Device Modeling Report

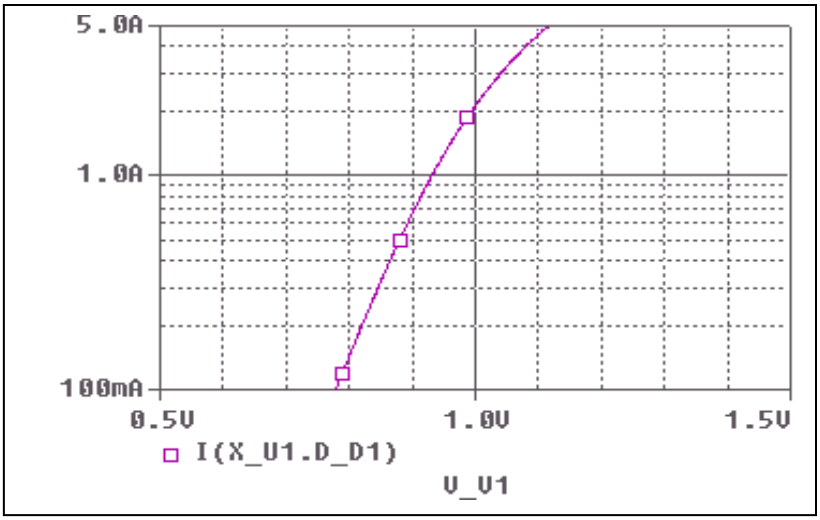
COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ PROFESIONAL
PART NUMBER: TVR1G
MANUFACTURER: TOSHIBA

Bee Technologies Inc.

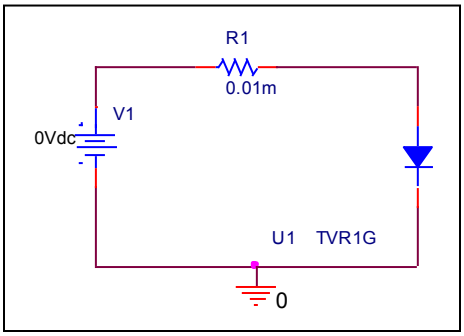
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

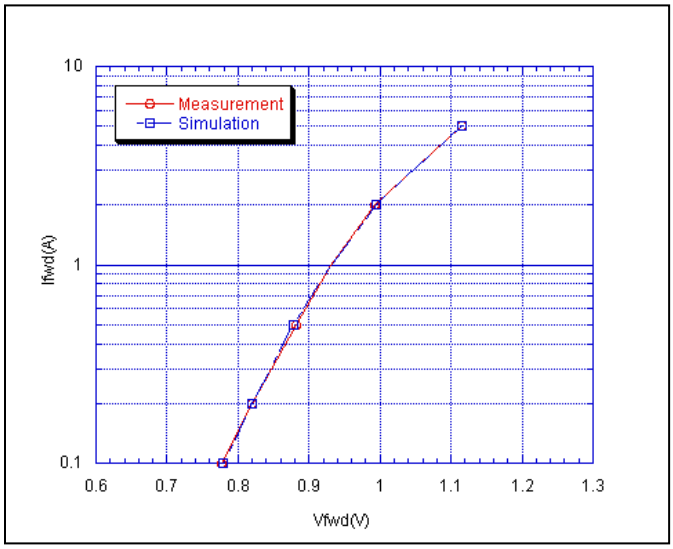


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

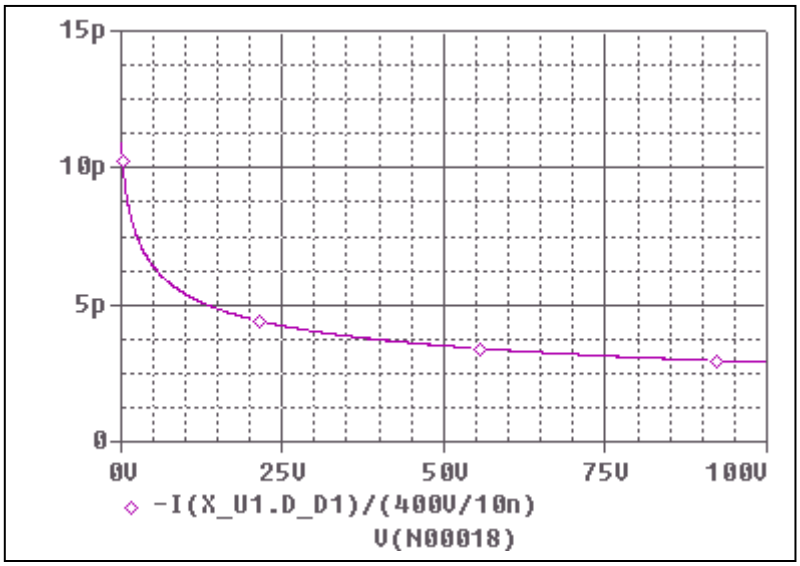


Simulation Result

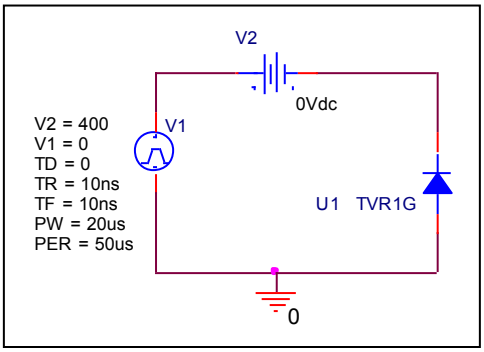
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.1	0.778	0.779	-0.103
0.2	0.820	0.820	-0.049
0.5	0.882	0.879	0.351
1	0.930	0.931	-0.054
2	0.994	0.994	-0.050
5	1.116	1.116	0.036

Junction Capacitance Characteristic

Circuit Simulation Result

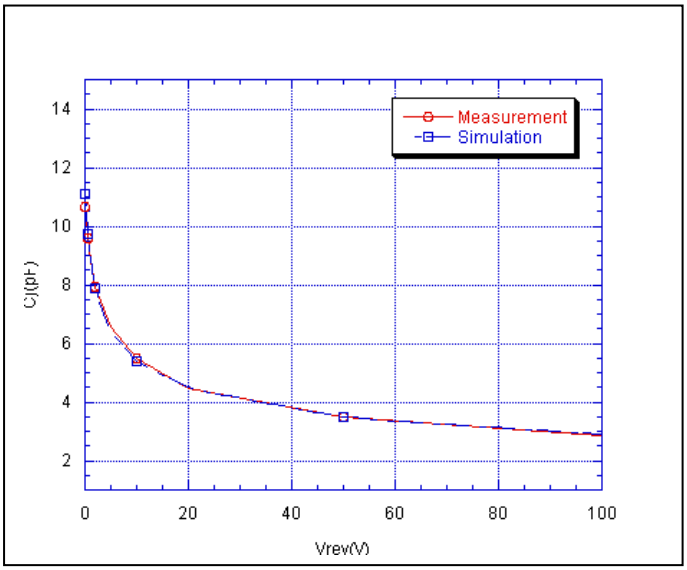


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

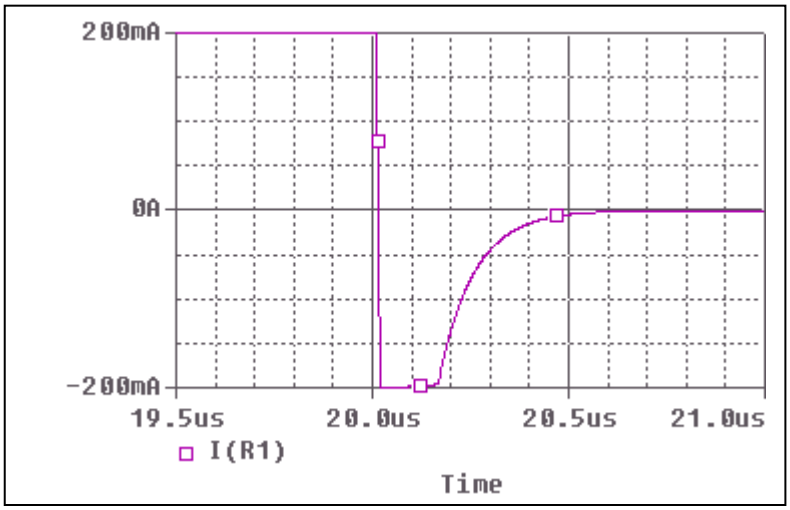


Simulation Result

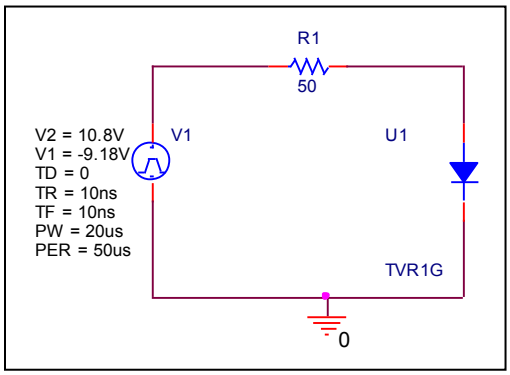
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	11.280	11.280	0.000
0.1	10.673	11.086	-3.870
0.2	10.296	10.527	-2.244
0.5	9.572	9.746	-1.818
1	8.831	8.888	-0.649
2	7.921	7.867	0.686
5	6.552	6.382	2.598
10	5.483	5.410	1.321
20	4.462	4.503	-0.910
50	3.488	3.503	-0.416
100	2.785	2.860	-2.683

Reverse Recovery Characteristic

Circuit Simulation Result



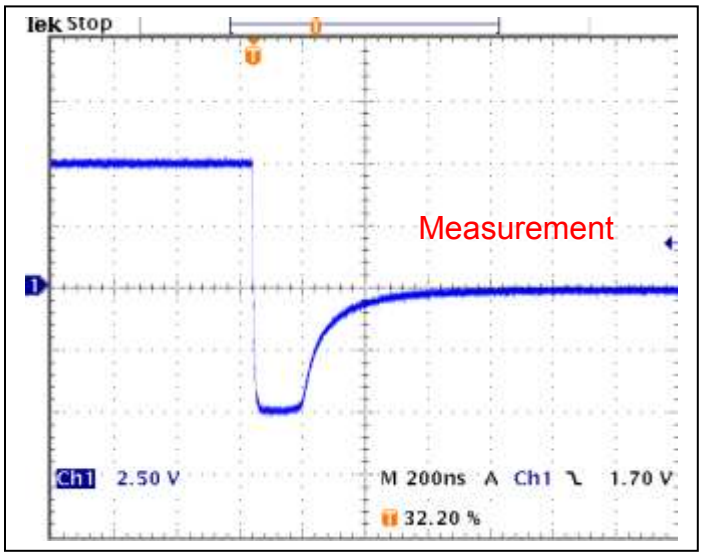
Evaluation Circuit



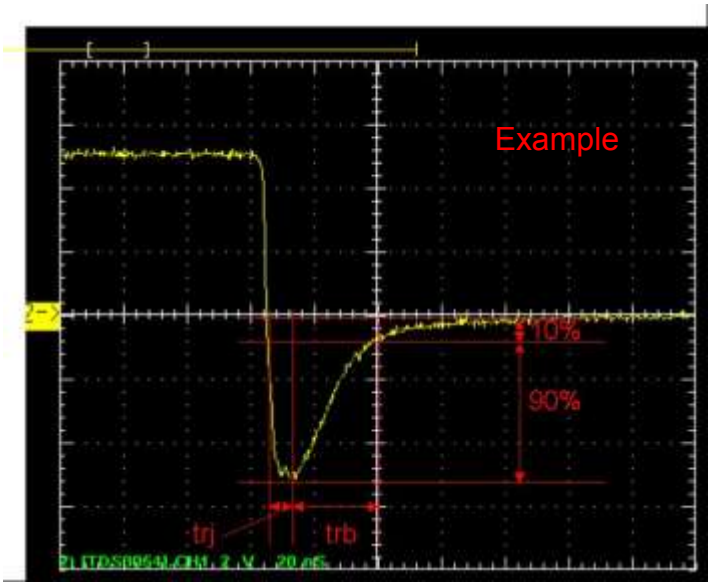
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	148.0	ns	148.7	ns	-0.473
trb	208.0	ns	207.0	ns	0.481

Reverse Recovery Characteristic Reference



Trj =148(ns)
Trb=208(ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb