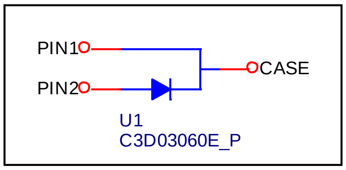
Device Modeling Report

COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: C3D03060E
MANUFACTURER: CREE
REMARK: Professional Model

Bee Technologies Inc.

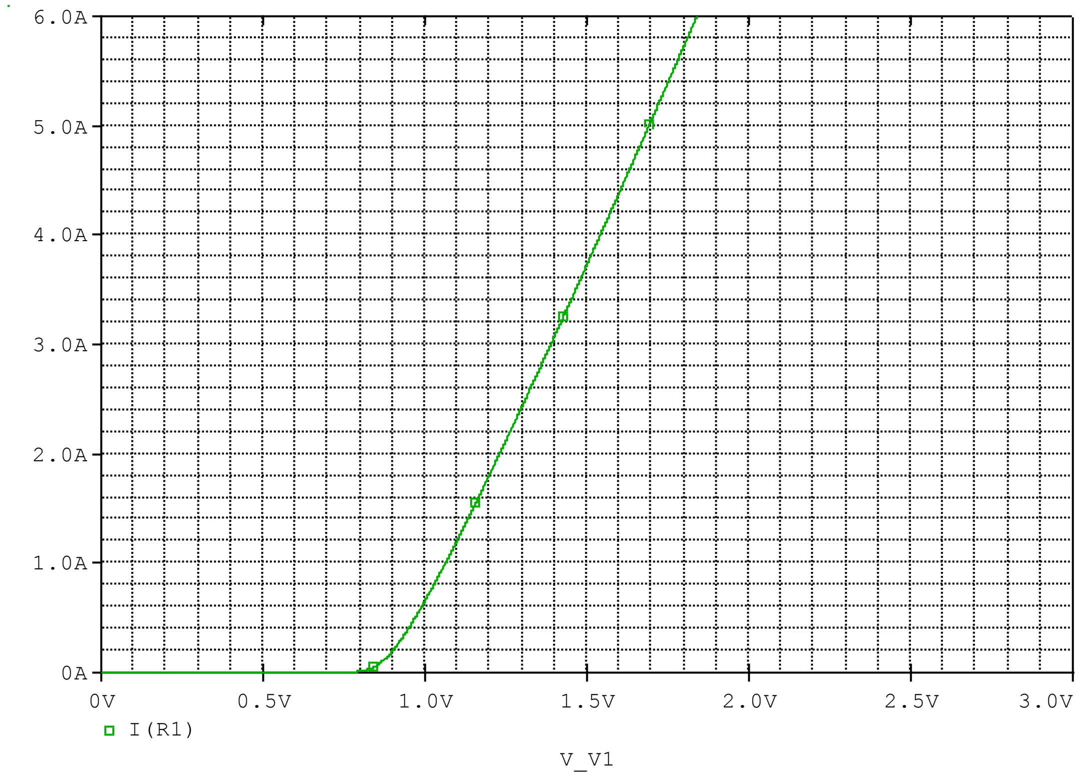
Circuit Configuration



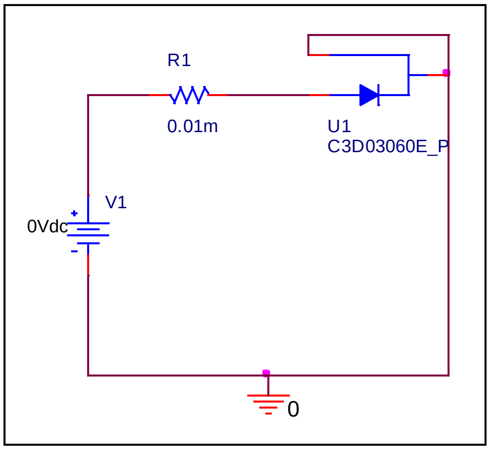
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

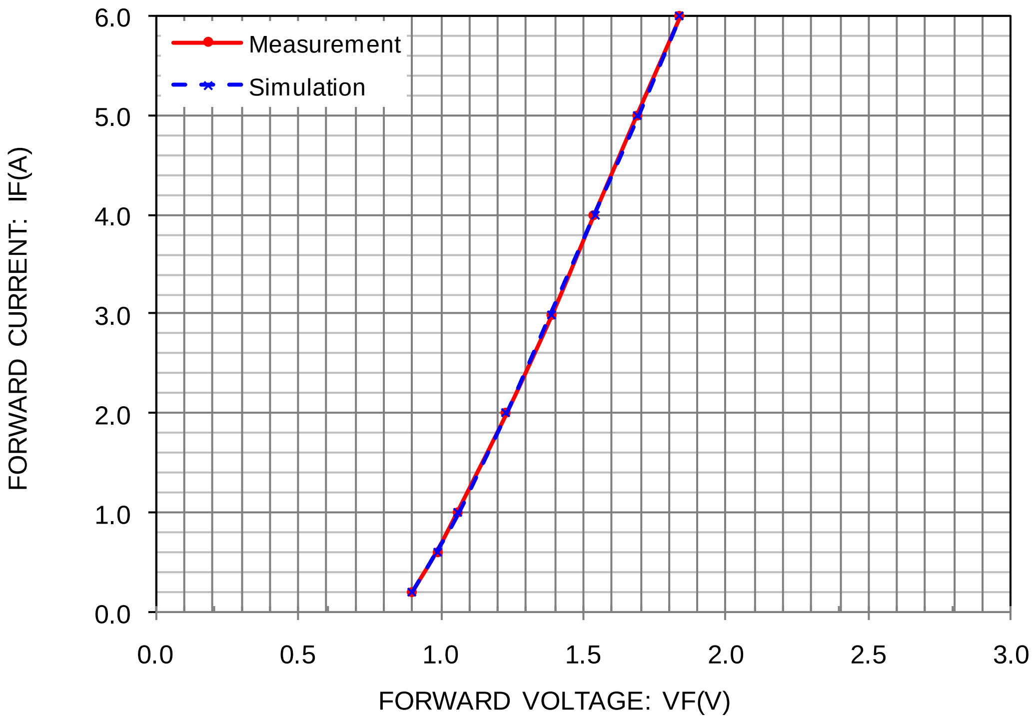


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

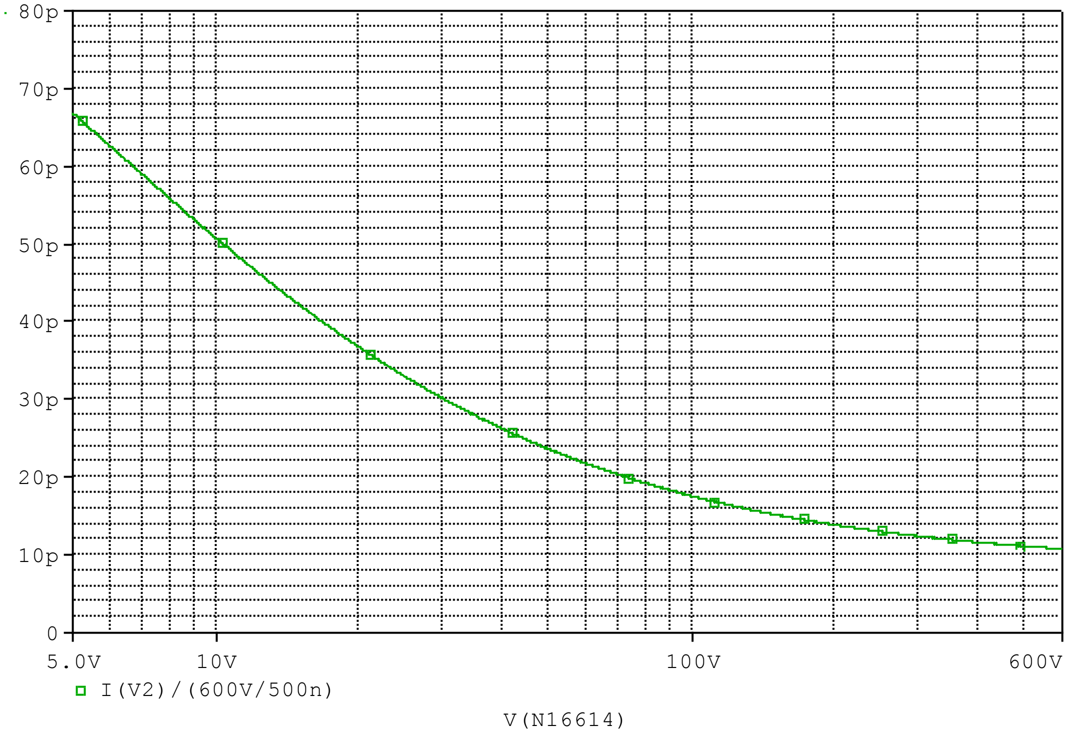


Simulation Result

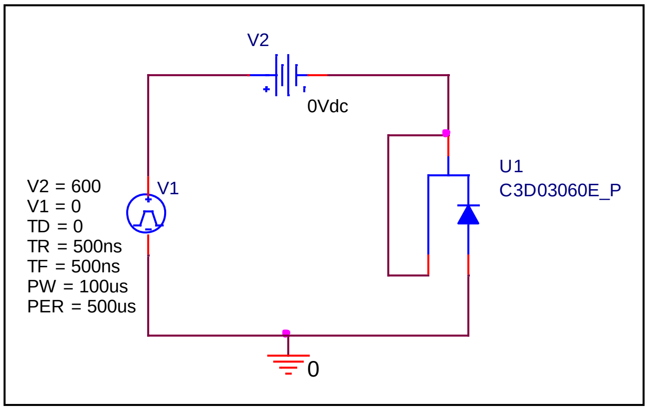
I_F(A)	V_F(V)		Error (%)
	Measurement	Simulation	
0.2	0.9000	0.8997	-0.03
0.6	0.9900	0.9888	-0.12
1.0	1.0600	1.0625	0.24
2.0	1.2300	1.2300	0.00
3.0	1.3900	1.3878	-0.16
4.0	1.5400	1.5409	0.06
5.0	1.6900	1.6911	0.07
6.0	1.8400	1.8395	-0.03

Junction Capacitance Characteristic

Circuit Simulation Result

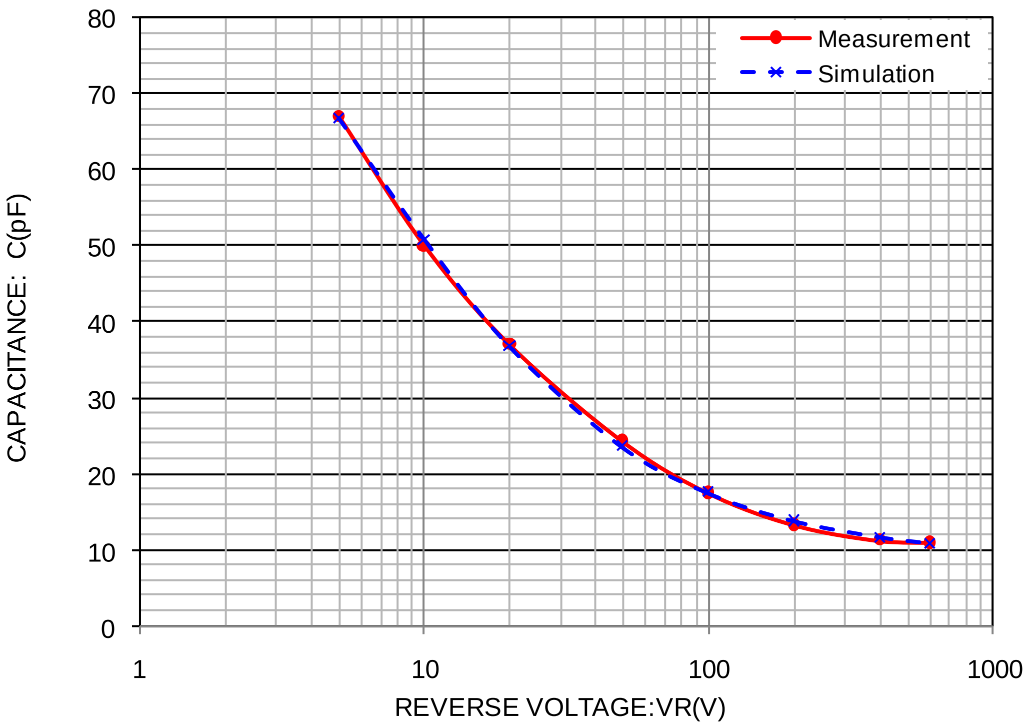


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

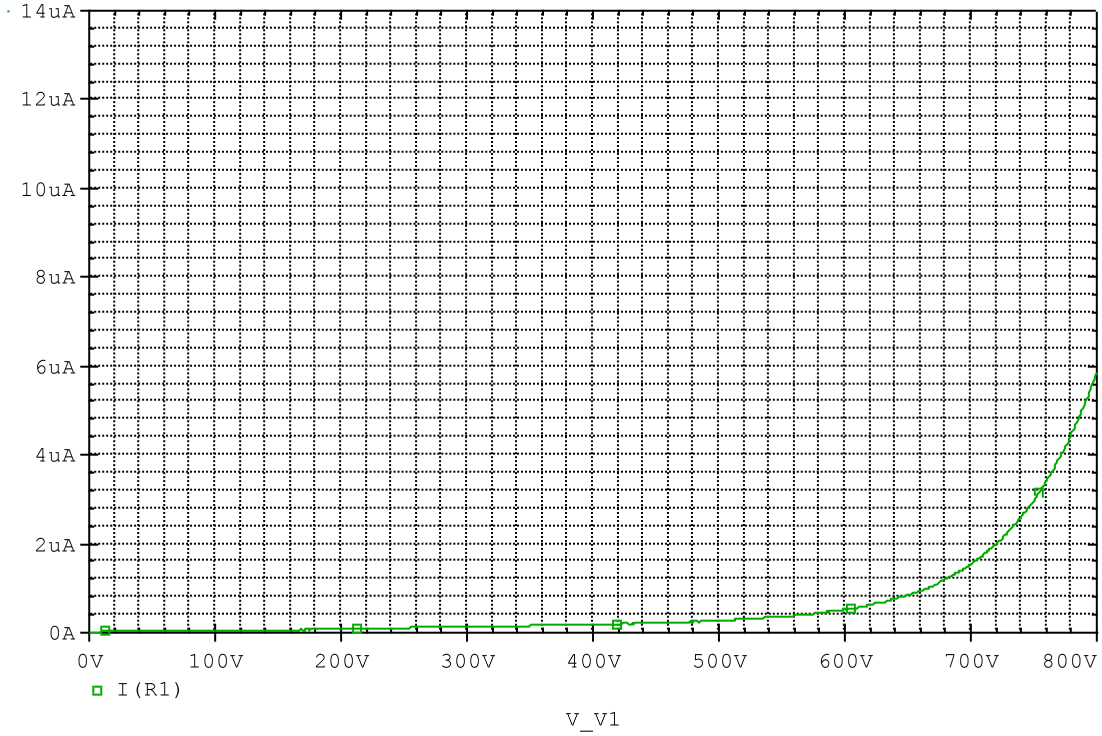


Simulation Result

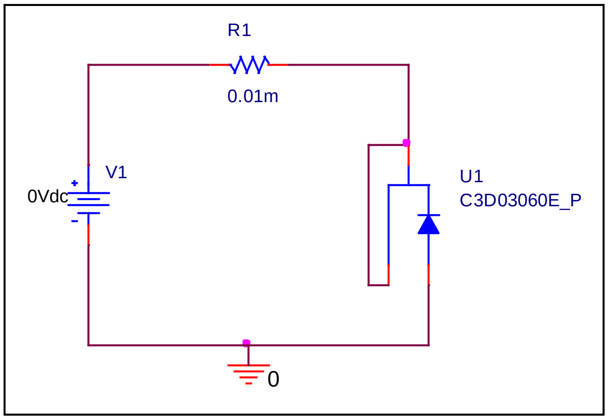
V_R(V)	C (pF)		Error (%)
	Measurement	Simulation	
5	67.000	66.796	-0.30
10	50.000	50.741	1.48
20	37.000	36.720	-0.76
50	24.300	23.635	-2.74
100	17.500	17.591	0.52
200	13.300	13.869	4.28
400	11.300	11.642	3.03
600	11.000	10.794	-1.87

Reverse Characteristic

Circuit Simulation Result

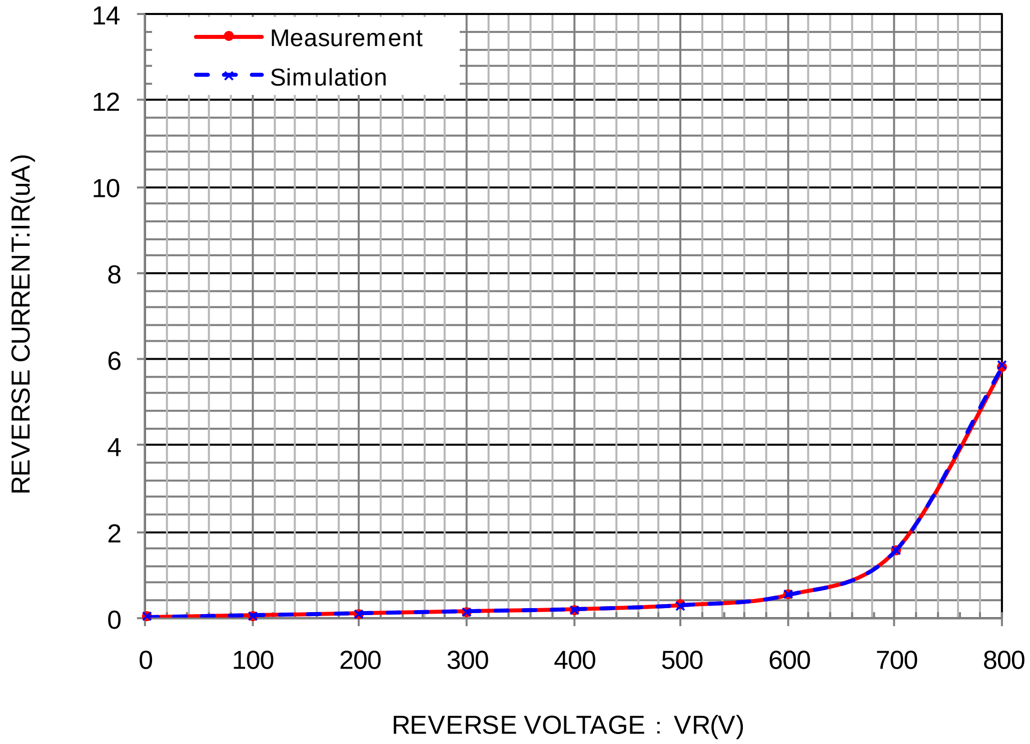


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

V_R(V)	I_R(uA)		Error (%)
	Measurement	Simulation	
1	0.0110	0.0112	1.74
100	0.0450	0.0441	-2.10
200	0.0800	0.0824	3.03
300	0.1400	0.1364	-2.55
400	0.1800	0.1819	1.06
500	0.2800	0.2785	-0.52
600	0.5200	0.5230	0.57
700	1.5500	1.5461	-0.25
800	5.8000	5.8549	0.95