Device Modeling Report

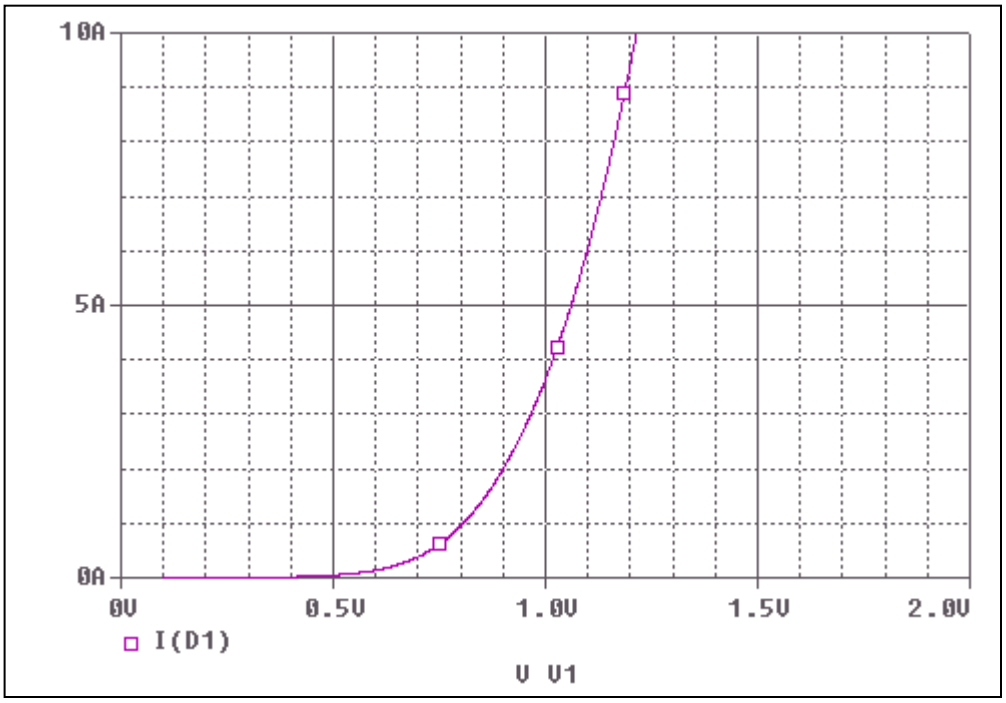
COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / STANDARD
PART NUMBER: 20GL2C41A
MANUFACTURER: TOSHIBA
REMARK: TC=25C

Bee Technologies Inc.

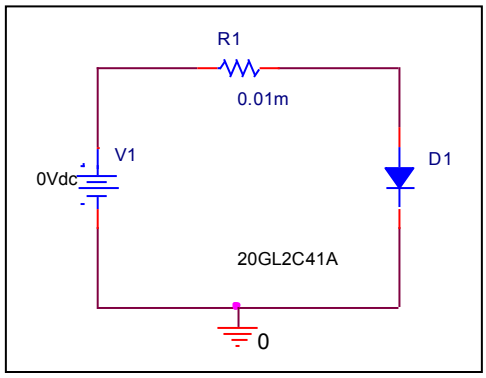
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

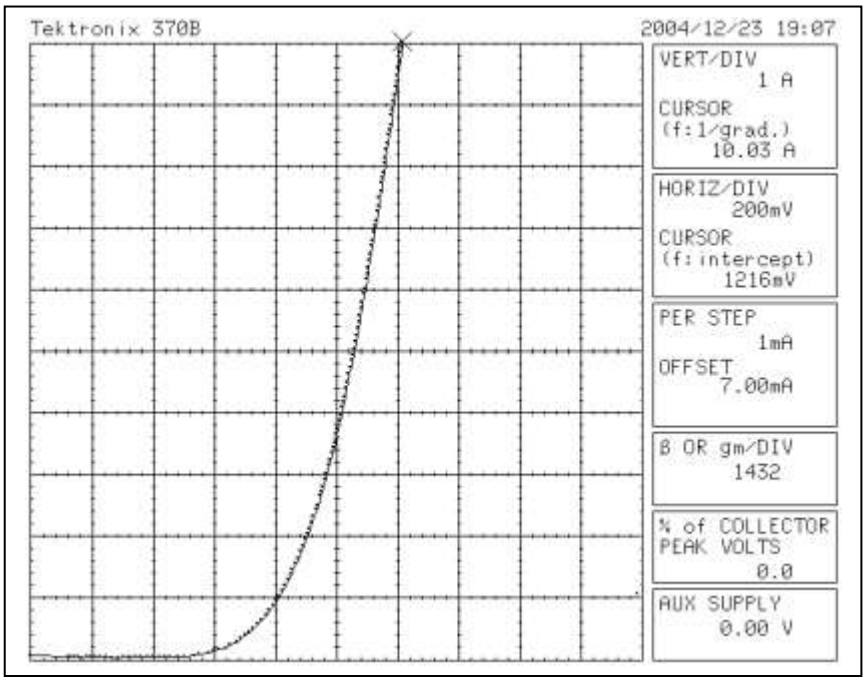
Circuit Simulation Result



Evaluation Circuit

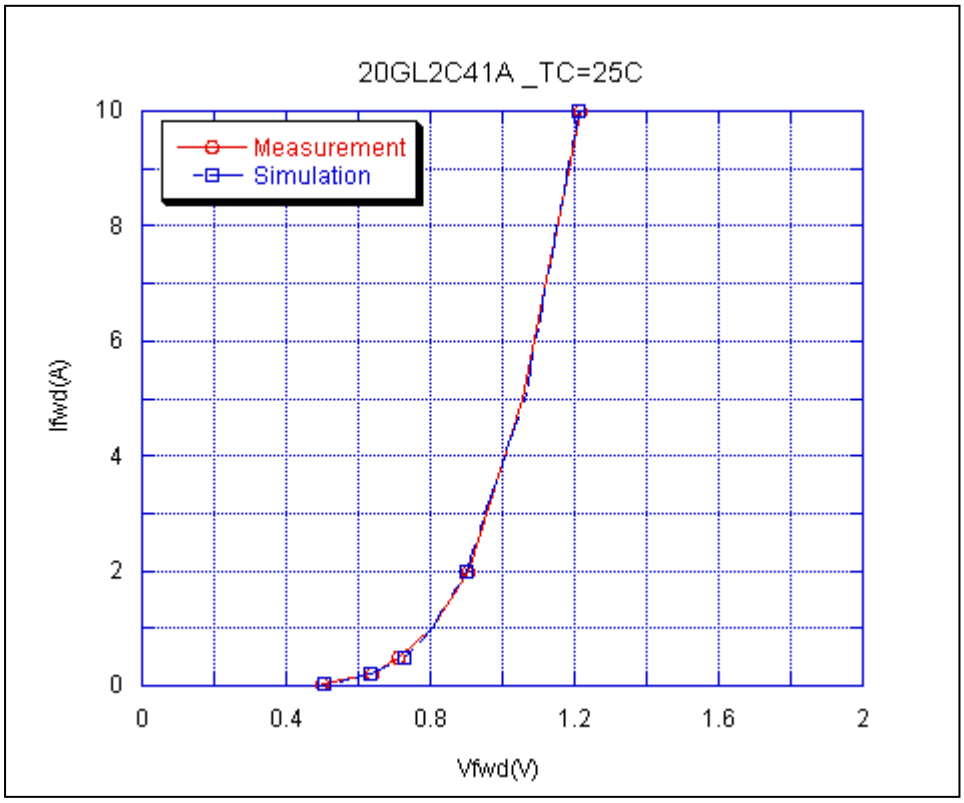


Forward Current Characteristic Reference



Comparison Graph

Circuit Simulation Result

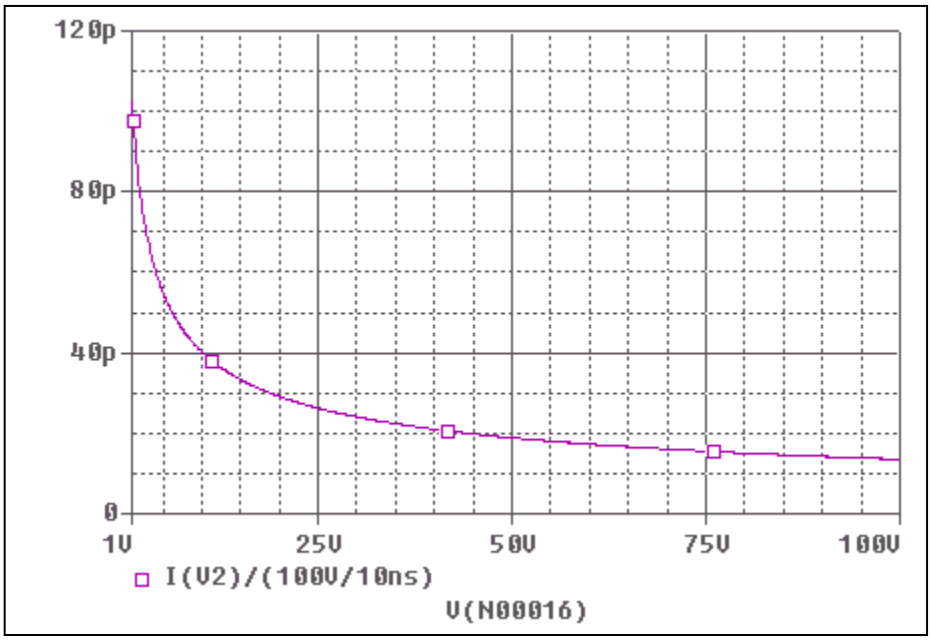


Simulation Result

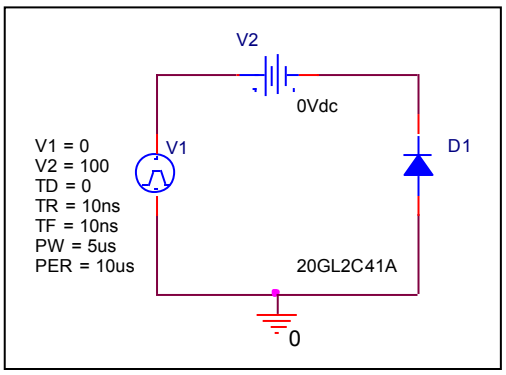
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.05	0.500	0.506	-1.200
0.1	0.554	0.567	-2.347
0.2	0.640	0.635	0.781
0.5	0.709	0.720	-1.551
1	0.807	0.806	0.124
2	0.908	0.900	0.881
5	1.055	1.060	-0.474
10	1.216	1.214	0.164

Capacitance Characteristic

Circuit Simulation Result

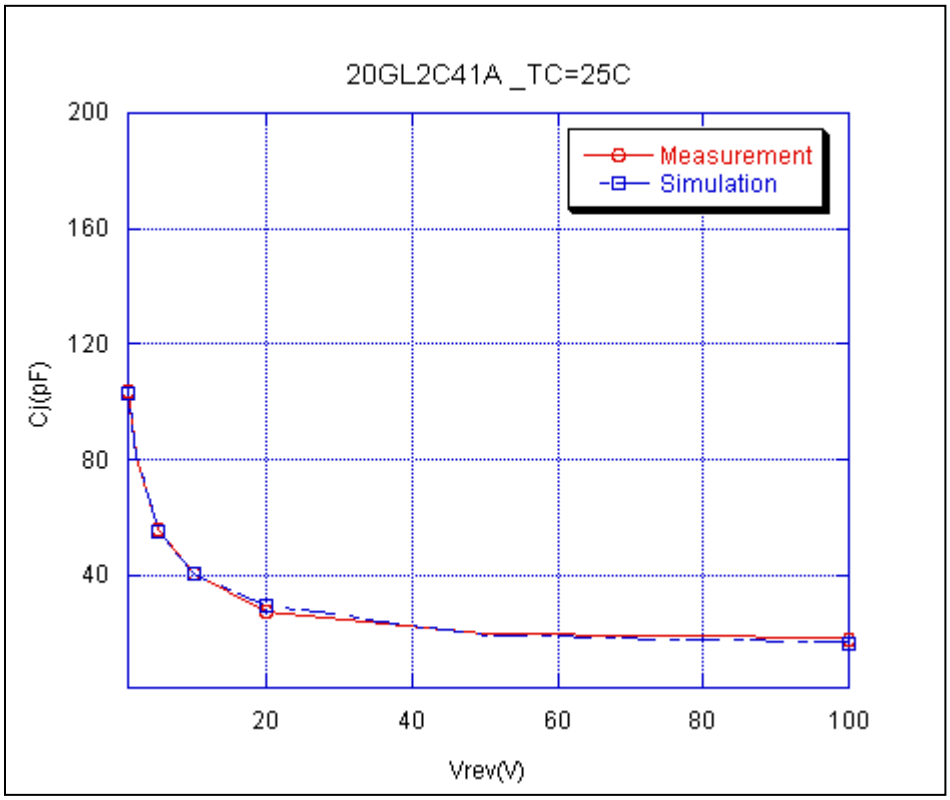


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

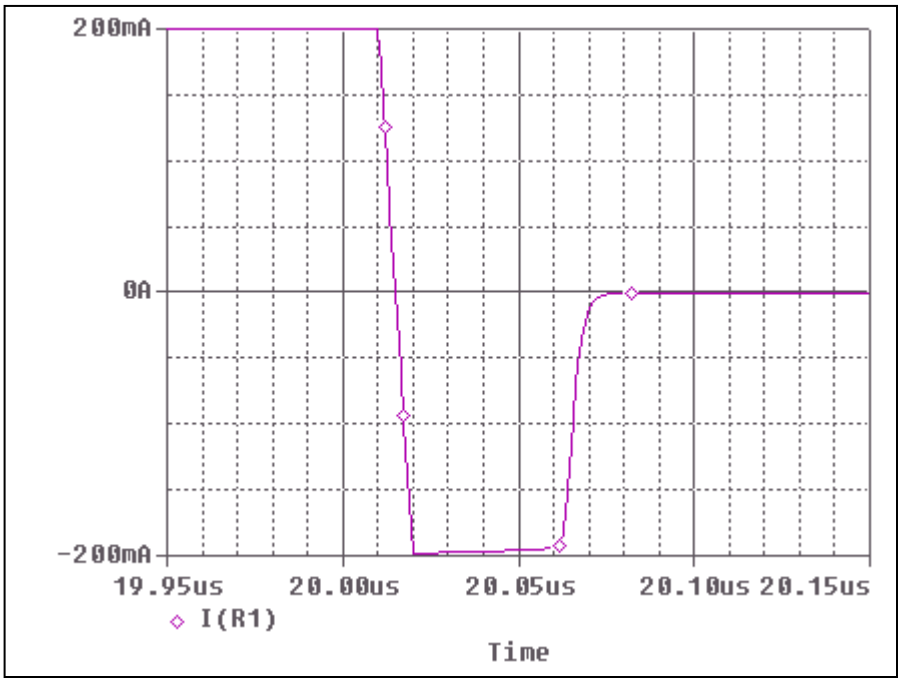


Simulation Result

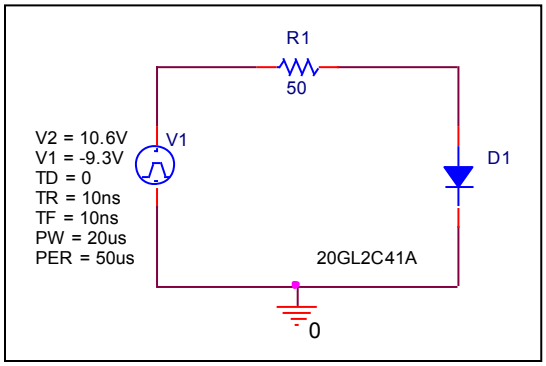
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	170.990	170.990	0.000
1	103.400	102.720	0.658
2	81.550	81.480	0.086
5	55.500	55.050	0.811
10	40.470	40.250	0.544
20	27.600	28.188	-2.130
50	19.930	19.459	2.363
100	17.980	17.222	4.216

Reverse Recovery Characteristic

Circuit Simulation Result



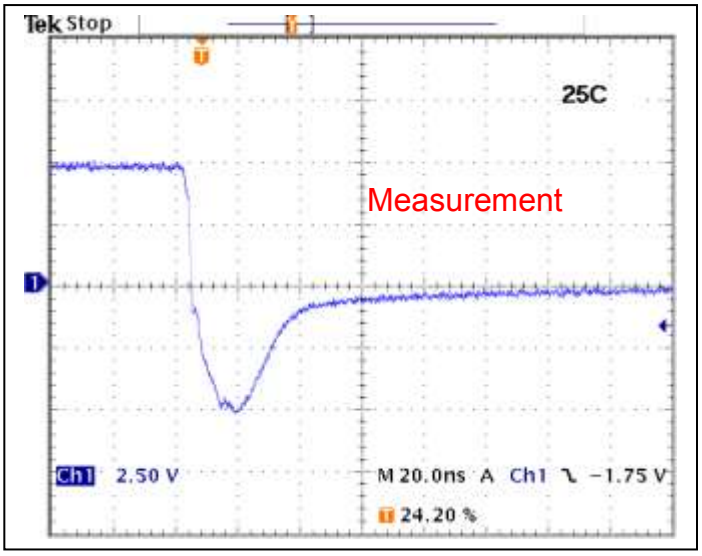
Evaluation Circuit



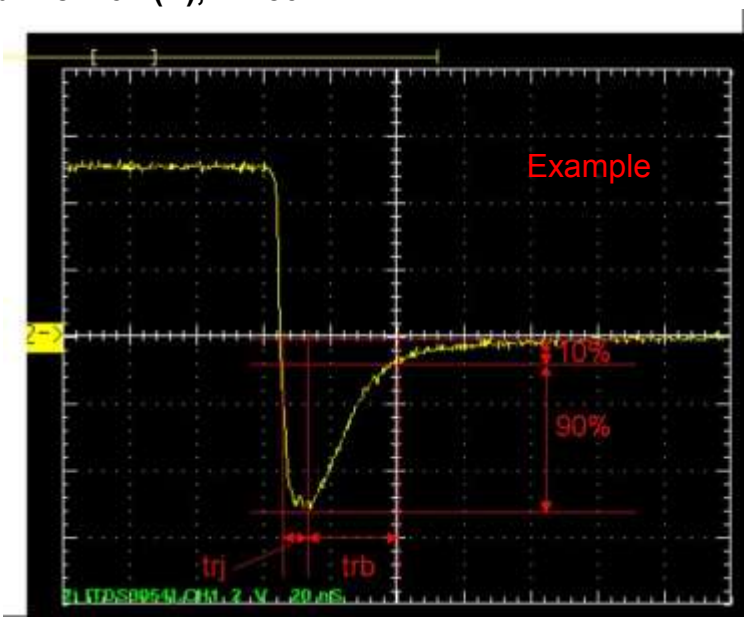
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trr	54.80	ns	53.81	ns	1.80

Reverse Recovery Characteristic Reference



Trj =14.4(ns)
Trb=40.4(ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb