

Device Modeling Report

COMPONENTS:
DIODE/ SCHOTTKY RECTIFIER / PROFESSIONAL
PART NUMBER: XBS104S14R
MANUFACTURER: TOREX SEMICONDUCTOR

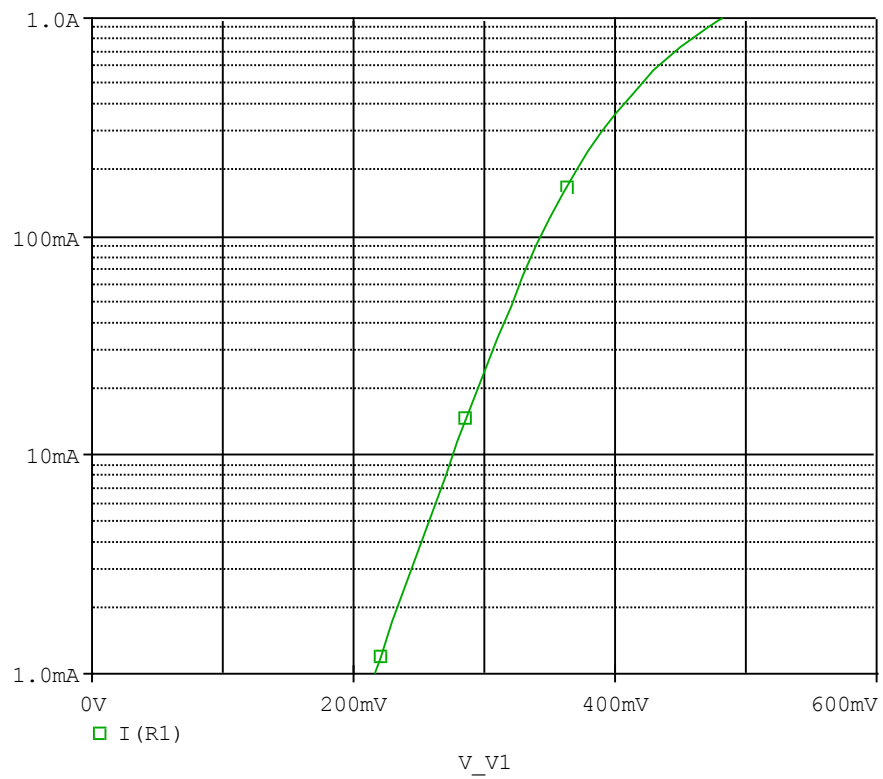


Bee Technologies Inc.

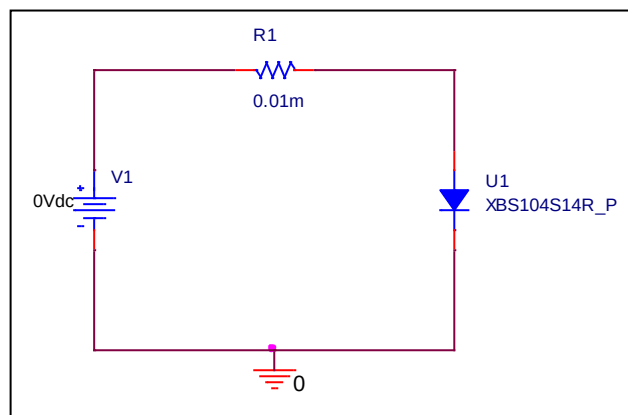
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

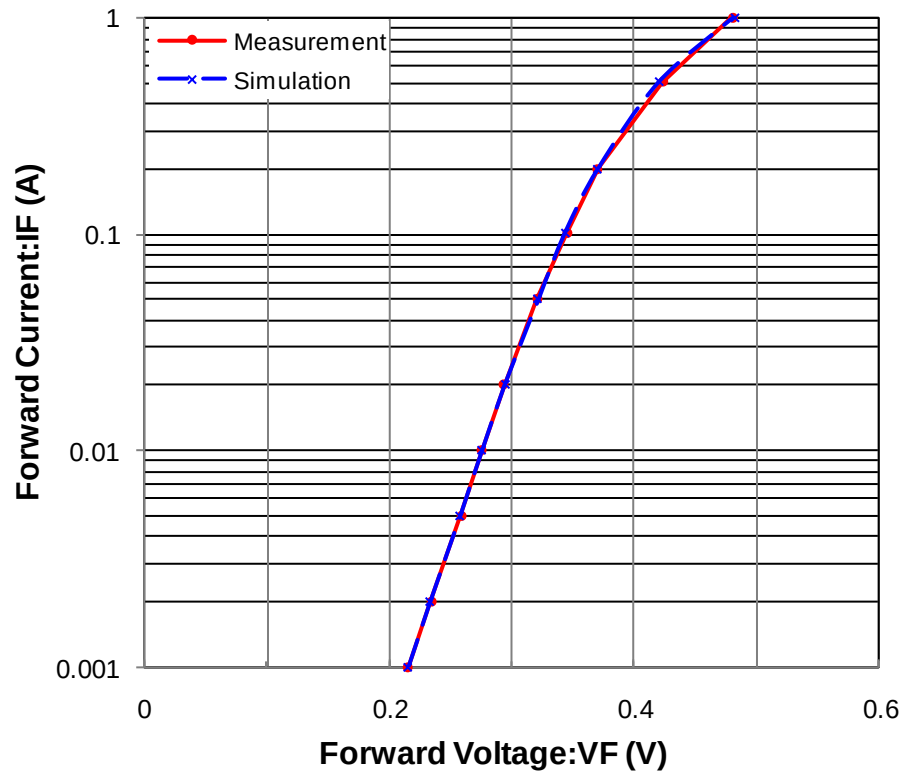


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

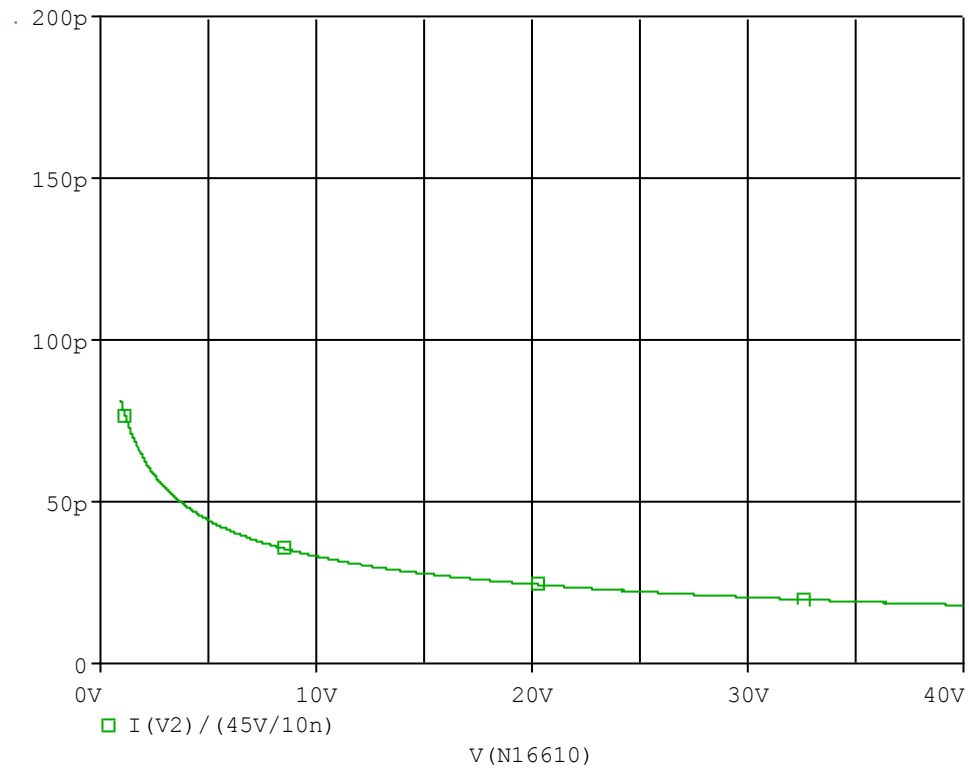


Simulation Result

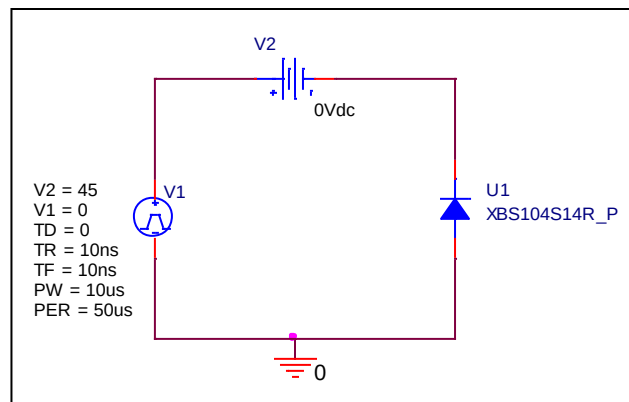
I_F (A)	V_F (V)		%Error
	Measurement	Simulation	
0.001	0.215	0.215	0.03
0.002	0.234	0.233	-0.37
0.005	0.258	0.257	-0.33
0.01	0.275	0.275	0.16
0.02	0.293	0.294	0.43
0.05	0.320	0.321	0.28
0.1	0.345	0.343	-0.56
0.2	0.370	0.370	0.00
0.5	0.423	0.420	-0.71
1	0.480	0.482	0.34

Capacitance Characteristic

Circuit Simulation Result

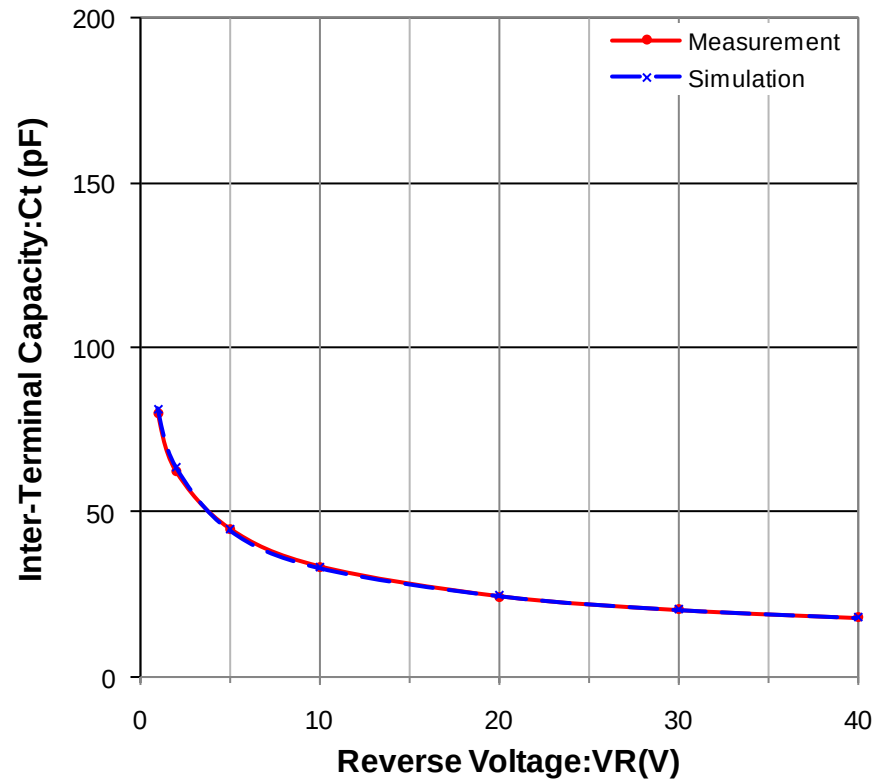


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

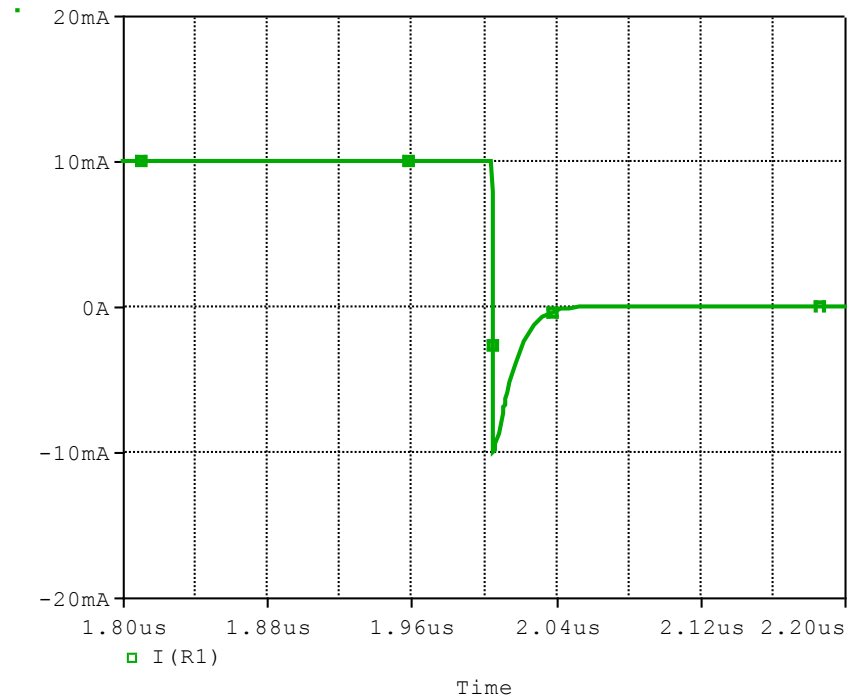


Simulation Result

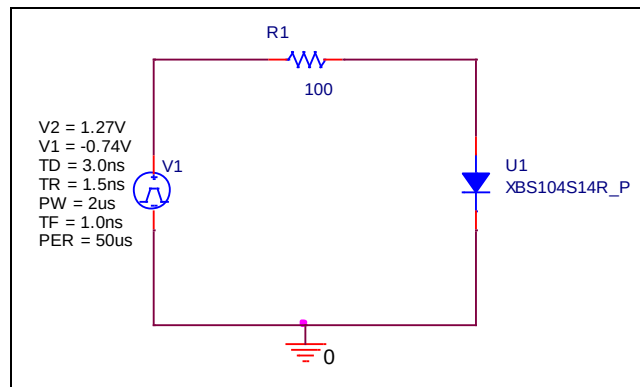
V _R (V)	C _t (pF)		%Error
	Measurement	Simulation	
1	80.000	81.335	1.67
2	62.500	63.877	2.20
5	45.000	44.520	-1.07
10	33.500	33.184	-0.94
20	24.500	24.512	0.05
30	20.400	20.518	0.58
40	18.000	18.048	0.27

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

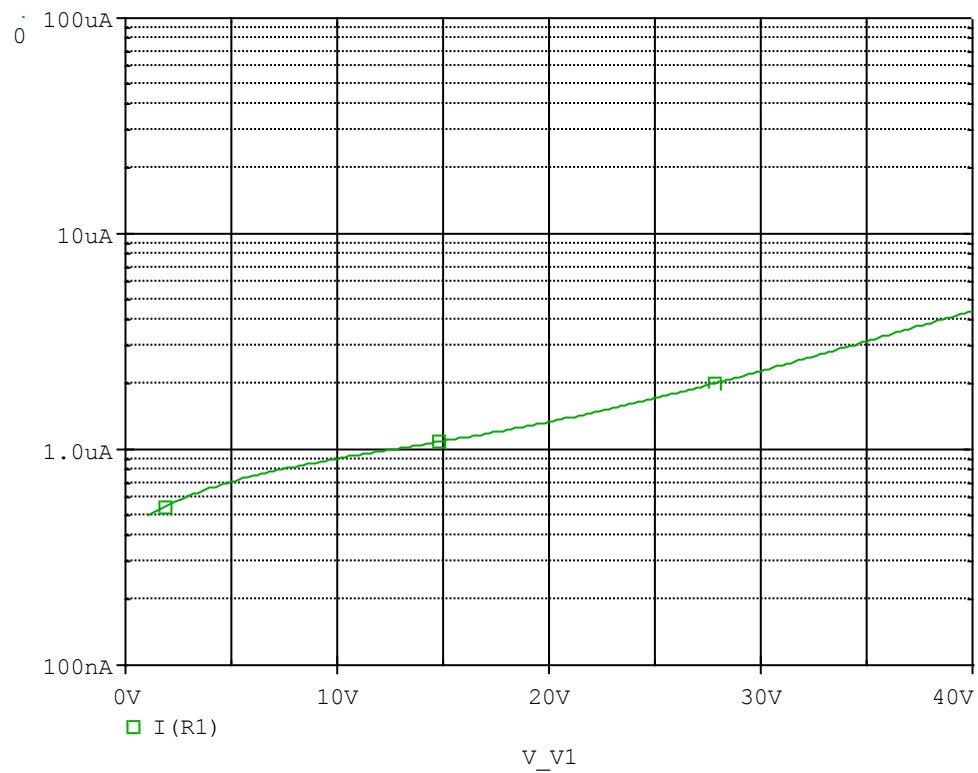


Compare Measurement vs. Simulation

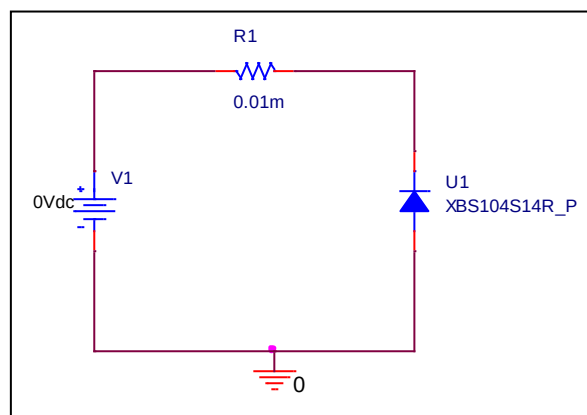
Parameter	Unit	Measurement	Simulation	%Error
trr	ns	25.000	25.092	0.37

Reverse Characteristic

Circuit Simulation Result

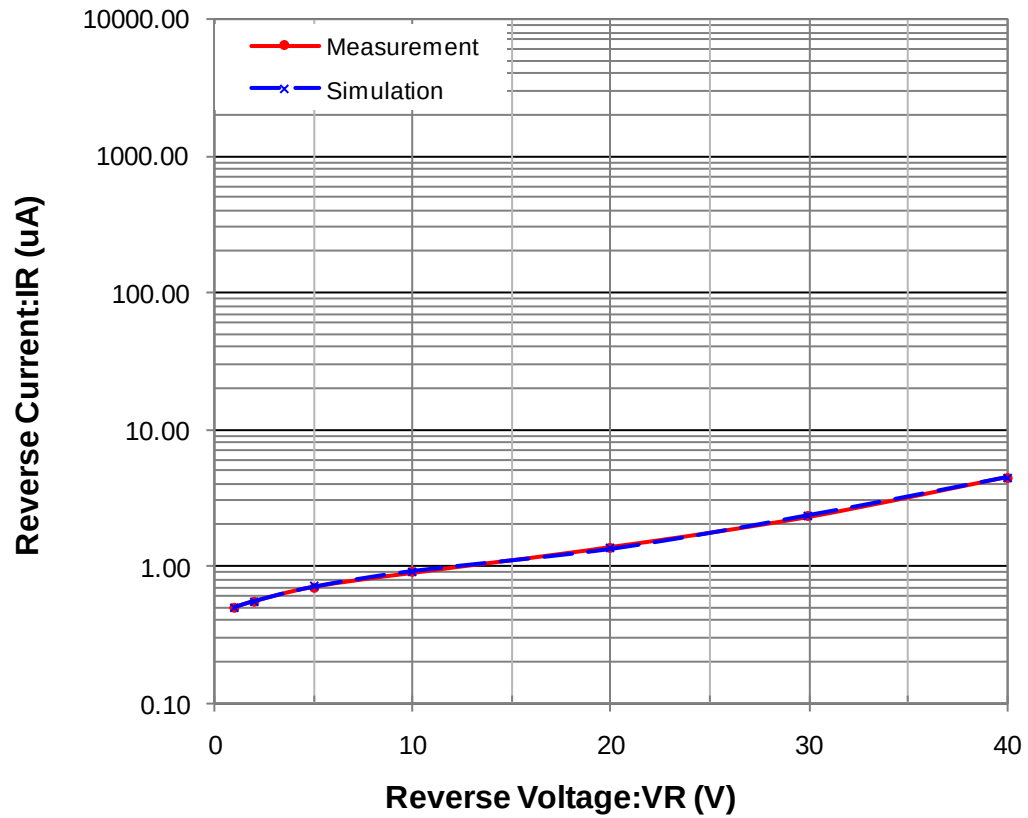


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

V_R (V)	I_R (μA)		%Error
	Measurement	Simulation	
1.00	0.500	0.493	-1.41
2.00	0.552	0.554	0.34
5.00	0.700	0.709	1.21
10.00	0.900	0.907	0.76
20.00	1.355	1.343	-0.92
30.00	2.300	2.313	0.56
40.00	4.400	4.396	-0.09