

Device Modeling Report

COMPONENTS:
DIODE/ SCHOTTKY RECTIFIER / STANDARD
PART NUMBER: XBS053V13R-G
MANUFACTURER: TOREX SEMICONDUCTOR

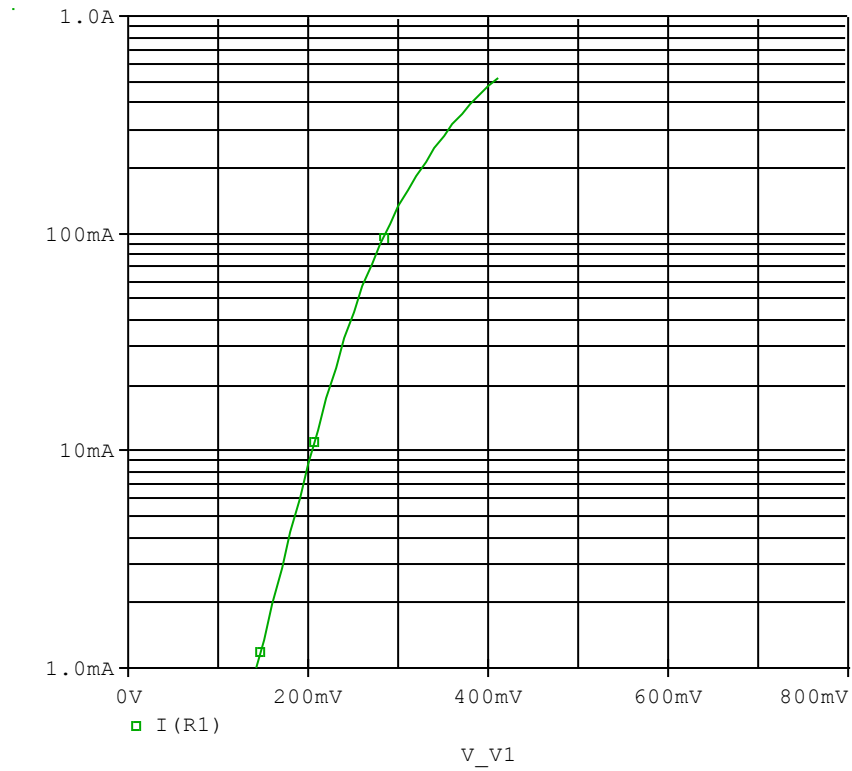


Bee Technologies Inc.

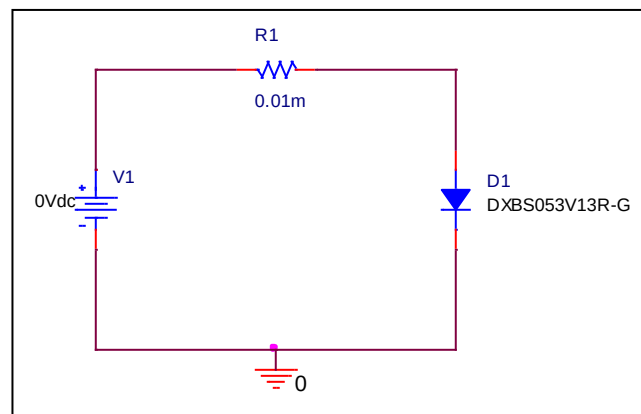
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

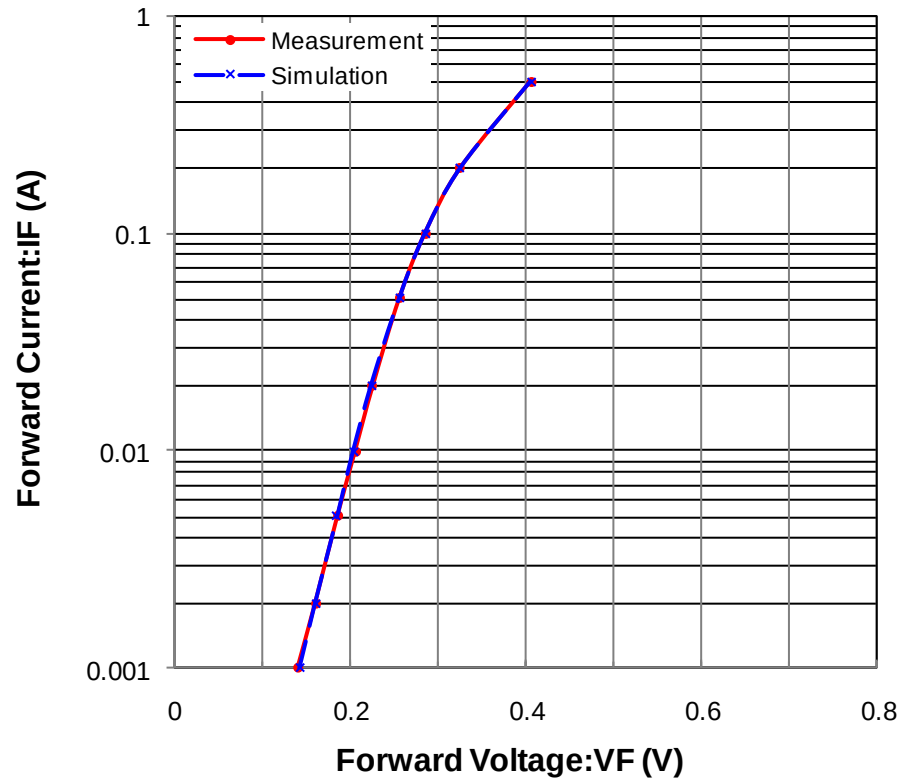


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

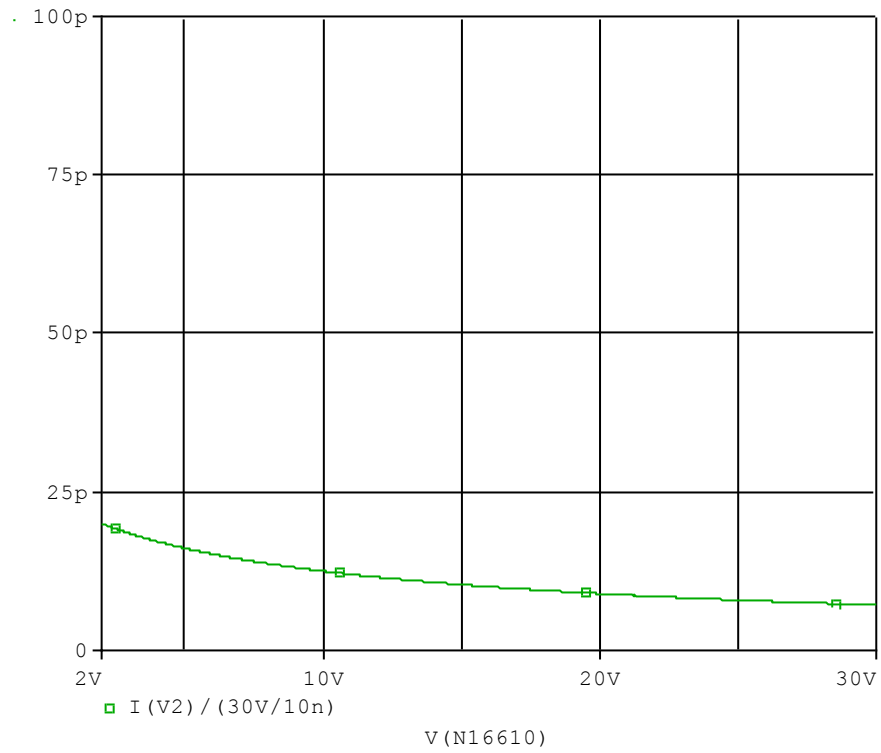


Simulation Result

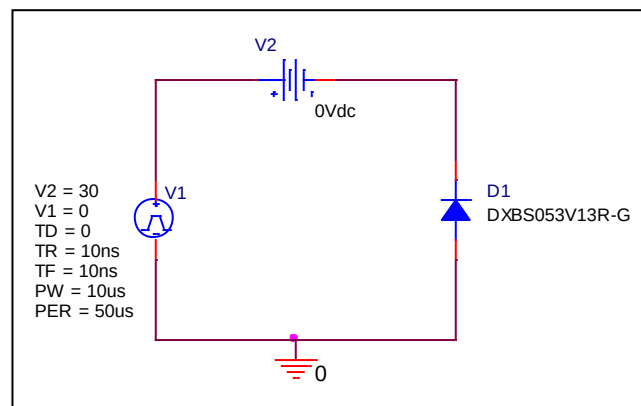
I_F (A)	V_F (V)		%Error
	Measurement	Simulation	
0.001	0.140	0.142	1.260
0.002	0.160	0.160	0.094
0.005	0.185	0.184	-0.457
0.01	0.205	0.203	-0.797
0.02	0.225	0.224	-0.536
0.05	0.255	0.255	-0.031
0.1	0.285	0.285	-0.047
0.2	0.325	0.325	0.034
0.5	0.405	0.405	-0.020

Capacitance Characteristic

Circuit Simulation Result

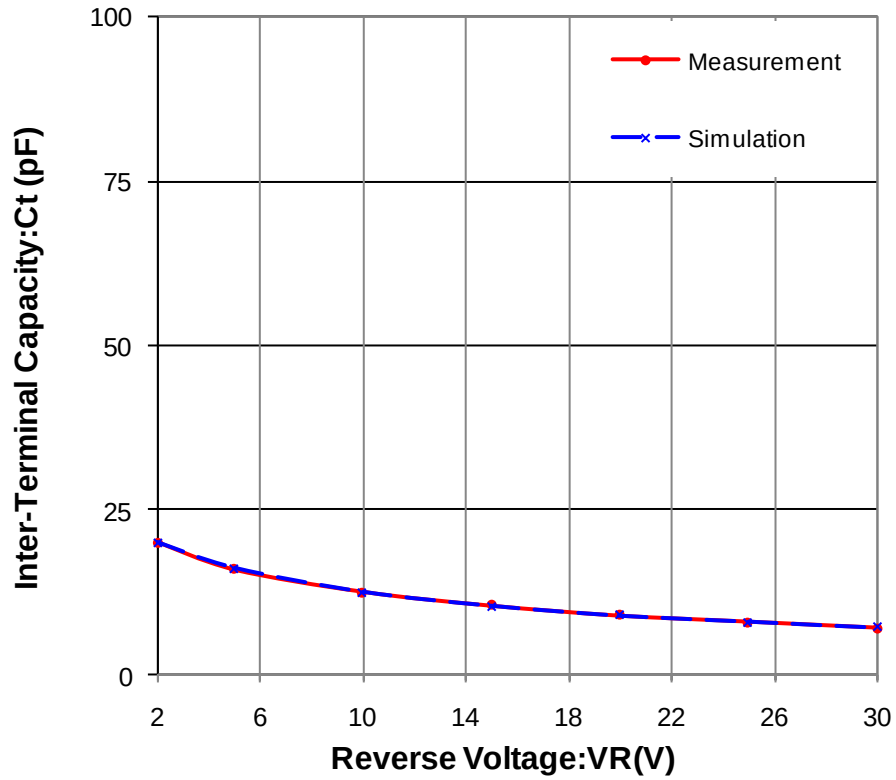


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

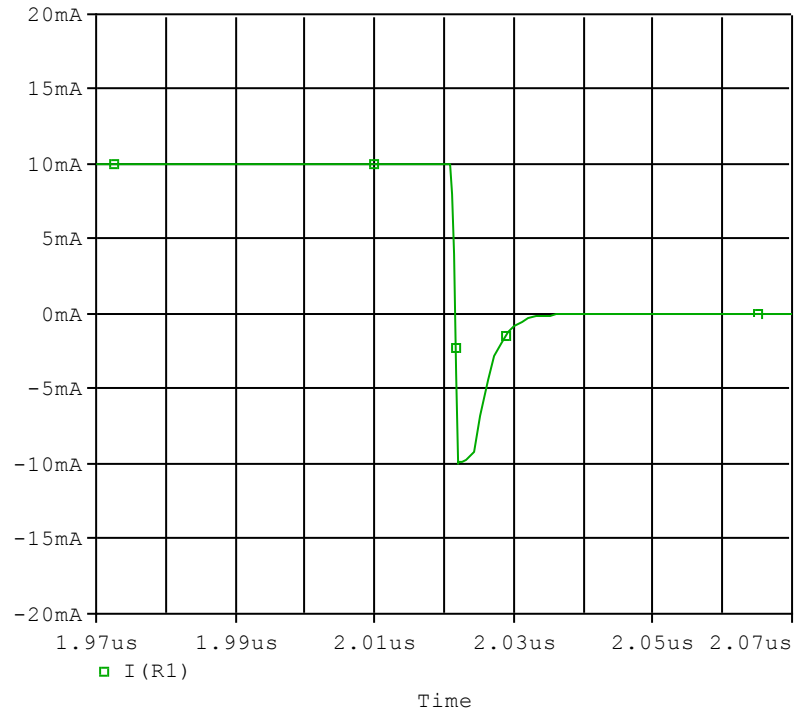


Simulation Result

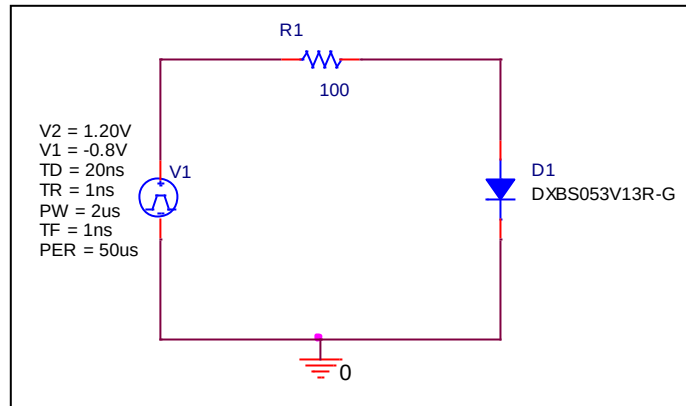
V _R (V)	C _t (pF)		%Error
	Measurement	Simulation	
2	20.000	19.983	-0.08
5	16.000	16.123	0.77
10	12.500	12.509	0.07
15	10.500	10.390	-1.05
20	9.000	8.968	-0.35
25	8.000	7.940	-0.75
30	7.000	7.173	2.47

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit



Compare Measurement vs. Simulation

Parameter	Unit	Measurement	Simulation	%Error
trr	ns	8.000	8.015	0.18