Device Modeling Report

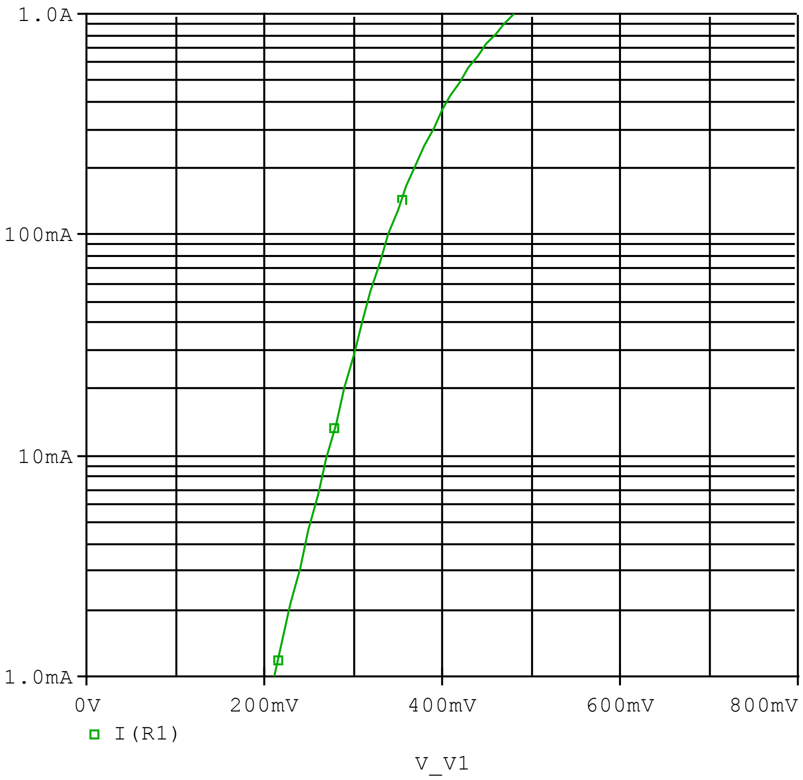
COMPONENTS:
DIODE/ SCHOTTKY RECTIFIER / STANDARD
PART NUMBER: XBS104S13R-G
MANUFACTURER: TOREX SEMICONDUCTOR

Bee Technologies Inc.

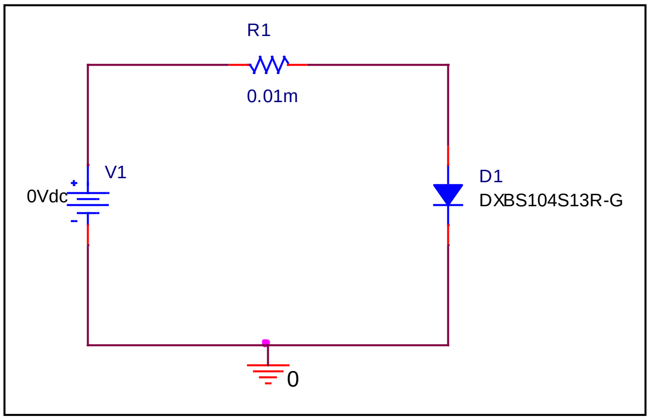
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

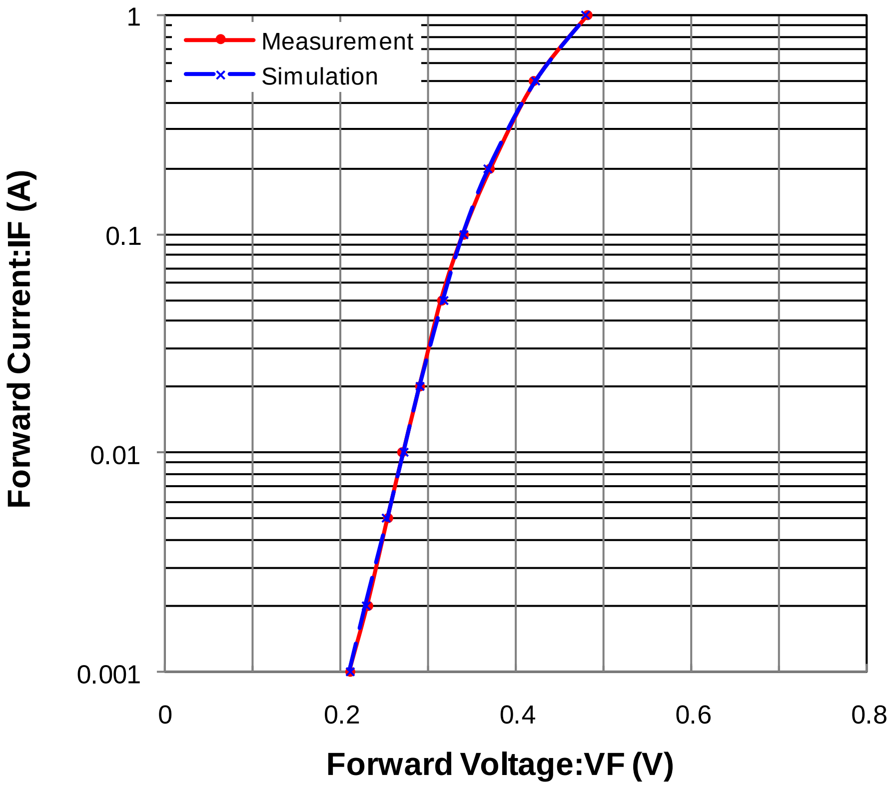


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

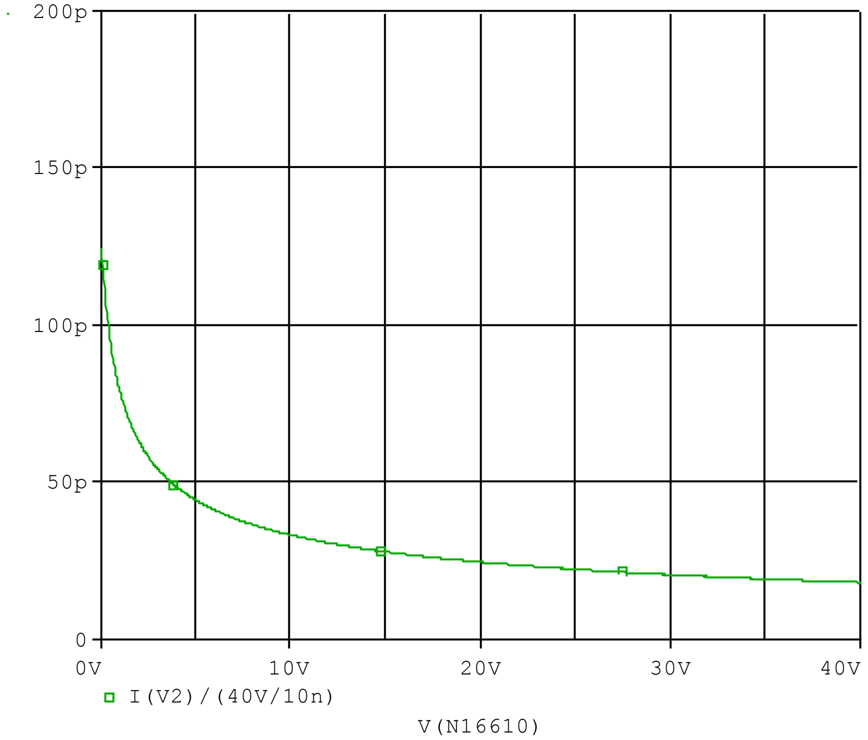


Simulation Result

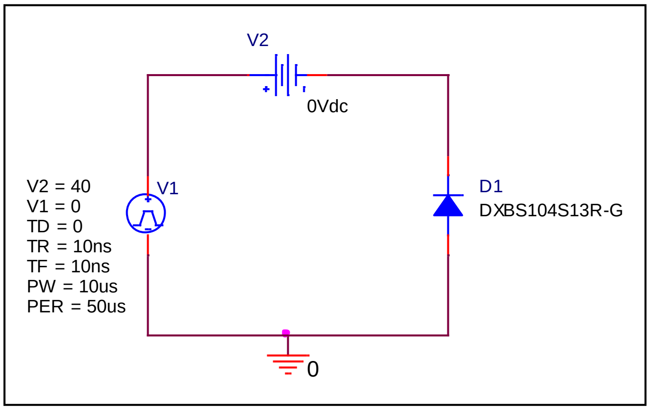
I_F (A)	V_F (V)		%Error
	Measurement	Simulation	
0.001	0.210	0.210	0.166
0.002	0.230	0.228	-0.786
0.005	0.253	0.252	-0.342
0.01	0.270	0.271	0.291
0.02	0.290	0.290	-0.033
0.05	0.315	0.317	0.478
0.1	0.340	0.340	0.004
0.2	0.370	0.368	-0.476
0.5	0.420	0.421	0.198
1	0.480	0.480	-0.037

Capacitance Characteristic

Circuit Simulation Result

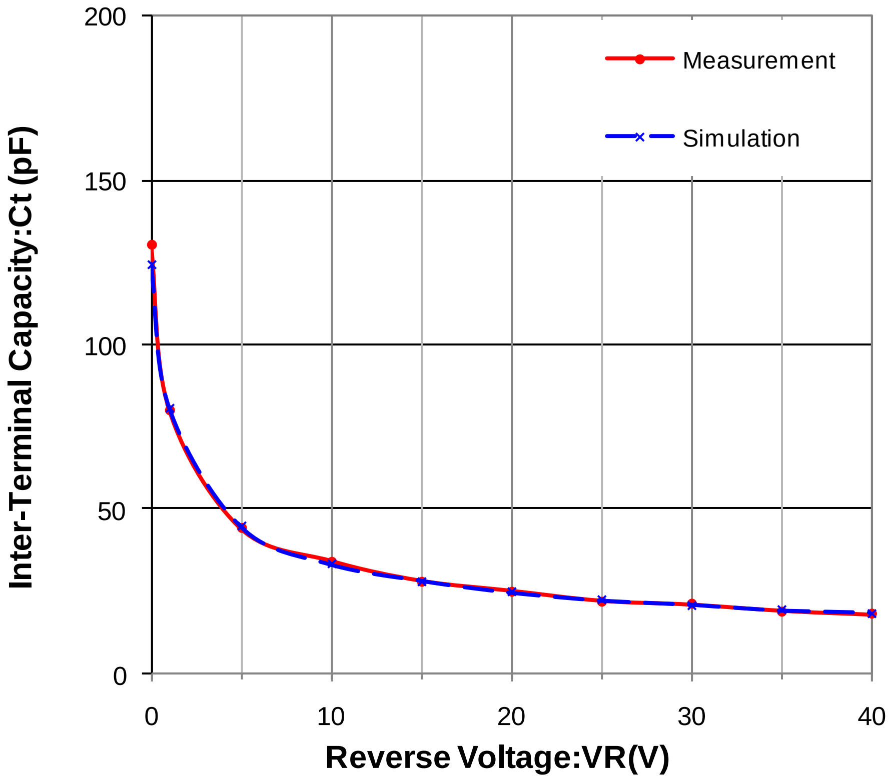


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

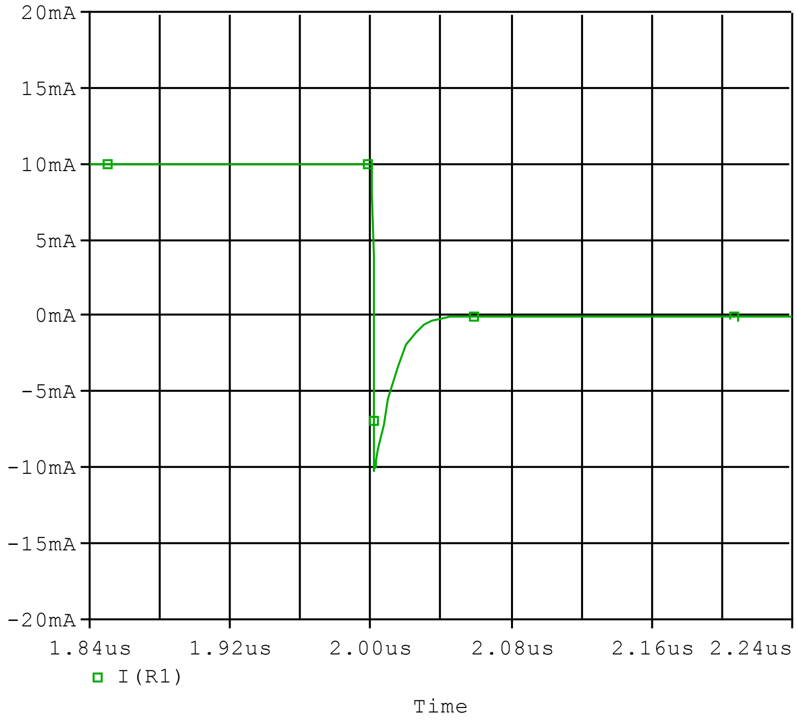


Simulation Result

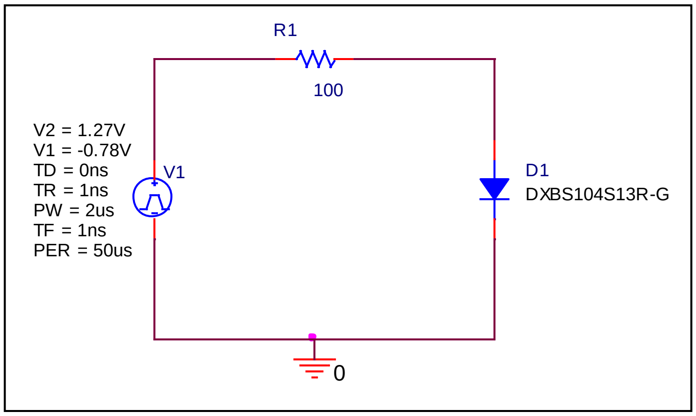
V_R (V)	Ct (pF)		%Error
	Measurement	Simulation	
0	130.500	124.446	-4.64
1	80.000	80.838	1.05
5	44.000	44.561	1.28
10	34.000	33.284	-2.11
15	28.000	27.925	-0.27
20	25.000	24.614	-1.54
25	22.000	22.335	1.52
30	21.000	20.588	-1.96
35	19.000	19.232	1.22
40	18.000	18.168	0.93

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit



Compare Measurement vs. Simulation

Parameter	Unit	Measurement	Simulation	%Error
trr	ns	25.000	25.029	0.12