Device Modeling Report

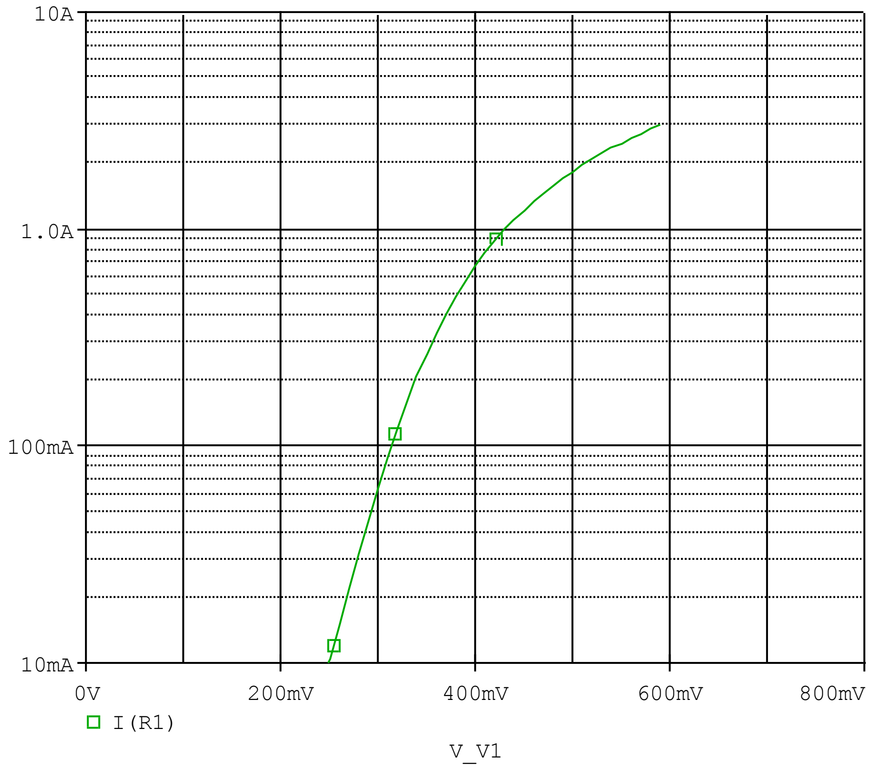
COMPONENTS:
DIODE/ SCHOTTKY RECTIFIER / PROFESSIONAL
PART NUMBER: XBS306S17R
MANUFACTURER: TOREX SEMICONDUCTOR

Bee Technologies Inc.

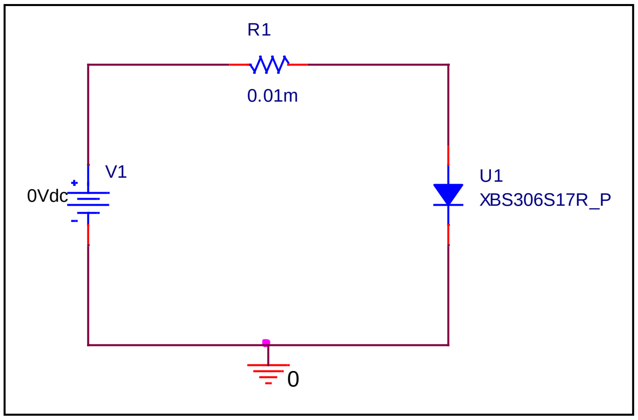
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

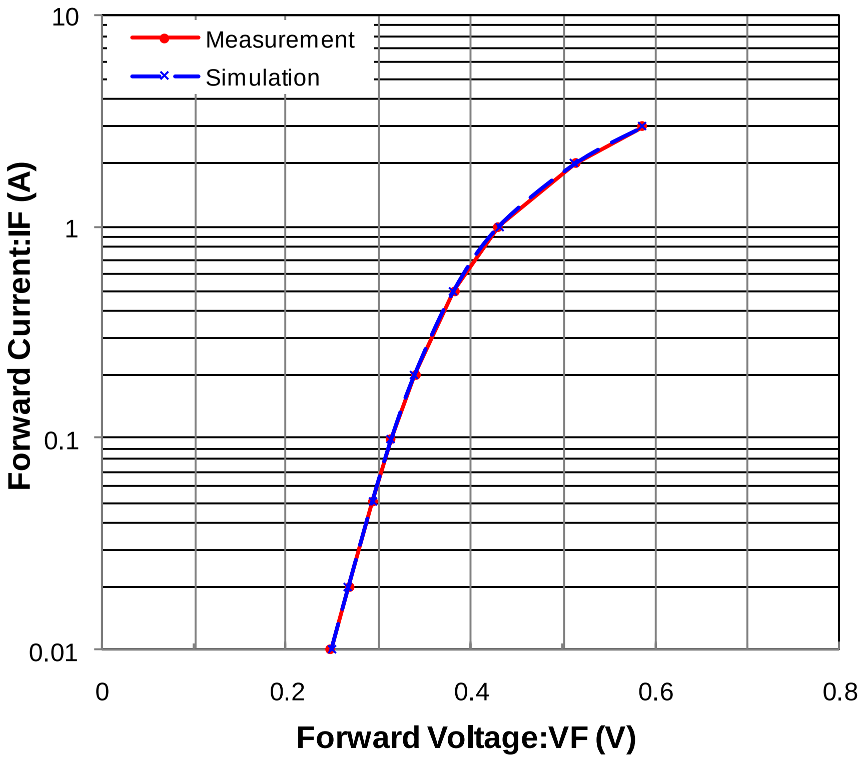


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

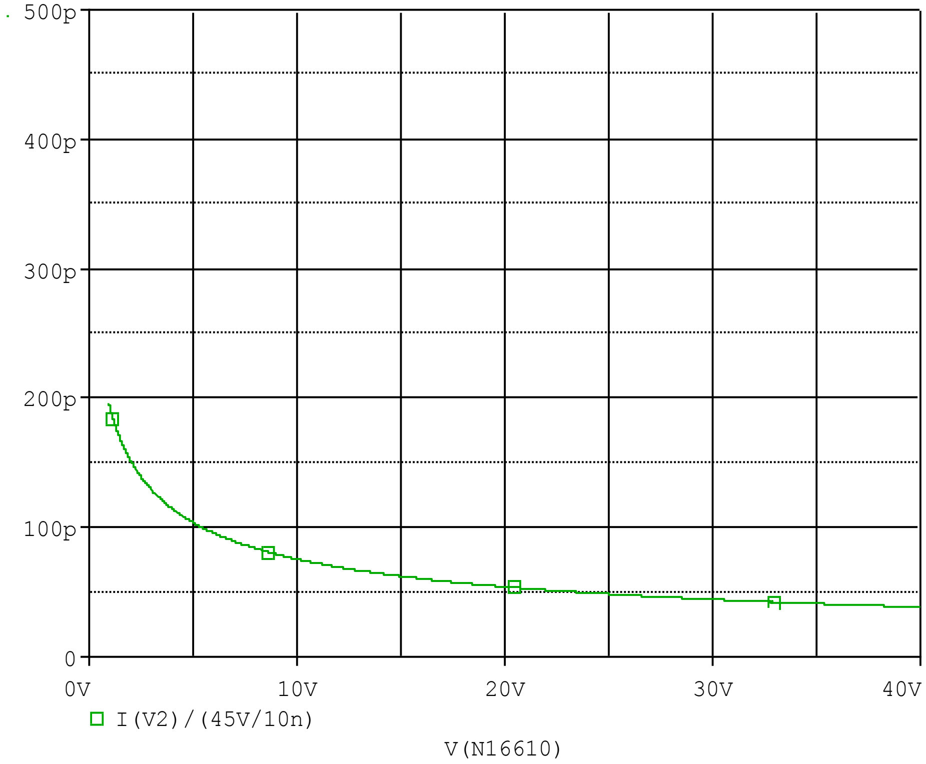


Simulation Result

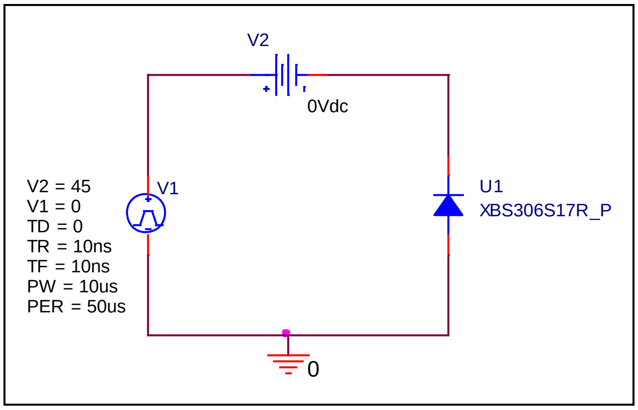
I_F (A)	V_F (V)		%Error
	Measurement	Simulation	
0.01	0.248	0.249	0.55
0.02	0.268	0.267	-0.27
0.05	0.293	0.293	-0.04
0.1	0.314	0.314	0.01
0.2	0.340	0.339	-0.43
0.5	0.382	0.381	-0.15
1	0.430	0.431	0.30
2	0.514	0.513	-0.18
3	0.587	0.587	0.06

Capacitance Characteristic

Circuit Simulation Result

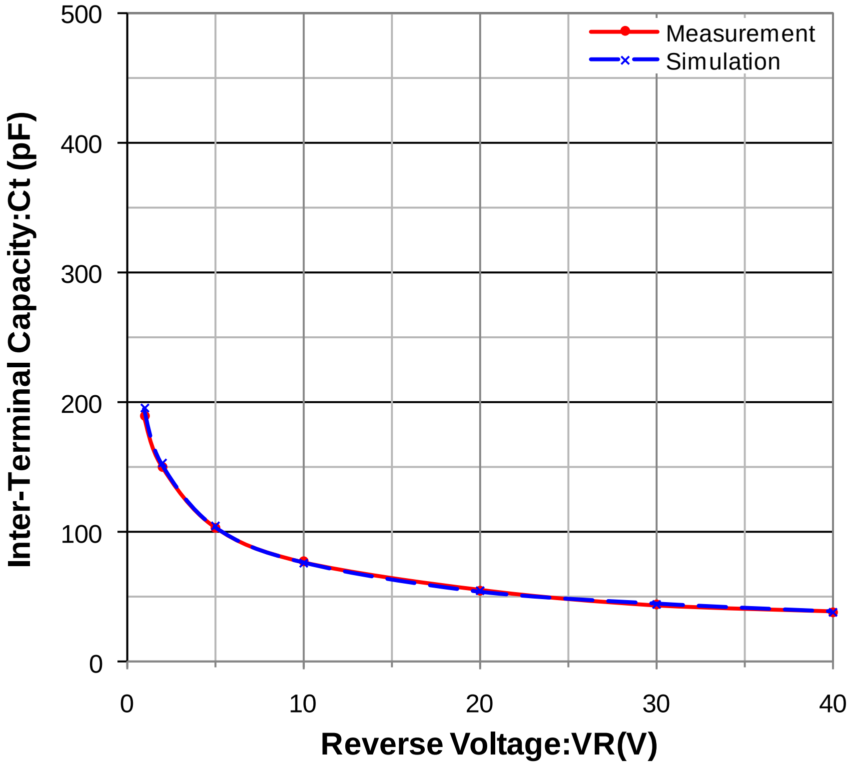


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

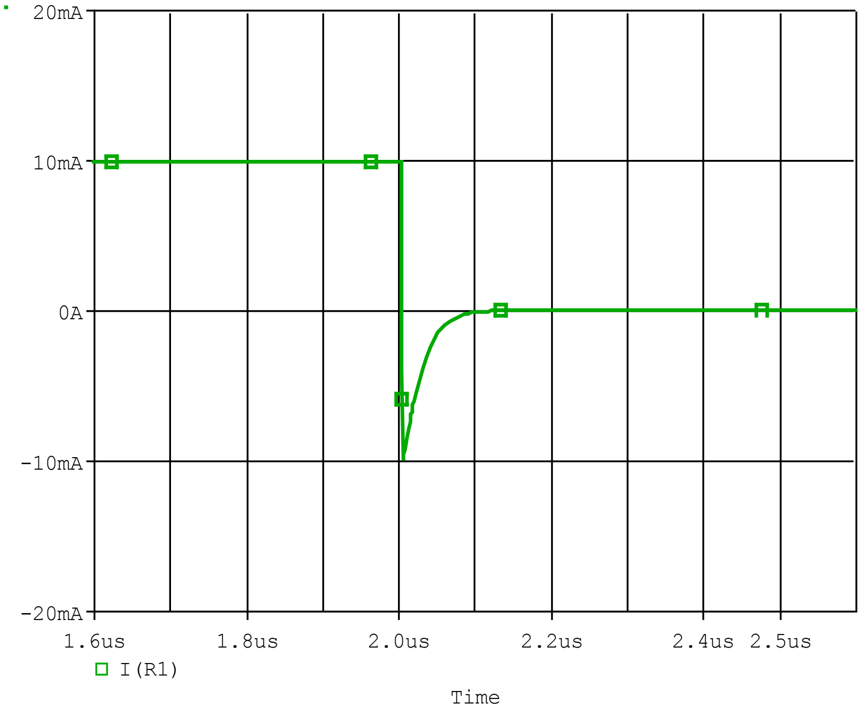


Simulation Result

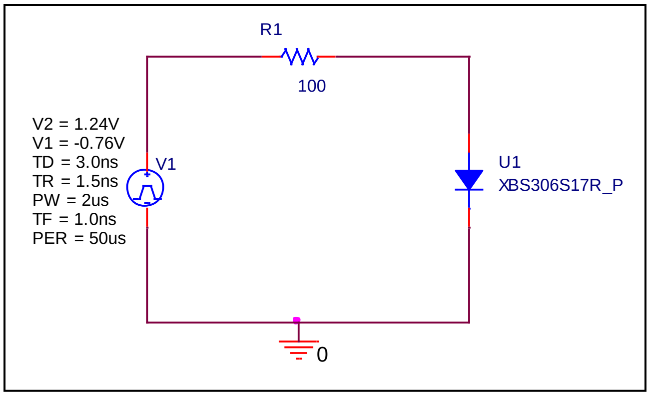
V_R (V)	Ct (pF)		%Error
	Measurement	Simulation	
1	189.000	195.271	3.32
2	150.000	152.893	1.93
5	103.000	104.255	1.22
10	77.000	75.724	-1.66
20	55.000	54.168	-1.51
30	43.575	44.389	1.87
40	38.000	38.493	1.30

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

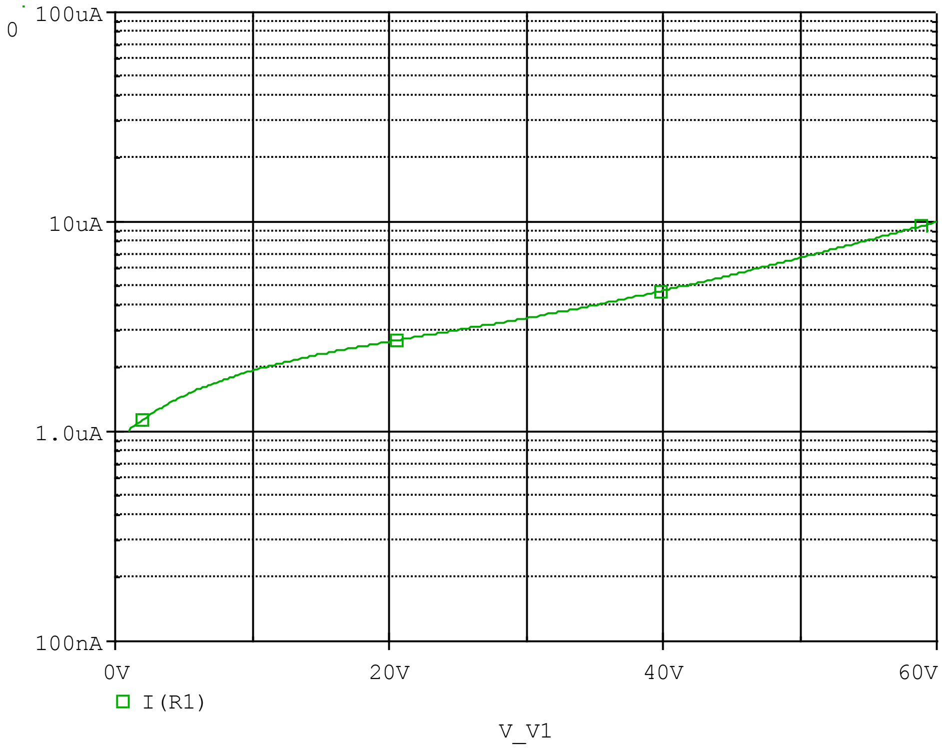


Compare Measurement vs. Simulation

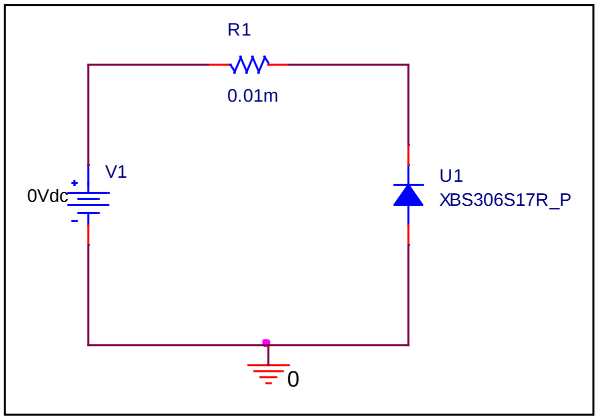
Parameter	Unit	Measurement	Simulation	%Error
trr	**ns**	**55.000**	**56.005**	**1.83**

Reverse Characteristic

Circuit Simulation Result

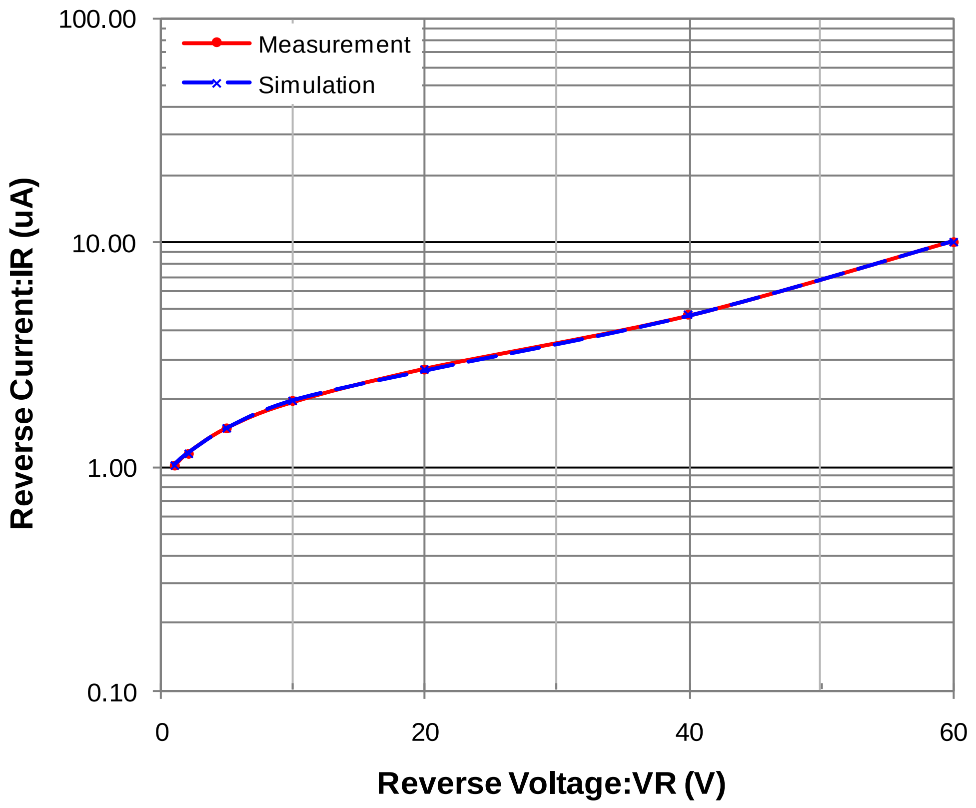


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

V_R (V)	I_R (uA)		%Error
	Measurement	**Simulation**	
1	1.000	1.009	0.91
2	1.140	1.136	-0.37
5	1.485	1.479	-0.41
10	1.940	1.950	0.53
20	2.700	2.689	-0.40
40	4.700	4.702	0.04
60	10.000	9.999	-0.01