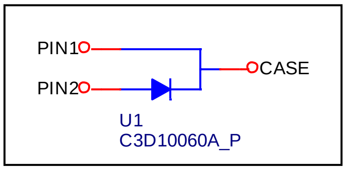
Device Modeling Report

COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: C3D10060A
MANUFACTURER: CREE
REMARK: Professional Model

Bee Technologies Inc.

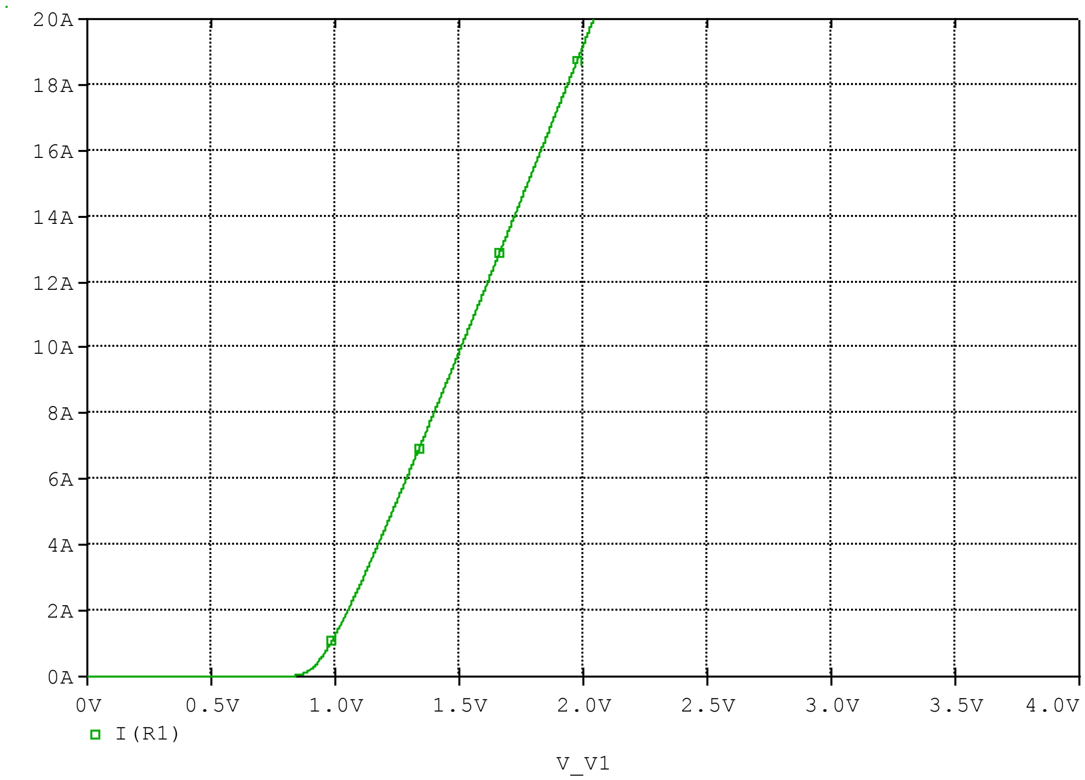
Circuit Configuration



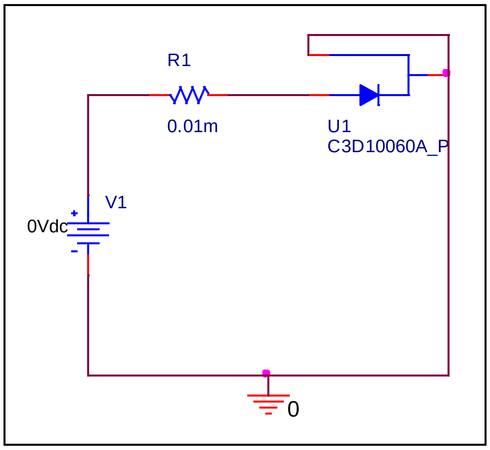
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

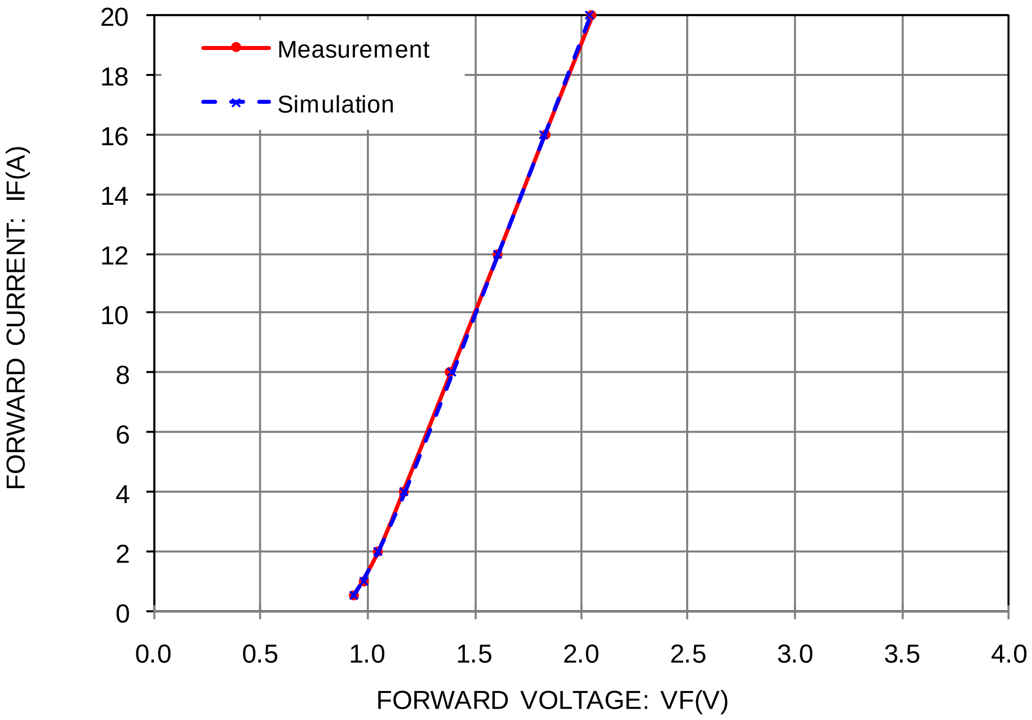


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

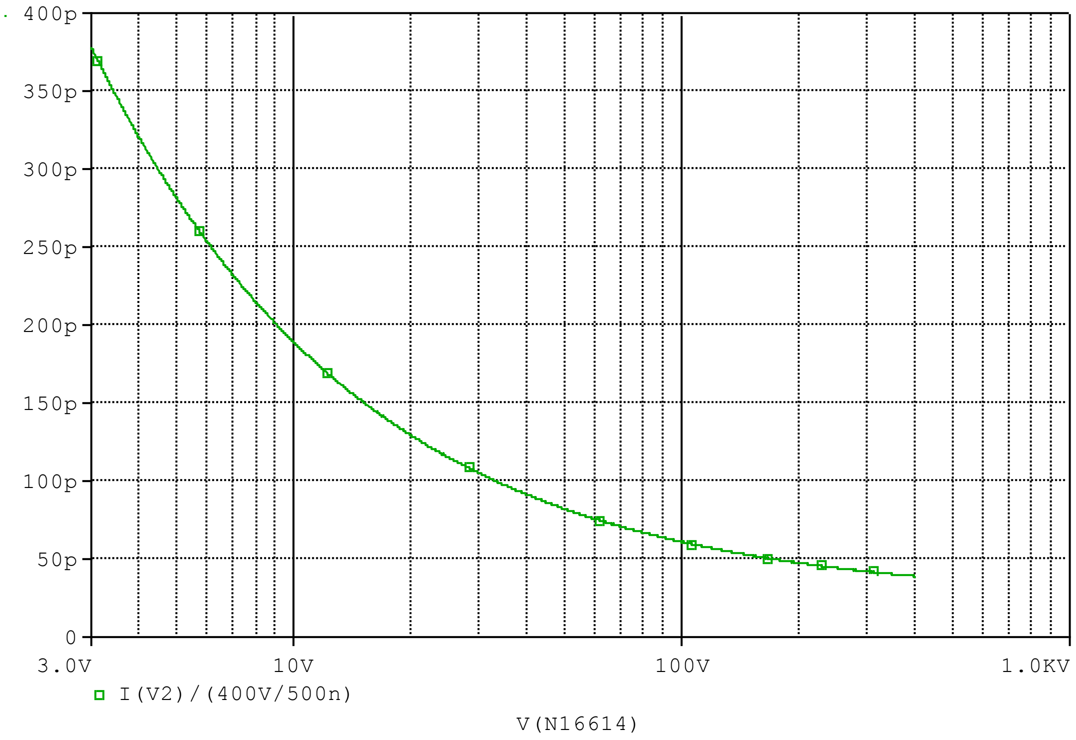


Simulation Result

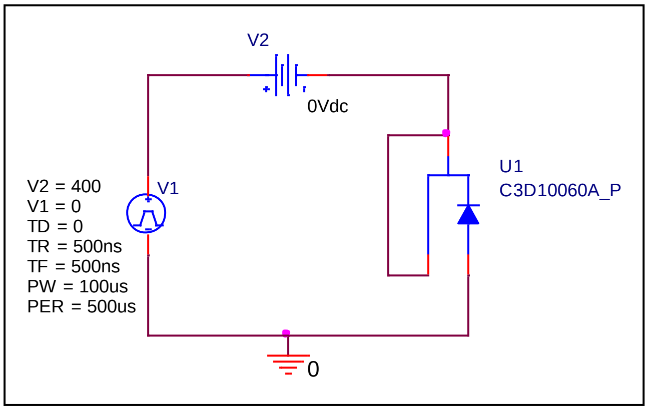
I_F(A)	V_F(V)		Error (%)
	Measurement	Simulation	
0.5	0.9350	0.9364	0.14
1.0	0.9800	0.9802	0.02
2.0	1.0500	1.0499	-0.01
4.0	1.1700	1.1715	0.13
8.0	1.3900	1.3967	0.48
12.0	1.6100	1.6145	0.28
16.0	1.8300	1.8292	-0.04
20.0	2.0500	2.0423	-0.38

Junction Capacitance Characteristic

Circuit Simulation Result

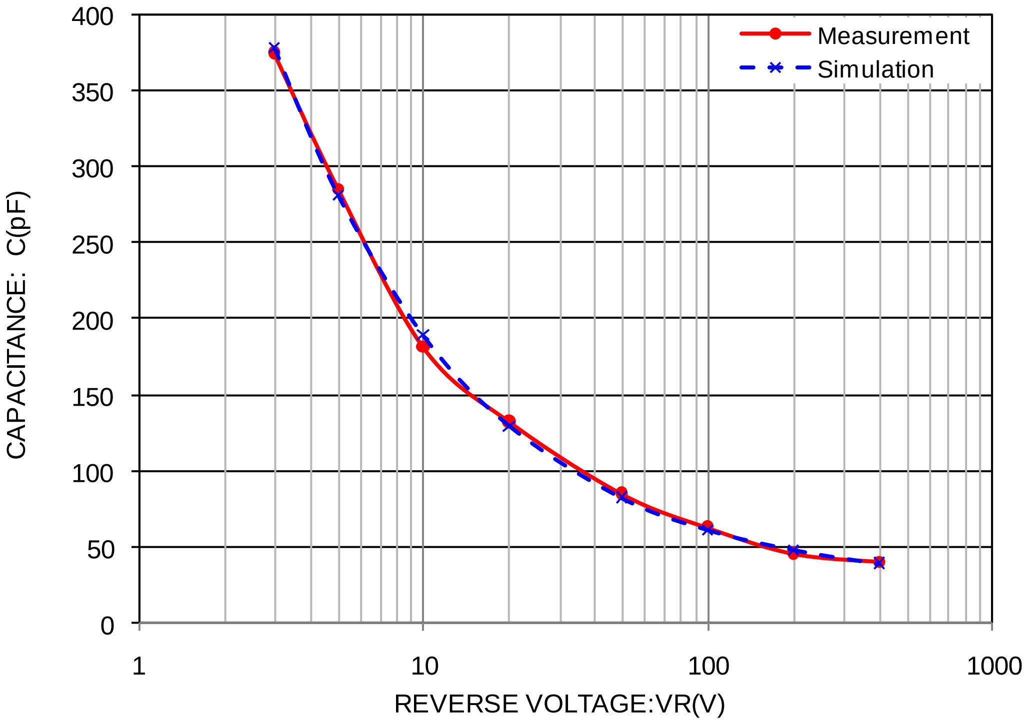


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

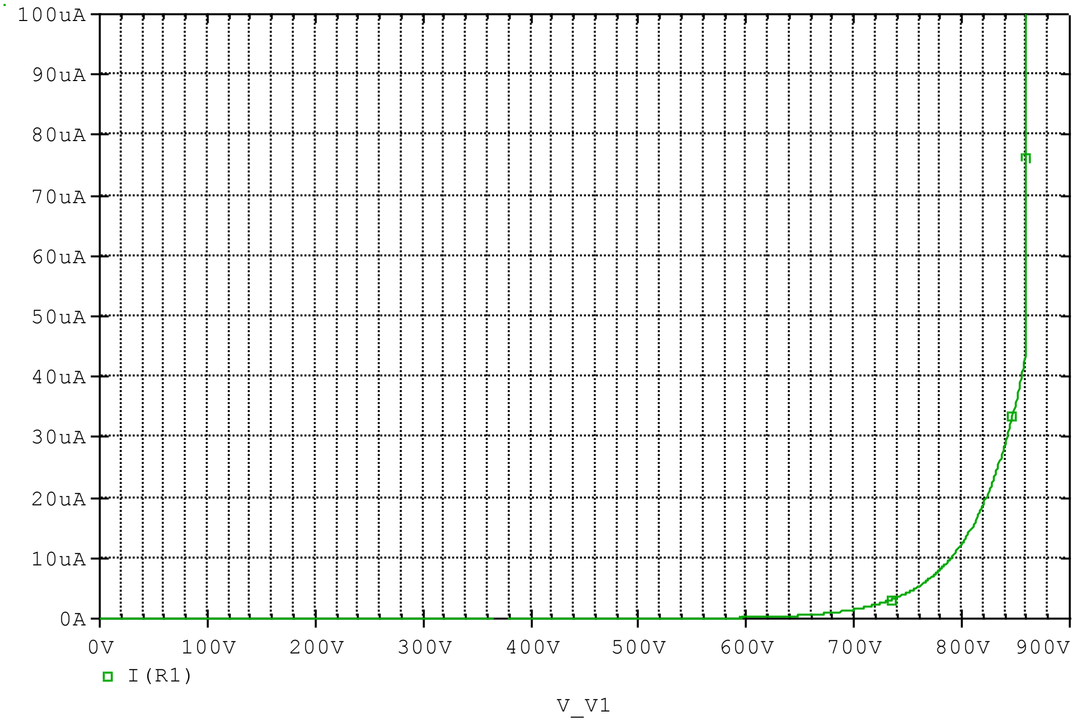


Simulation Result

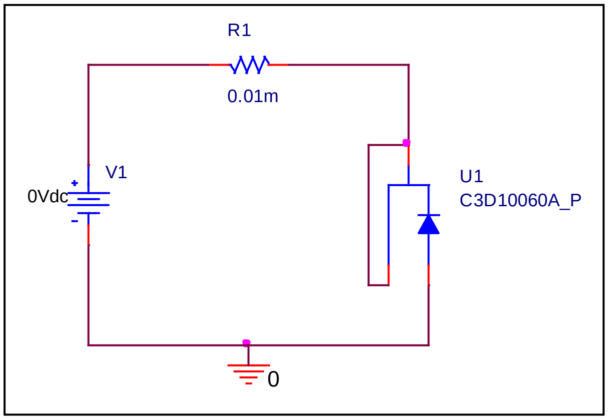
V_R(V)	C (pF)		Error (%)
	Measurement	Simulation	
3	375.000	378.062	0.82
5	285.000	280.866	-1.45
10	181.000	188.816	4.32
20	132.000	129.327	-2.03
50	85.000	82.132	-3.37
100	63.000	60.965	-3.23
200	45.500	47.538	4.48
400	40.000	38.994	-2.52

Reverse Characteristic

Circuit Simulation Result

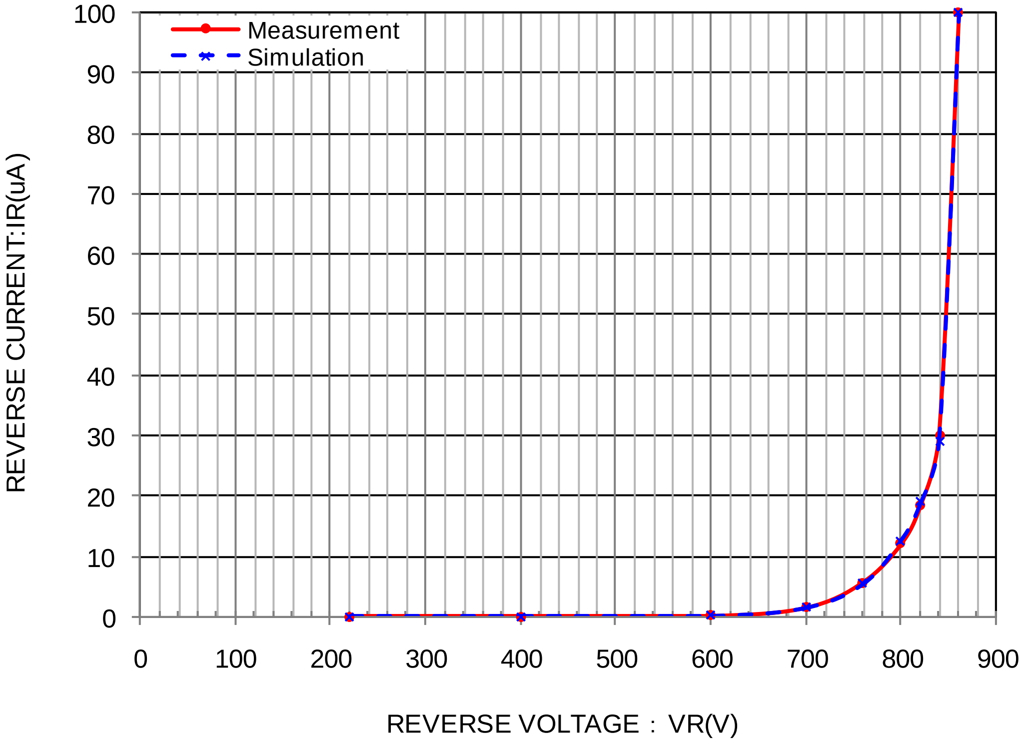


Evaluation Circuit



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