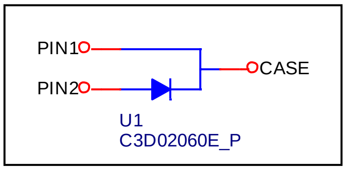
Device Modeling Report

COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: C3D02060E
MANUFACTURER: CREE
REMARK: Professional Model

Bee Technologies Inc.

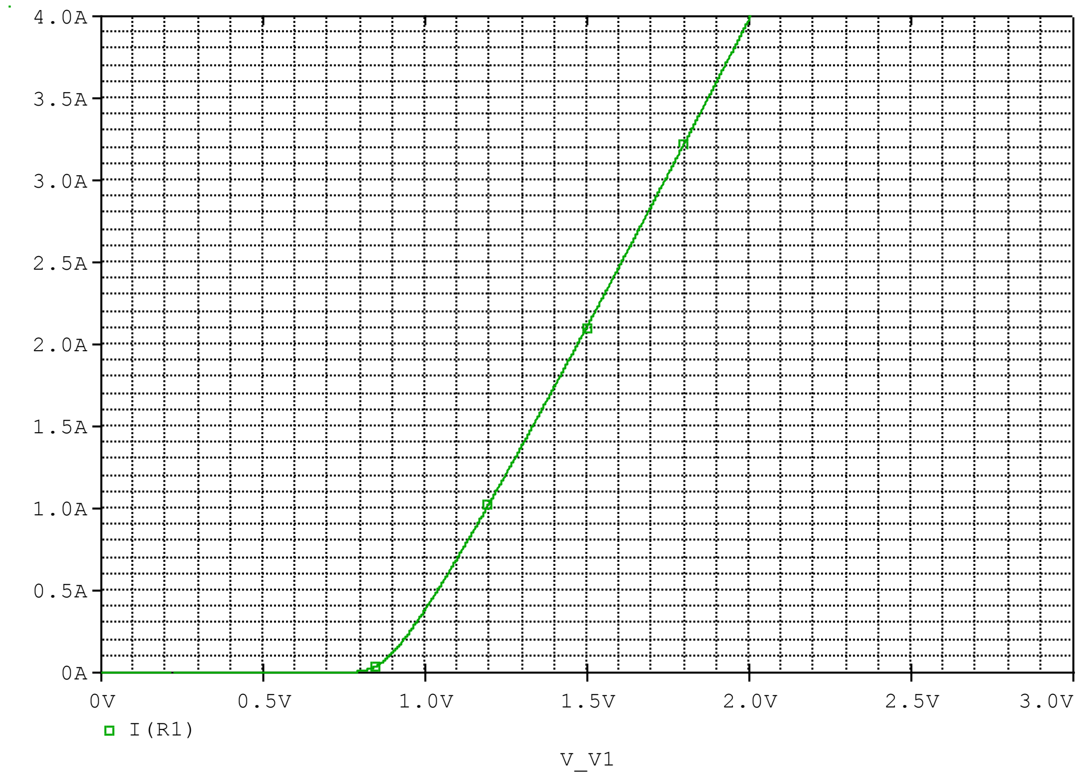
Circuit Configuration



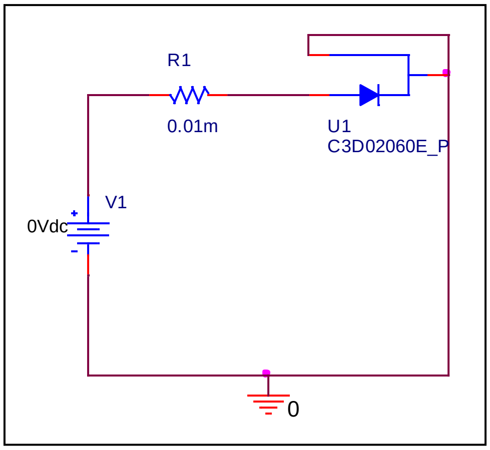
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

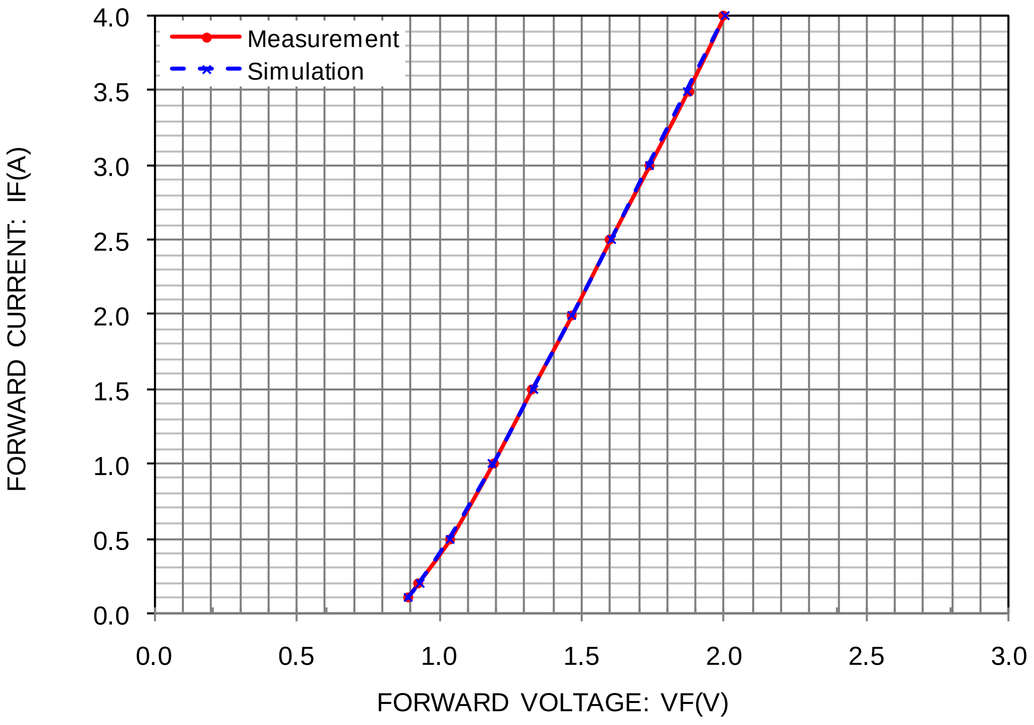


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

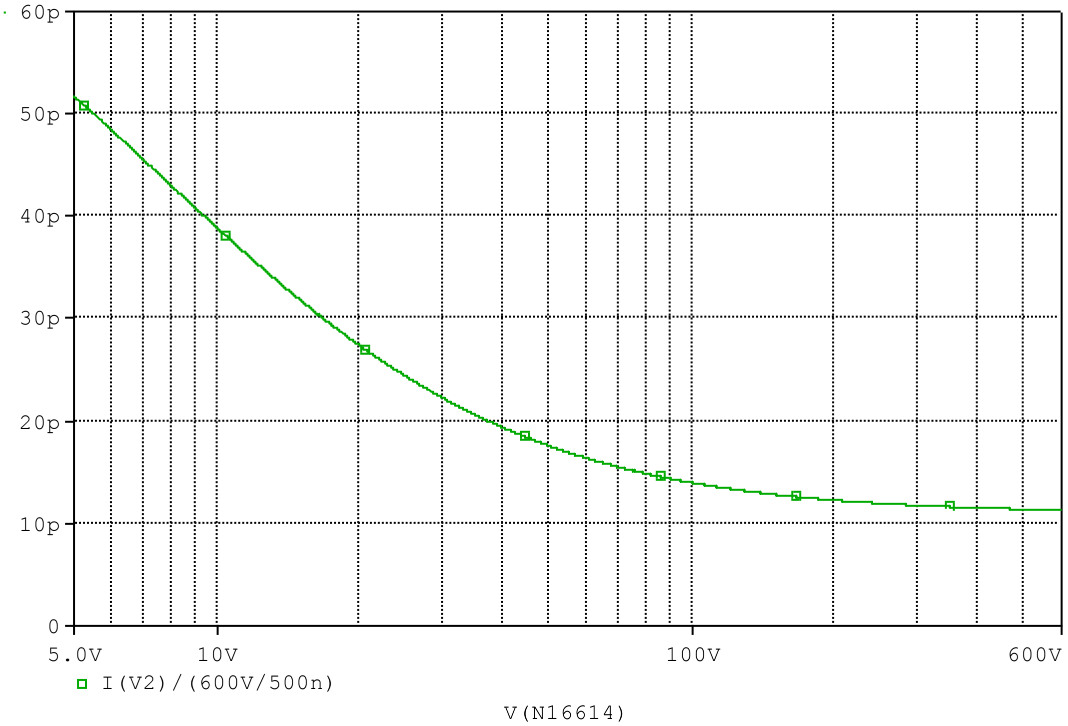


Simulation Result

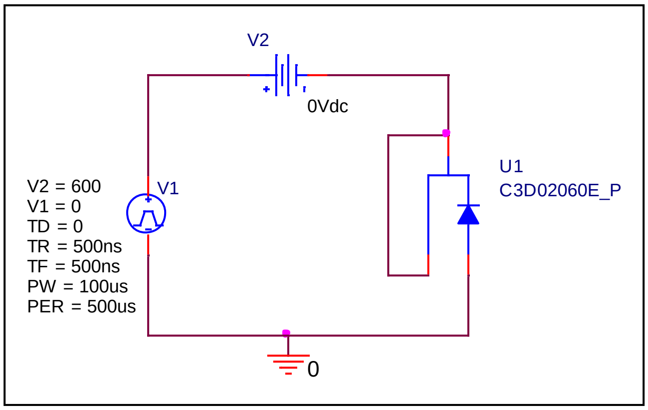
I_F(A)	V_F(V)		Error (%)
	Measurement	Simulation	
0.1	0.8900	0.8887	-0.14
0.2	0.9300	0.9335	0.37
0.5	1.0400	1.0375	-0.24
1.0	1.1900	1.1886	-0.12
1.5	1.3300	1.3310	0.08
2.0	1.4700	1.4694	-0.04
2.5	1.6000	1.6053	0.33
3.0	1.7400	1.7395	-0.03
3.5	1.8800	1.8724	-0.40
4.0	2.0000	2.0043	0.22

Junction Capacitance Characteristic

Circuit Simulation Result



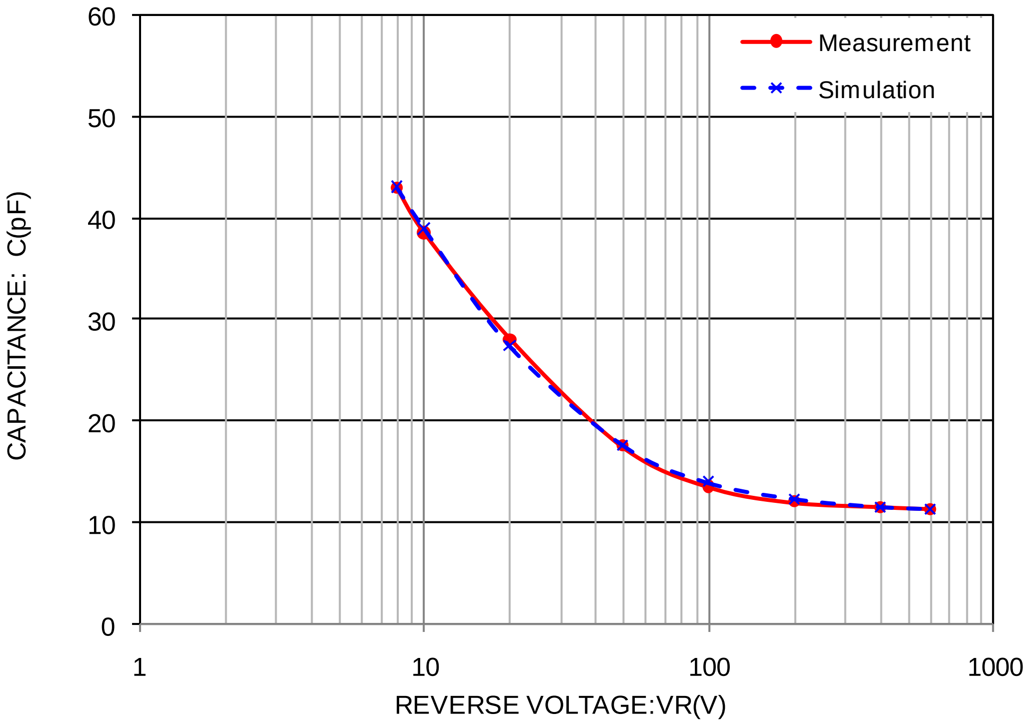
Evaluation Circuit



V2 = 600
V1 = 0
TD = 0
TR = 500ns
TF = 500ns
PW = 100us
PER = 500us

Comparison Graph

Circuit Simulation Result

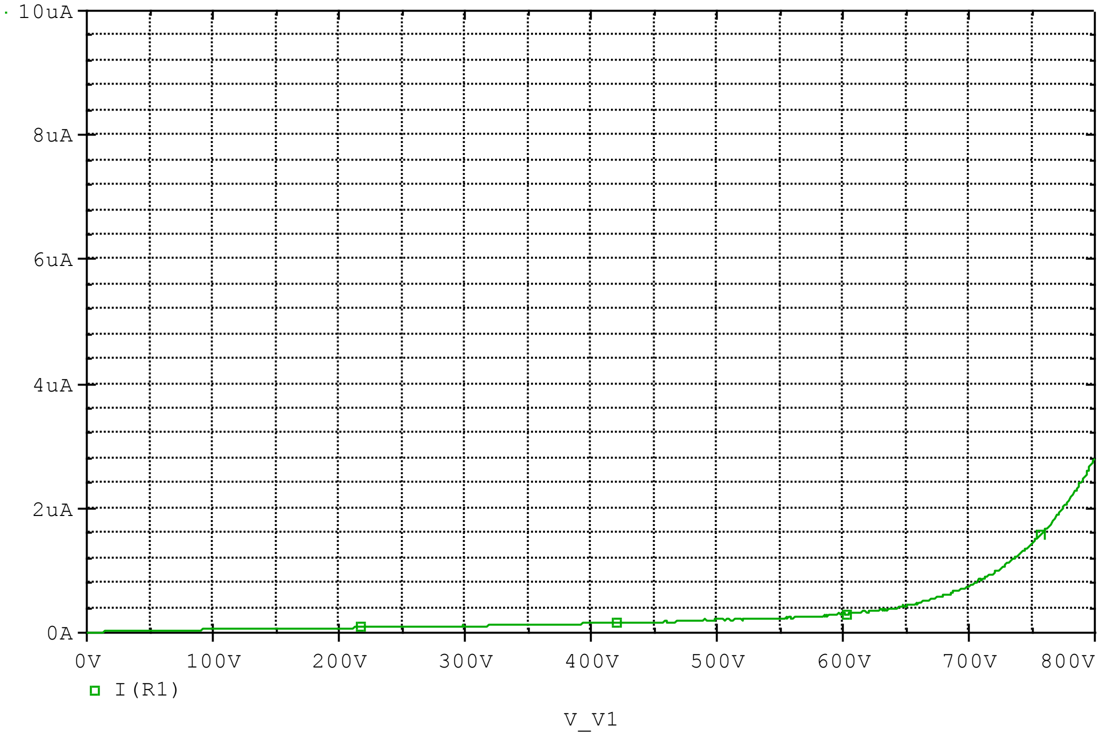


Simulation Result

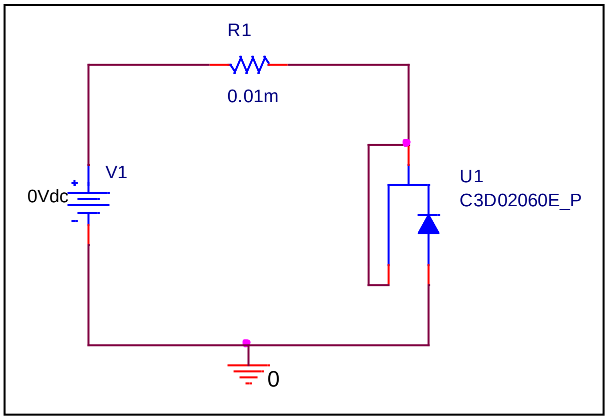
V_R(V)	C (pF)		Error (%)
	Measurement	Simulation	
8	43.000	43.024	0.06
10	38.500	38.888	1.01
20	28.000	27.355	-2.30
50	17.500	17.587	0.50
100	13.500	13.971	3.49
200	12.000	12.272	2.27
400	11.500	11.528	0.24
600	11.300	11.314	0.12

Reverse Characteristic

Circuit Simulation Result

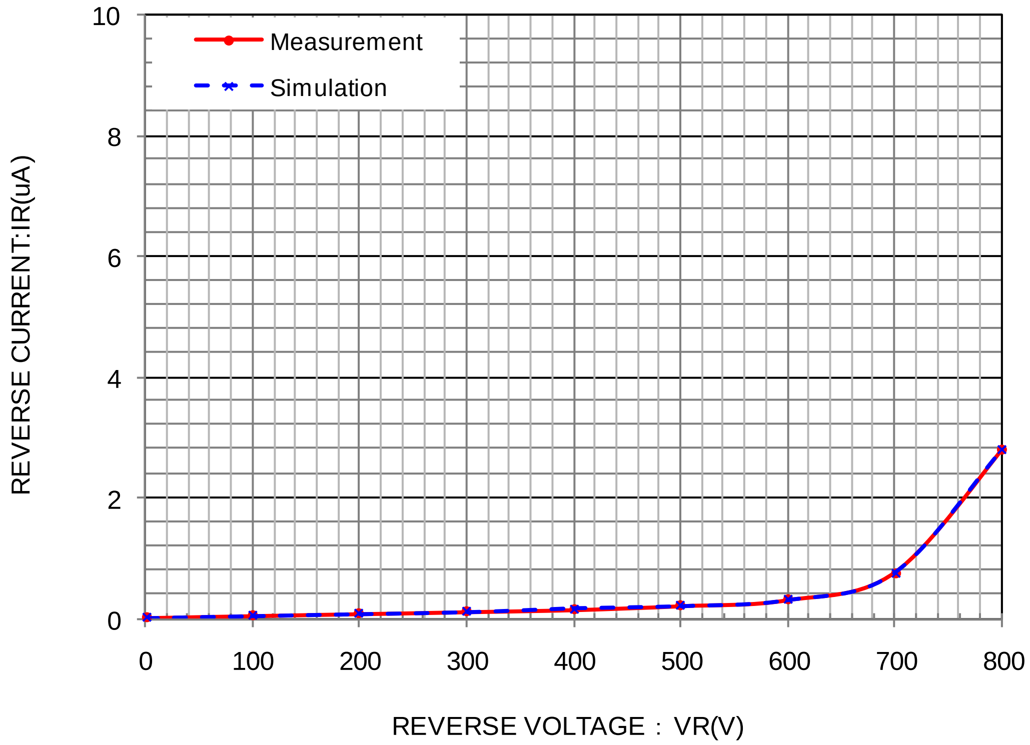


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

V_R(V)	I_R(uA)		Error (%)
	Measurement	Simulation	
1	0.0100	0.0104	3.92
100	0.0500	0.0497	-0.52
200	0.0800	0.0796	-0.52
300	0.1100	0.1080	-1.82
400	0.1500	0.1535	2.32
500	0.2100	0.2103	0.15
600	0.3000	0.3070	2.32
700	0.7500	0.7503	0.04
800	2.8000	2.7967	-0.12