Device Modeling Report

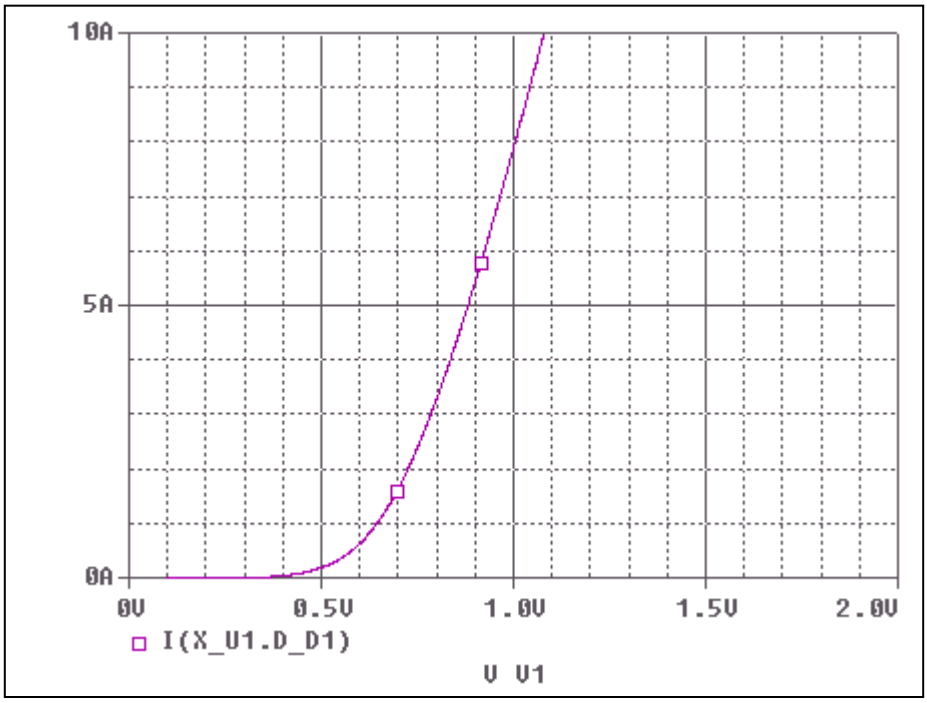
COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / PROFESSIONAL
PART NUMBER: 20GL2C41A
MANUFACTURER: TOSHIBA
REMARK: TC=110C

Bee Technologies Inc.

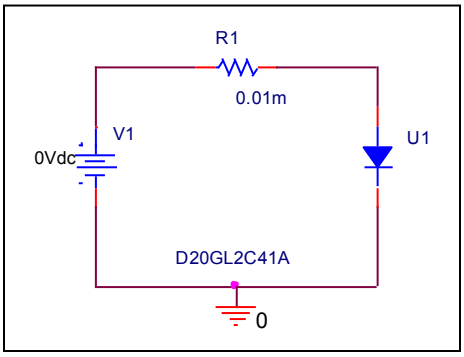
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

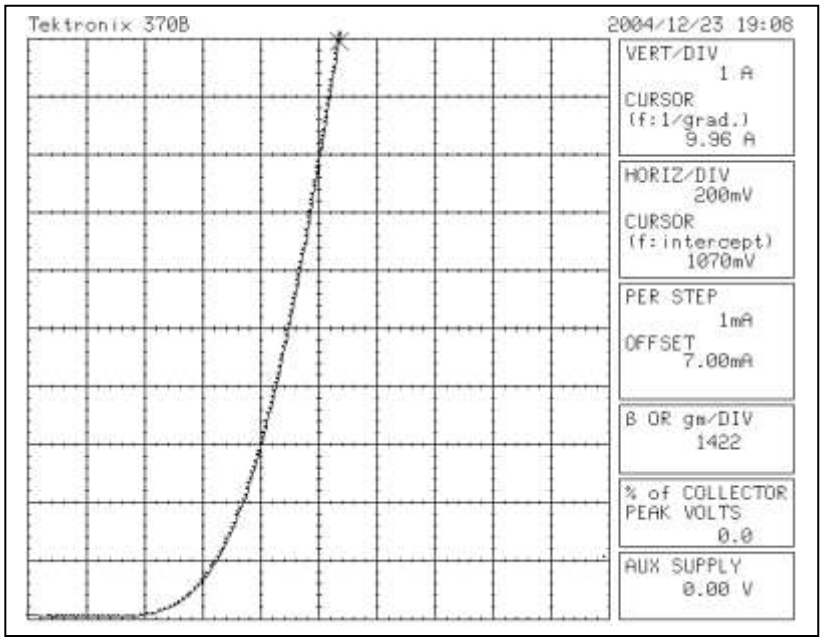
Circuit Simulation Result



Evaluation Circuit

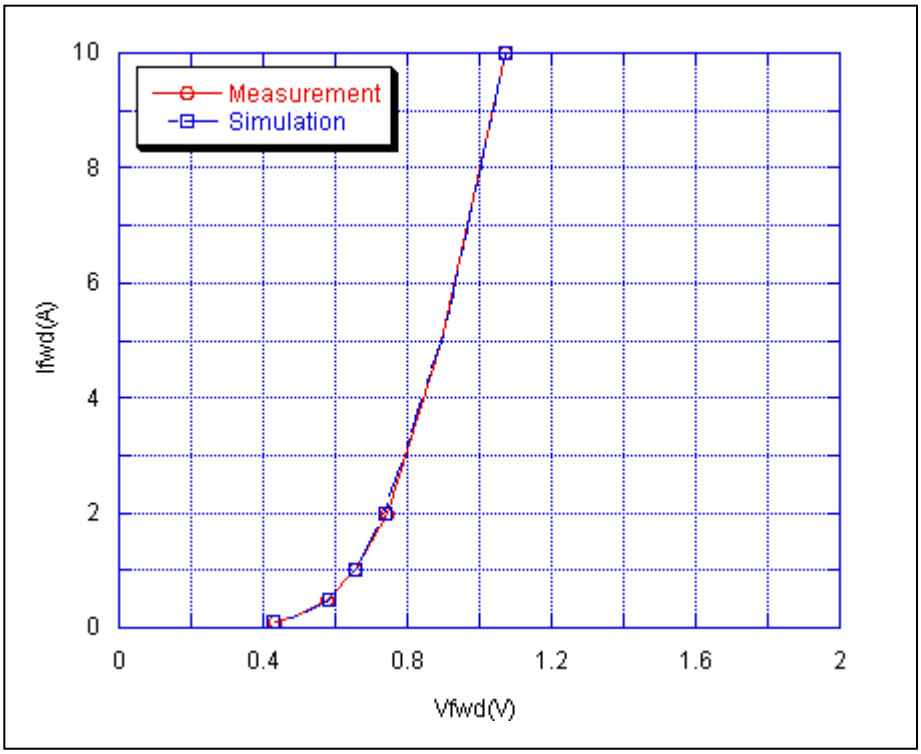


Forward Current Characteristic Reference



Comparison Graph

Circuit Simulation Result

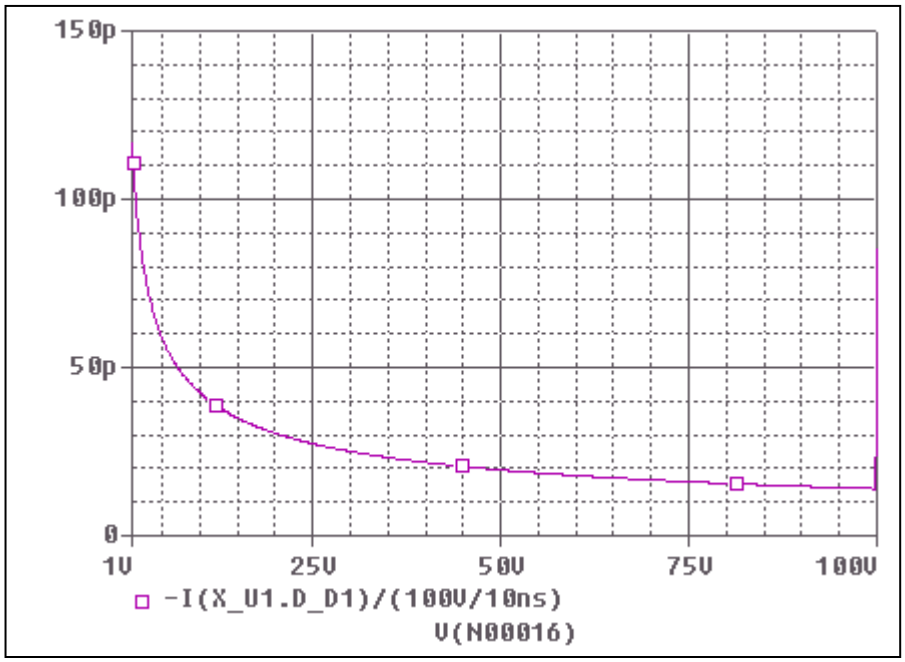


Simulation Result

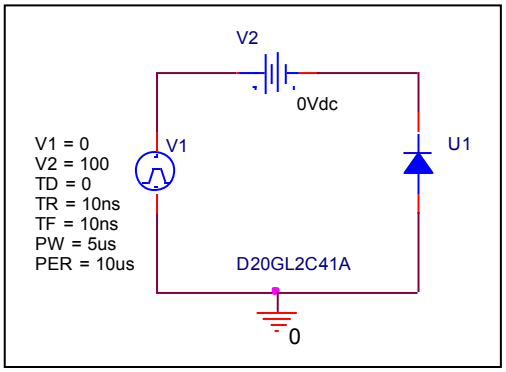
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.1	0.432	0.430	0.532
0.2	0.492	0.493	-0.264
0.5	0.578	0.582	-0.606
1	0.656	0.655	0.137
2	0.744	0.740	0.538
5	0.892	0.894	-0.168
10	1.070	1.070	0.019

Capacitance Characteristic

Circuit Simulation Result

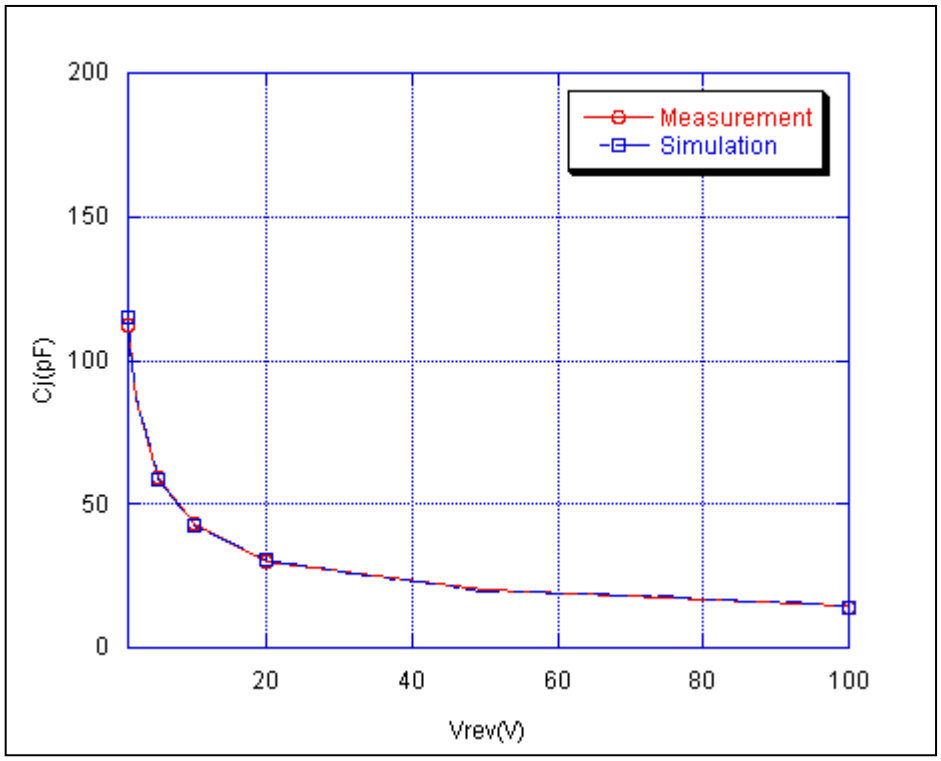


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

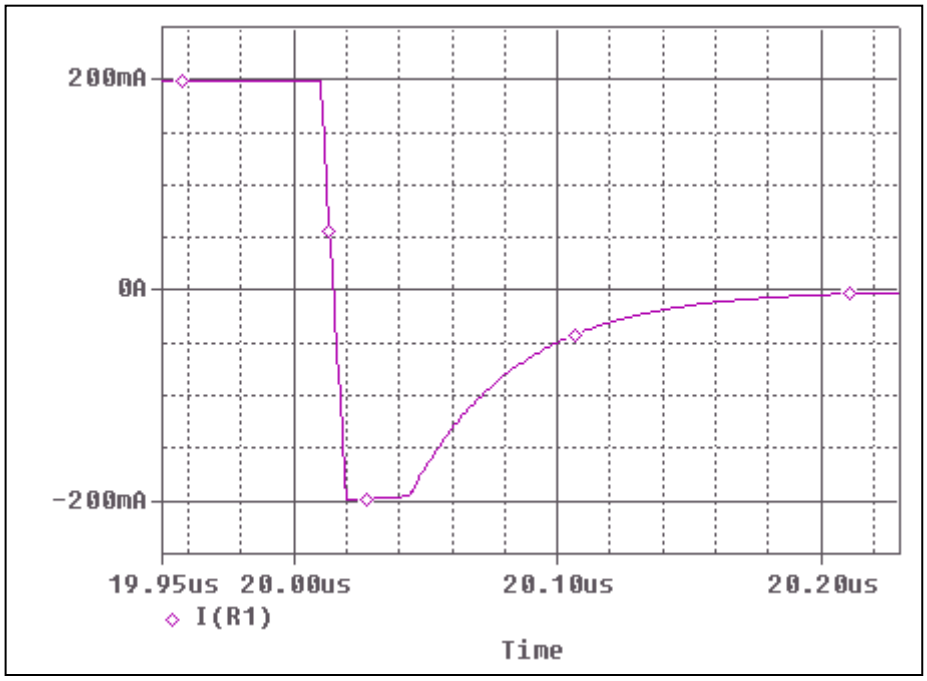


Simulation Result

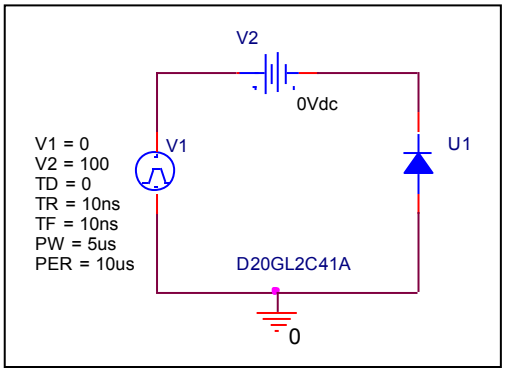
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	213.770	213.770	0.000
1	112.300	114.680	-2.119
2	86.710	87.880	-1.349
5	59.330	58.750	0.978
10	43.410	42.560	1.958
20	29.850	30.570	-2.412
50	20.170	19.630	2.677
100	14.160	14.090	0.494

Reverse Recovery Characteristic

Circuit Simulation Result



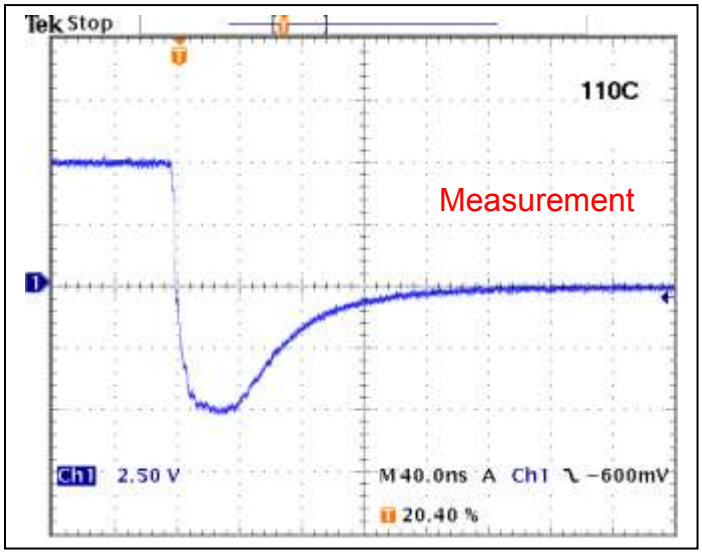
Evaluation Circuit



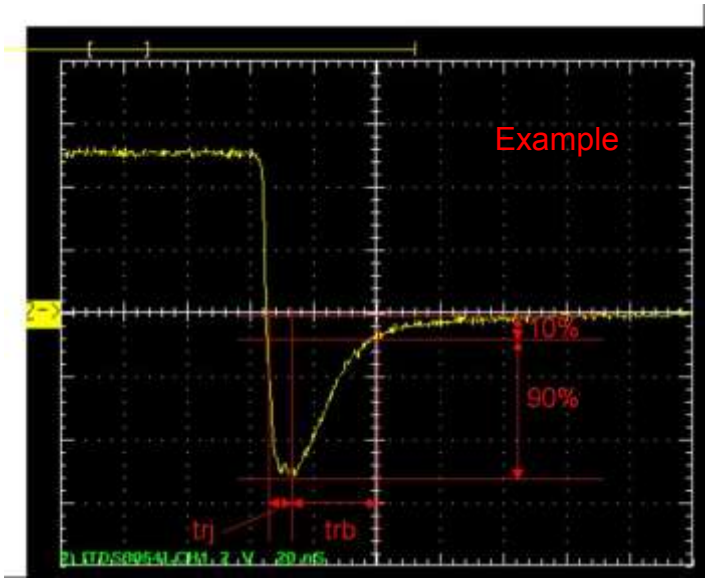
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	28.000	ns	27.950	ns	0.179
trb	93.600	ns	93.280	ns	0.342

Reverse Recovery Characteristic Reference



Trj =28(ns)
Trb=93.6(ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb