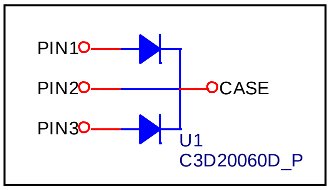
Device Modeling Report

COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: C3D20060D
MANUFACTURER: CREE
REMARK: Professional Model

Bee Technologies Inc.

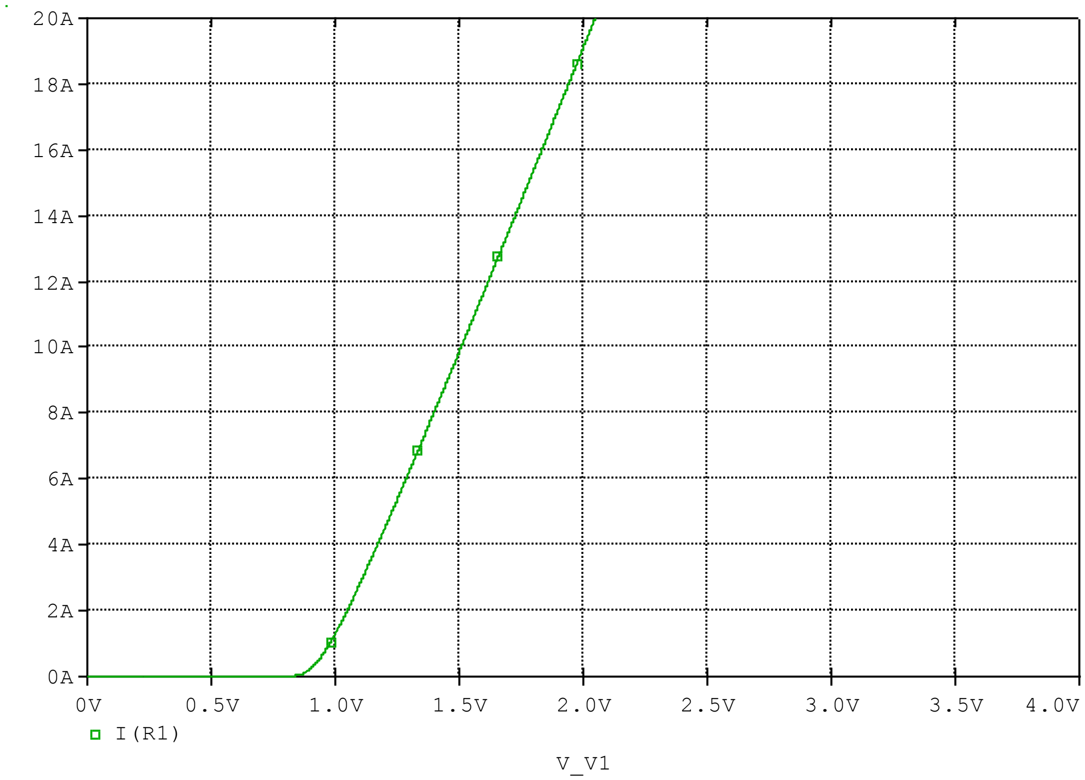
Circuit Configuration



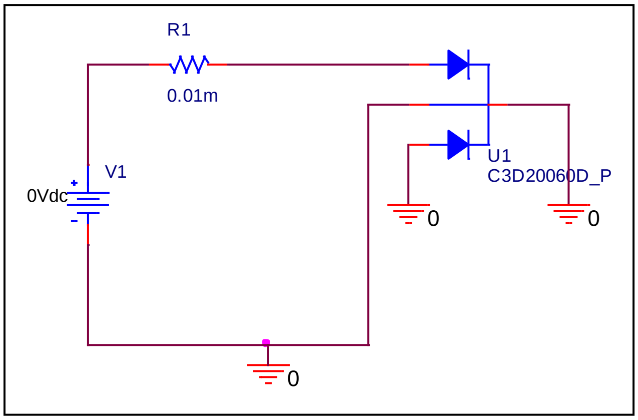
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

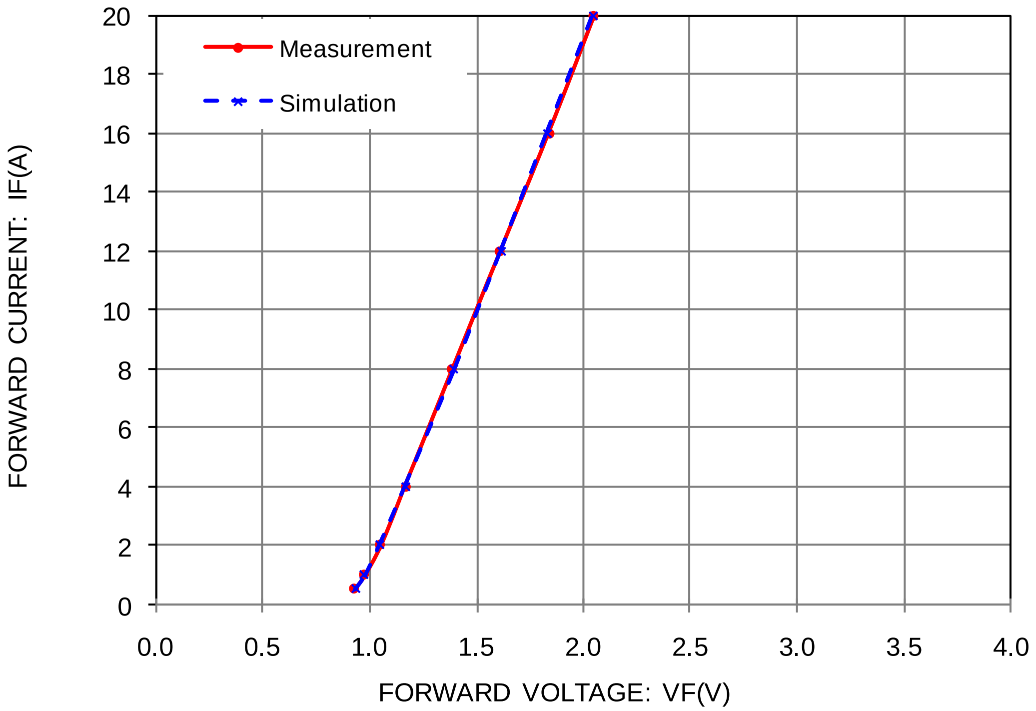


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

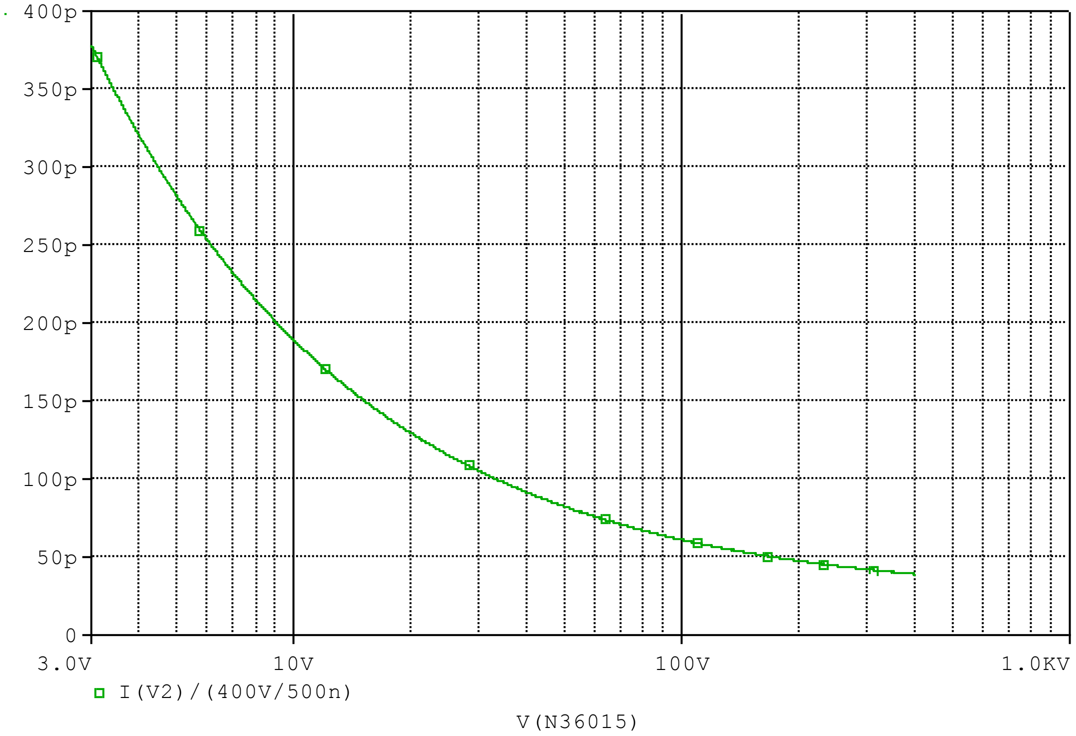


Simulation Result

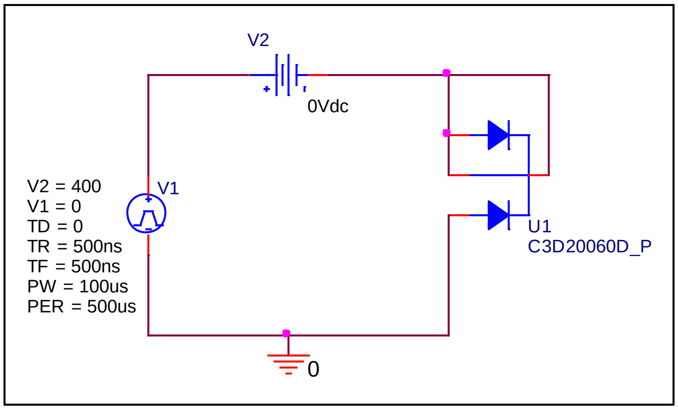
I_F(A)	V_F(V)		Error (%)
	Measurement	Simulation	
0.5	0.9300	0.9329	0.32
1.0	0.9750	0.9770	0.21
2.0	1.0500	1.0472	-0.27
4.0	1.1700	1.1697	-0.03
8.0	1.3900	1.3968	0.49
12.0	1.6100	1.6164	0.40
16.0	1.8400	1.8329	-0.39
20.0	2.0500	2.0478	-0.11

Junction Capacitance Characteristic

Circuit Simulation Result

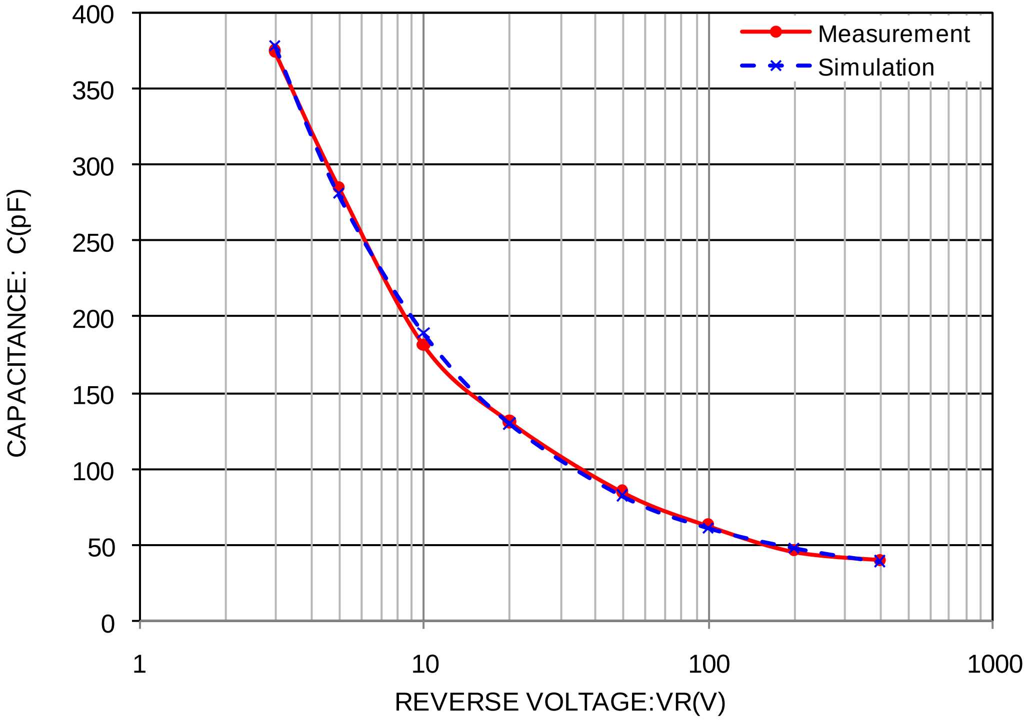


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

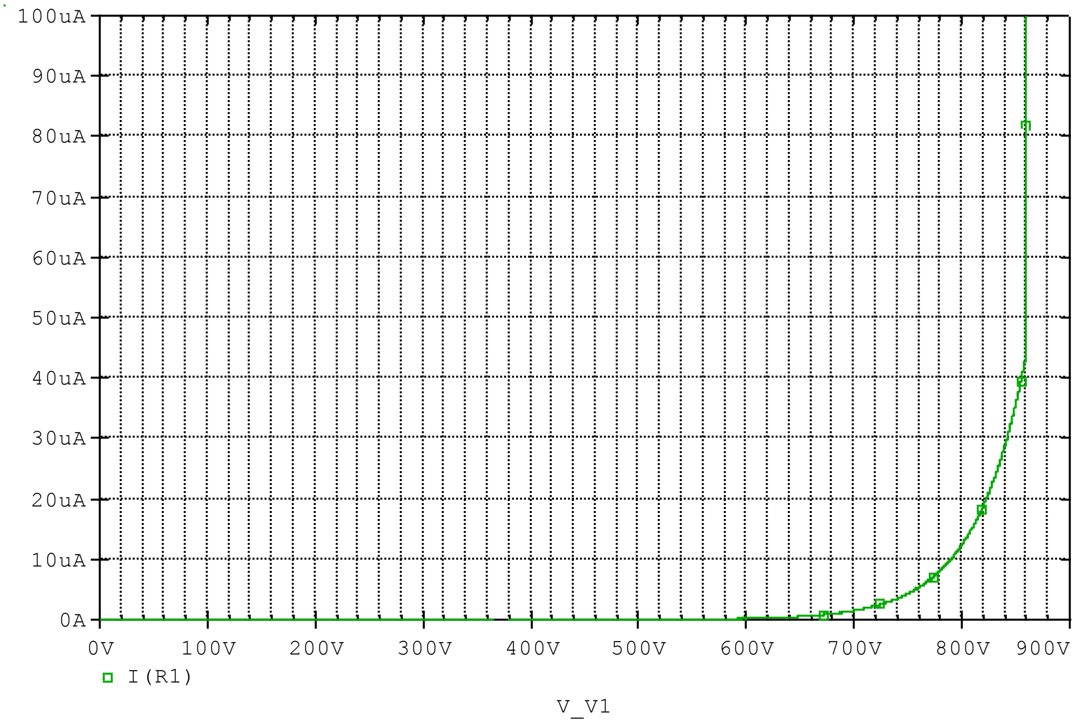


Simulation Result

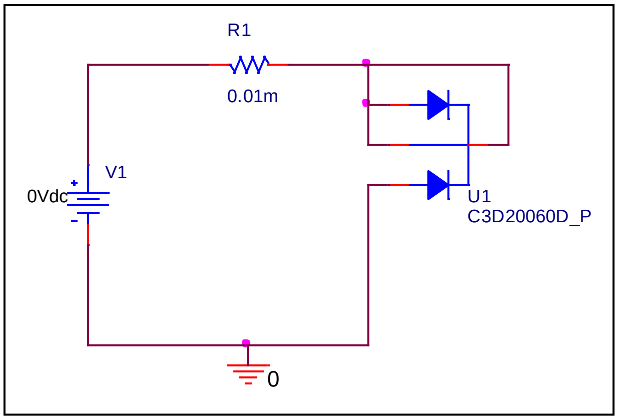
V_R(V)	C (pF)		Error (%)
	Measurement	Simulation	
3	375.000	378.223	0.86
5	285.000	280.798	-1.47
10	181.000	188.893	4.36
20	131.000	129.569	-1.09
50	85.000	82.244	-3.24
100	63.000	61.077	-3.05
200	46.000	47.610	3.50
400	40.000	39.015	-2.46

Reverse Characteristic

Circuit Simulation Result

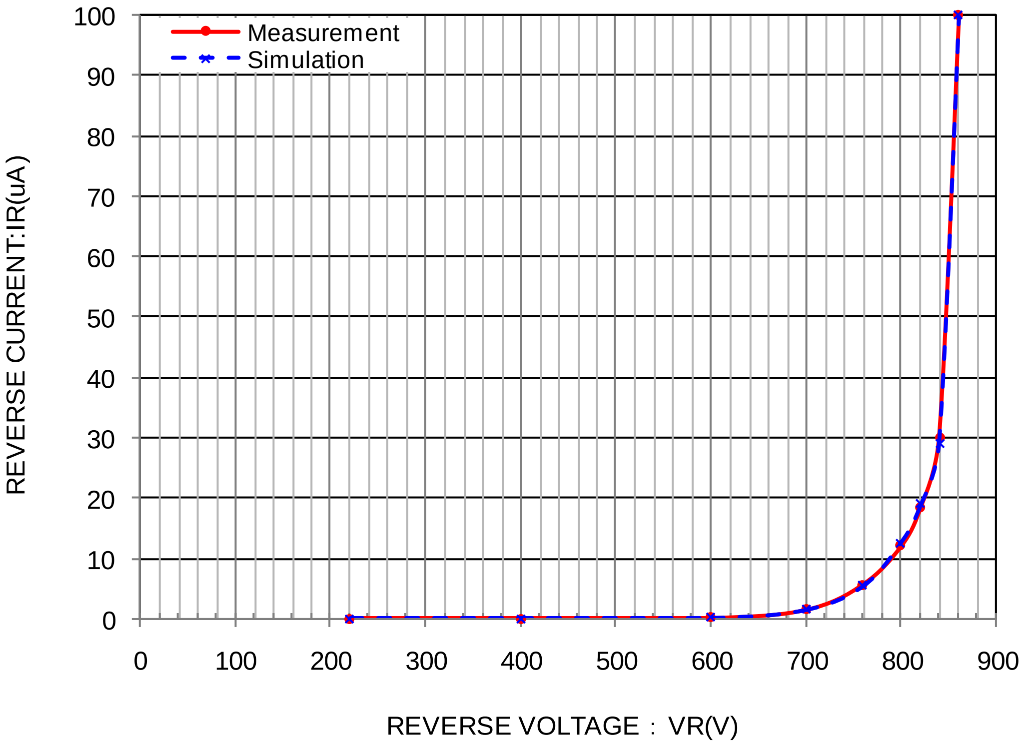


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

V_R(V)	I_R(uA)		Error (%)
	Measurement	Simulation	
220	0.0028	0.0028	1.51
400	0.0055	0.0057	3.35
600	0.1700	0.1705	0.31
700	1.5000	1.5007	0.05
760	5.5000	5.3547	-2.64
800	12.0000	12.4370	3.64
820	18.5000	18.9860	2.63
840	30.0000	28.9670	-3.44
860	100.0000	100.0000	0.00