Device Modeling Report

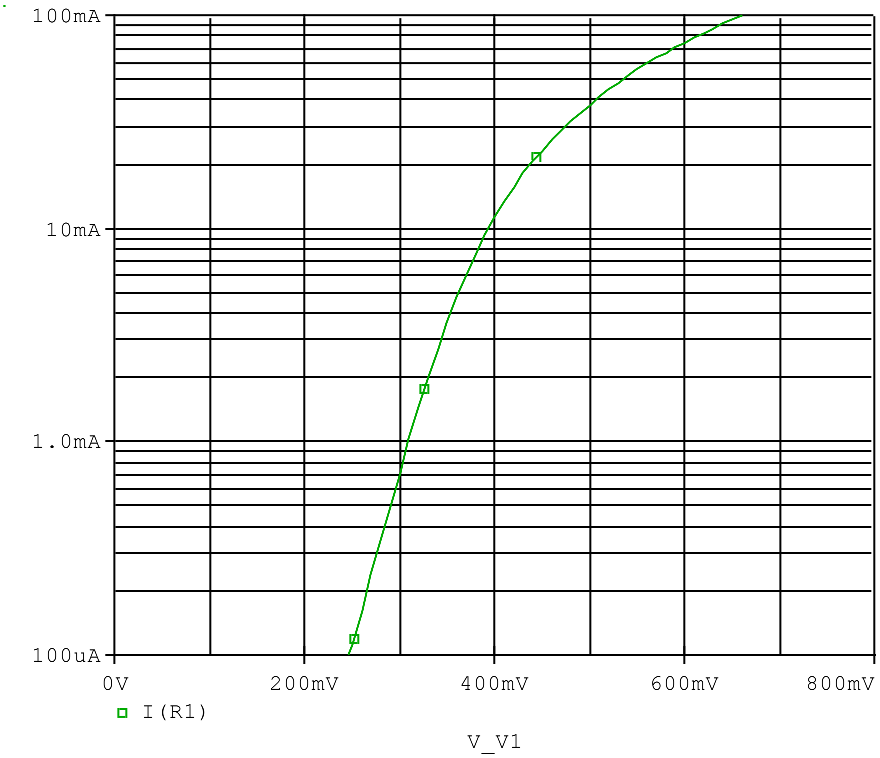
COMPONENTS:
DIODE/ SCHOTTKY RECTIFIER / STANDARD
PART NUMBER: XBS013S16R-G
MANUFACTURER: TOREX SEMICONDUCTOR

Bee Technologies Inc.

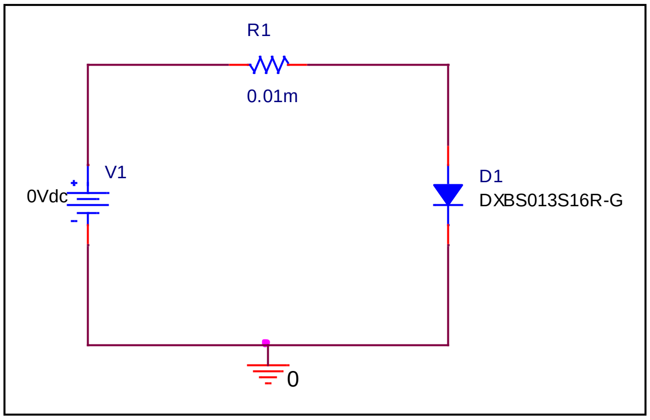
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

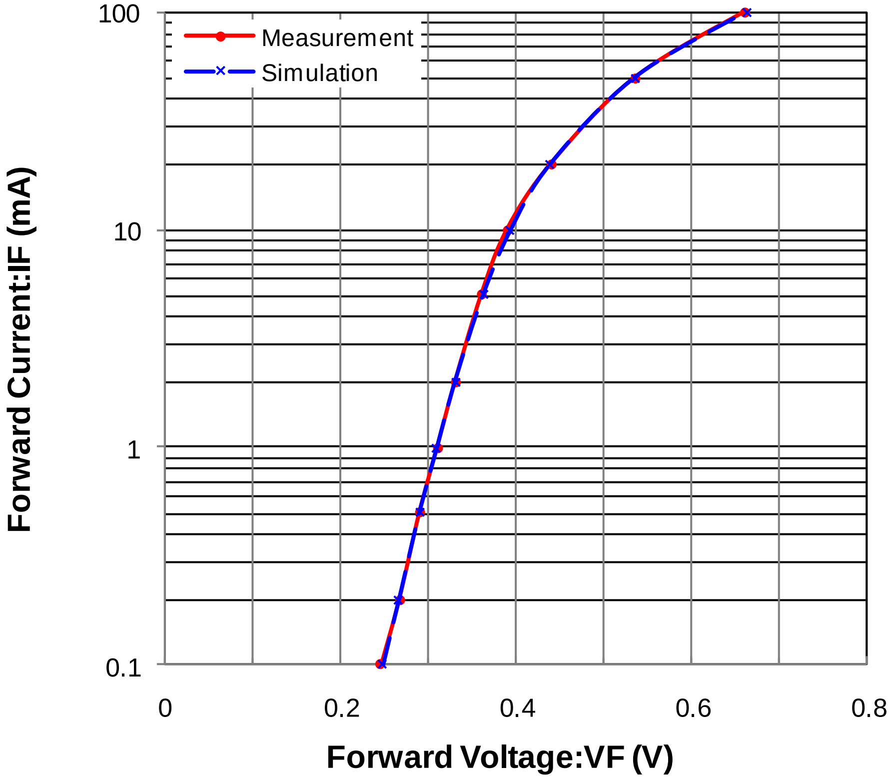


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

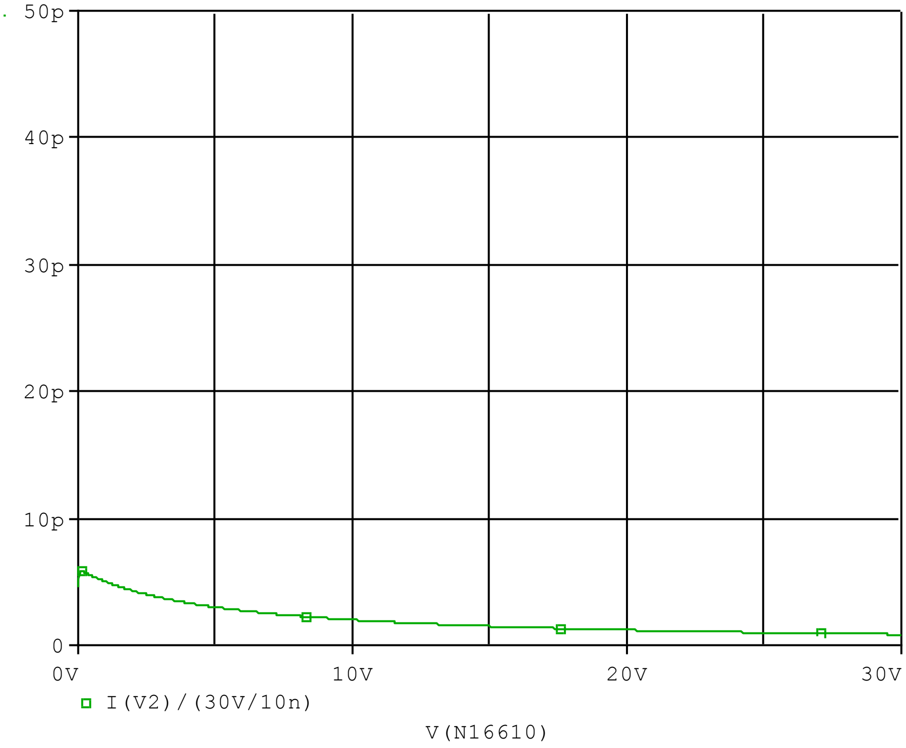


Simulation Result

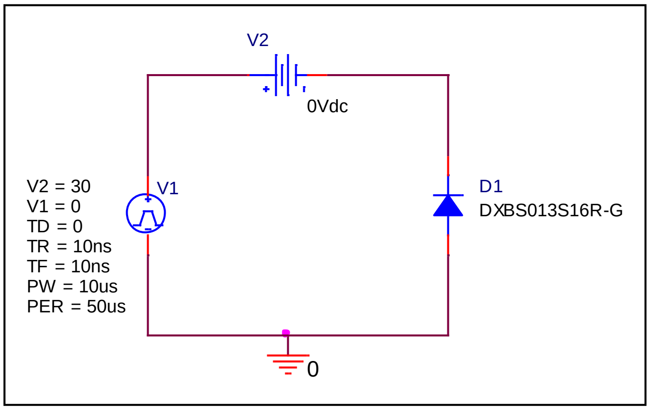
I_F (mA)	V_F (V)		%Error
	Measurement	Simulation	
0.1	0.245	0.247	0.804
0.2	0.267	0.265	-0.715
0.5	0.290	0.290	0.021
1	0.310	0.309	-0.233
2	0.330	0.330	0.013
5	0.360	0.362	0.513
10	0.390	0.393	0.868
20	0.440	0.438	-0.490
50	0.535	0.535	-0.091
100	0.660	0.662	0.260

Capacitance Characteristic

Circuit Simulation Result

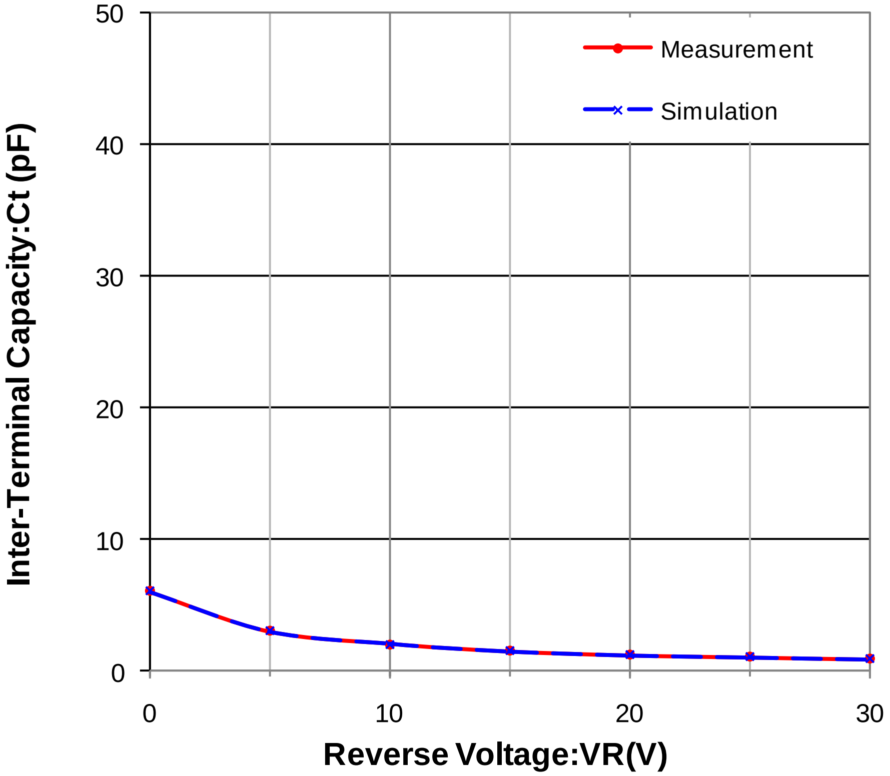


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

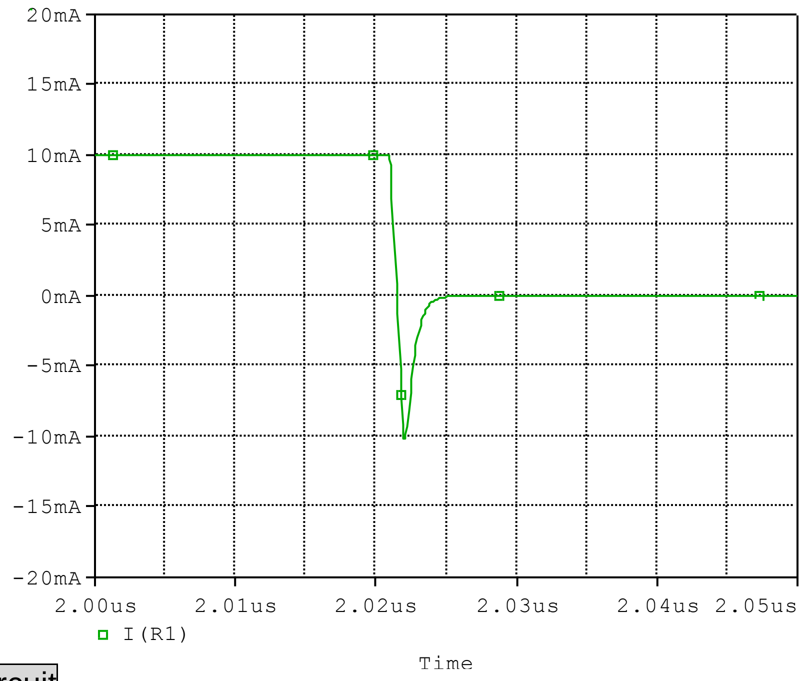


Simulation Result

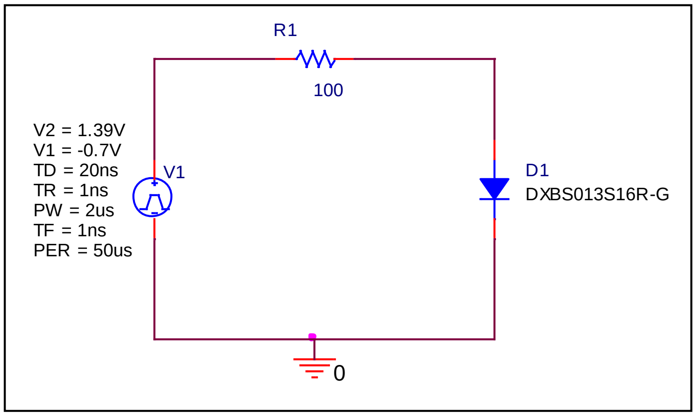
V_R (V)	Ct (pF)		%Error
	Measurement	Simulation	
0	6.000	6.000	0.00
5	3.000	3.012	0.40
10	2.000	2.001	0.06
15	1.500	1.500	0.00
20	1.200	1.200	0.00
25	1.000	0.998	-0.25
30	0.850	0.856	0.71

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit



Compare Measurement vs. Simulation

Parameter	Unit	Measurement	Simulation	%Error
trr	ns	2.000	2.009	0.47