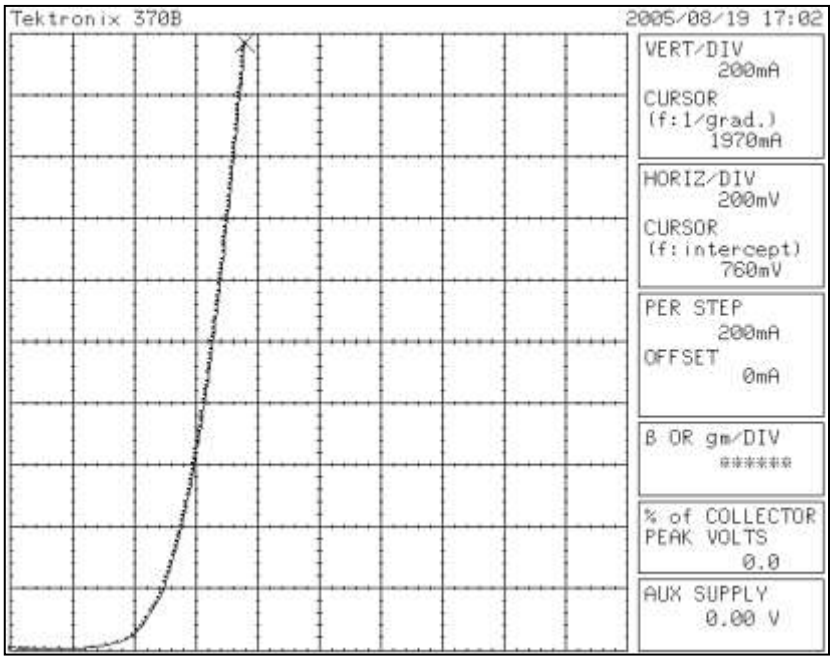
Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ PROFESSIONAL
PART NUMBER: 5GLZ47A
MANUFACTURER: TOSHIBA
REMARK: TC=150C

Bee Technologies Inc.

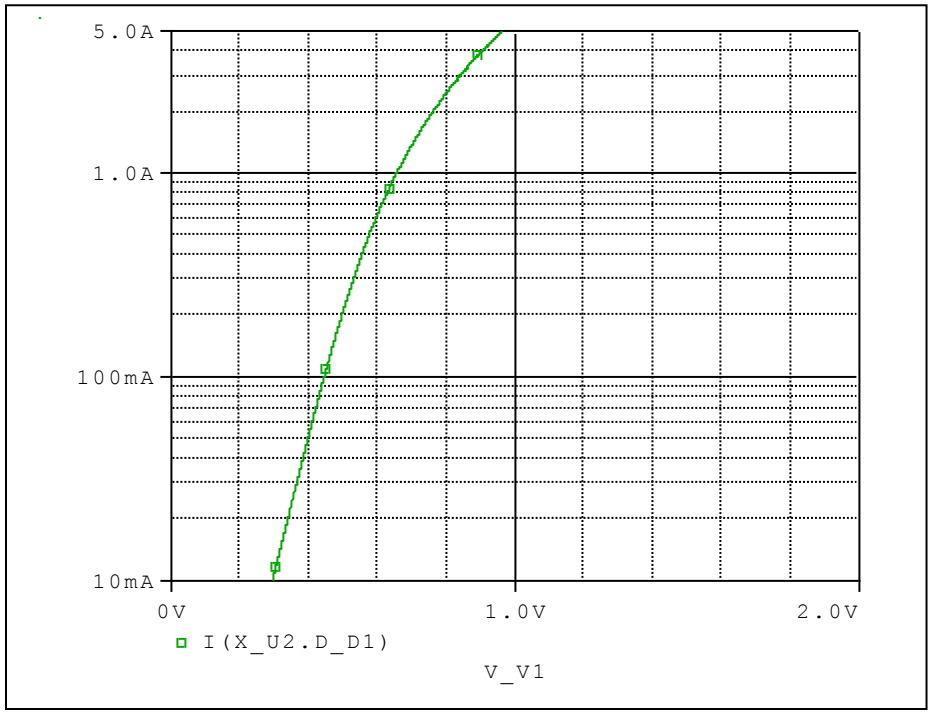
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic Reference

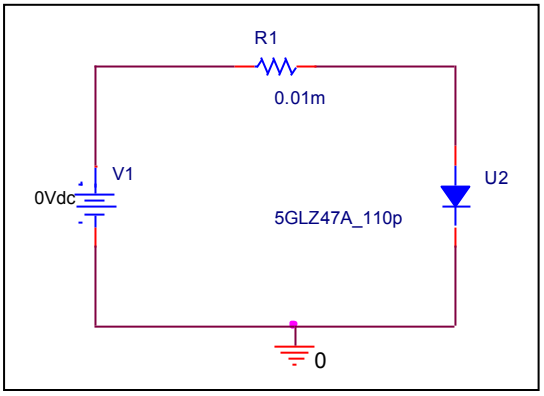


Forward Current Characteristic

Circuit Simulation Result

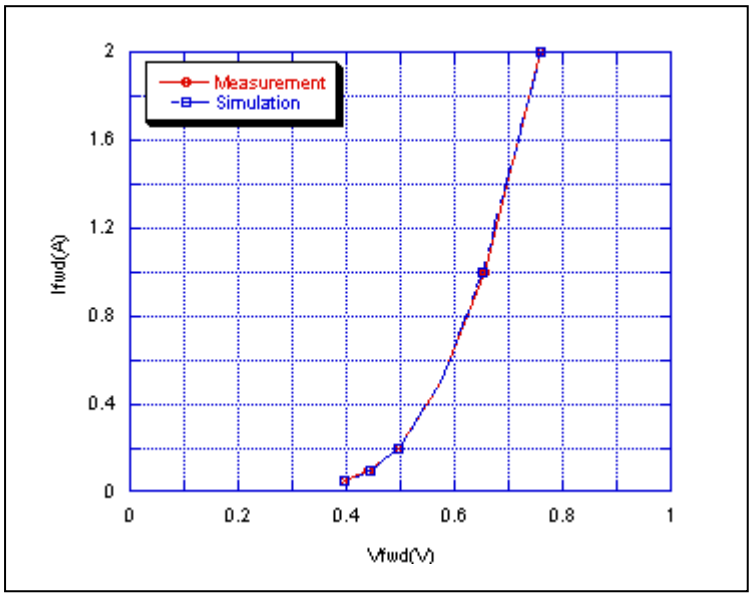


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

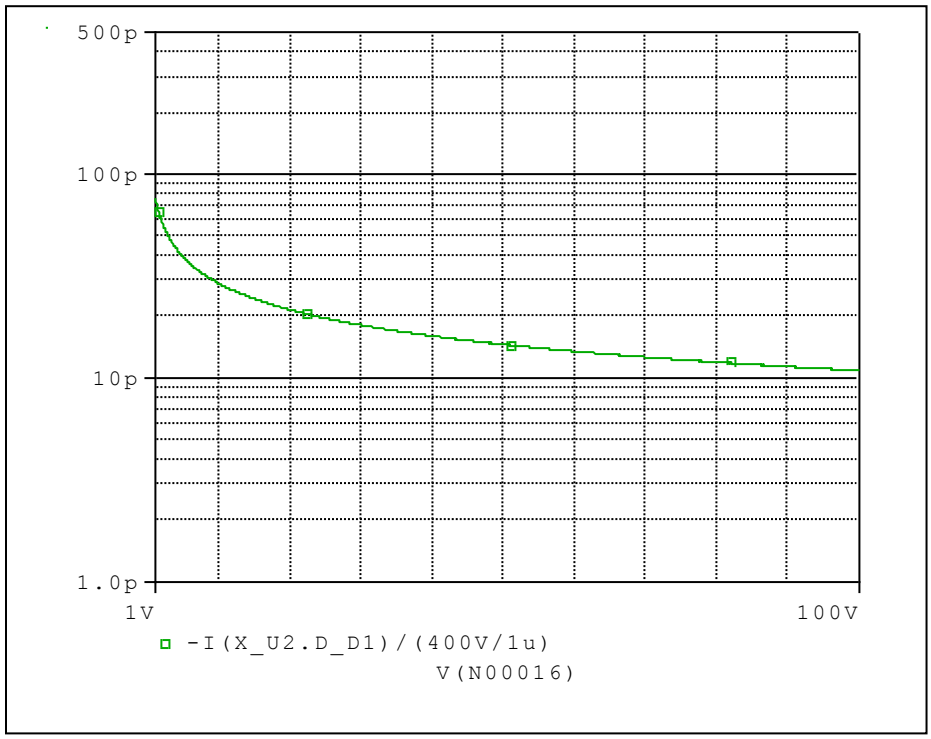


Simulation Result

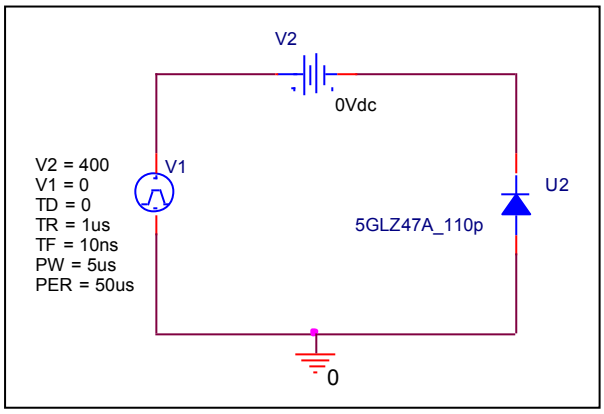
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.05	0.398	0.397	0.251
0.1	0.442	0.444	-0.452
0.2	0.496	0.495	0.202
0.5	0.576	0.575	0.174
1	0.654	0.653	0.153
2	0.760	0.755	0.658

Capacitance Characteristic

Circuit Simulation Result

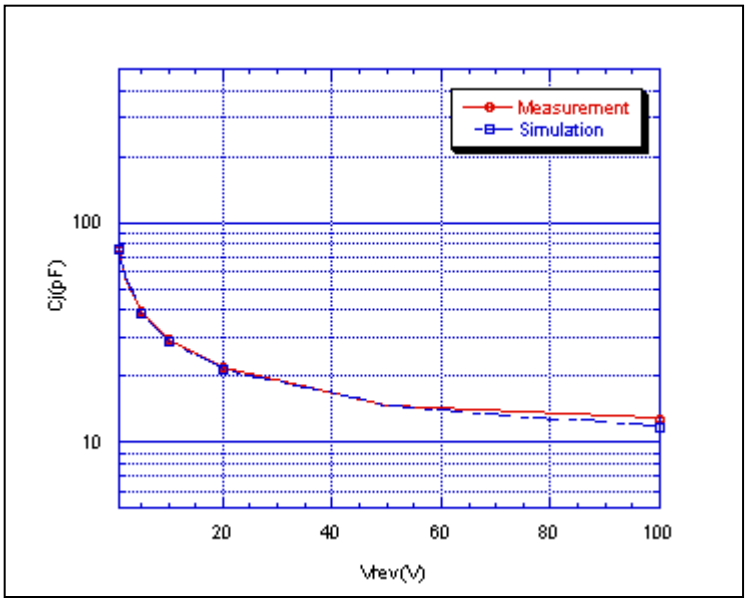


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

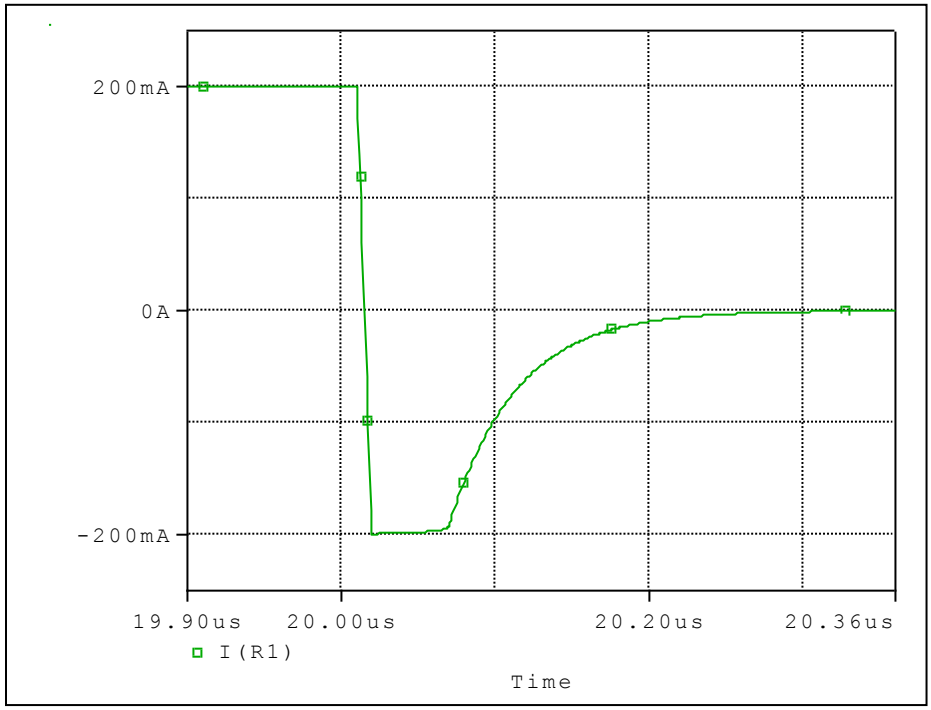


Simulation Result

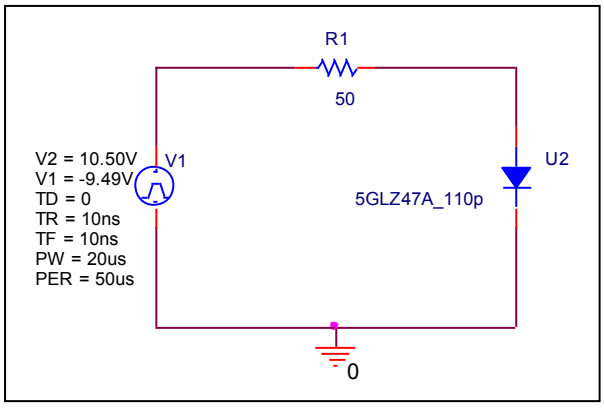
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	215.800	215.800	0.000
1	76.400	76.090	0.406
2	57.000	57.400	-0.702
5	39.500	39.100	1.013
10	29.500	29.100	1.356
20	22.100	21.600	2.262
50	14.700	14.600	0.680

Reverse Recovery Characteristic

Circuit Simulation Result



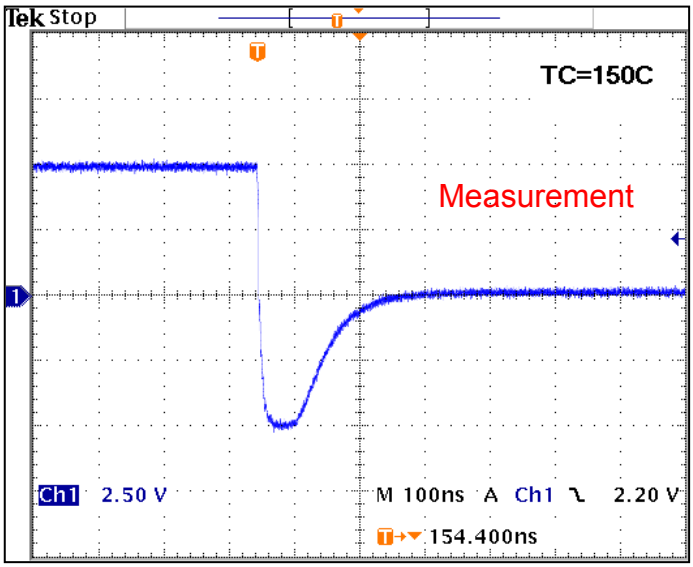
Evaluation Circuit



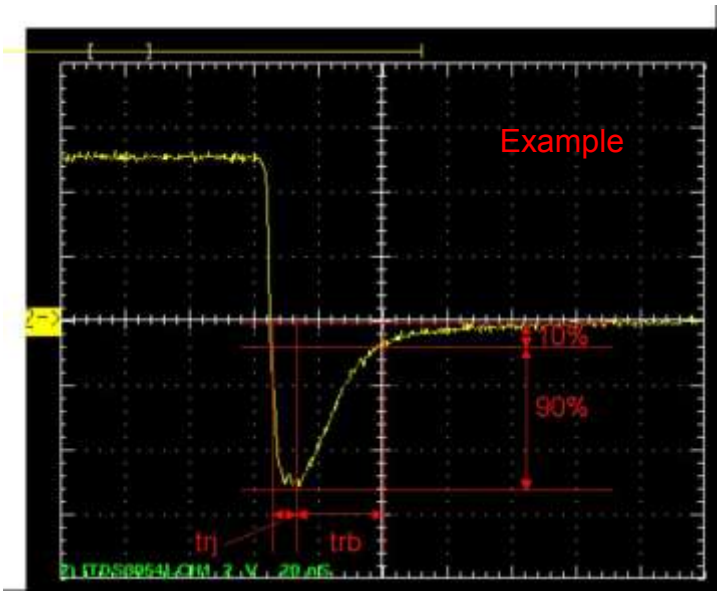
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	**54.00**	**ns**	**54.10**	**ns**	**-0.185**
trb	**100.00**	**ns**	**99.50**	**ns**	**0.500**

Reverse Recovery Characteristic Reference



Trj = 54 (ns)
Trb= 100 (ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb