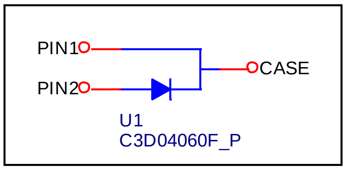
Device Modeling Report

COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: C3D04060F
MANUFACTURER: CREE
REMARK: Professional Model

Bee Technologies Inc.

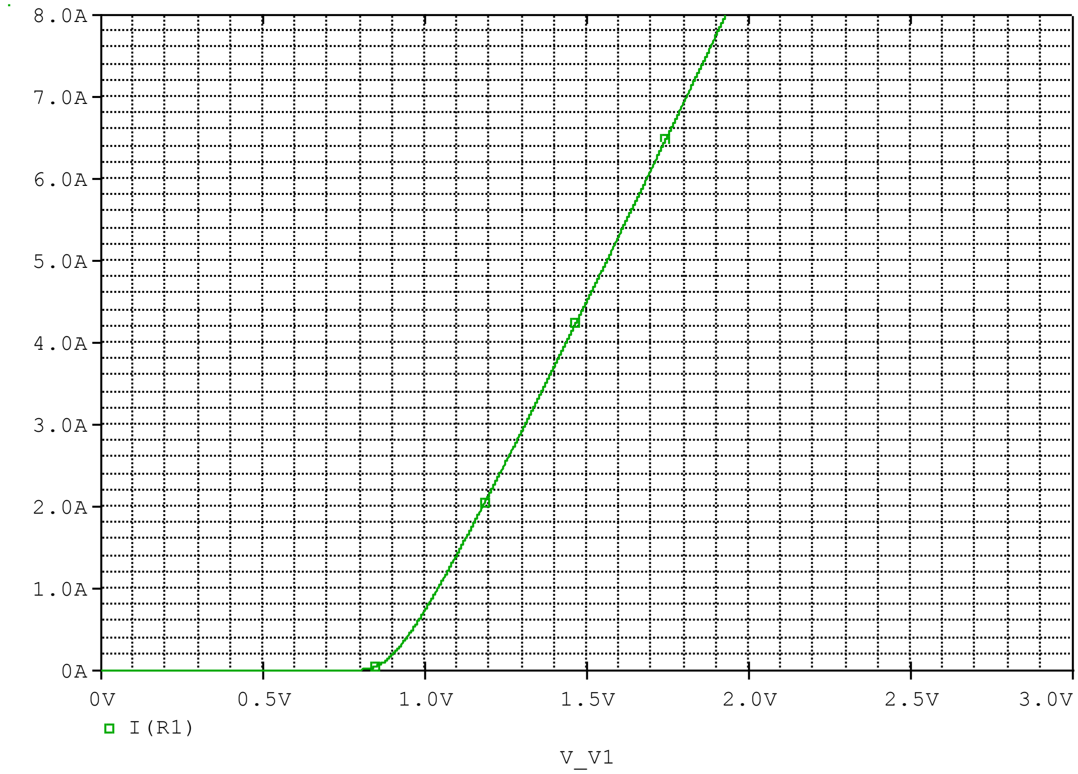
Circuit Configuration



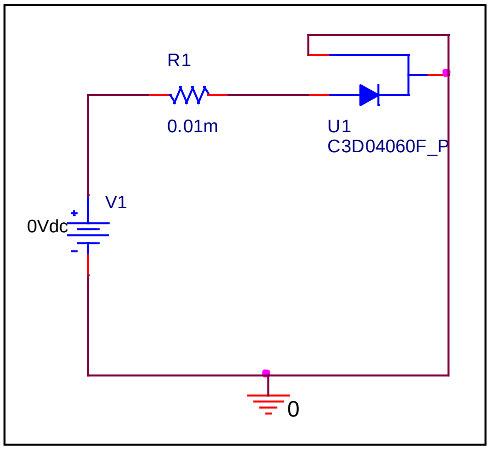
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

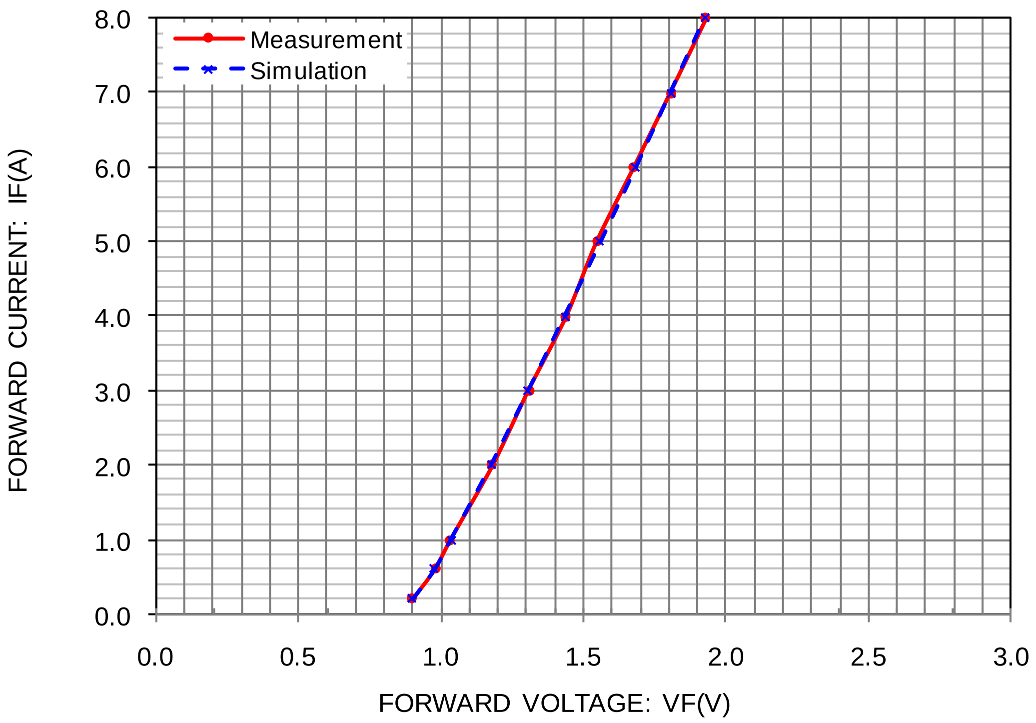


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

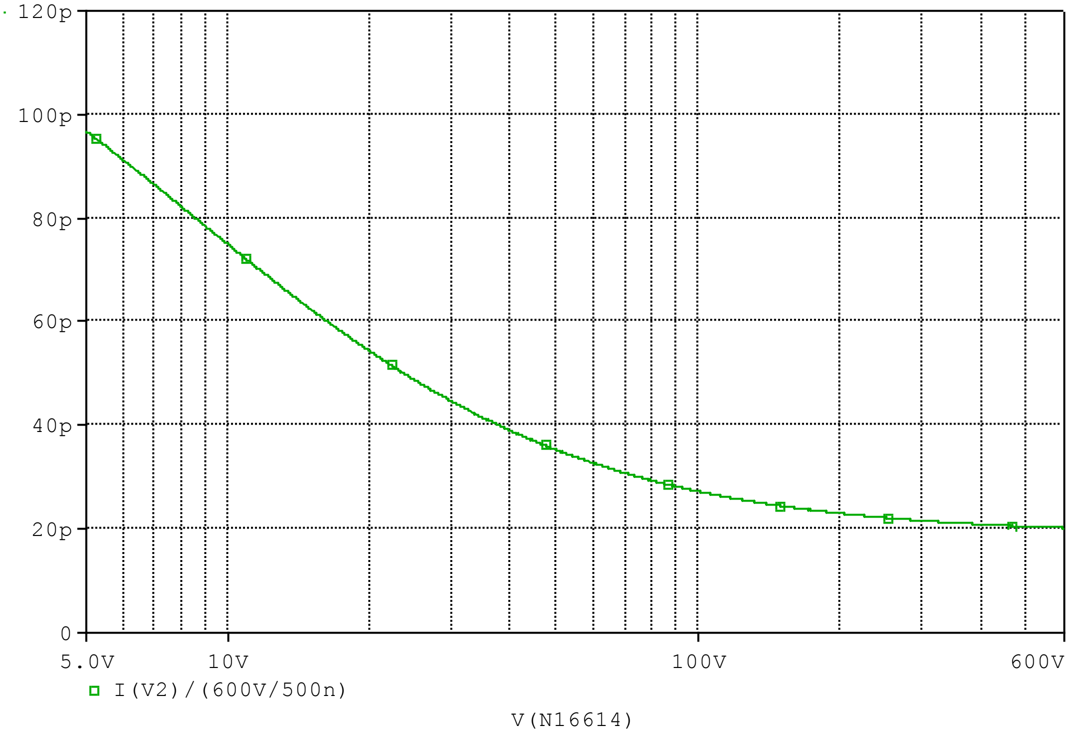


Simulation Result

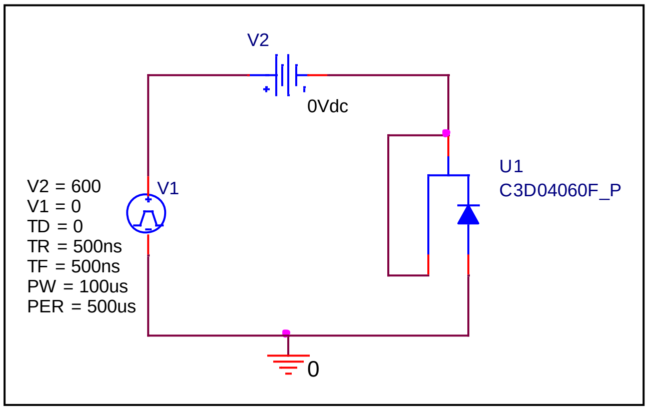
I_F(A)	V_F(V)		Error (%)
	Measurement	Simulation	
0.2	0.9000	0.9009	0.10
0.6	0.9800	0.9776	-0.24
1.0	1.0350	1.0391	0.40
2.0	1.1800	1.1776	-0.20
3.0	1.3100	1.3083	-0.13
4.0	1.4400	1.4356	-0.31
5.0	1.5500	1.5607	0.69
6.0	1.6800	1.6844	0.26
7.0	1.8100	1.8071	-0.16
8.0	1.9300	1.9289	-0.06

Junction Capacitance Characteristic

Circuit Simulation Result

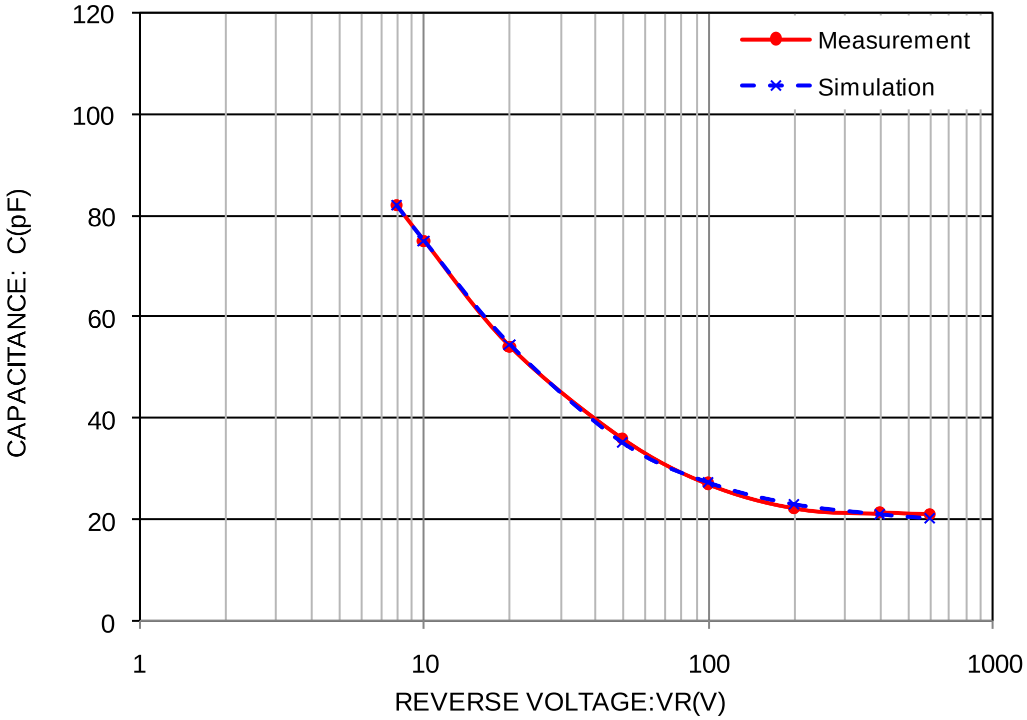


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

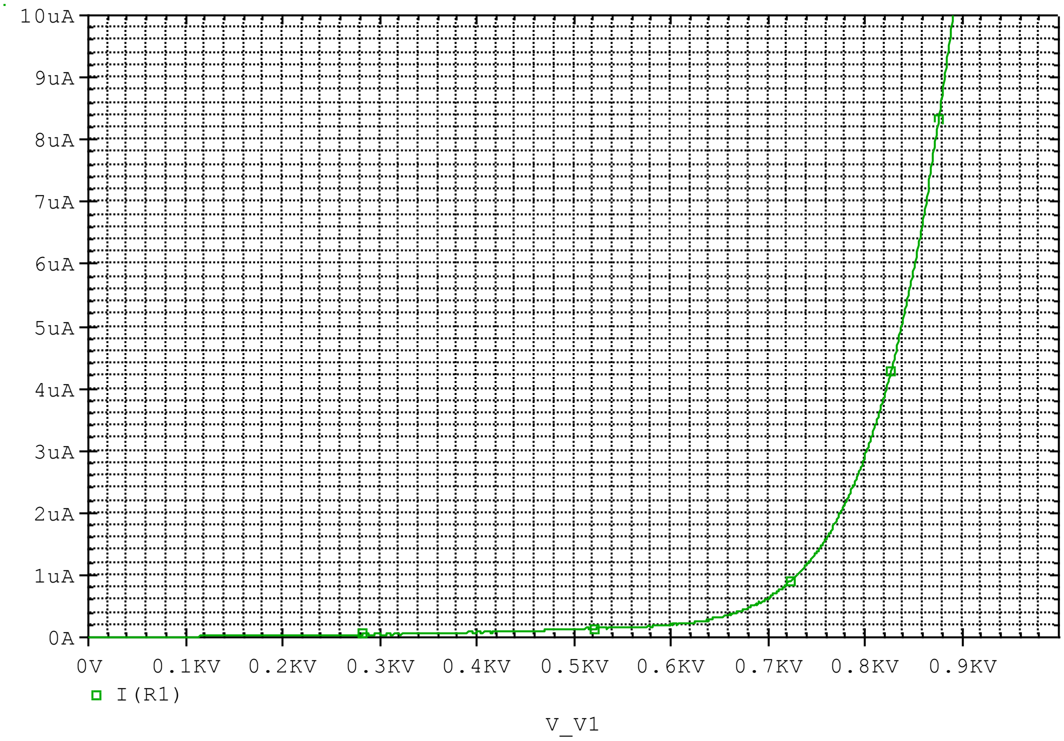


Simulation Result

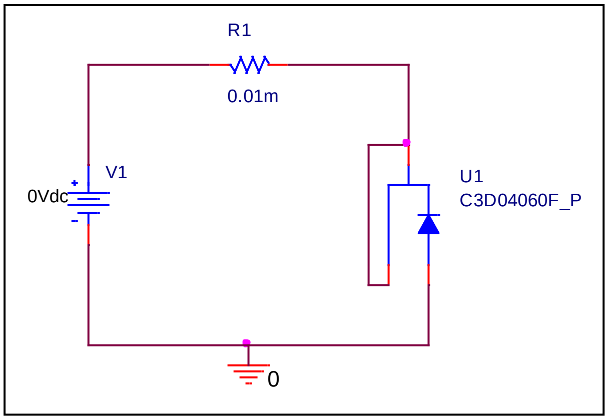
V_R(V)	C (pF)		Error (%)
	Measurement	Simulation	
8	82.000	82.072	0.09
10	75.000	74.963	-0.05
20	54.000	54.356	0.66
50	36.000	35.254	-2.07
100	27.000	27.278	1.03
200	22.200	23.043	3.80
400	21.300	20.928	-1.75
600	21.000	20.237	-3.63

Reverse Characteristic

Circuit Simulation Result

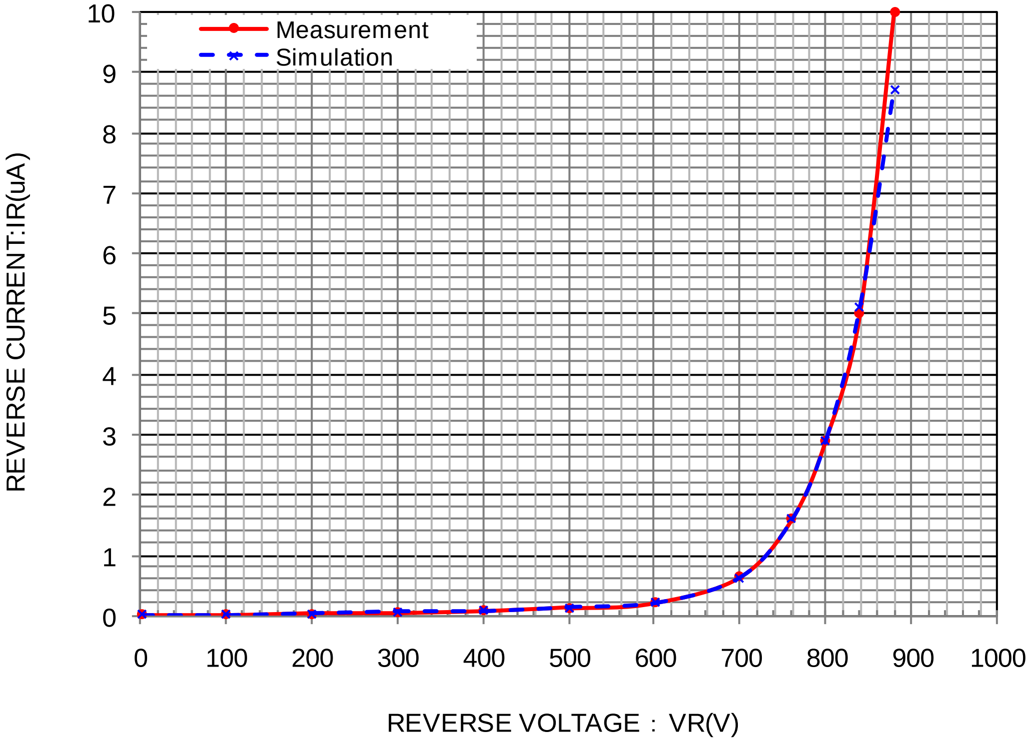


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

V_R(V)	I_R(uA)		Error (%)
	Measurement	Simulation	
1	0.0100	0.0101	1.03
100	0.0145	0.0142	-1.99
200	0.0310	0.0313	0.85
300	0.0500	0.0512	2.32
400	0.0800	0.0796	-0.52
500	0.1250	0.1251	0.04
600	0.2000	0.2046	2.32
700	0.6300	0.6253	-0.75
800	2.9000	2.8990	-0.03