Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ PROFESSIONAL
PART NUMBER: 5GLZ47A
MANUFACTURER: TOSHIBA
REMARK: TC=110C

Bee Technologies Inc.

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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

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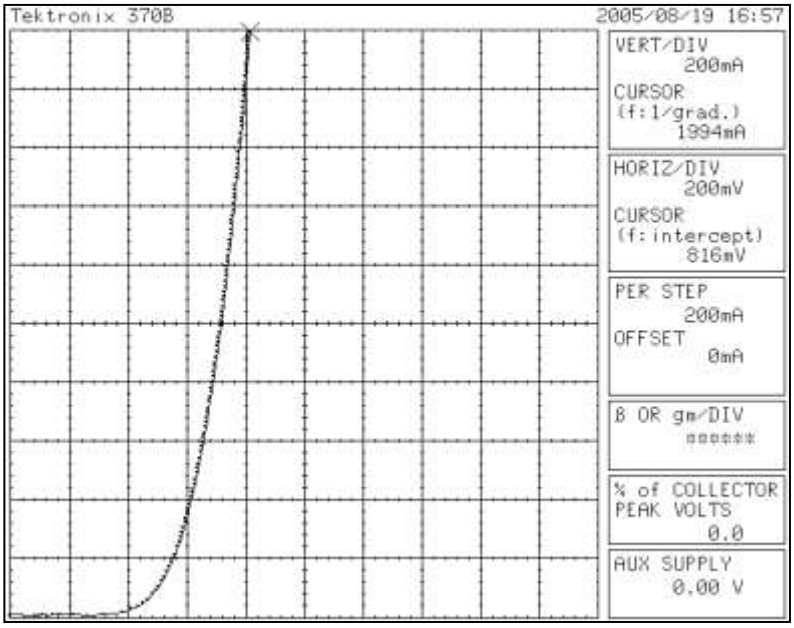
Forward Current Characteristic Reference



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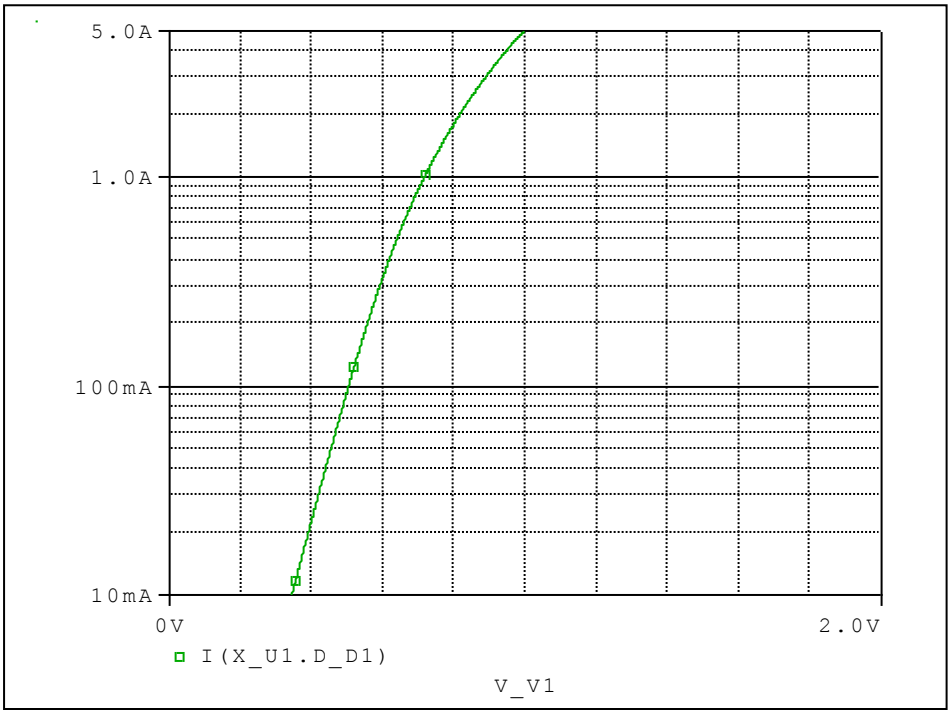
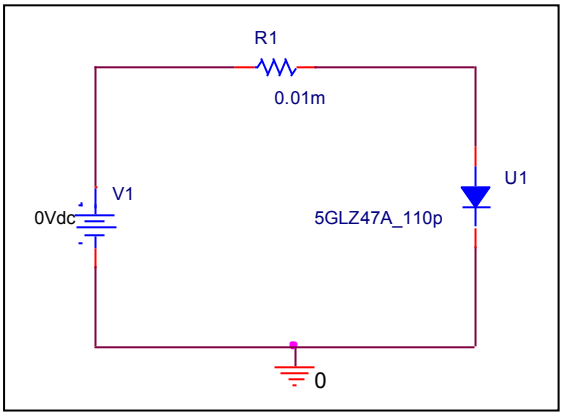
Forward Current Characteristic

Circuit Simulation Result



Evaluation Circuit



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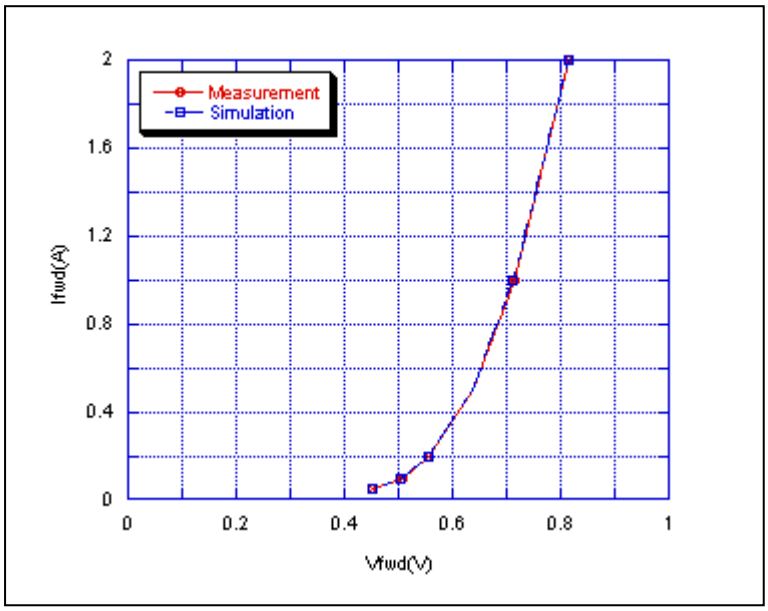
Comparison Graph

Circuit Simulation Result



Simulation Result

Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.05	0.452	0.451	0.221
0.1	0.506	0.503	0.593
0.2	0.554	0.556	-0.361
0.5	0.638	0.637	0.157
1	0.716	0.712	0.559
2	0.816	0.815	0.123

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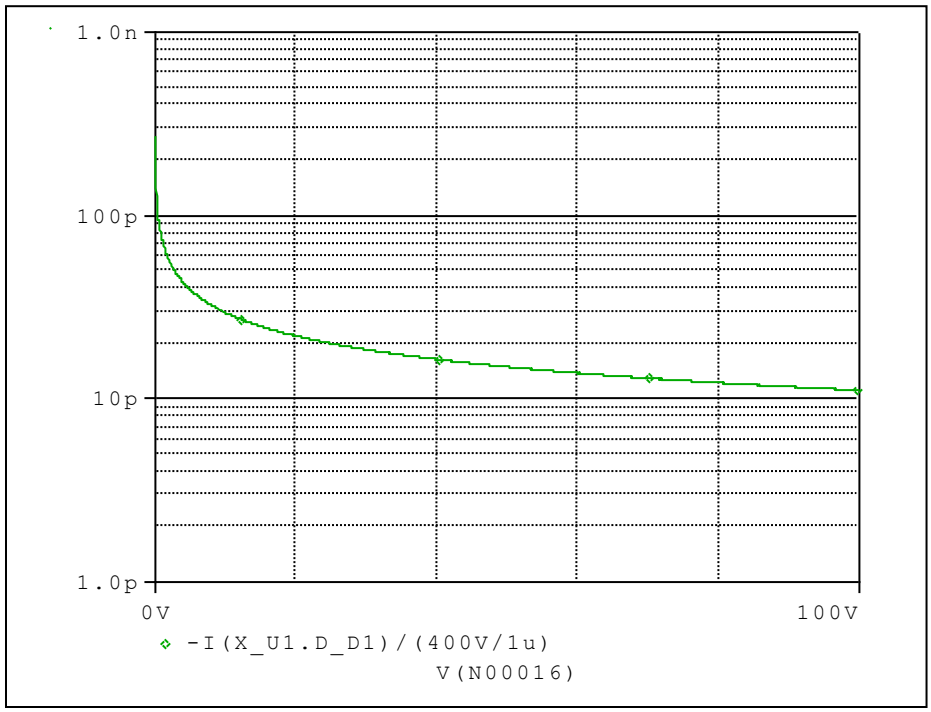
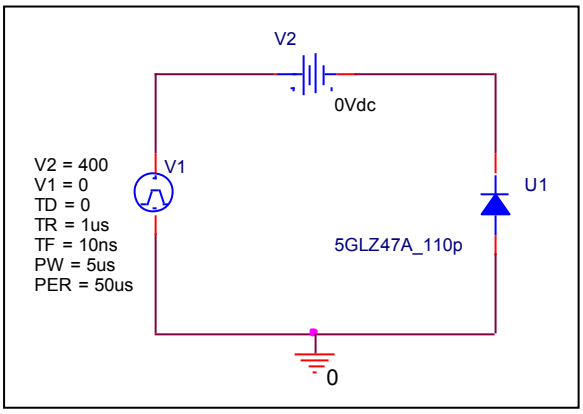
Capacitance Characteristic

Circuit Simulation Result



Evaluation Circuit



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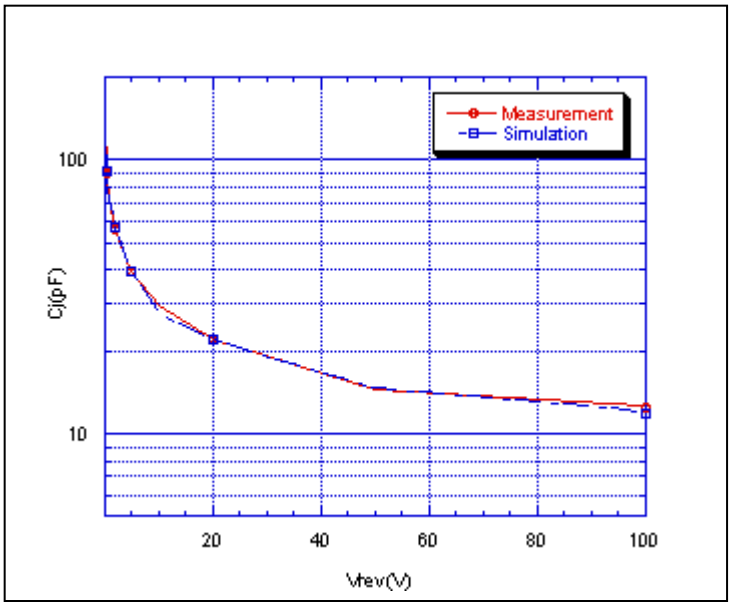
Comparison Graph

Circuit Simulation Result



Simulation Result

Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	143.500	143.500	0.000
0.5	89.800	90.200	-0.445
1	72.100	72.600	-0.693
2	55.600	56.400	-1.439
5	38.900	39.000	-0.257
10	29.300	29.100	0.683
20	22.000	21.800	0.909
50	14.600	14.900	-2.055
100	12.500	11.880	4.960

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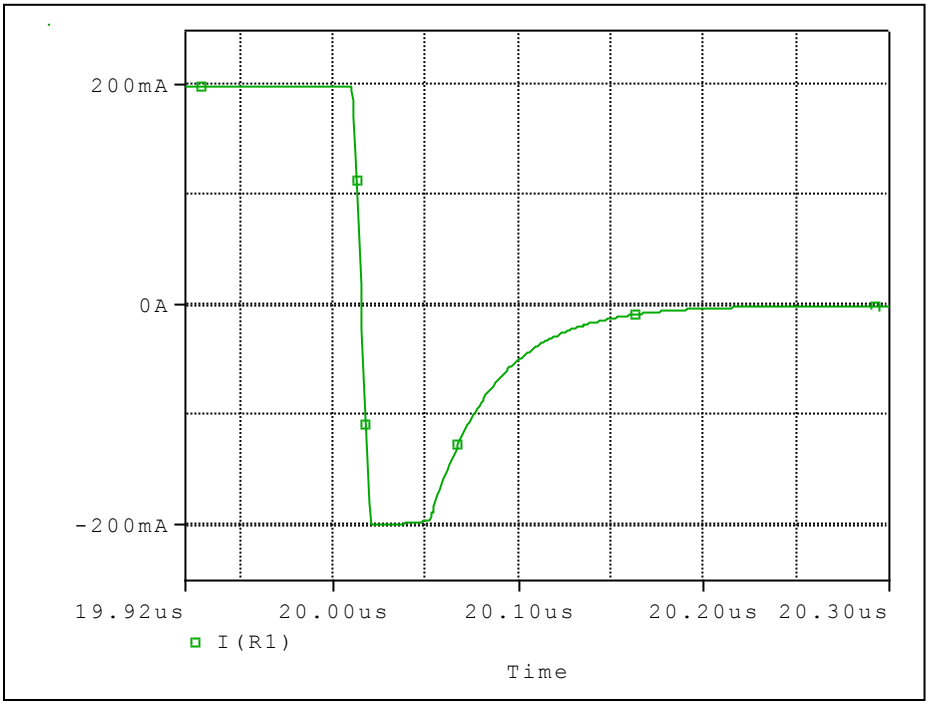
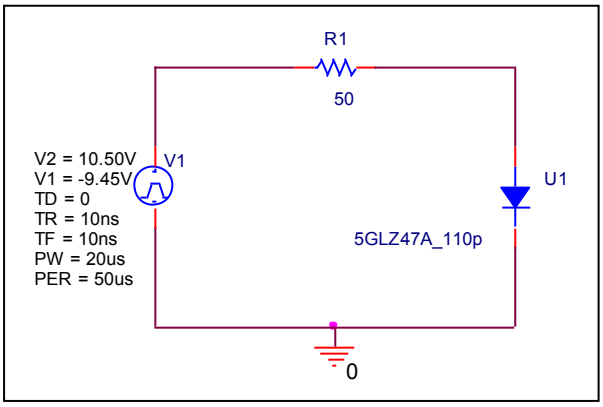
Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit



Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	**36.00**	**ns**	**36.09**	**ns**	**-0.25**
trb	**80.00**	**ns**	**79.86**	**ns**	**0.17**

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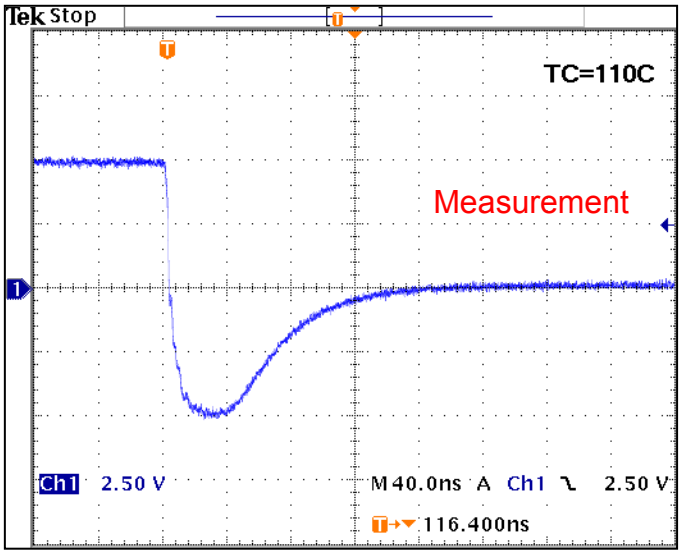
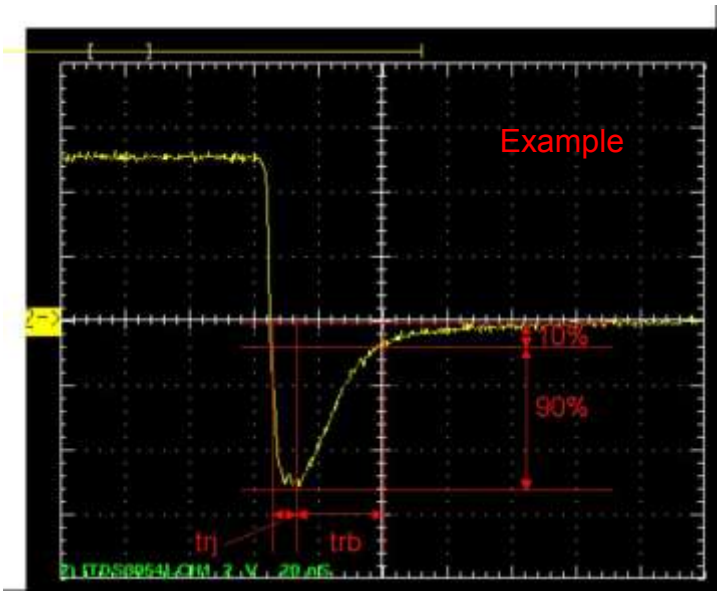
Reverse Recovery Characteristic Reference



Trj =36 (ns)
Trb= 80 (ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb

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