

Device Modeling Report

COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: CSD10120A
MANUFACTURER: Cree, Inc.
REMARK: Professional Model

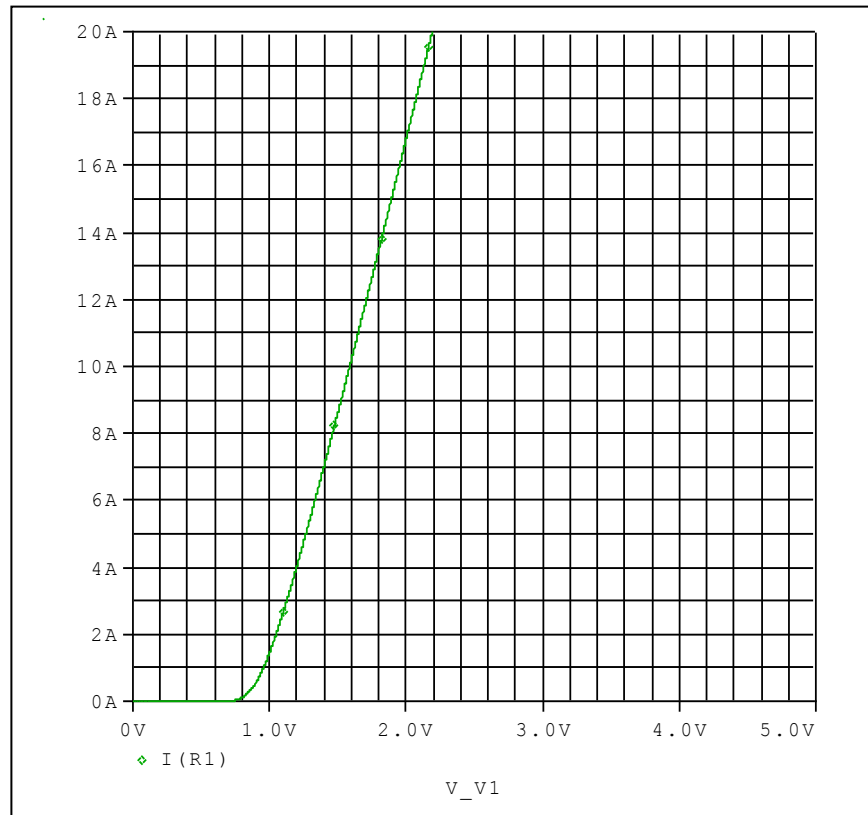


Bee Technologies Inc.

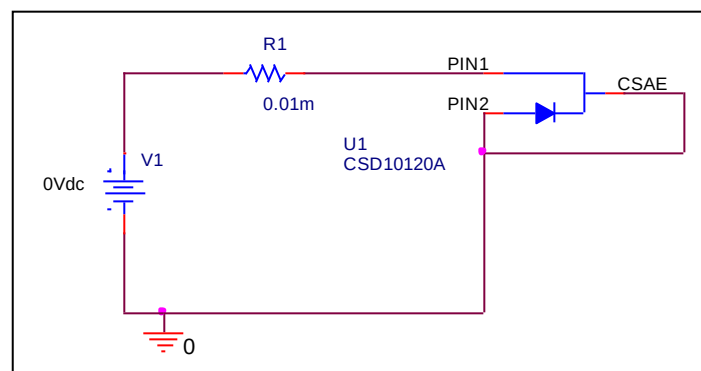
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

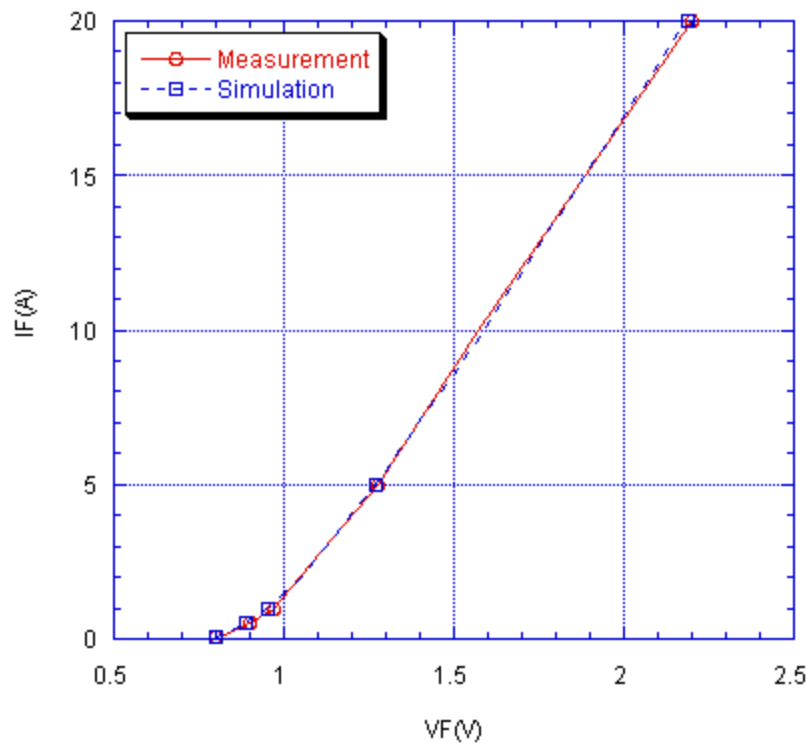


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

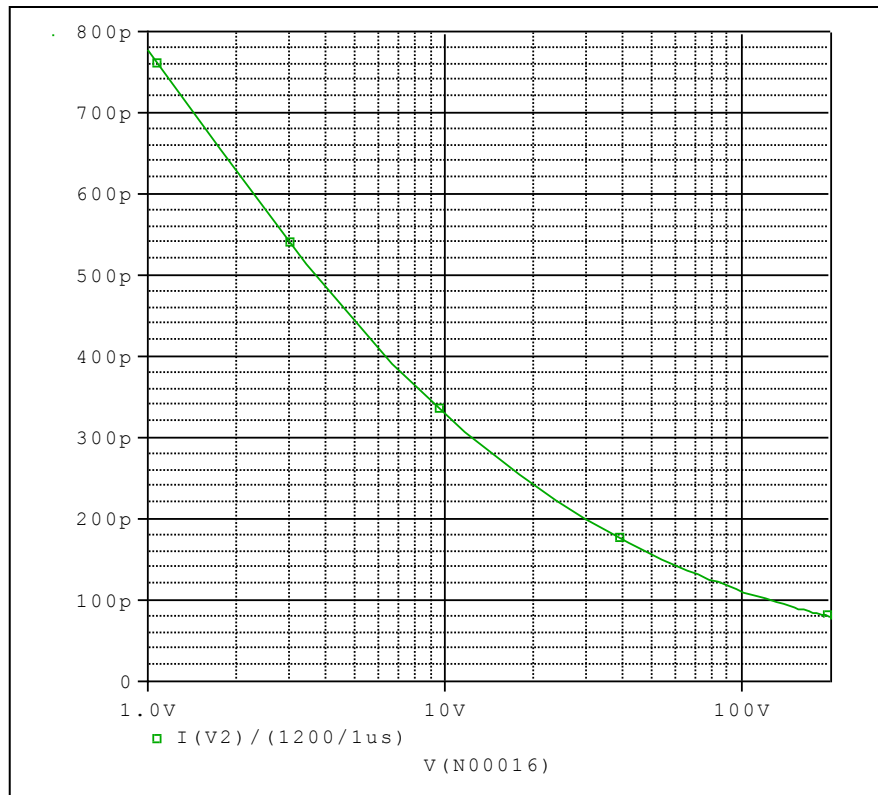


Simulation Result

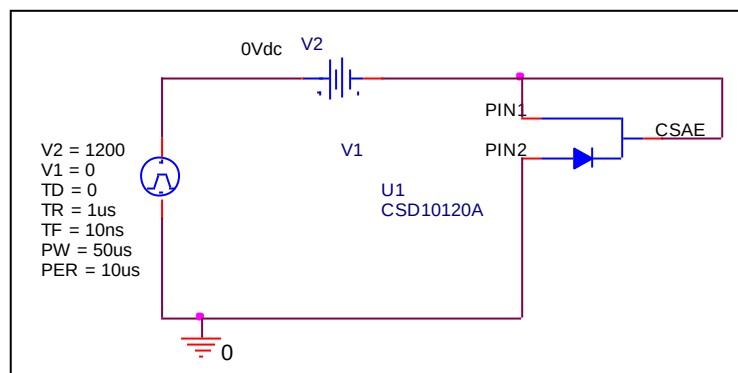
I_F (A)	V_F (V)		Error(%)
	Measurement	Simulation	
0.100	0.800	0.798	0.250
0.200	0.840	0.838	0.238
0.500	0.900	0.890	1.111
1.000	0.970	0.955	1.546
2.000	1.050	1.055	0.476
5.000	1.275	1.269	0.471
10.000	1.573	1.586	0.826
20.000	2.200	2.191	0.409

Junction Capacitance Characteristic

Circuit Simulation Result

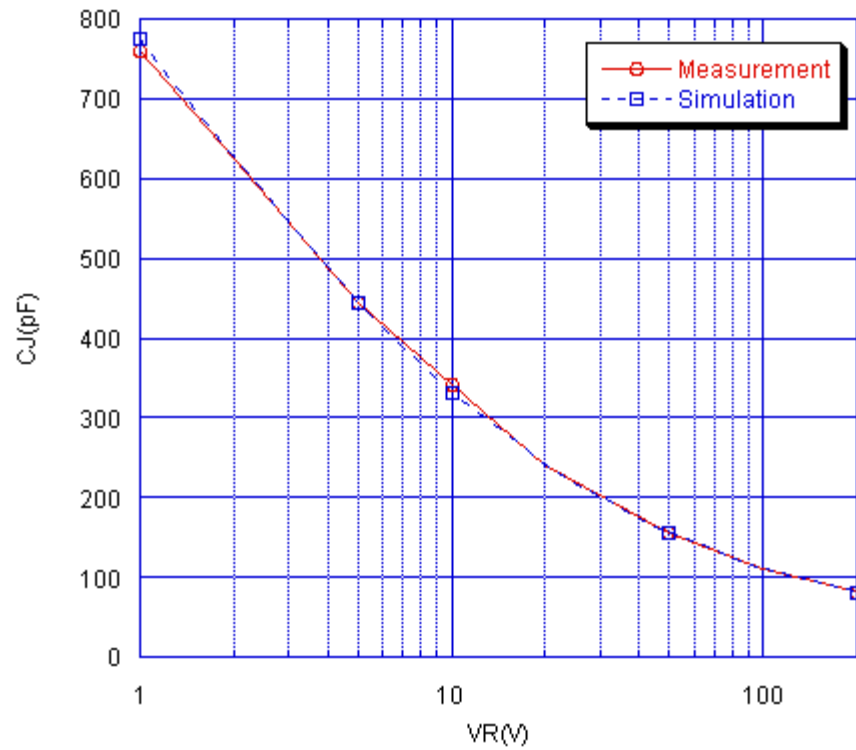


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

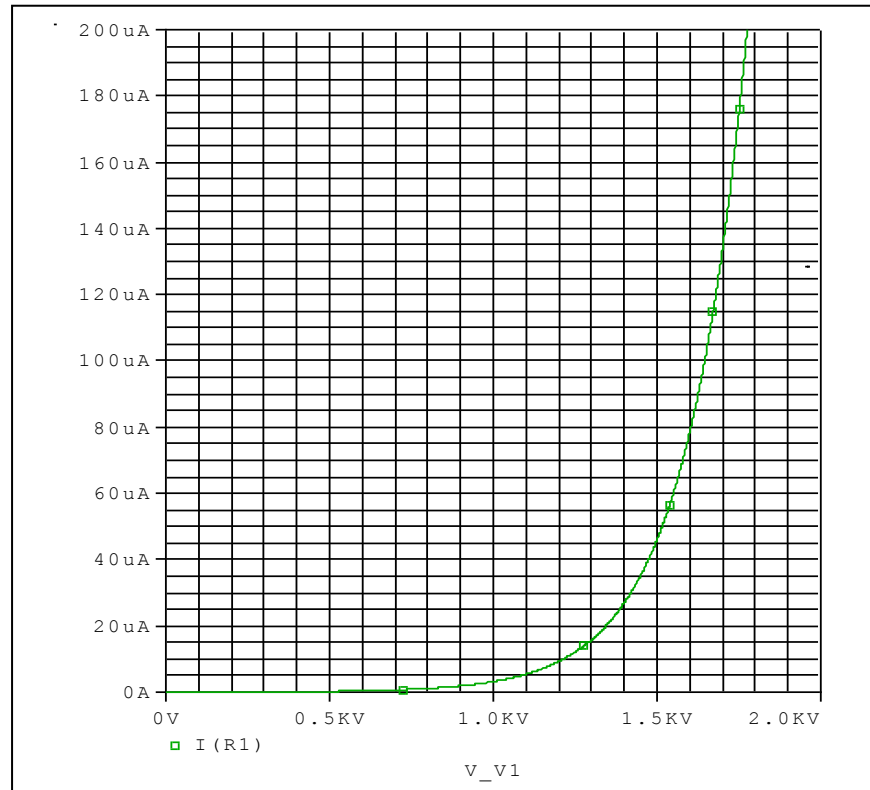


Simulation Result

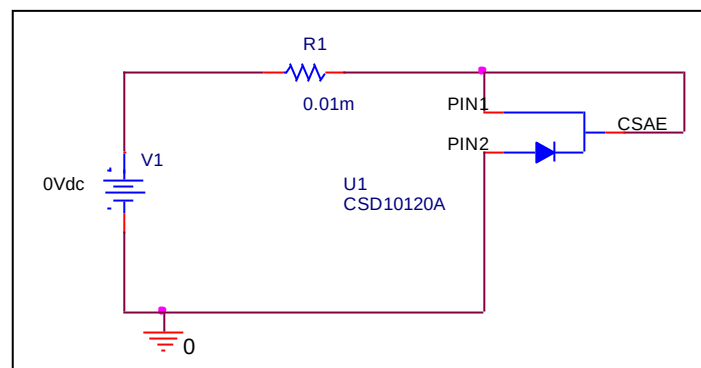
V_R (V)	C_j (pF)		Error(%)
	Measurement	Simulation	
1	760.000	775.000	1.935
2	625.000	628.000	0.478
5	445.000	445.000	0.000
10	340.000	330.500	-2.874
20	240.000	241.300	0.539
50	155.000	156.400	0.895
100	110.000	111.240	1.115
200	80.000	79.230	-0.972

Reverse Characteristic

Circuit Simulation Result

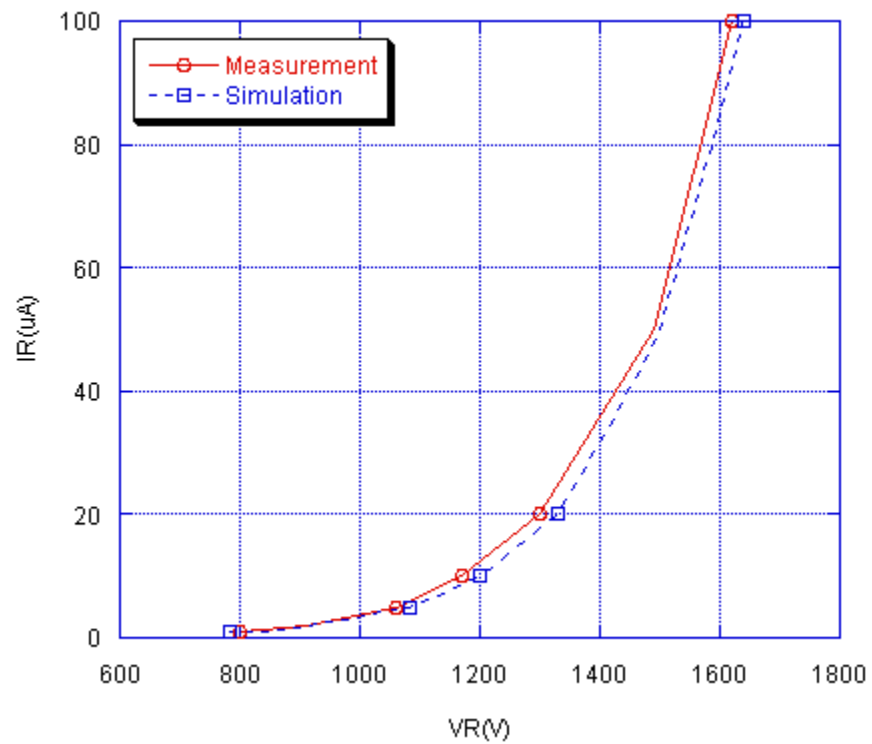


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

$I_R(\mu A)$	$V_R(V)$		Error(%)
	Measurement	Simulation	
1	800.000	782.200	-2.276
2	910.000	912.000	0.219
5	1060.000	1084.000	2.214
10	1170.000	1200.000	2.500
20	1300.000	1330.000	2.256
50	1490.000	1500.000	0.667
100	1620.000	1640.000	1.220