Device Modeling Report

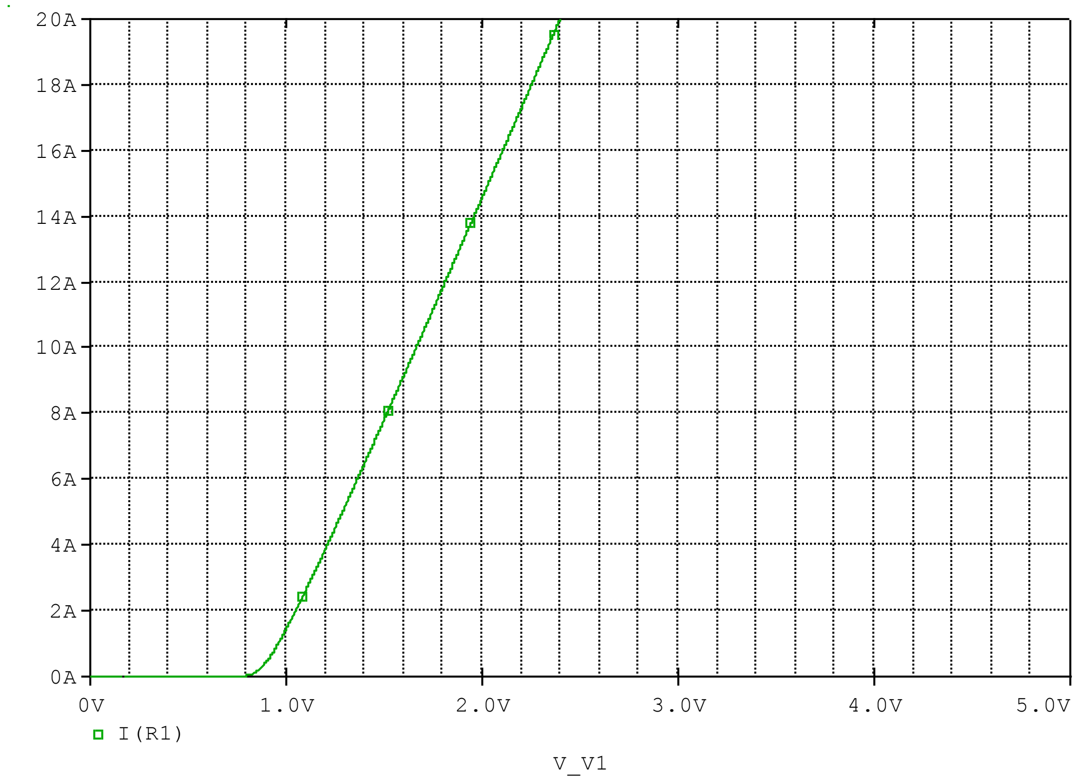
COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: CPW3-1700S010
MANUFACTURER: CREE
REMARK: Professional Model

Bee Technologies Inc.

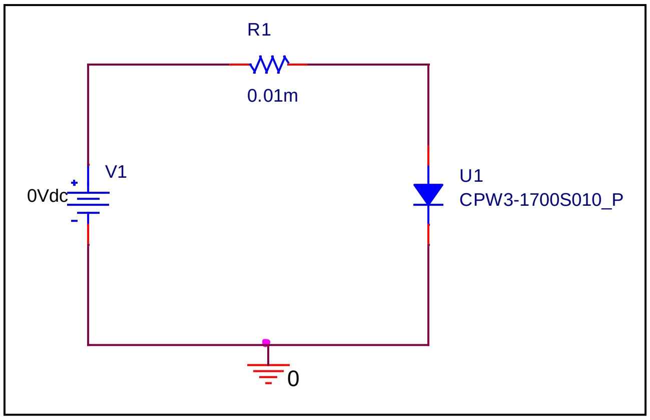
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

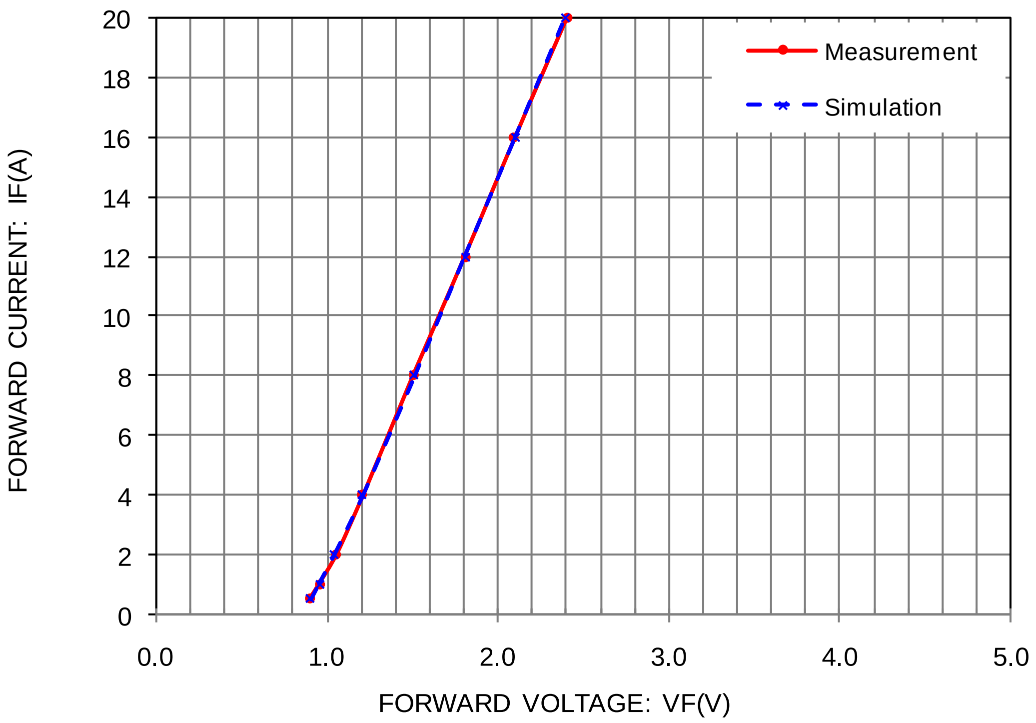


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

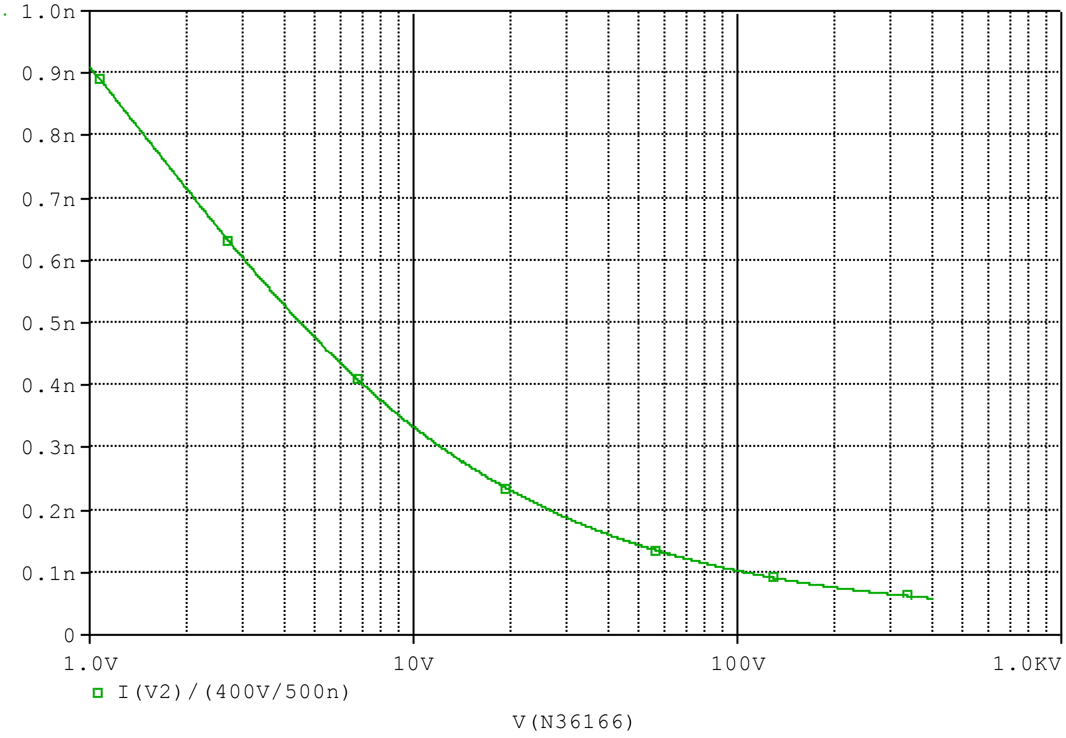


Simulation Result

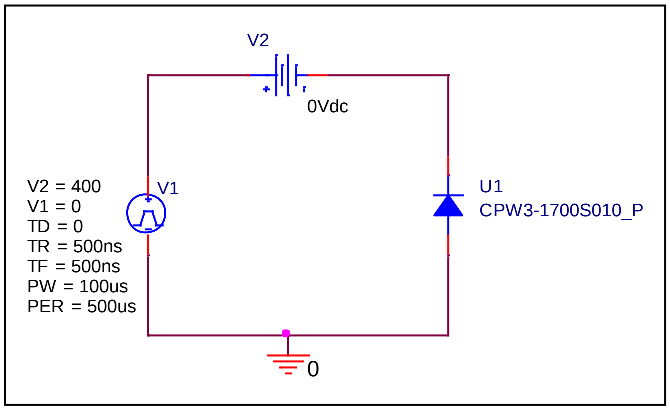
I_F(A)	V_F(V)		Error (%)
	Measurement	Simulation	
0.5	0.9000	0.9047	0.52
1.0	0.9600	0.9585	-0.16
2.0	1.0550	1.0480	-0.66
4.0	1.2100	1.2092	-0.07
8.0	1.5100	1.5136	0.24
12.0	1.8100	1.8105	0.03
16.0	2.1000	2.1045	0.21
20.0	2.4050	2.3967	-0.35

Junction Capacitance Characteristic

Circuit Simulation Result

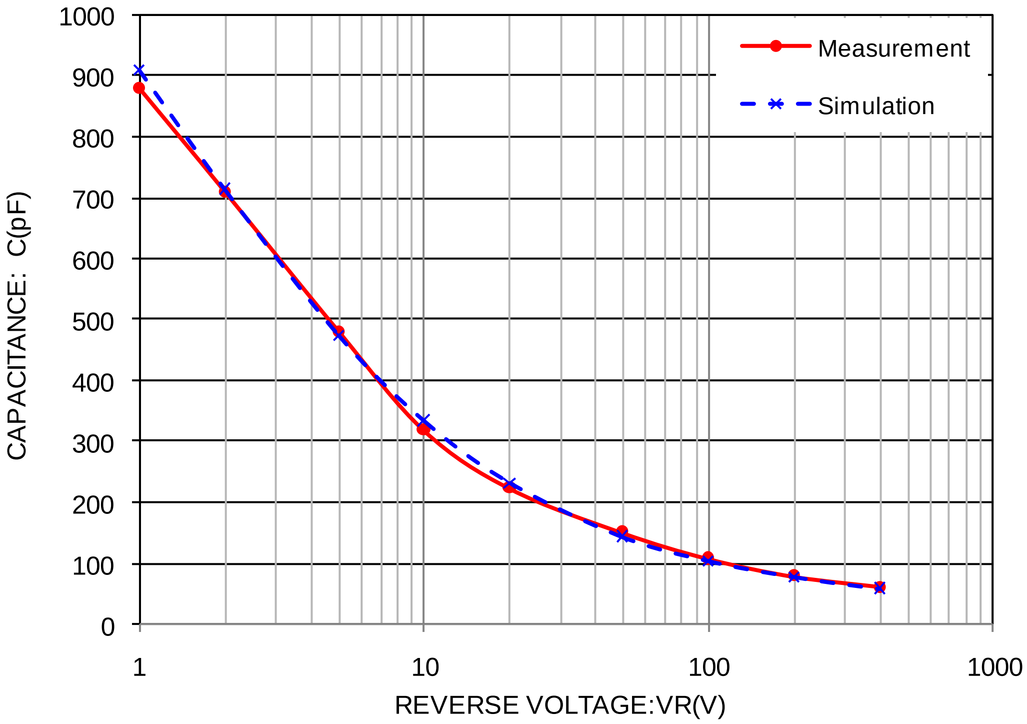


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

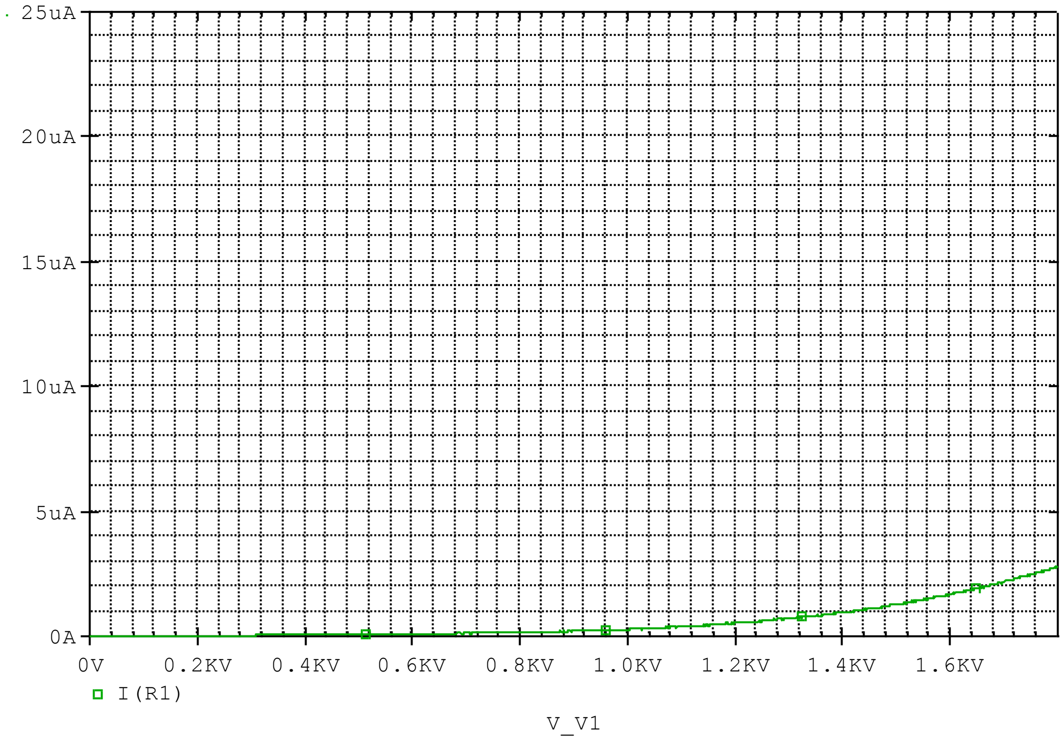


Simulation Result

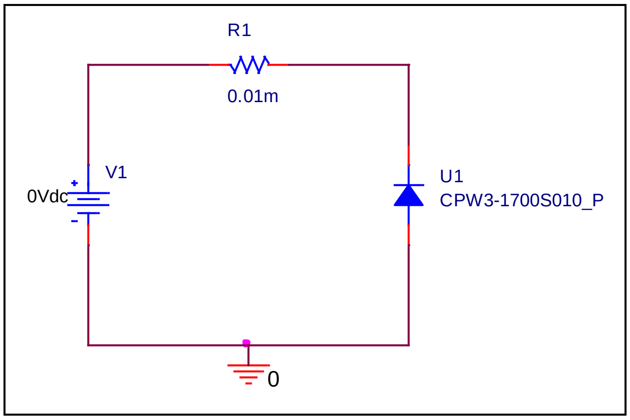
V_R(V)	C (pF)		Error (%)
	Measurement	Simulation	
1	880.000	909.947	3.40
2	710.000	713.730	0.53
5	480.000	474.169	-1.21
10	318.000	333.257	4.80
20	223.000	231.174	3.67
50	151.000	143.624	-4.88
100	108.000	102.710	-4.90
200	79.000	75.990	-3.81
400	60.000	58.607	-2.32

Reverse Characteristic

Circuit Simulation Result

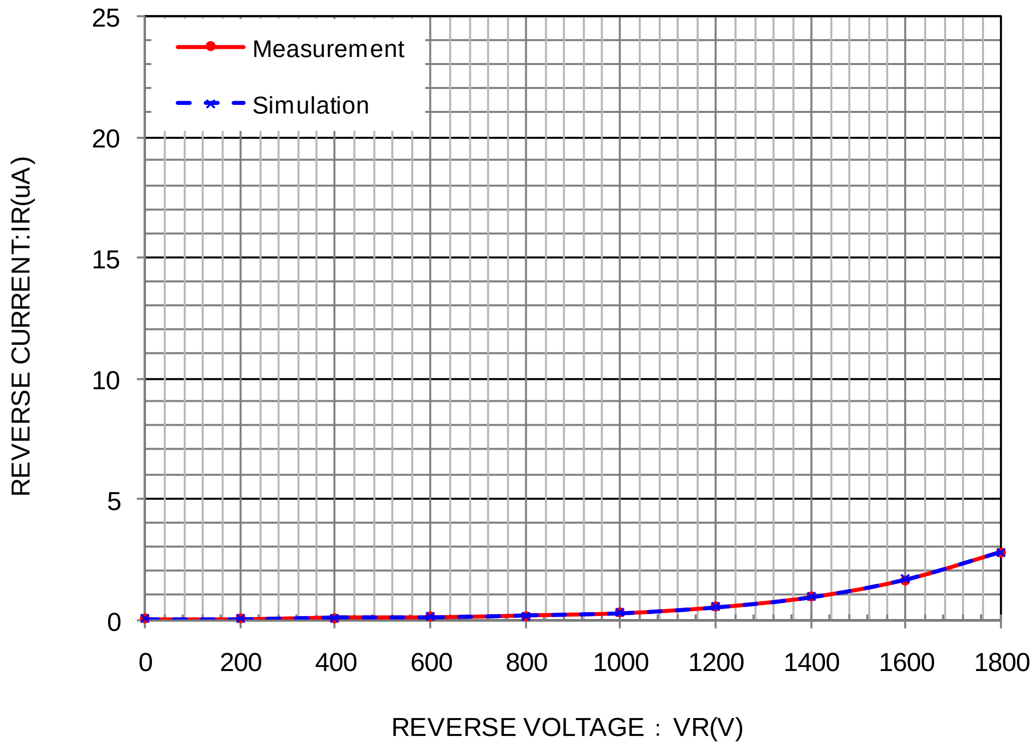


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

V_R(V)	I_R(uA)		Error (%)
	Measurement	Simulation	
1	0.0105	0.0103	-1.98
200	0.0310	0.0313	0.85
400	0.0570	0.0568	-0.28
600	0.1000	0.1023	2.32
800	0.1500	0.1478	-1.47
1000	0.2750	0.2728	-0.78
1200	0.5300	0.5230	-1.33
1400	0.9500	0.9322	-1.87
1600	1.6500	1.6598	0.59
1800	2.8000	2.7740	-0.93