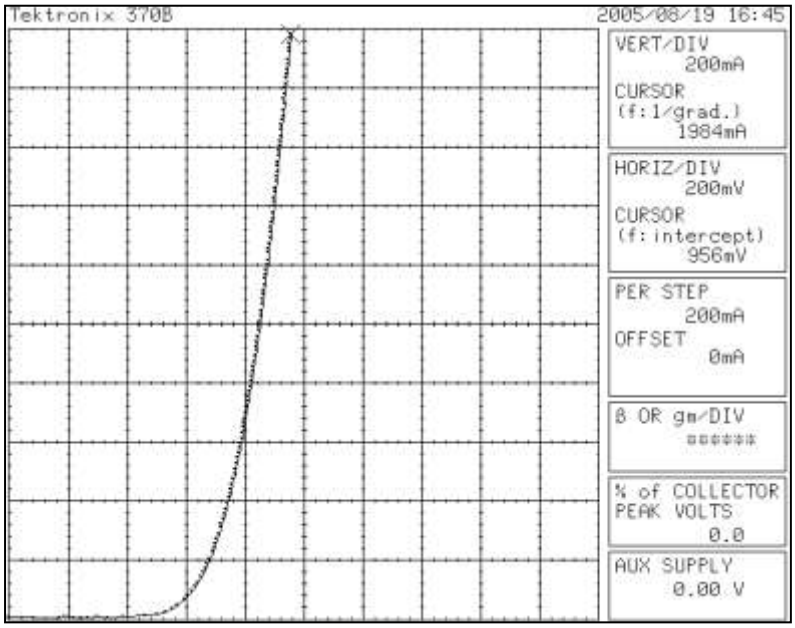
Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ PROFESSIONAL
PART NUMBER: 5GLZ47A
MANUFACTURER: TOSHIBA
REMARK: TC=25C

Bee Technologies Inc.

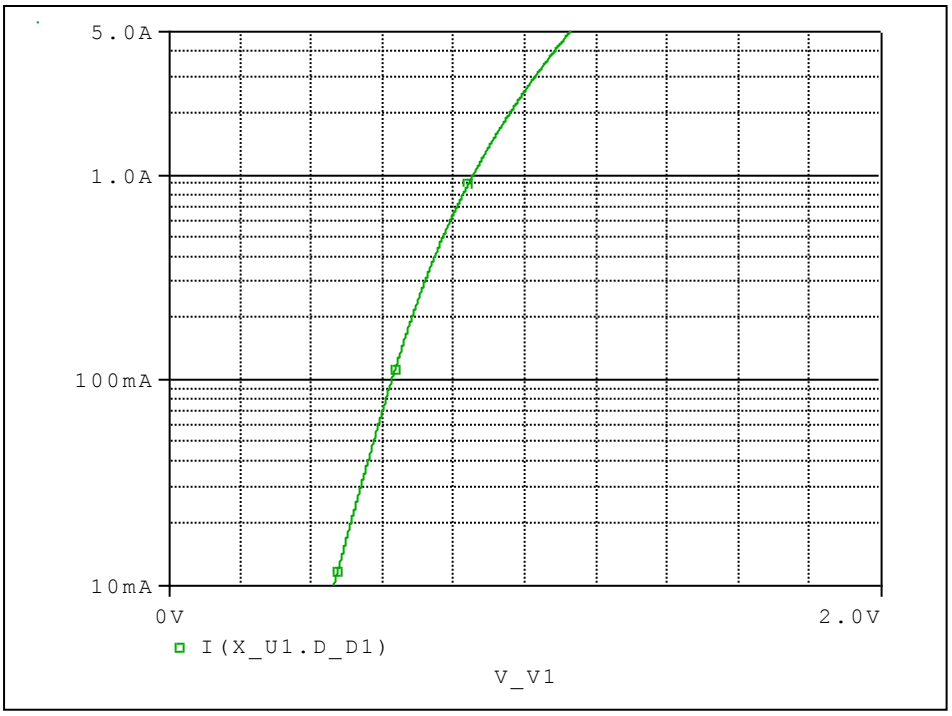
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic Reference

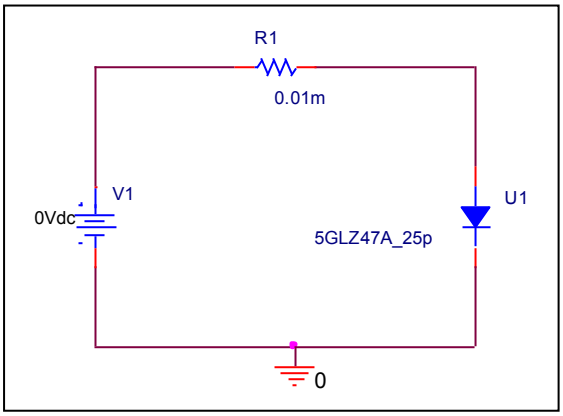


Forward Current Characteristic

Circuit Simulation Result

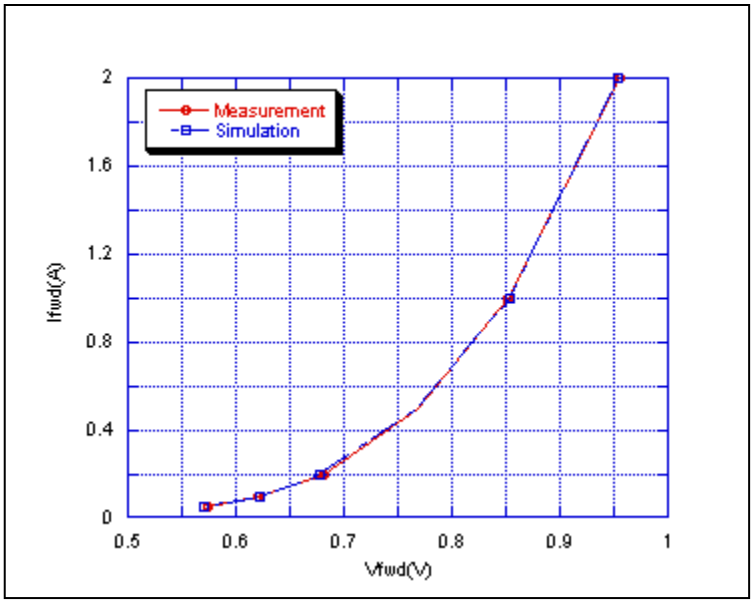


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

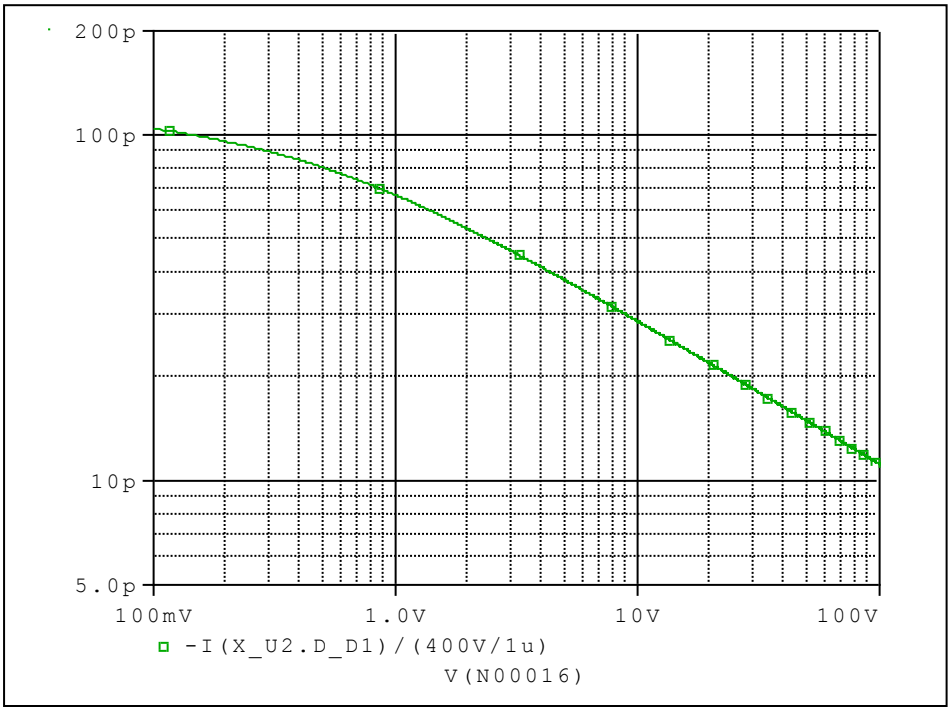


Simulation Result

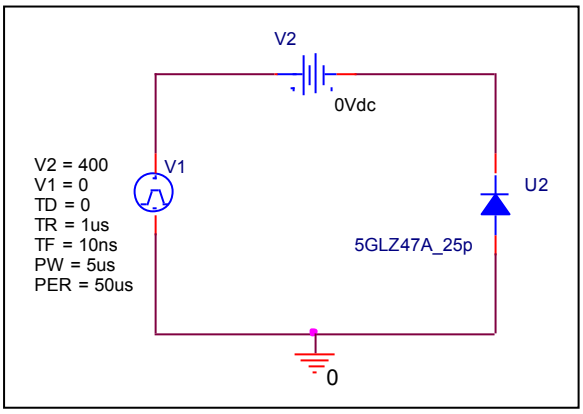
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.05	0.574	0.571	0.523
0.1	0.620	0.623	-0.484
0.2	0.682	0.678	0.587
0.5	0.768	0.766	0.260
1	0.852	0.853	-0.117
2	0.956	0.954	0.209

Capacitance Characteristic

Circuit Simulation Result

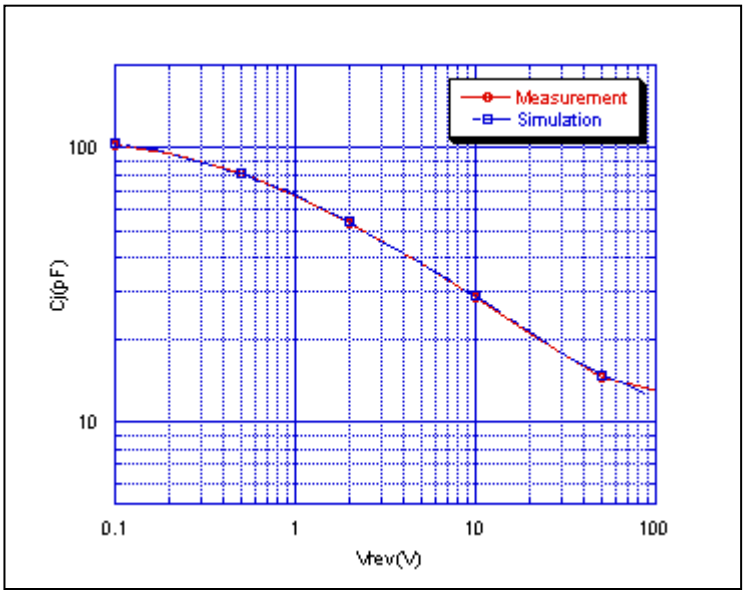


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

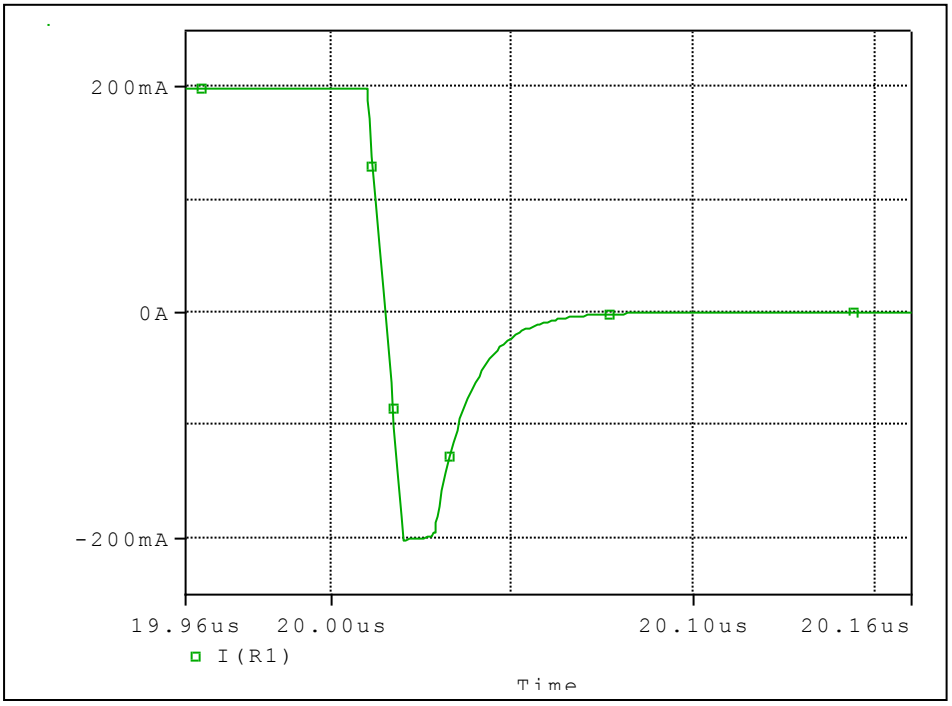


Simulation Result

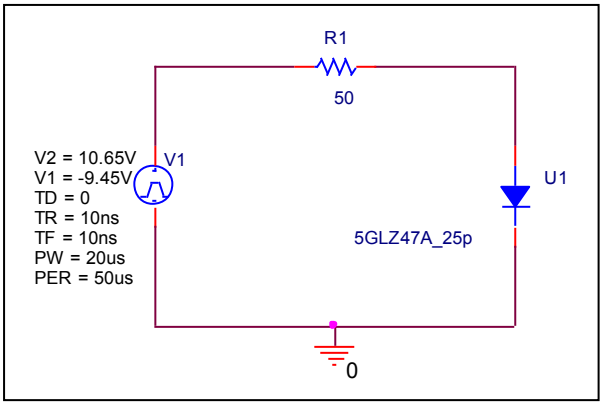
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	112.200	112.200	0.000
0.1	103.200	104.100	-0.872
0.2	95.600	95.800	-0.209
0.5	80.200	80.400	-0.249
1	67.000	66.900	0.149
2	53.500	53.600	-0.187
5	38.000	38.100	-0.263
10	28.700	28.900	-0.697
20	20.900	21.500	-2.871
50	14.500	14.800	-2.069
100	13.000	12.400	4.615

Reverse Recovery Characteristic

Circuit Simulation Result



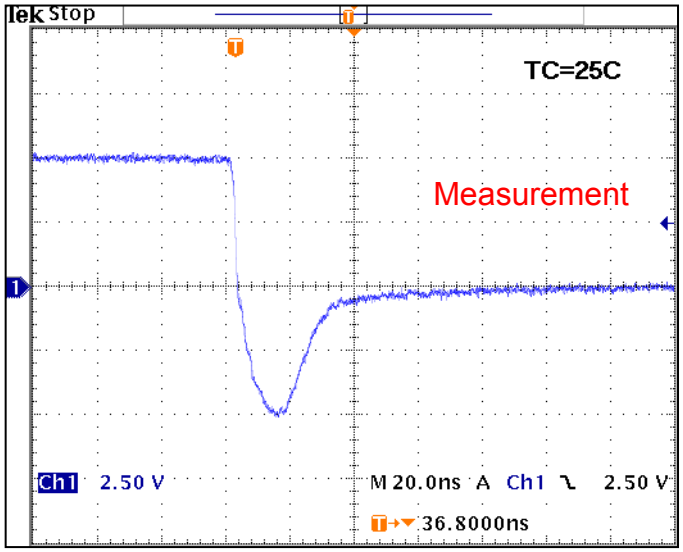
Evaluation Circuit



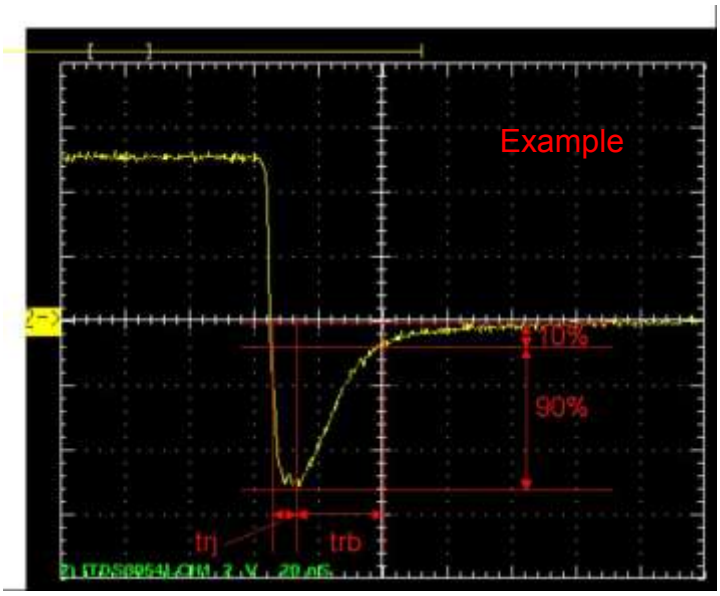
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	**12.80**	**ns**	**12.36**	**ns**	**3.43**
trb	**23.20**	**ns**	**23.04**	**ns**	**0.68**

Reverse Recovery Characteristic Reference



Trj =12.8 (ns)
Trb= 23.2 (ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb