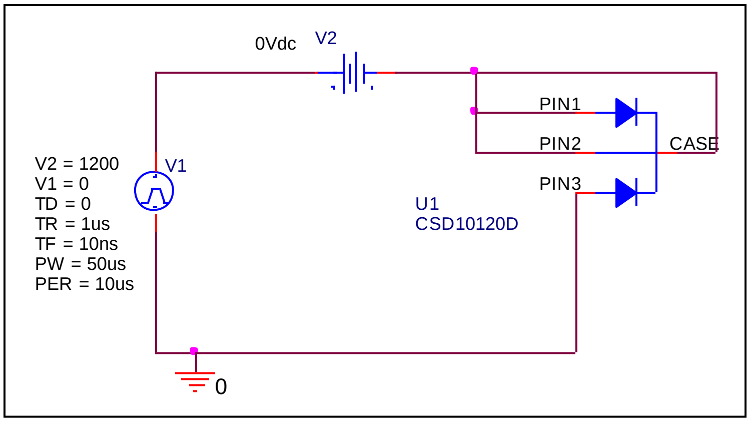
I_F(A)	V_F(V)		Error(%)
	Measurement	Simulation	
0.1	0.920	0.912	-0.877
0.2	0.940	0.941	0.106
0.5	1.000	1.000	0.000
1	1.080	1.077	-0.279
2	1.200	1.200	0.000
5	1.580	1.572	-0.509
10	2.170	2.160	-0.463

Junction Capacitance Characteristic

Circuit Simulation Result

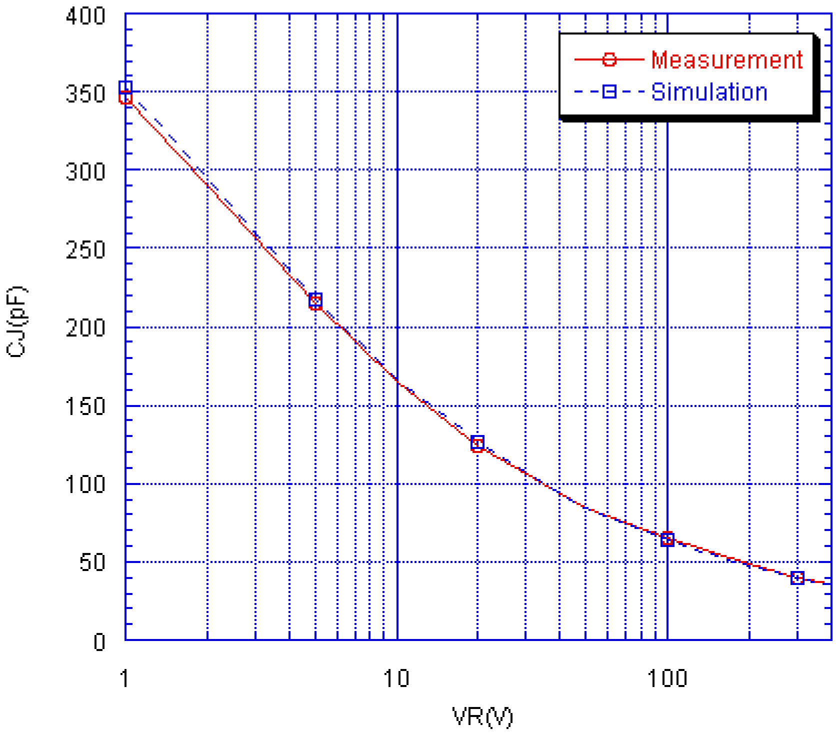


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

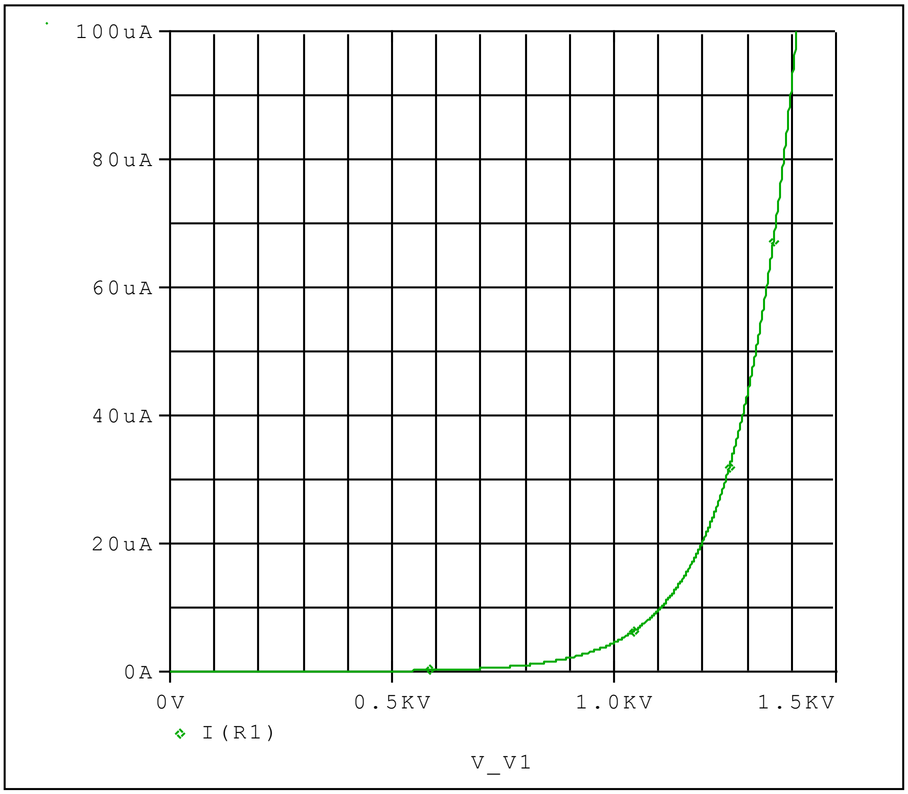


Simulation Result

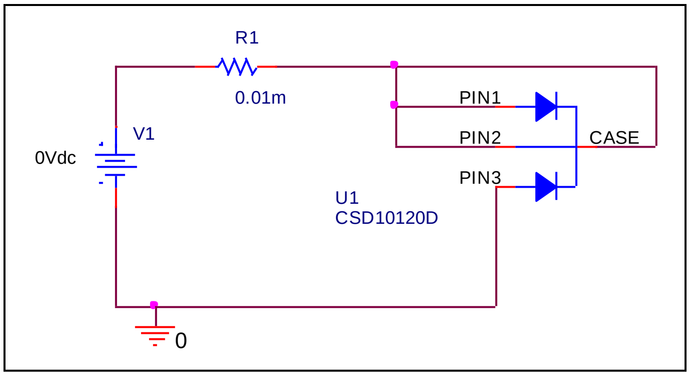
V_R(V)	Cj (pF)		Error(%)
	Measurement	Simulation	
1	347.000	353.000	1.700
2	290.000	294.000	1.361
5	215.000	217.000	0.922
10	165.000	166.000	0.602
20	124.000	126.000	1.587
50	84.000	85.000	1.176
100	65.000	64.000	-1.563
200	48.000	47.500	-1.053
300	40.000	39.500	-1.266
400	35.000	34.988	-0.034

Reverse Characteristic

Circuit Simulation Result

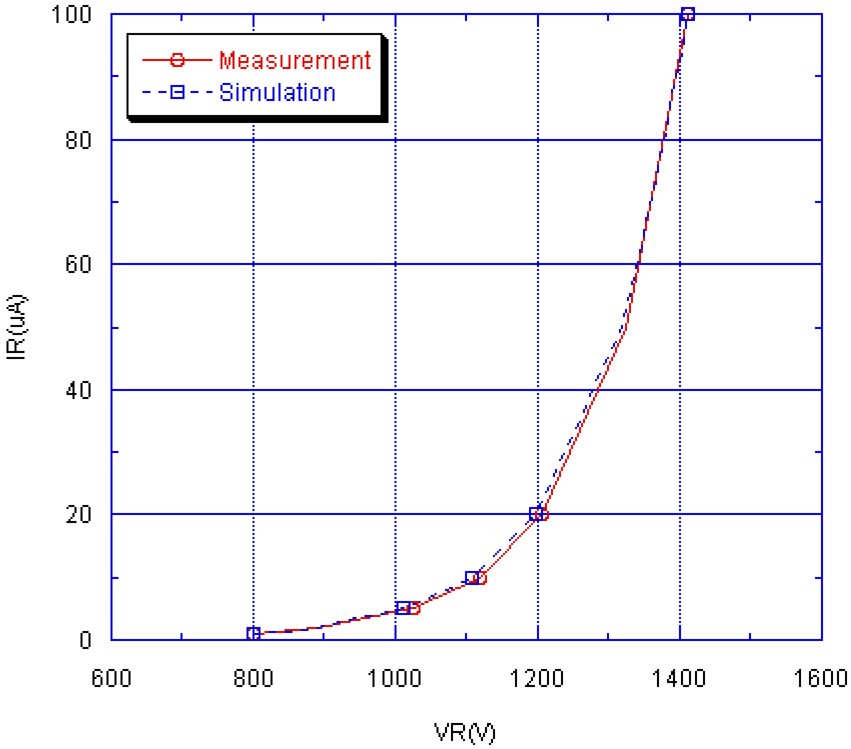


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

I_R(uA)	V_R(V)		Error(%)
	Measurement	Simulation	
1	800.000	799.459	-0.068
2	890.000	890.500	0.056
5	1025.000	1012.000	-1.285
10	1118.000	1107.000	-0.994
20	1205.000	1198.000	-0.584
50	1325.000	1319.000	-0.455
100	1410.000	1412.000	0.142