

Device Modeling Report

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

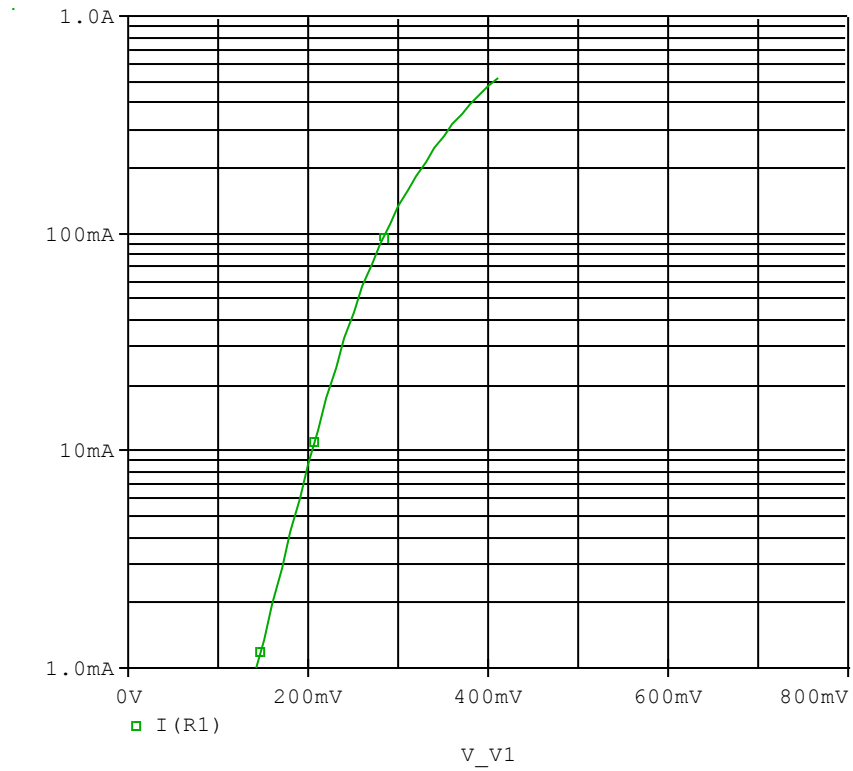


Bee Technologies Inc.

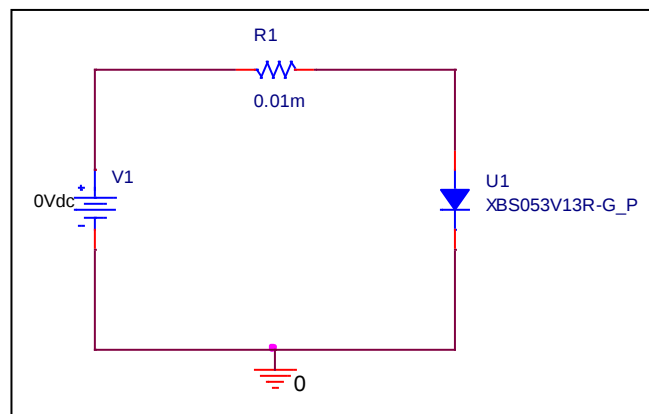
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

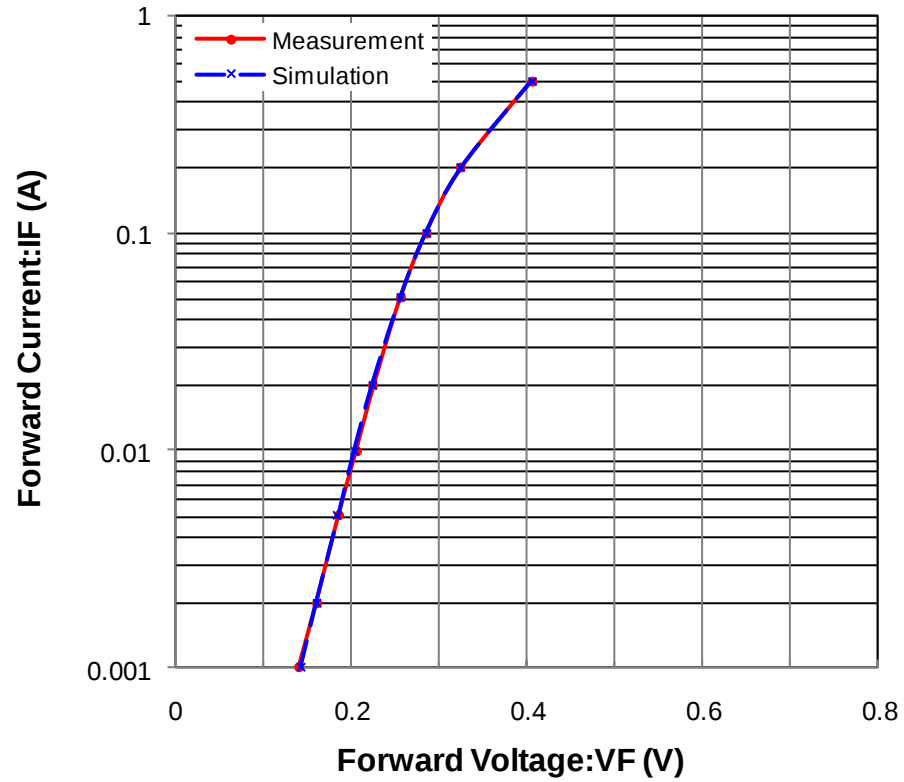


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

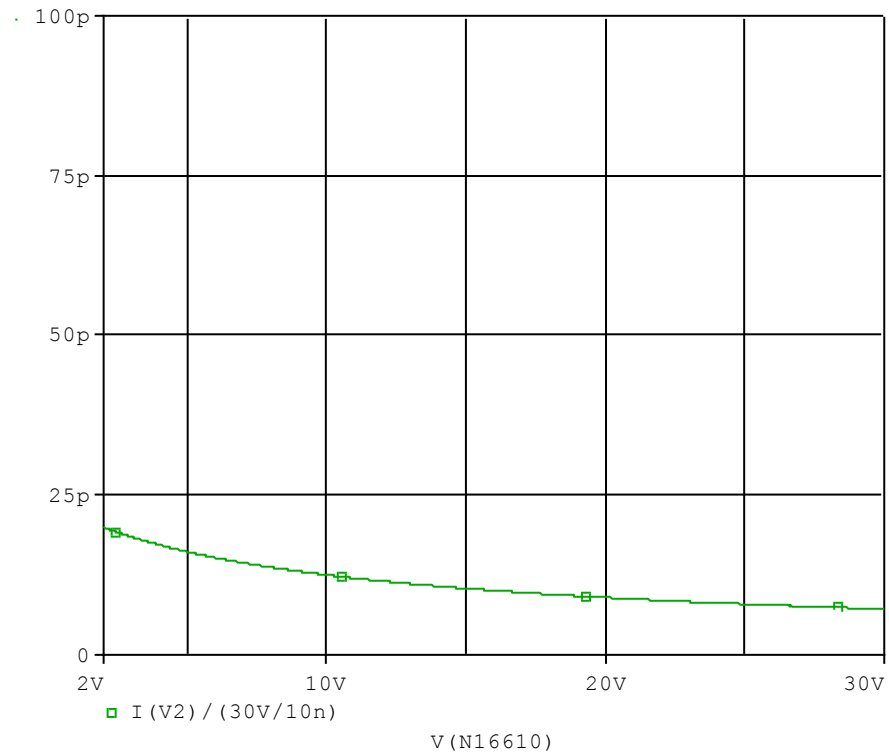


Simulation Result

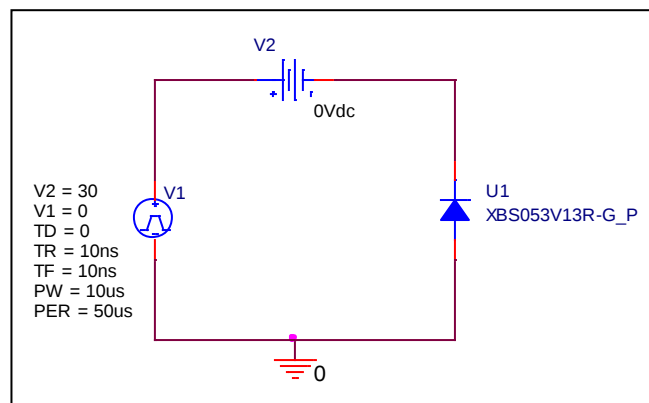
I_F (A)	V_F (V)		%Error
	Measurement	Simulation	
0.001	0.140	0.142	1.260
0.002	0.160	0.160	0.094
0.005	0.185	0.184	-0.457
0.01	0.205	0.203	-0.797
0.02	0.225	0.224	-0.536
0.05	0.255	0.255	-0.031
0.1	0.285	0.285	-0.047
0.2	0.325	0.325	0.034
0.5	0.405	0.405	-0.020

Capacitance Characteristic

Circuit Simulation Result

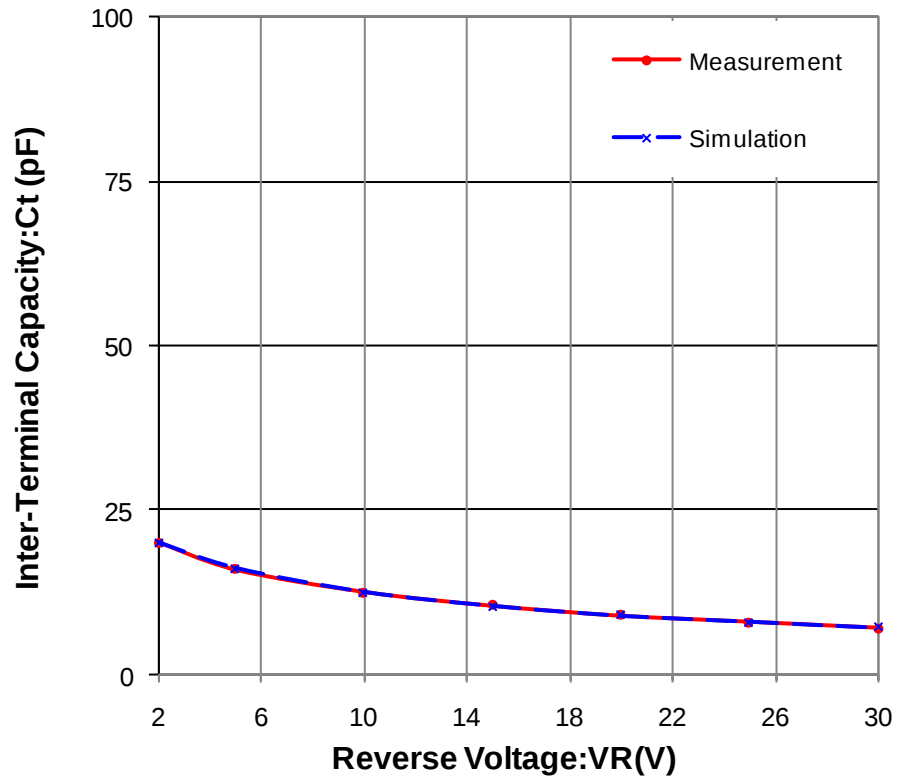


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

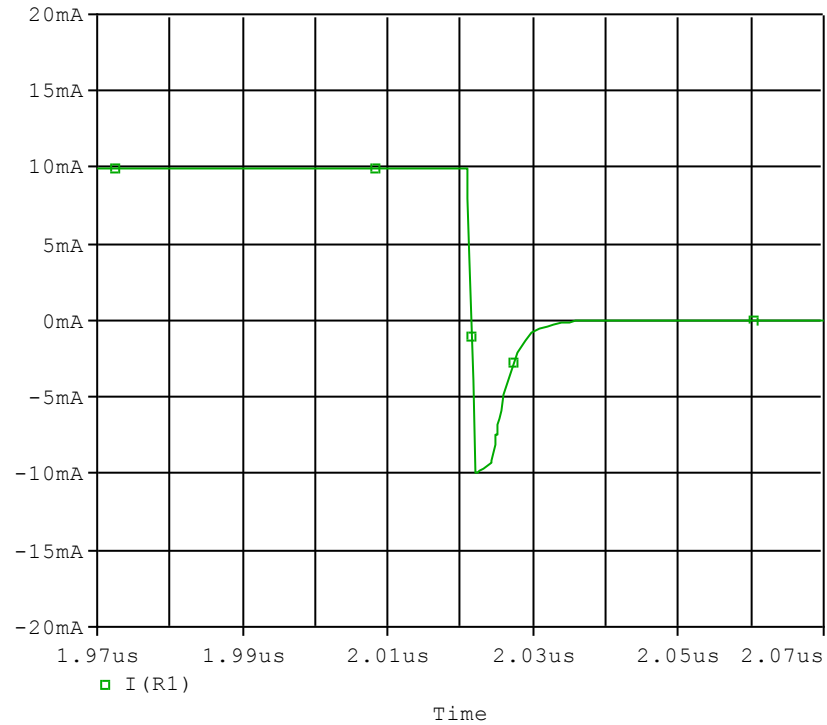


Simulation Result

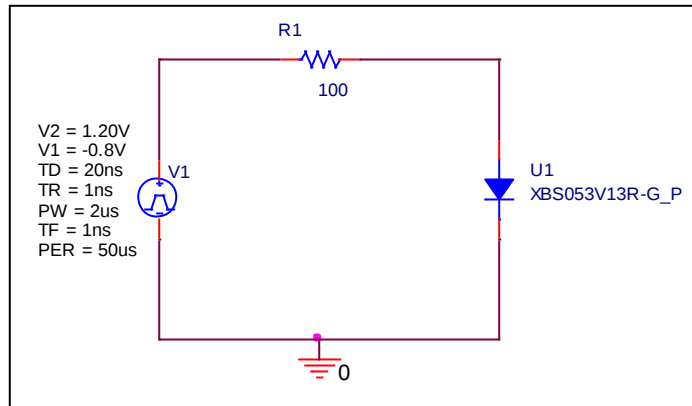
V _R (V)	C _t (pF)		%Error
	Measurement	Simulation	
2	20.000	19.984	-0.08
5	16.000	16.125	0.78
10	12.500	12.513	0.10
15	10.500	10.396	-0.99
20	9.000	8.977	-0.26
25	8.000	7.952	-0.60
30	7.000	7.190	2.72

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

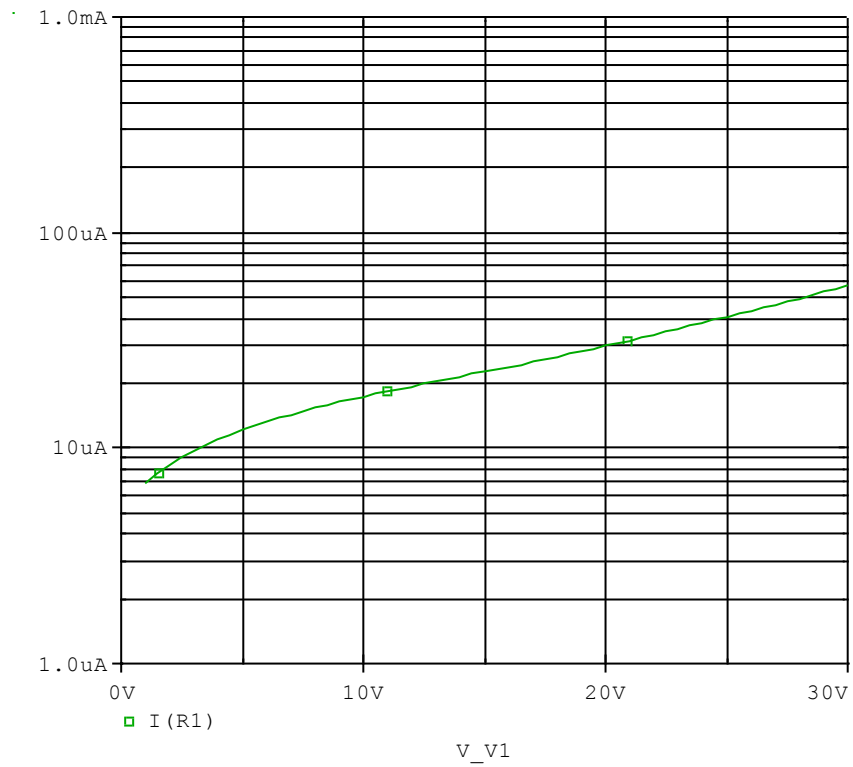


Compare Measurement vs. Simulation

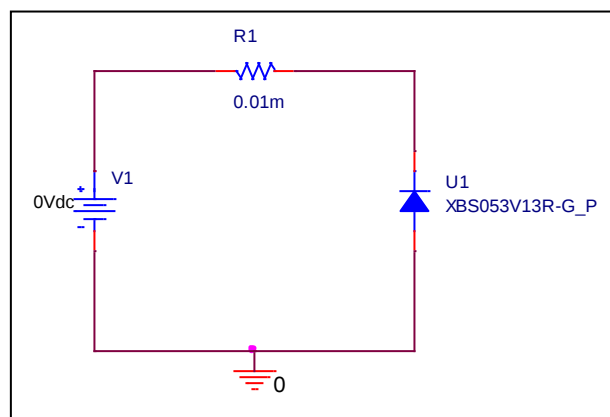
Parameter	Unit	Measurement	Simulation	%Error
trr	ns	8.000	7.984	-0.21

Reverse Characteristic

Circuit Simulation Result

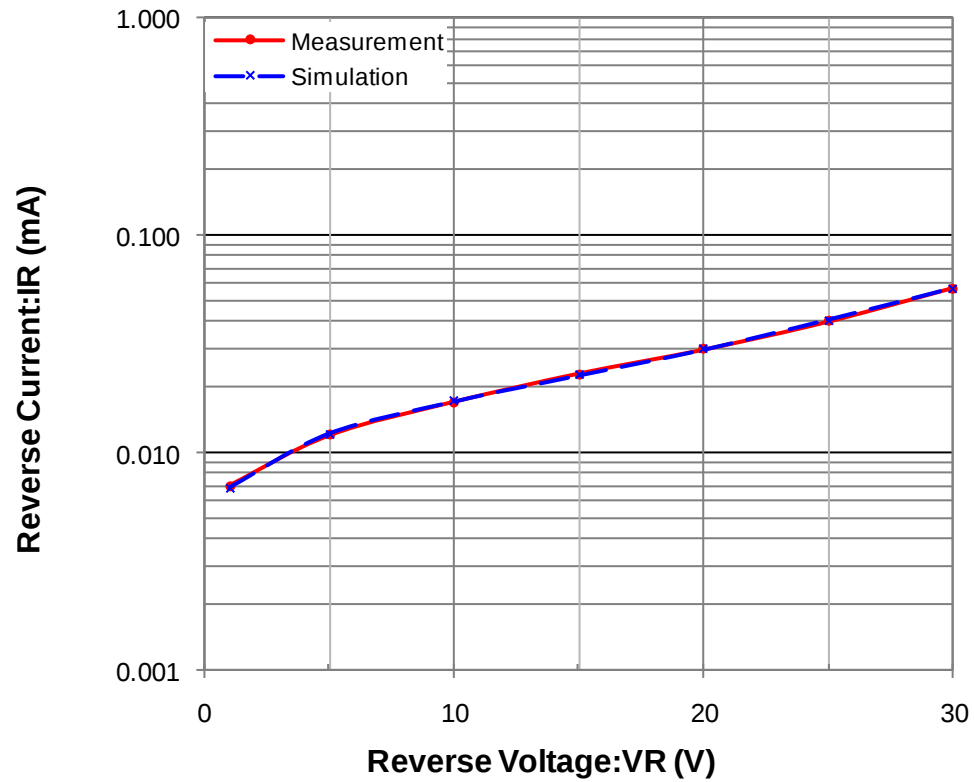


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

V_R (V)	I_R (mA)		%Error
	Measurement	Simulation	
1	0.0070	0.0069	-1.78
5	0.0120	0.0121	1.14
10	0.0170	0.0173	1.83
15	0.0230	0.0226	-1.80
20	0.0300	0.0297	-0.86
25	0.0400	0.0406	1.38
30	0.0570	0.0568	-0.36