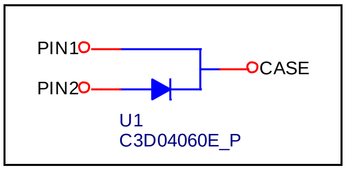
Device Modeling Report

COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: C3D04060E
MANUFACTURER: CREE
REMARK: Professional Model

Bee Technologies Inc.

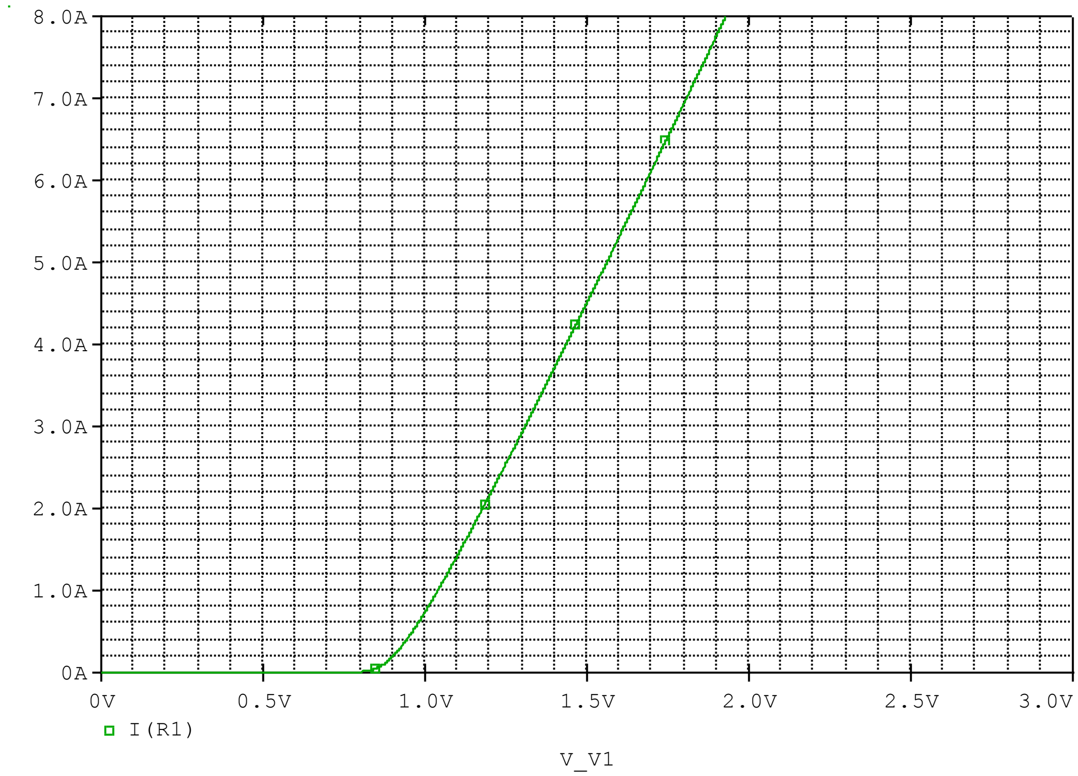
Circuit Configuration



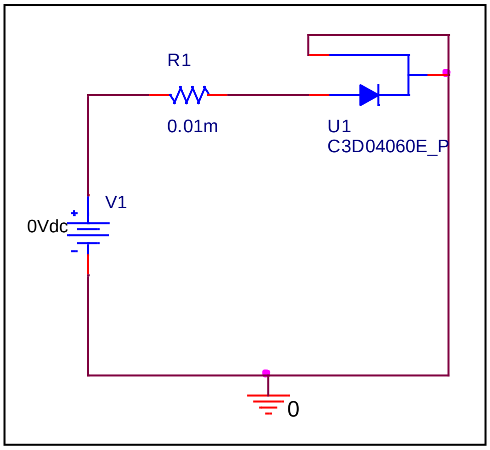
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

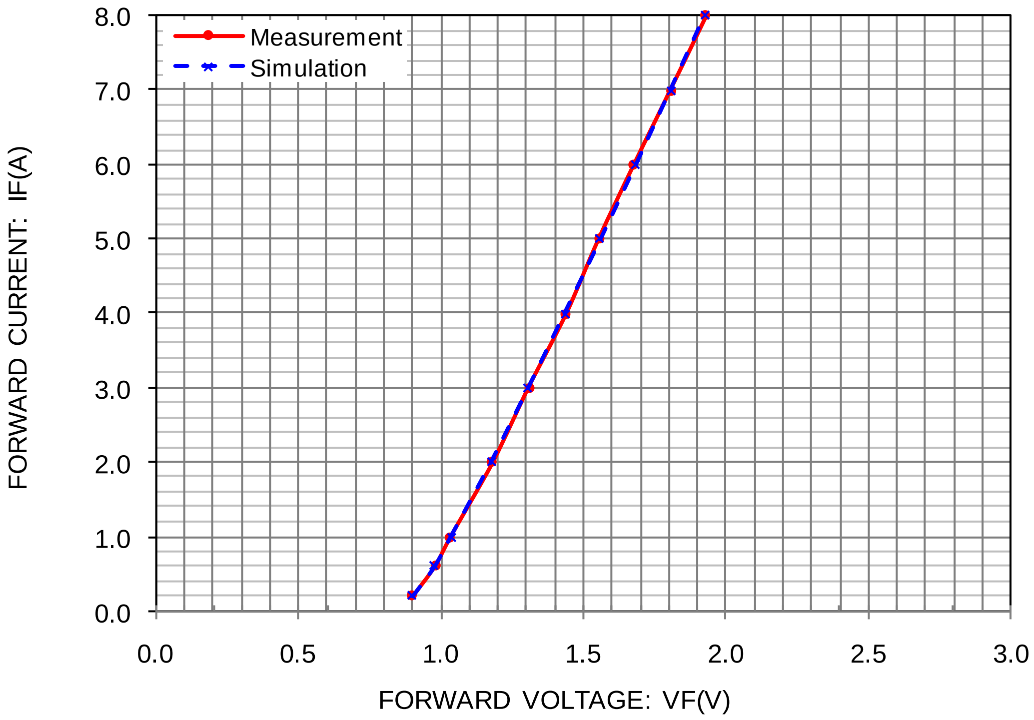


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

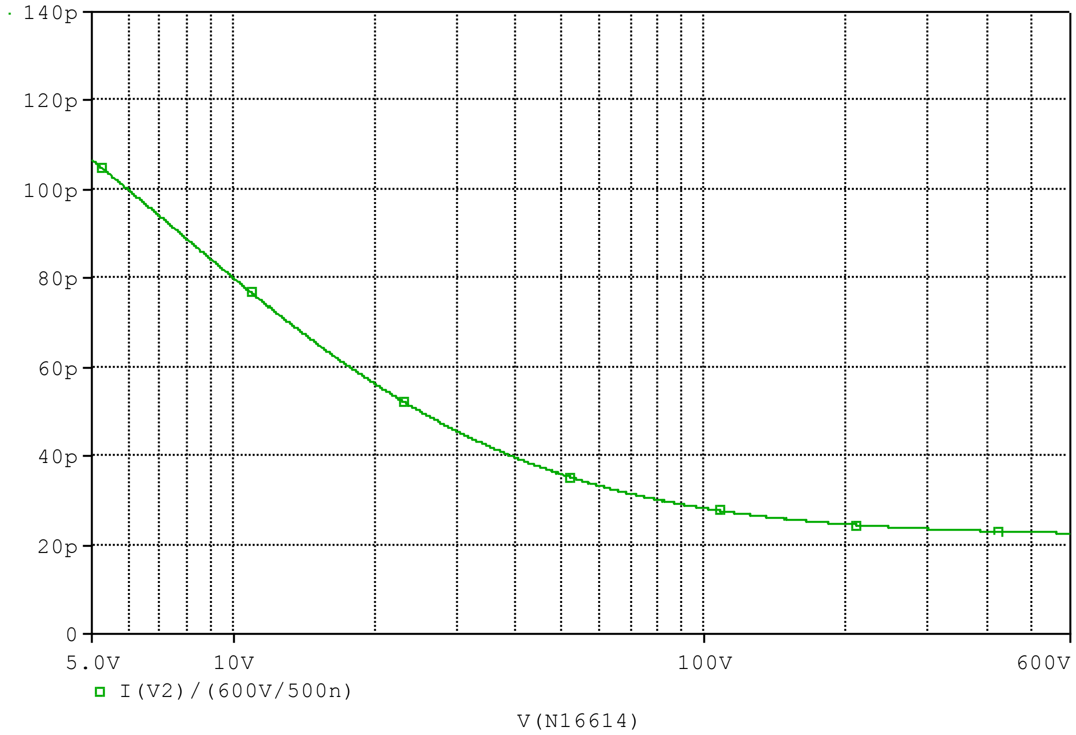


Simulation Result

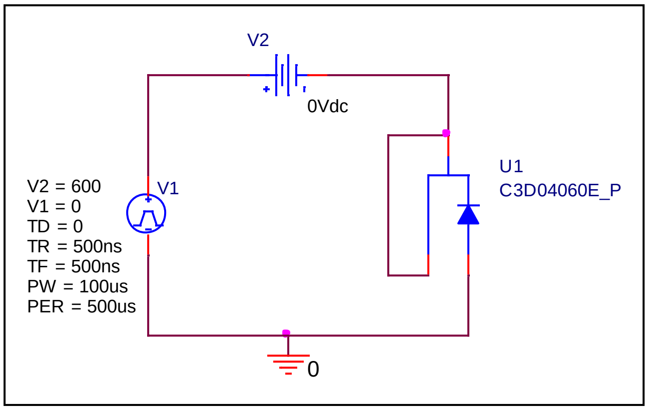
I_F(A)	V_F(V)		Error (%)
	Measurement	Simulation	
0.2	0.9000	0.9009	0.10
0.6	0.9800	0.9776	-0.24
1.0	1.0350	1.0391	0.40
2.0	1.1800	1.1776	-0.20
3.0	1.3100	1.3083	-0.13
4.0	1.4400	1.4356	-0.31
5.0	1.5550	1.5607	0.37
6.0	1.6800	1.6844	0.26
7.0	1.8100	1.8071	-0.16
8.0	1.9300	1.9289	-0.06

Junction Capacitance Characteristic

Circuit Simulation Result

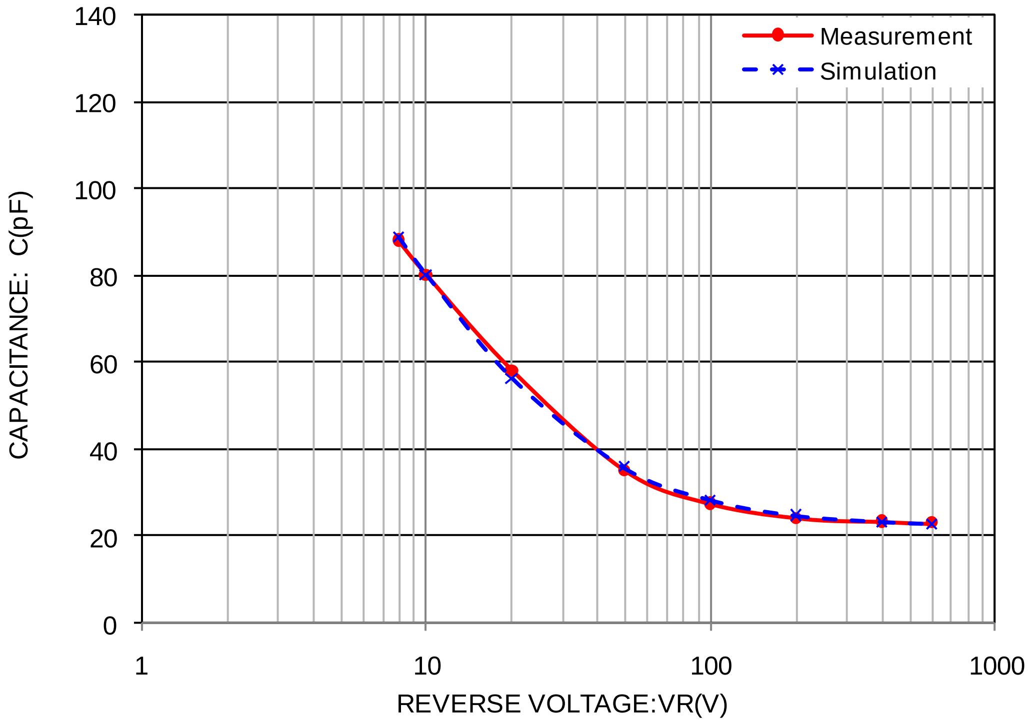


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

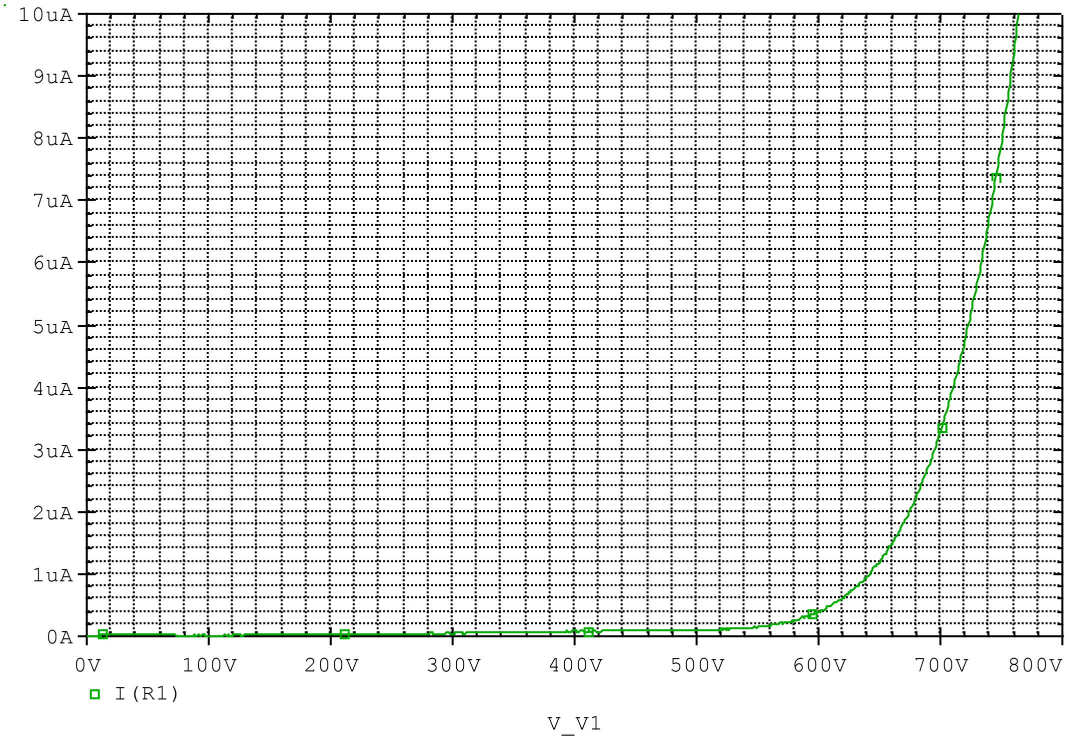


Simulation Result

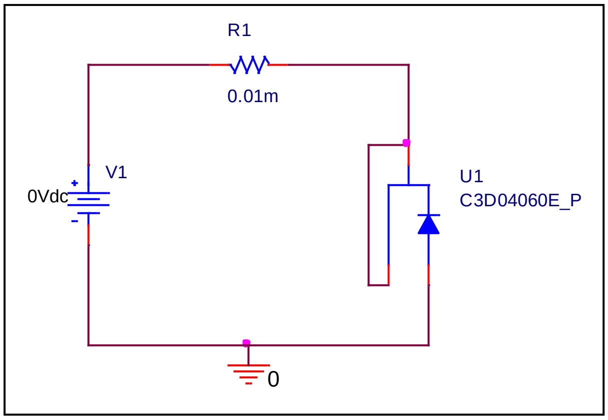
V_R(V)	C (pF)		Error (%)
	Measurement	Simulation	
8	88.000	88.671	0.76
10	80.000	80.070	0.09
20	58.000	56.219	-3.07
50	35.000	35.838	2.39
100	27.500	28.273	2.81
200	24.000	24.696	2.90
400	23.300	23.125	-0.75
600	23.000	22.672	-1.43

Reverse Characteristic

Circuit Simulation Result

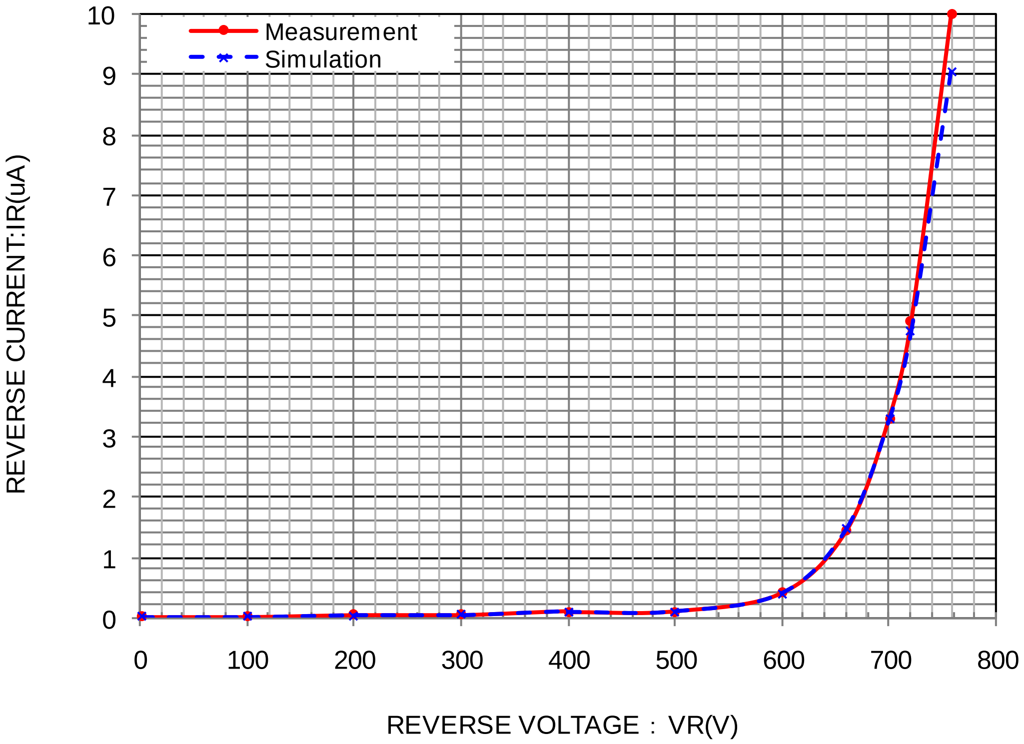


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

V_R(V)	I_R(uA)		Error (%)
	Measurement	Simulation	
1	0.0110	0.0107	-2.70
100	0.0140	0.0142	1.51
200	0.0350	0.0341	-2.55
300	0.0450	0.0455	1.06
400	0.0850	0.0853	0.31
500	0.1000	0.0966	-3.37
600	0.4000	0.3979	-0.52
700	3.3000	3.2856	-0.44