Device Modeling Report

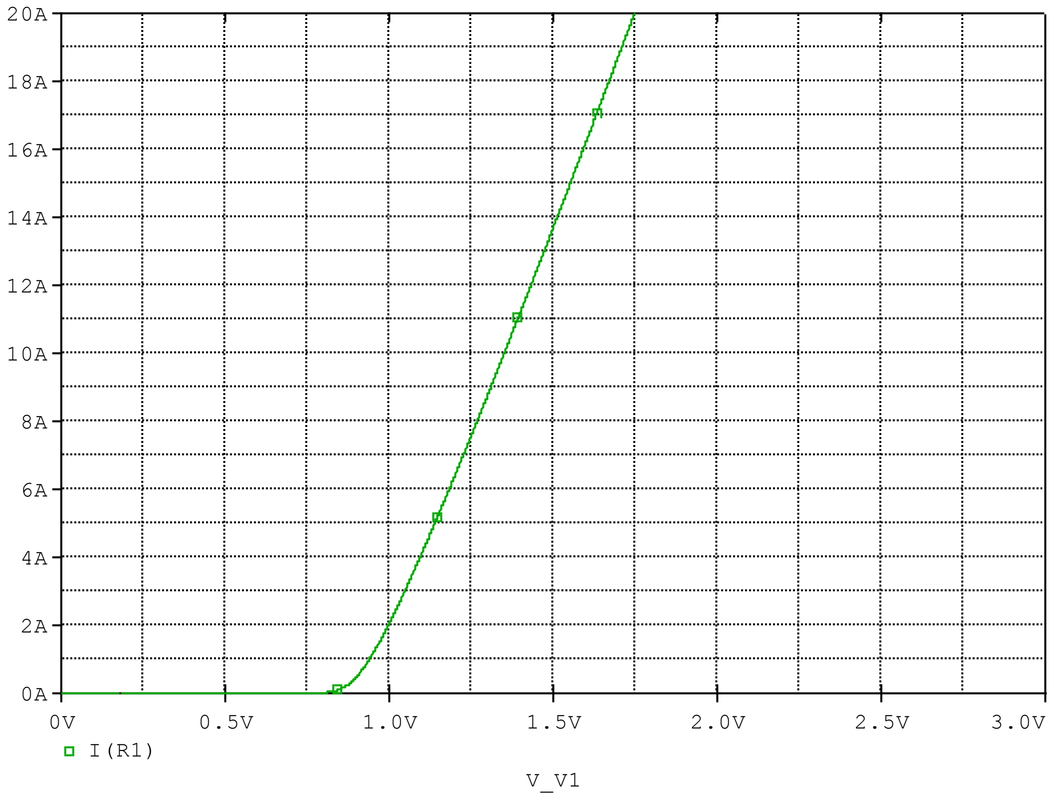
COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: STPSC1006
MANUFACTURER: STMicroelectronics
REMARK: Professional Model

Bee Technologies Inc.

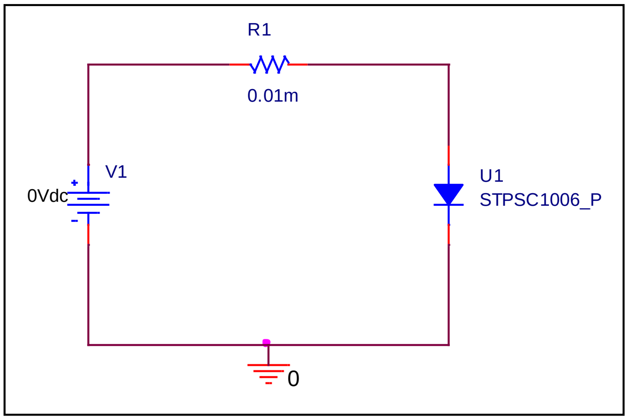
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

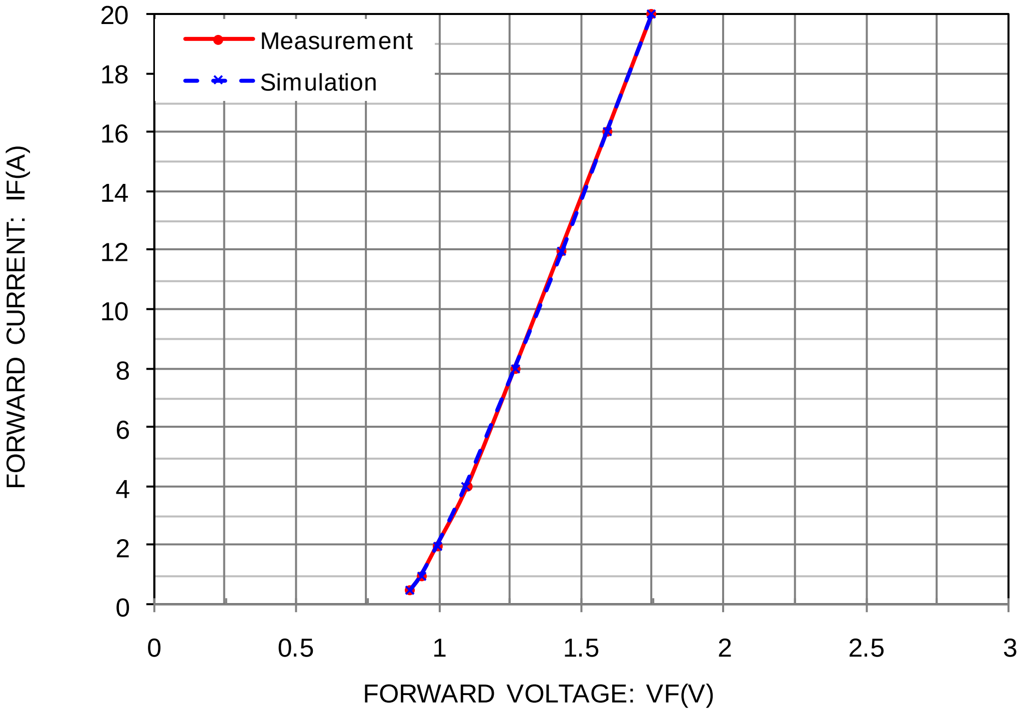


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

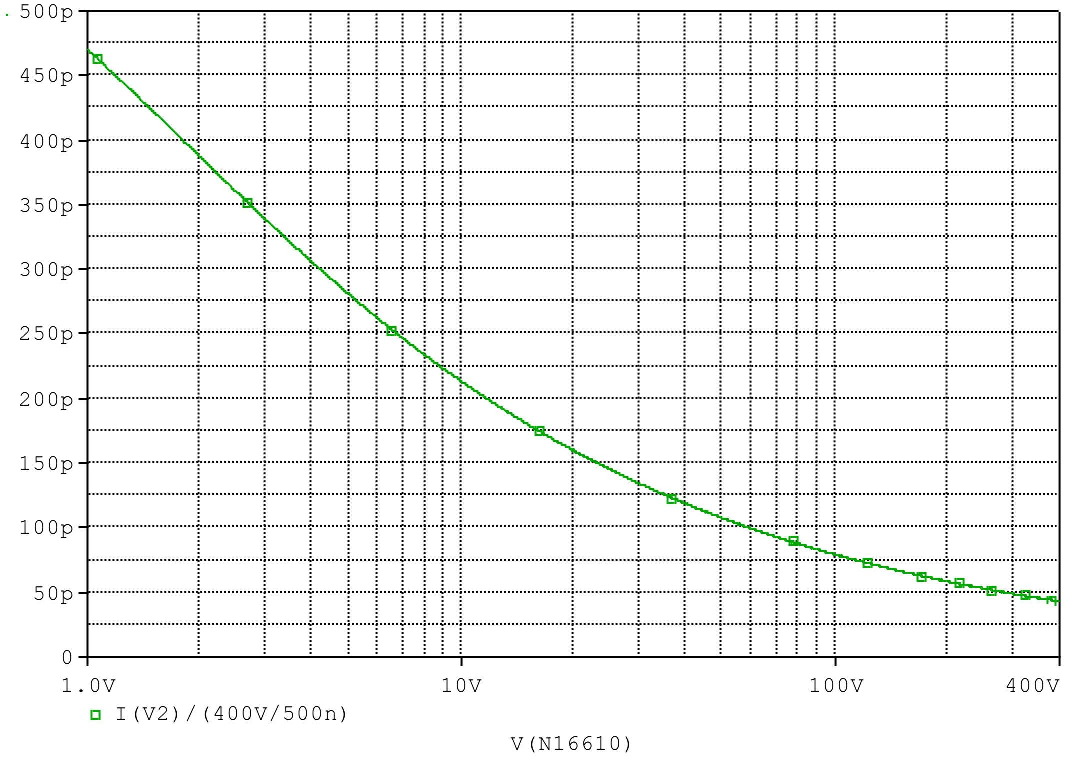


Simulation Result

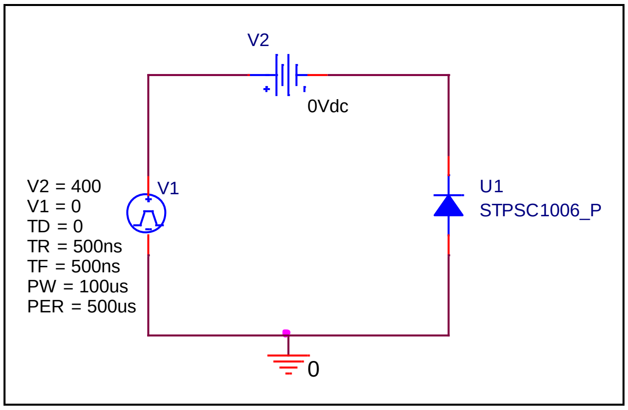
I_F(A)	V_F(V)		Error (%)
	Measurement	Simulation	
0.5	0.9000	0.9016	0.18
1	0.9400	0.9394	-0.07
2	0.9950	0.9970	0.20
4	1.1000	1.0938	-0.56
8	1.2700	1.2678	-0.17
12	1.4300	1.4320	0.14
16	1.5900	1.5914	0.09
20	1.7500	1.7479	-0.12

Junction Capacitance Characteristic

Circuit Simulation Result

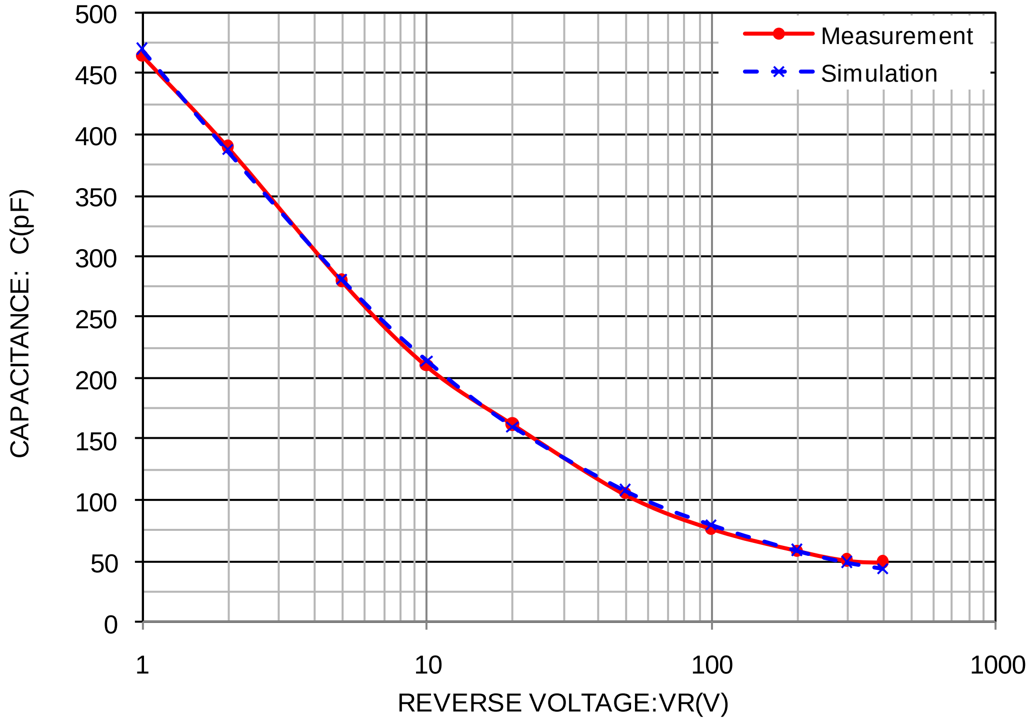


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

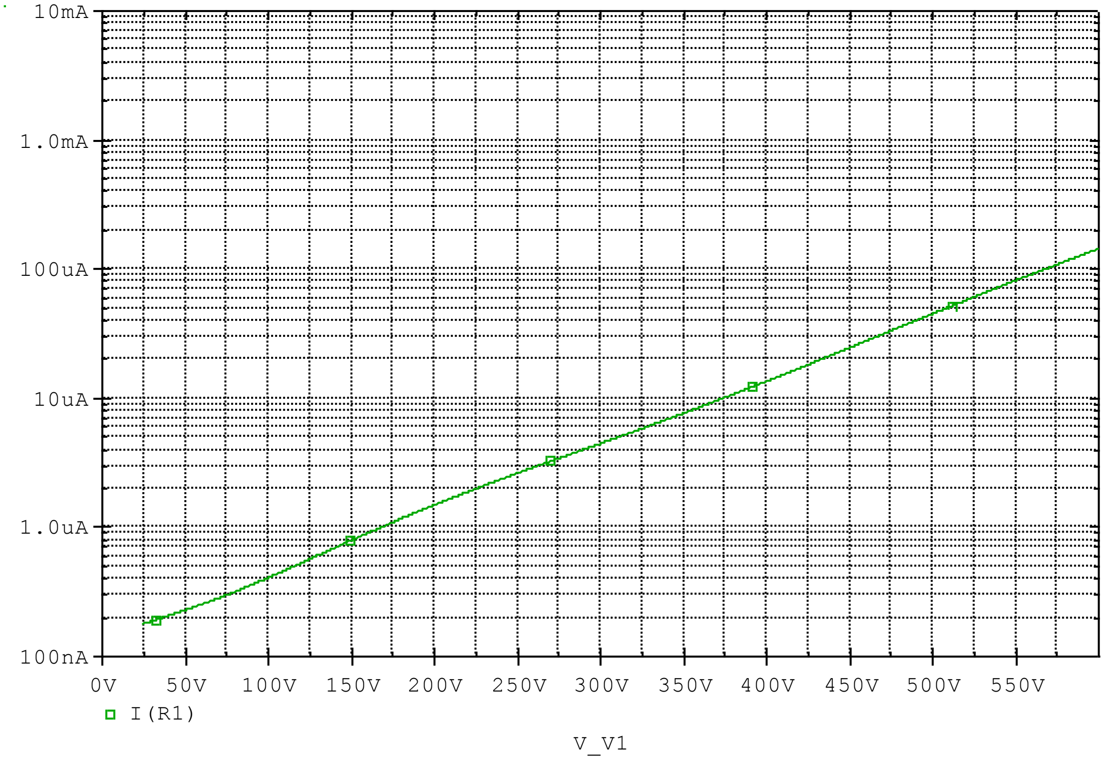


Simulation Result

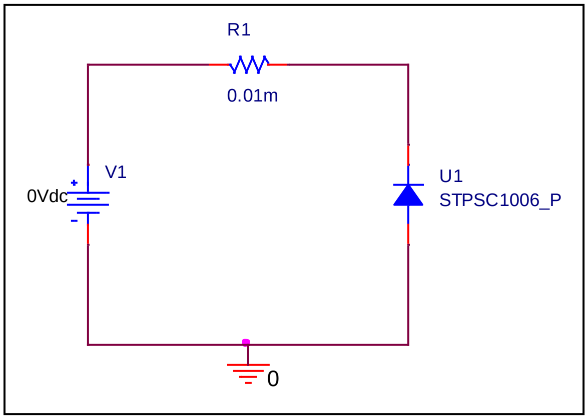
V_R(V)	C (pF)		Error (%)
	Measurement	Simulation	
1	465.000	470.064	1.09
2	390.000	386.879	-0.80
5	280.000	281.009	0.36
10	210.000	213.398	1.62
20	162.000	159.753	-1.39
50	105.000	107.577	2.45
100	76.000	79.434	4.52
200	58.000	58.509	0.88
300	50.500	48.958	-3.05

Reverse Characteristic

Circuit Simulation Result

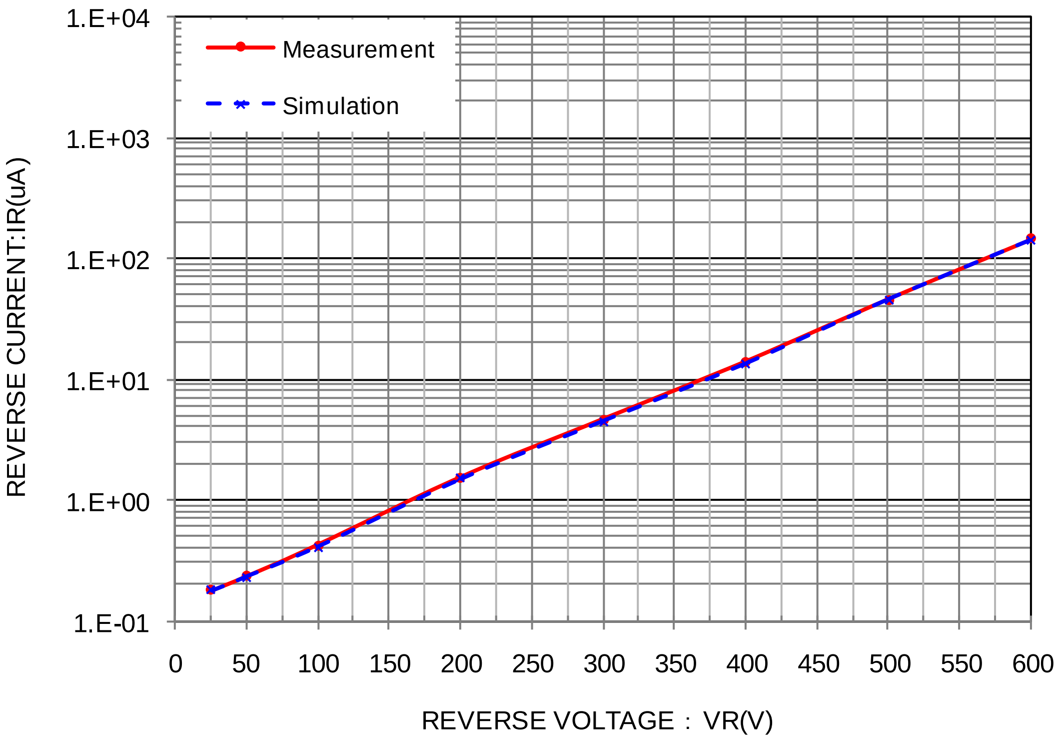


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

V_R(V)	I_R(uA)		Error (%)
	Measurement	Simulation	
25	0.180	0.180	0.07
50	0.235	0.230	-2.34
100	0.420	0.409	-2.55
200	1.550	1.498	-3.37
300	4.600	4.474	-2.75
400	14.000	13.597	-2.88
500	46.000	45.372	-1.37
600	145.000	144.087	-0.63