Device Modeling Report

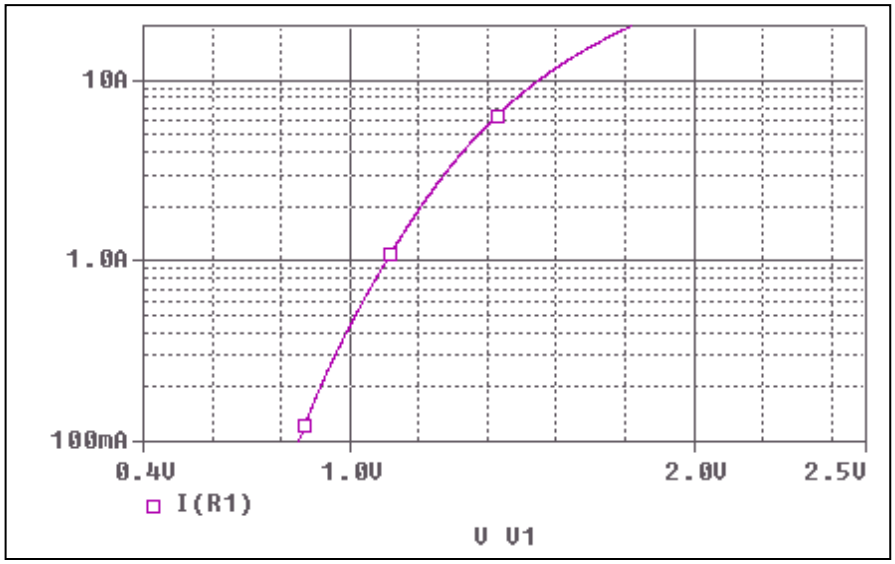
COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ PROFESSIONAL
PART NUMBER: U2GC44
MANUFACTURER: TOSHIBA

Bee Technologies Inc.

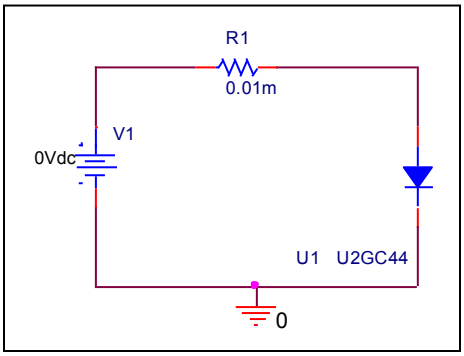
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

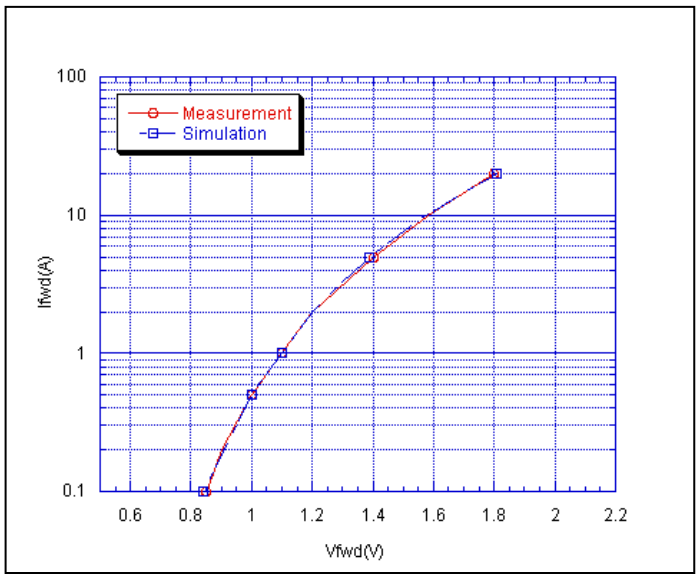


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

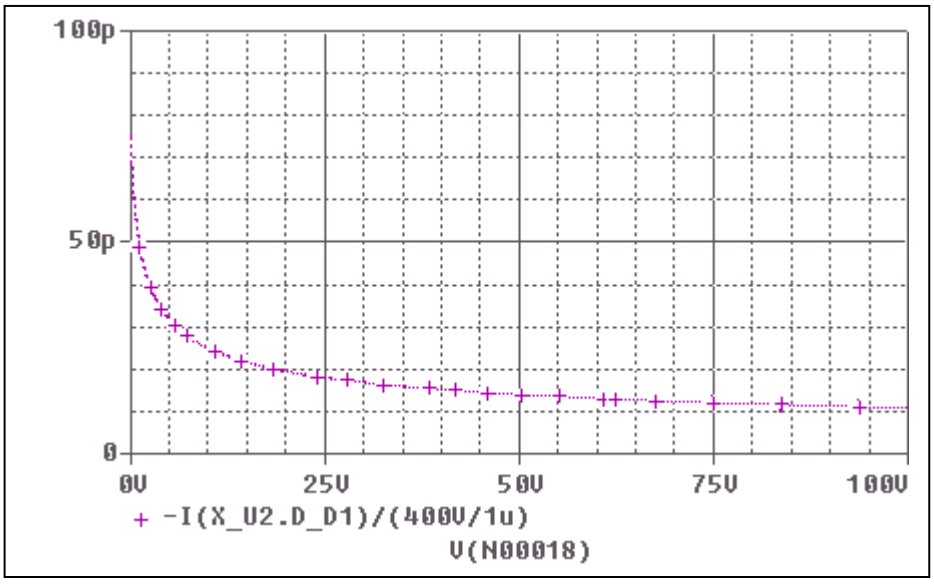


Simulation Result

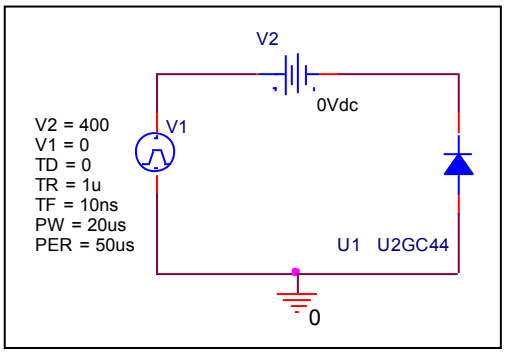
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.1	0.850	0.841	1.059
0.2	0.900	0.909	-1.000
0.5	1.000	0.998	0.200
1	1.100	1.099	0.109
2	1.200	1.195	0.417
5	1.400	1.390	0.714
10	1.580	1.570	0.633
20	1.800	1.806	-0.333

Junction Capacitance Characteristic

Circuit Simulation Result

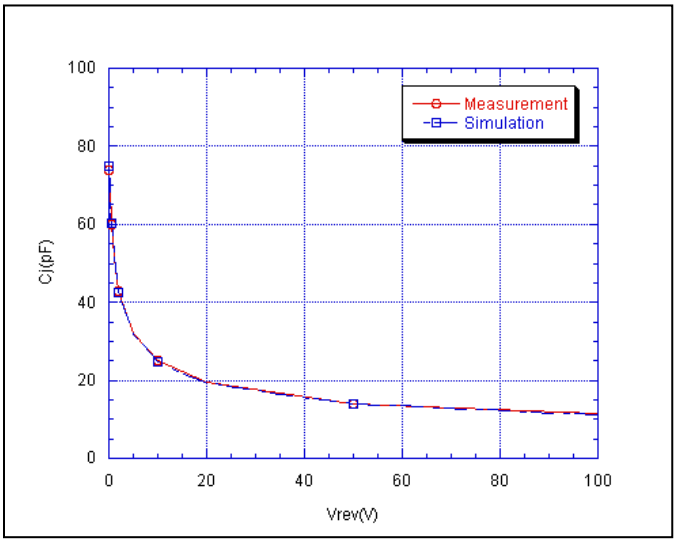


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

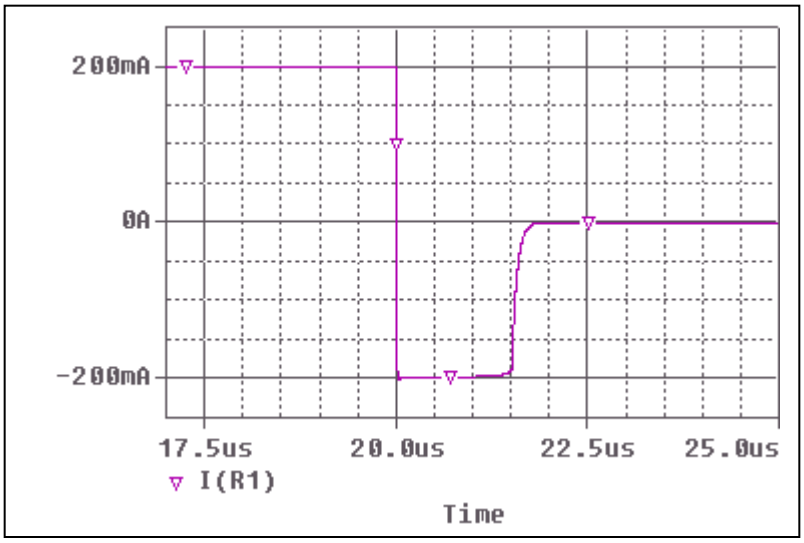


Simulation Result

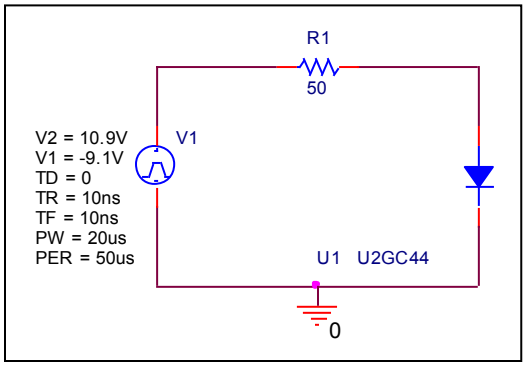
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	79.410	79.410	0.000
0.1	73.812	75.070	-1.704
0.2	68.915	69.598	-0.991
0.5	60.000	60.153	-0.255
1	51.470	51.453	0.033
2	42.700	42.490	0.492
5	31.950	31.700	0.782
10	25.120	24.920	0.796
20	19.380	19.400	-0.103
50	14.000	13.990	0.071
100	11.000	10.800	1.818

Reverse Recovery Characteristic

Circuit Simulation Result



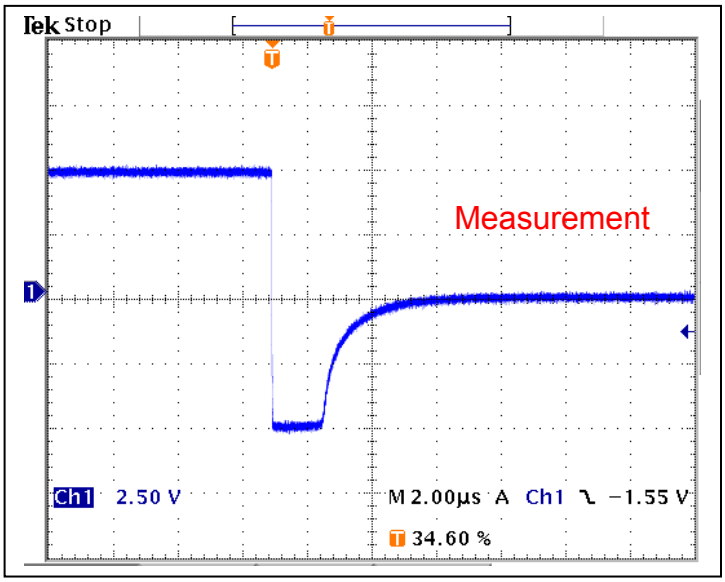
Evaluation Circuit



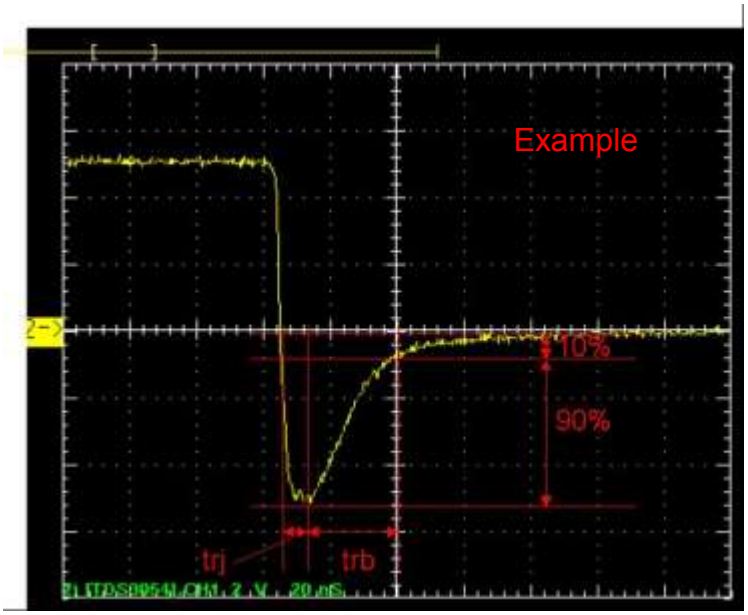
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	1.480	us	1.479	us	0.076
trb	1.600	us	1.599	us	0.075

Reverse Recovery Characteristic Reference



Trj =1.48(us)
Trb=1.60(us)
Conditions: Ifwd=0.2(A),Irev=0.2(A), Rl=50



Relation between trj and trb