Device Modeling Report

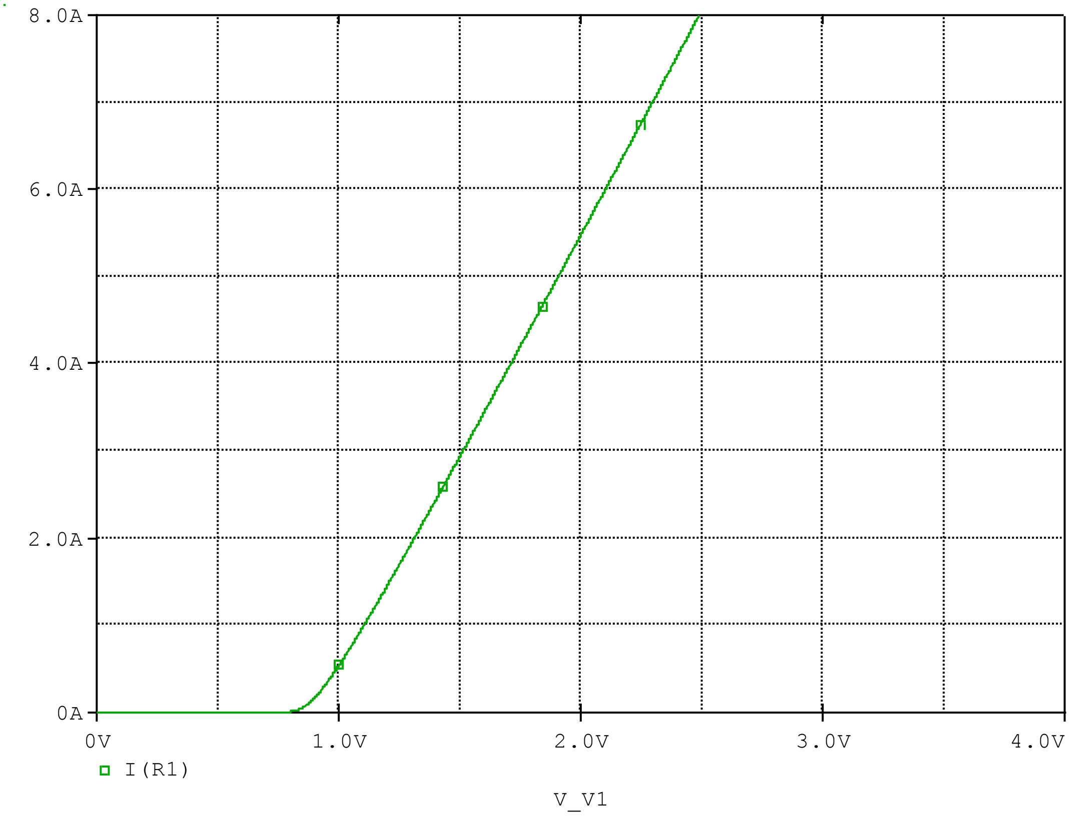
COMPONENTS: Silicon Carbide Schottky Diode
PART NUMBER: IDV04S60C
MANUFACTURER: Infineon
REMARK: Professional Model

Bee Technologies Inc.

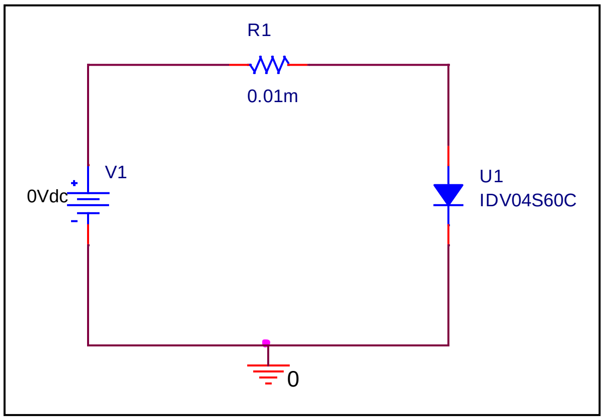
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

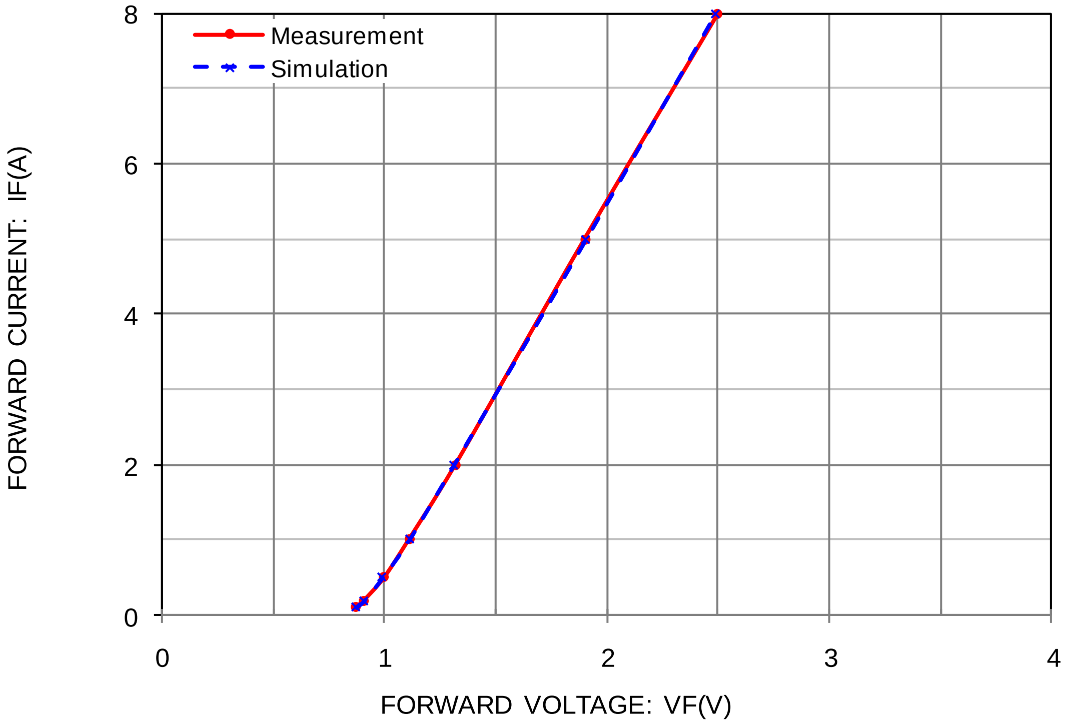


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

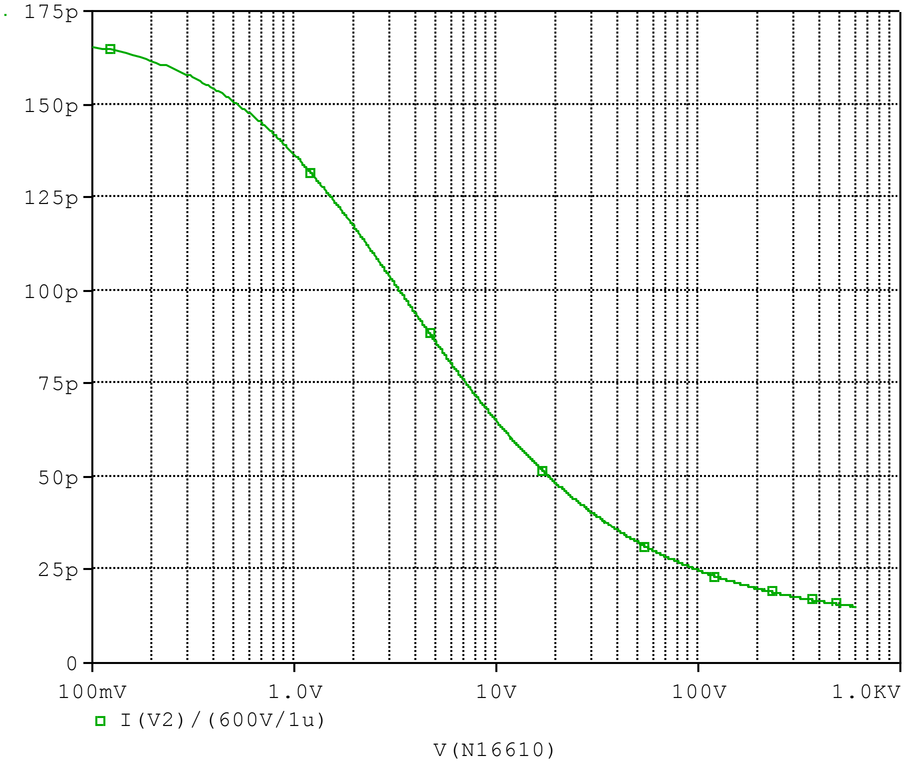


Simulation Result

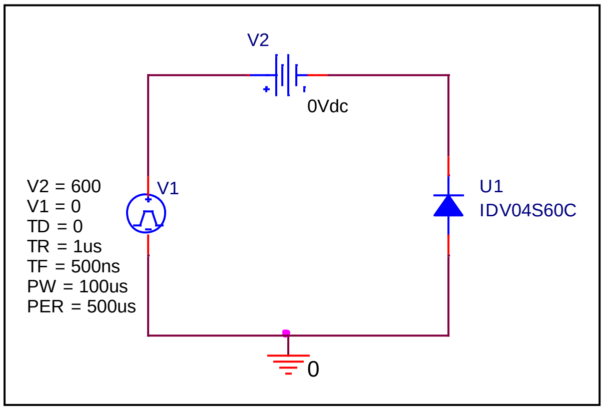
I_F(A)	V_F(V)		Error (%)
	Measurement	Simulation	
0.1	0.870	0.873	0.36
0.2	0.910	0.910	0.01
0.5	1.000	0.991	-0.91
1	1.110	1.110	0.04
2	1.320	1.312	-0.58
5	1.900	1.907	0.37
8	2.500	2.490	-0.39

Junction Capacitance Characteristic

Circuit Simulation Result

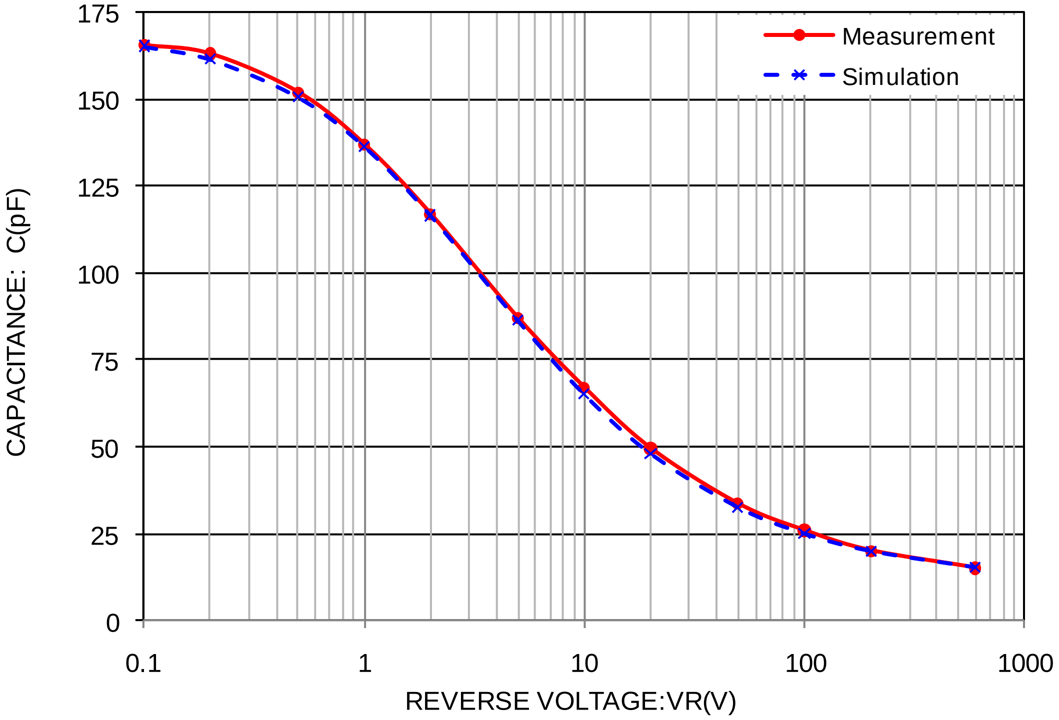


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

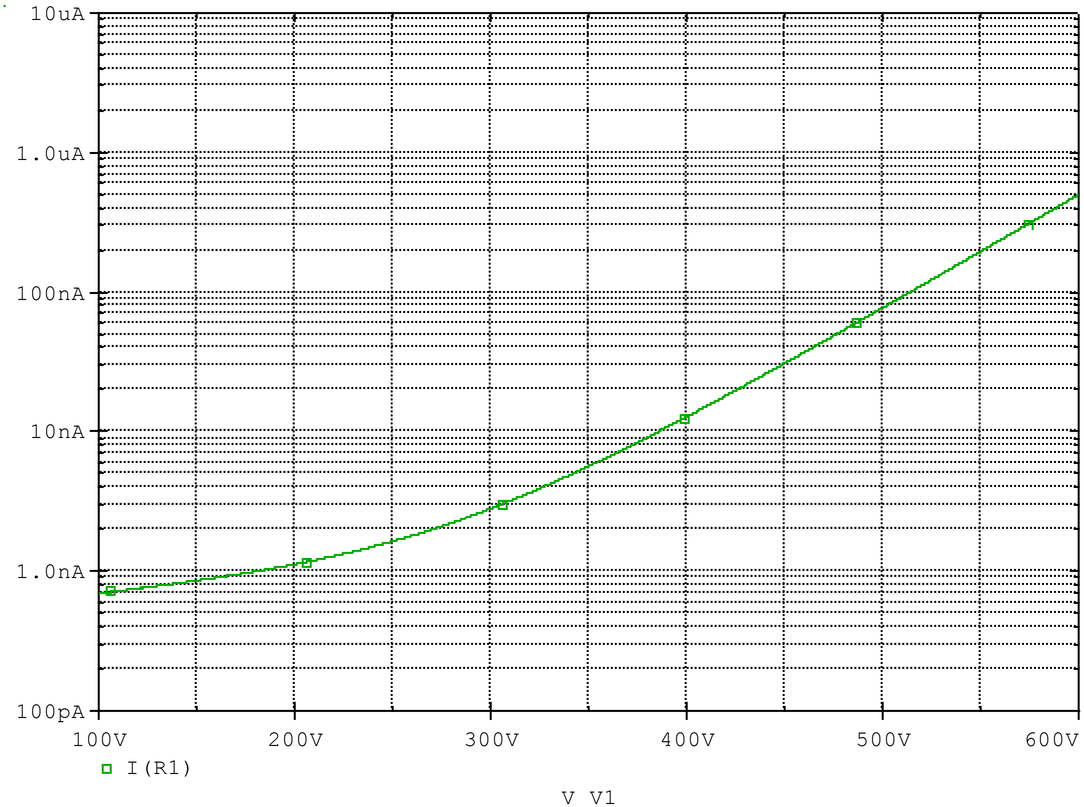


Simulation Result

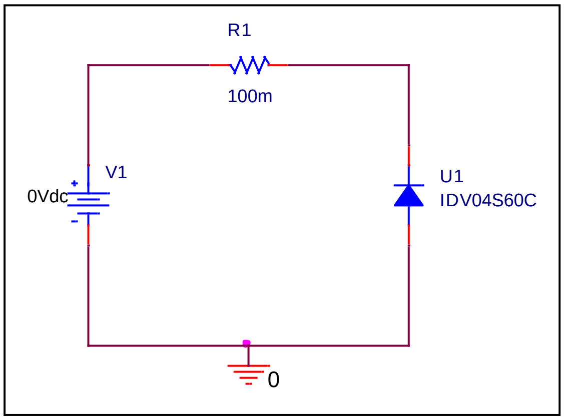
V_R(V)	C (pF)		Error (%)
	Measurement	Simulation	
0.1	165.500	165.334	-0.10
0.2	163.000	161.573	-0.88
0.5	152.000	150.719	-0.84
1	137.000	136.506	-0.36
2	117.000	116.607	-0.34
5	87.000	86.261	-0.85
10	67.000	65.045	-2.92
20	49.500	47.990	-3.05
50	33.500	32.482	-3.04
100	25.800	24.914	-3.43
200	20.000	19.868	-0.66
600	15.000	15.148	0.99

Reverse Characteristic

Circuit Simulation Result

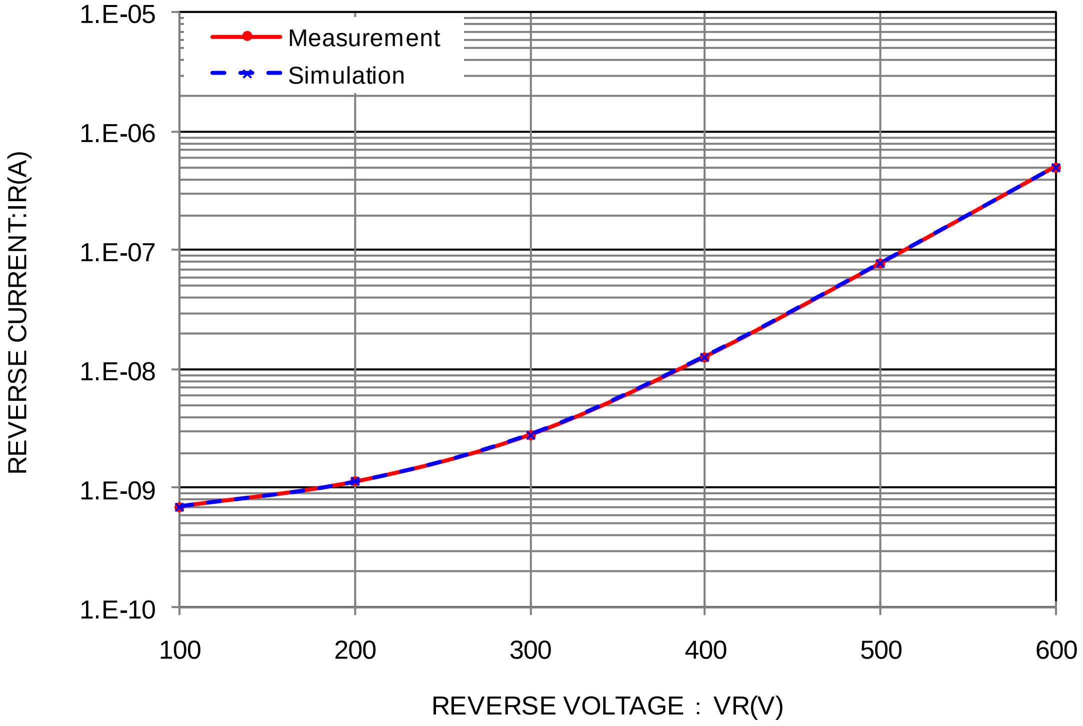


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

V_R(V)	I_R(A)		Error (%)
	Measurement	Simulation	
100	7.00E-10	6.96E-10	-0.61
200	1.13E-09	1.12E-09	-0.68
300	2.80E-09	2.81E-09	0.47
400	1.27E-08	1.28E-08	0.78
500	7.70E-08	7.72E-08	0.31
600	5.00E-07	4.99E-07	-0.21