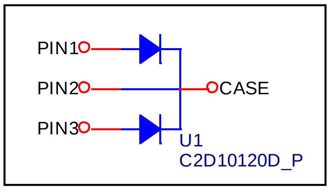
Device Modeling Report

COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: C2D10120D
MANUFACTURER: CREE
REMARK: Professional Model

Bee Technologies Inc.

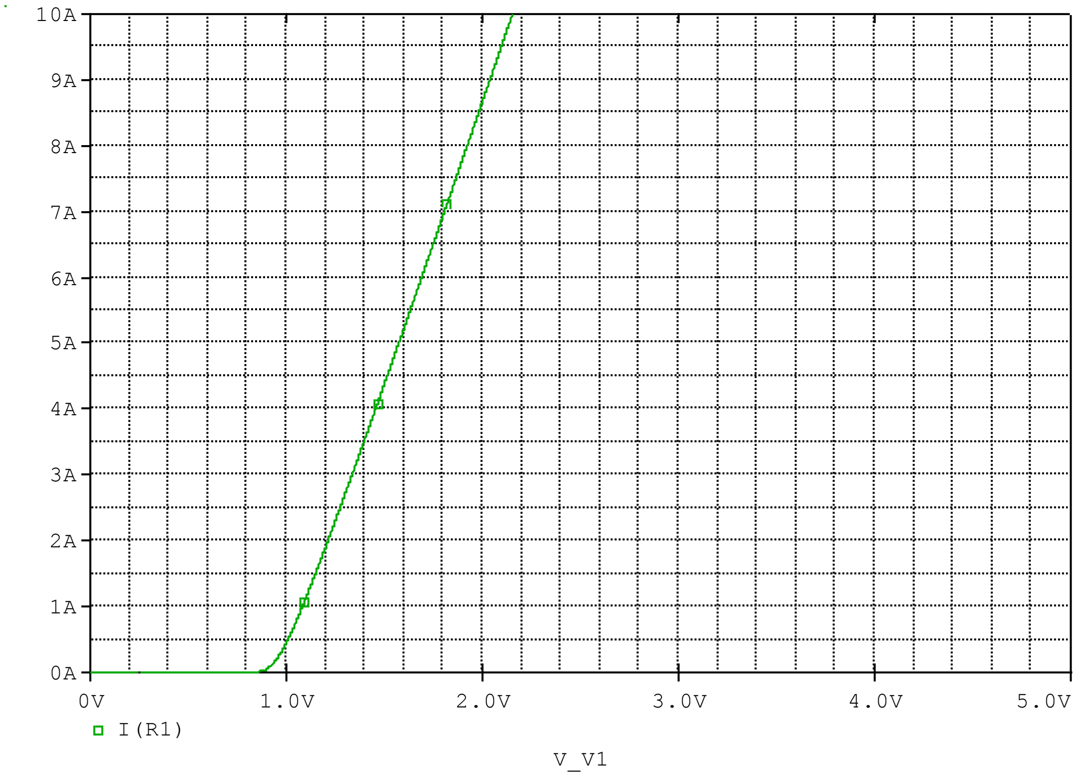
Circuit Configuration



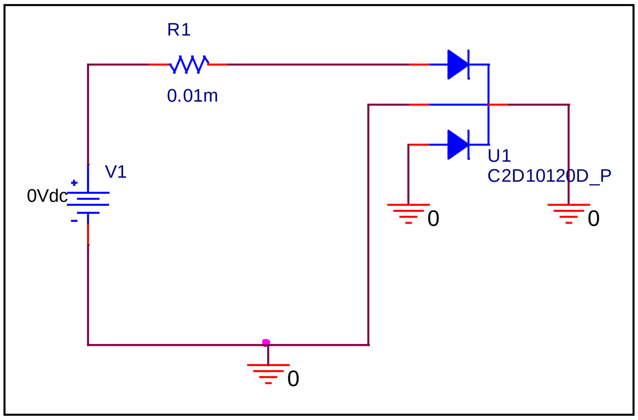
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

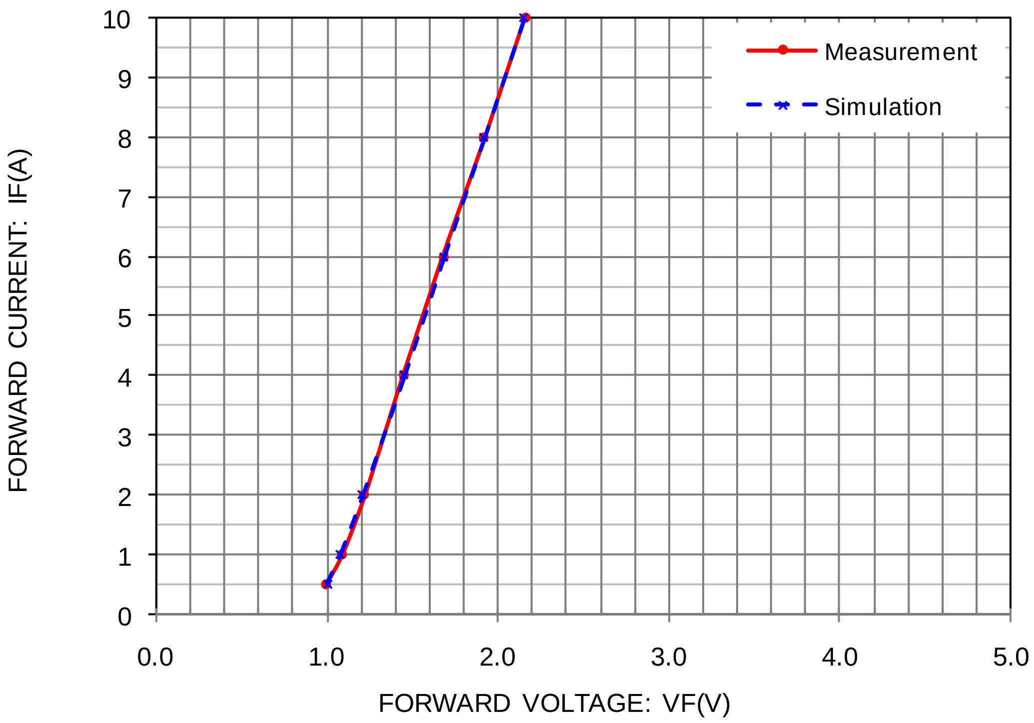


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

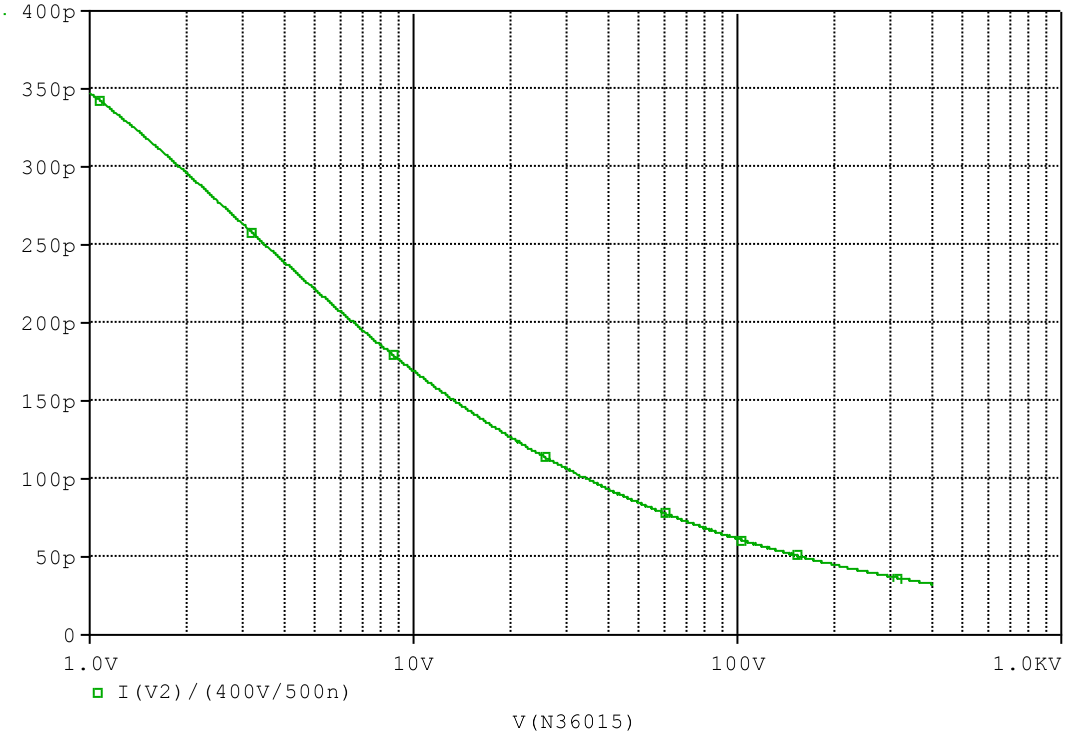


Simulation Result

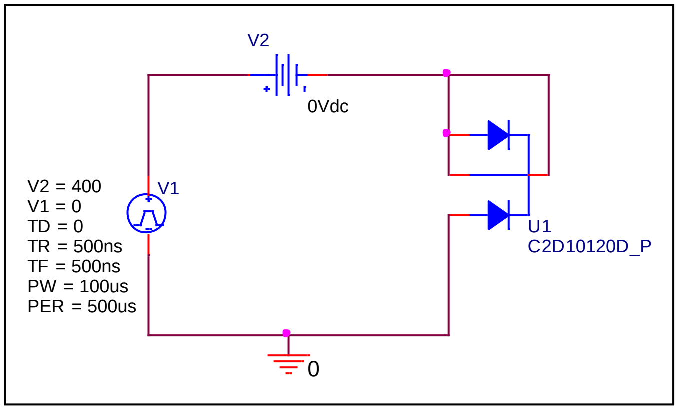
I_F(A)	V_F(V)		Error (%)
	Measurement	Simulation	
0.5	1.0000	1.0074	0.74
1.0	1.0900	1.0815	-0.78
2.0	1.2200	1.2119	-0.66
4.0	1.4500	1.4546	0.32
6.0	1.6800	1.6899	0.59
8.0	1.9200	1.9222	0.11
10.0	2.1600	2.1528	-0.33

Junction Capacitance Characteristic

Circuit Simulation Result

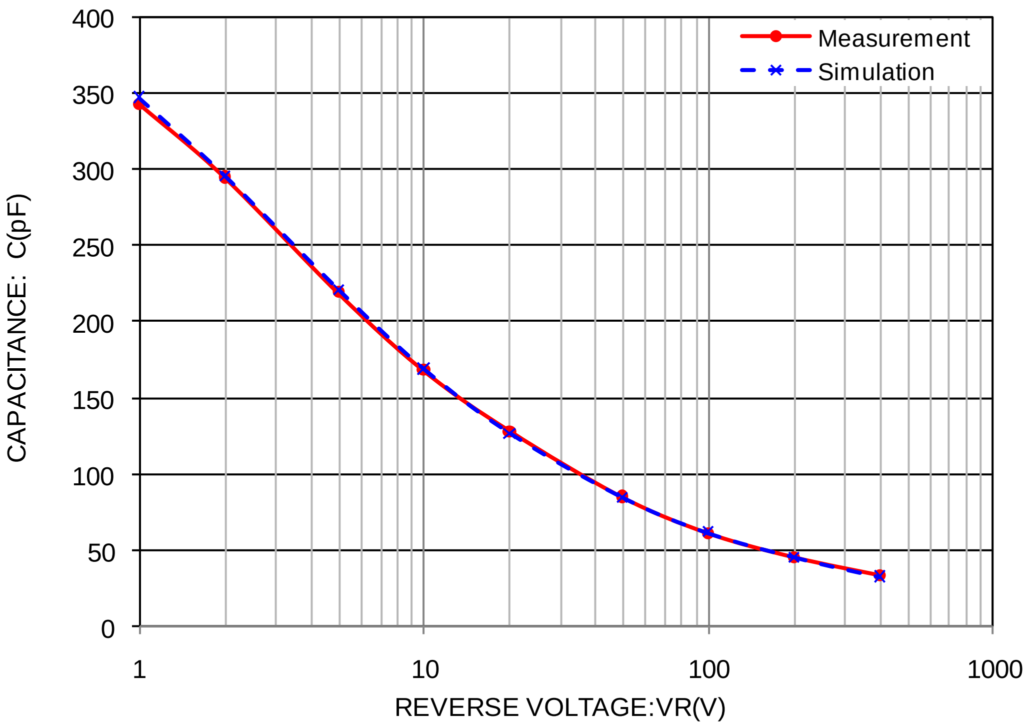


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

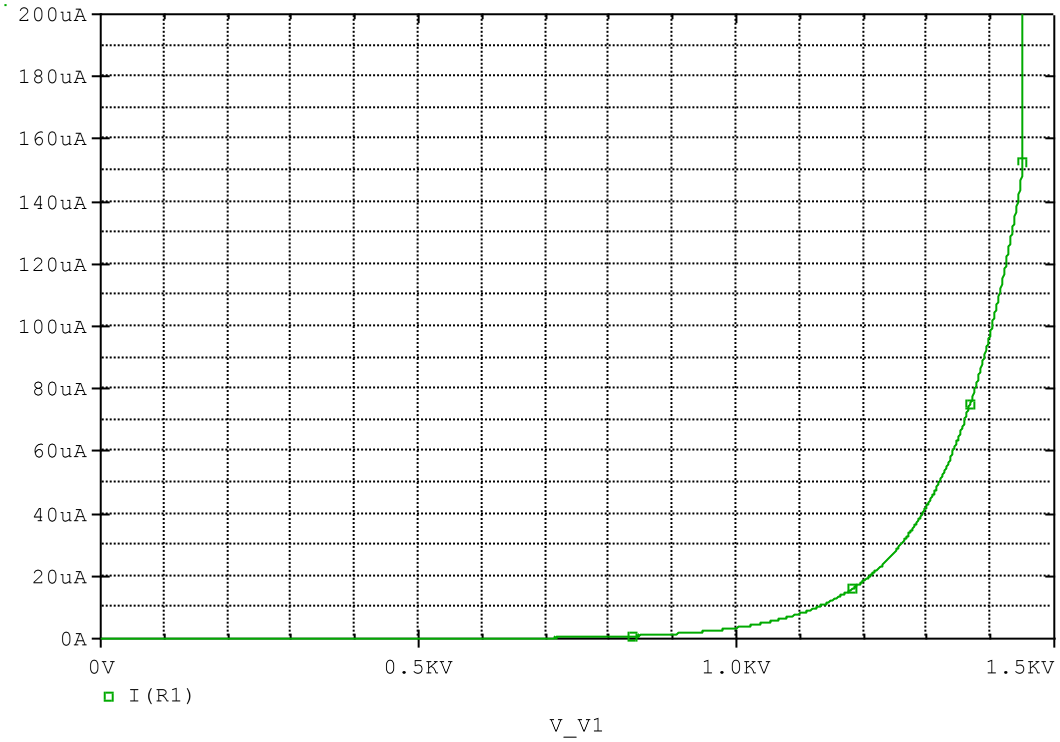


Simulation Result

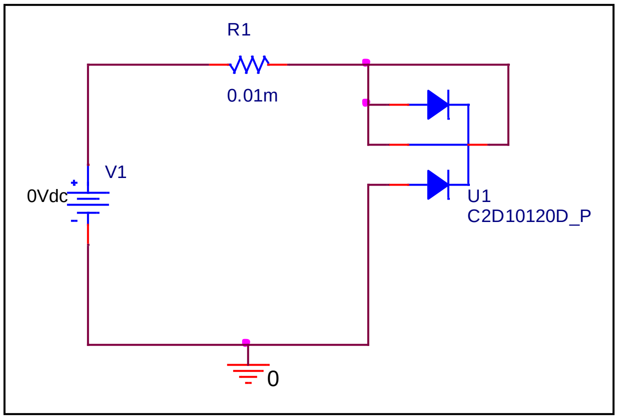
V_R(V)	C (pF)		Error (%)
	Measurement	Simulation	
1	343.000	347.409	1.29
2	295.000	295.714	0.24
5	219.000	220.865	0.85
10	168.000	169.089	0.65
20	128.000	126.476	-1.19
50	85.000	84.427	-0.67
100	61.000	61.615	1.01
200	45.000	44.889	-0.25
400	33.000	32.620	-1.15

Reverse Characteristic

Circuit Simulation Result

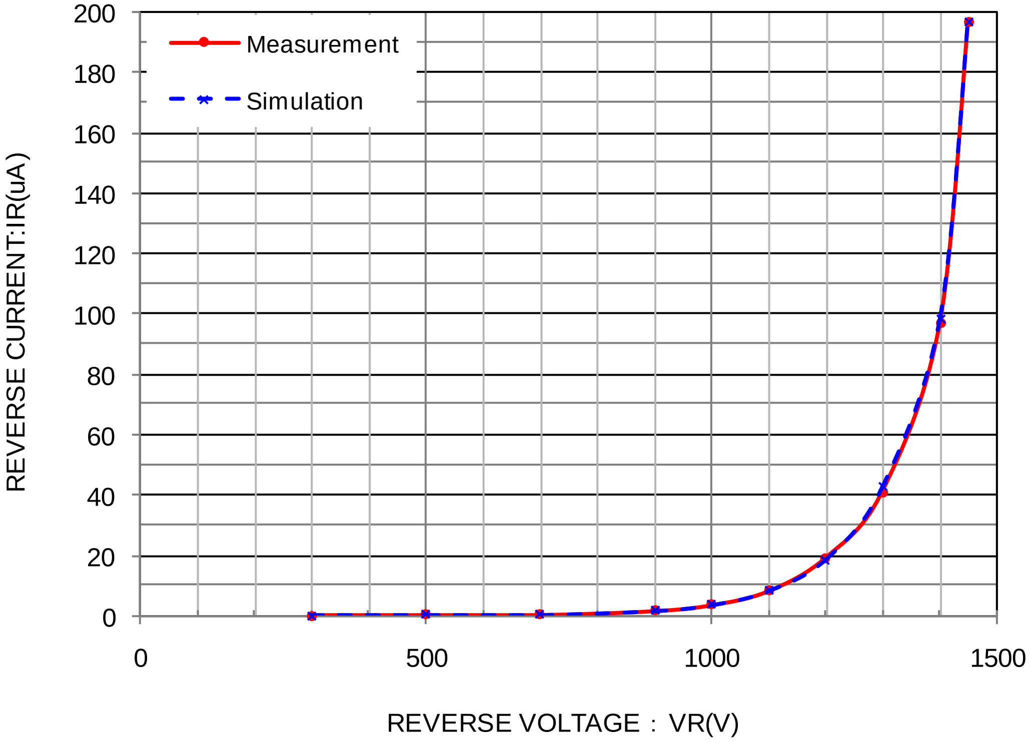


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

V_R(V)	I_R(uA)		Error (%)
	Measurement	Simulation	
300	0.0110	0.0114	3.35
500	0.0500	0.0512	2.32
700	0.2900	0.2842	-1.99
900	1.5000	1.5120	0.80
1000	3.5000	3.4902	-0.28
1100	8.0000	8.0263	0.33
1200	19.0000	18.5080	-2.59
1300	41.0000	42.6780	4.09
1400	97.0000	98.4300	1.47