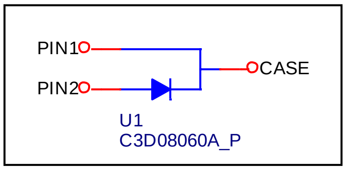
Device Modeling Report

COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: C3D08060A
MANUFACTURER: CREE
REMARK: Professional Model

Bee Technologies Inc.

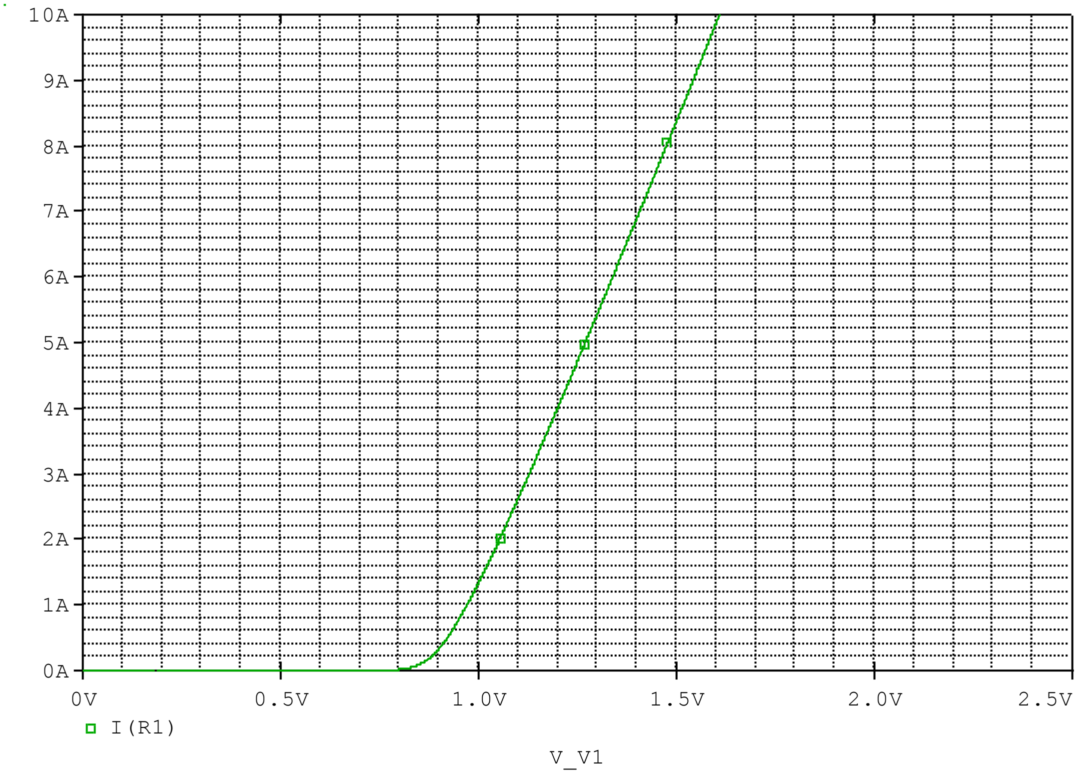
Circuit Configuration



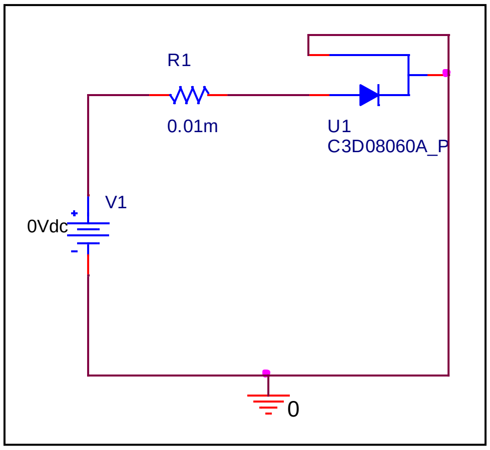
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

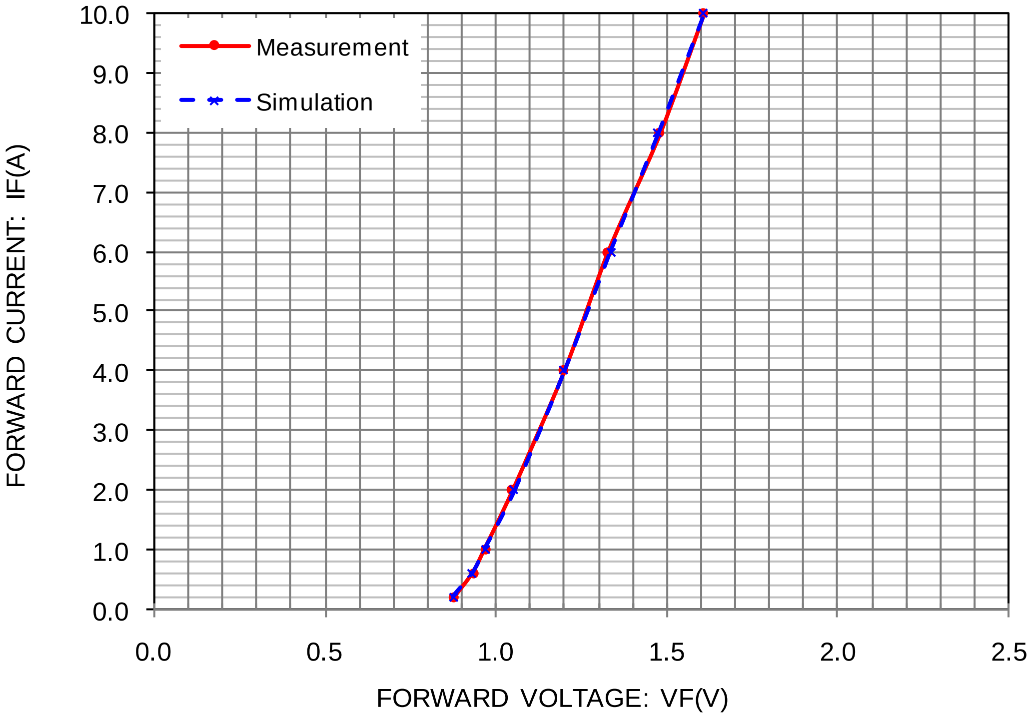


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

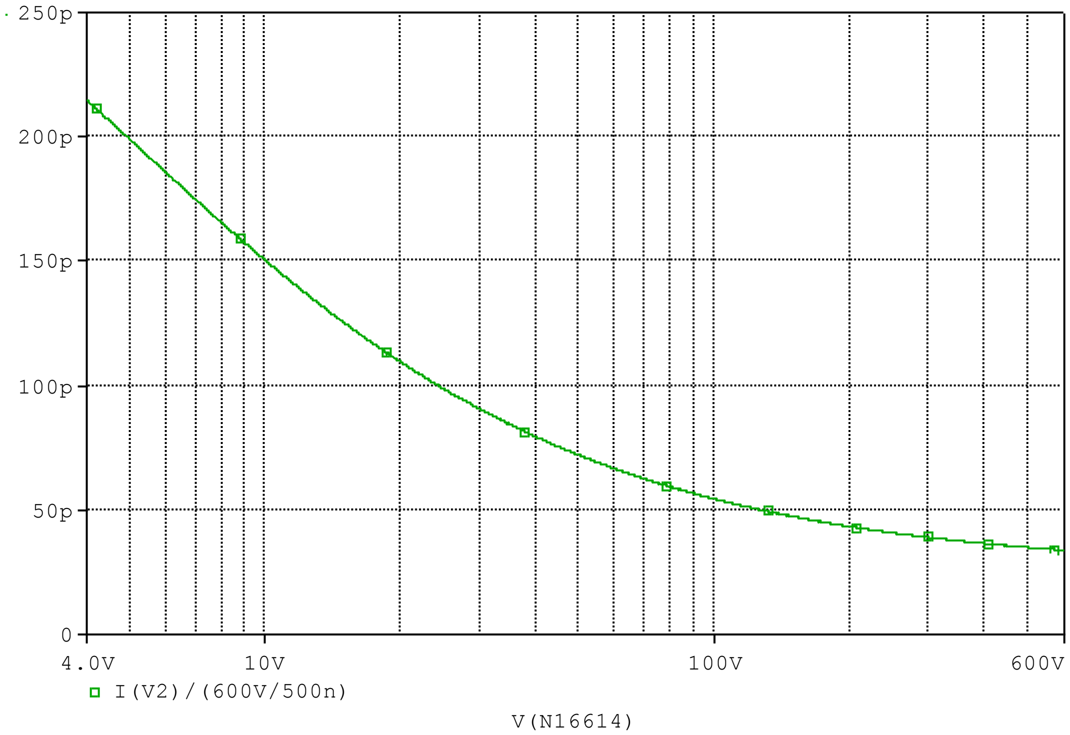


Simulation Result

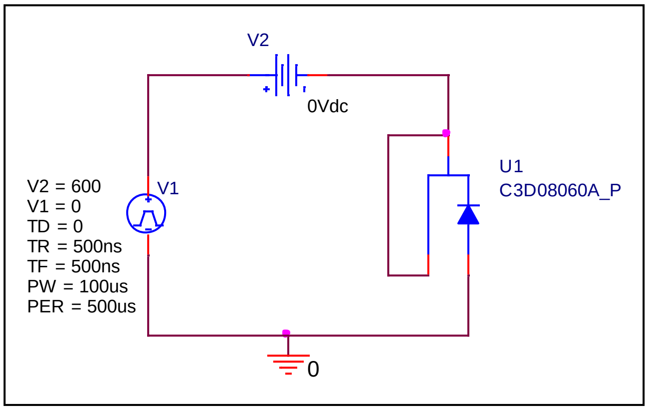
I_F(A)	V_F(V)		Error (%)
	Measurement	Simulation	
0.2	0.8800	0.8777	-0.26
0.6	0.9350	0.9319	-0.33
1.0	0.9700	0.9708	0.08
2.0	1.0500	1.0530	0.29
4.0	1.2000	1.1996	-0.03
6.0	1.3300	1.3386	0.65
8.0	1.4800	1.4747	-0.36
10.0	1.6100	1.6090	-0.06

Junction Capacitance Characteristic

Circuit Simulation Result

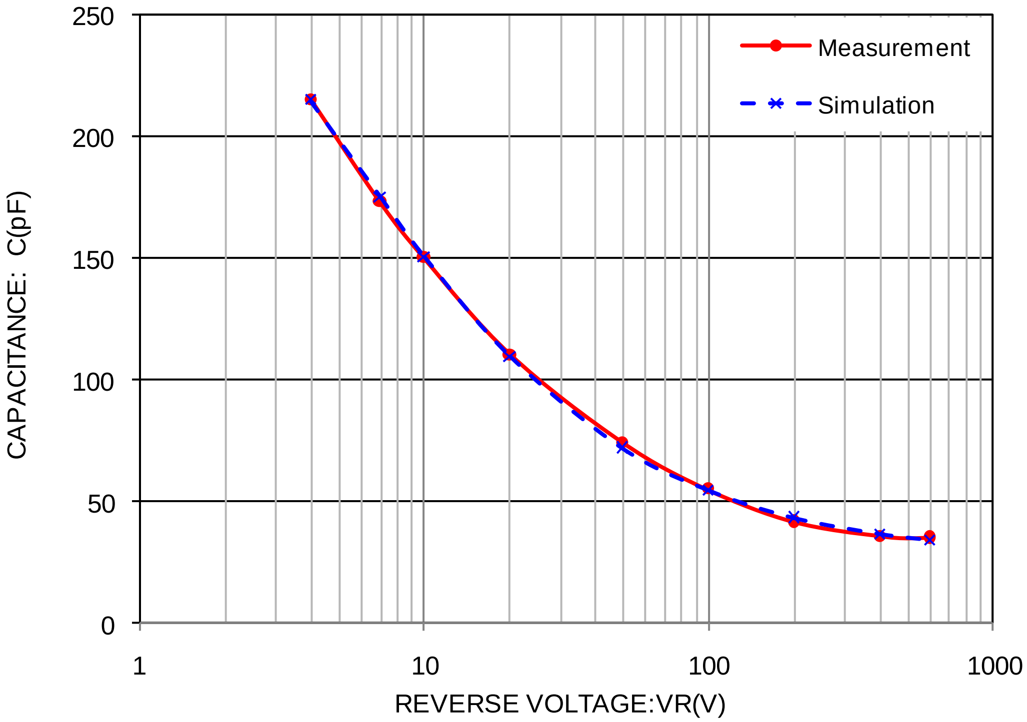


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

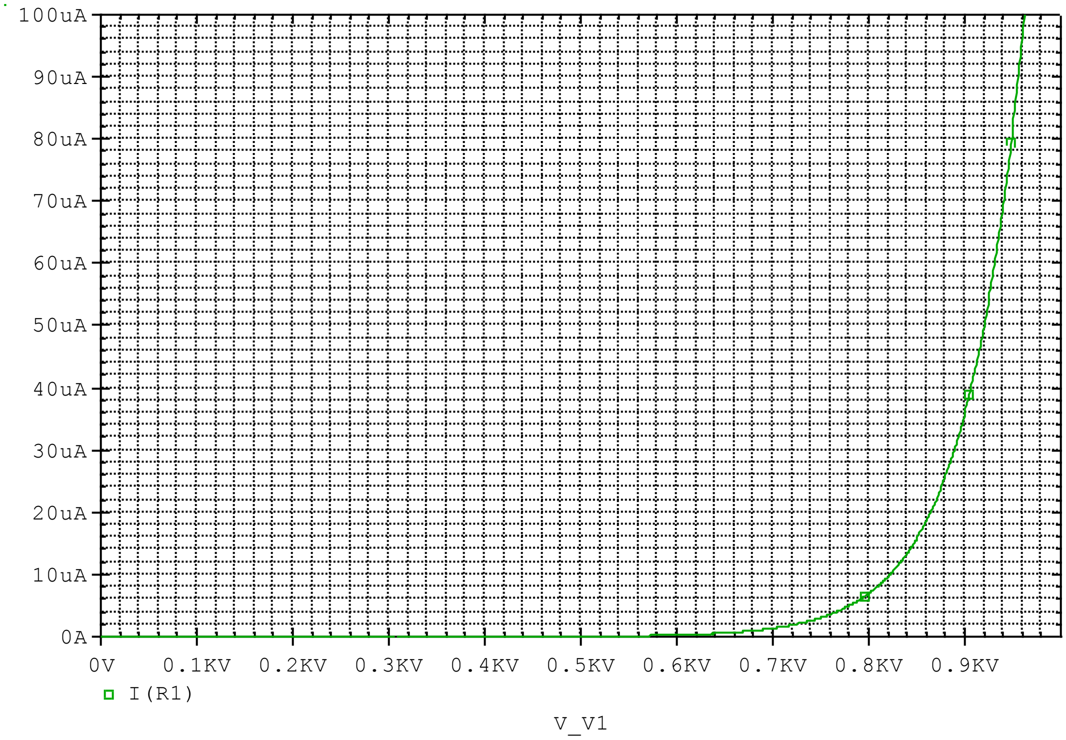


Simulation Result

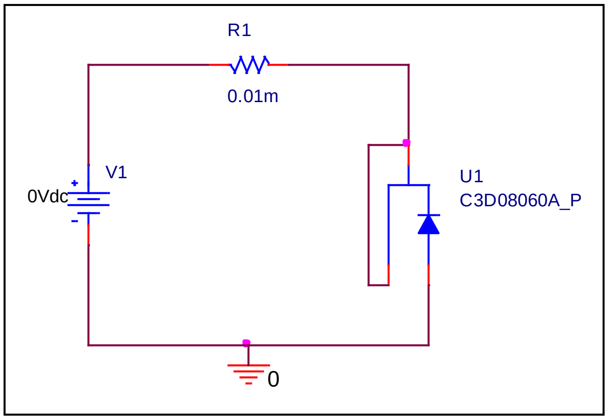
V_R(V)	C (pF)		Error (%)
	Measurement	Simulation	
4	215.000	214.877	-0.06
7	173.000	174.821	1.05
10	150.000	150.258	0.17
20	110.000	109.421	-0.53
50	74.000	71.956	-2.76
100	55.000	54.460	-0.98
200	41.500	43.370	4.51
400	35.500	36.534	2.91
600	35.000	33.851	-3.28

Reverse Characteristic

Circuit Simulation Result

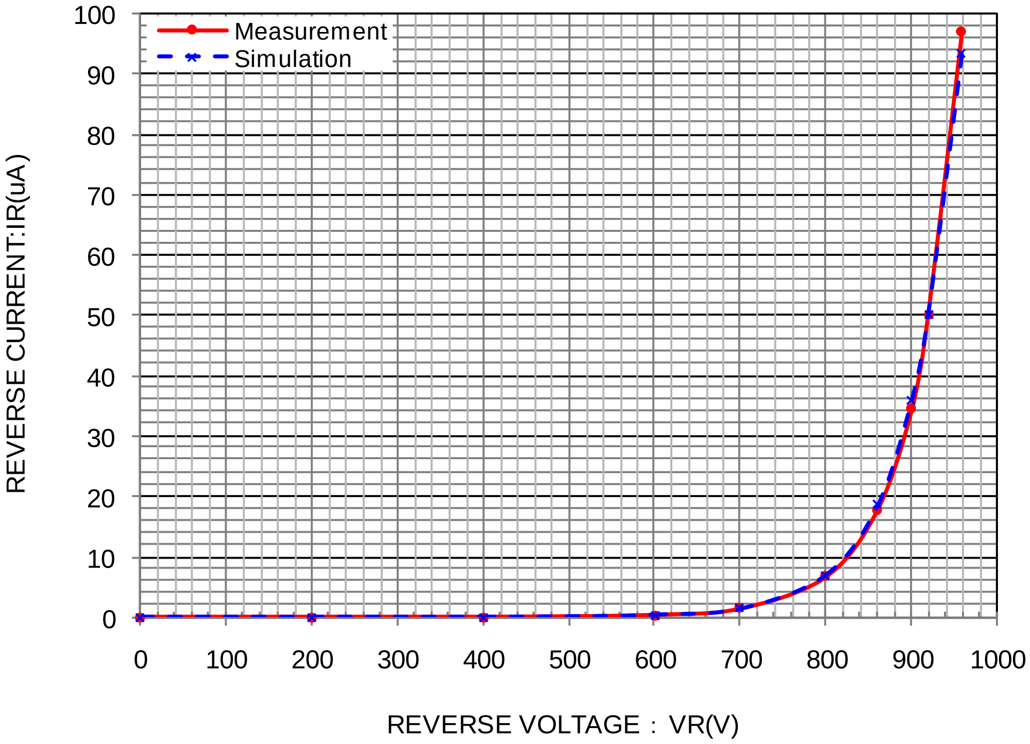


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

V_R(V)	I_R(uA)		Error (%)
	Measurement	Simulation	
200	0.0028	0.0028	1.51
400	0.0110	0.0114	3.35
600	0.2700	0.2615	-3.16
700	1.3800	1.3415	-2.79
800	6.7500	6.9349	2.74
900	34.5000	35.9590	4.23
920	50.0000	49.9650	-0.07
958	97.0000	93.3370	-3.78