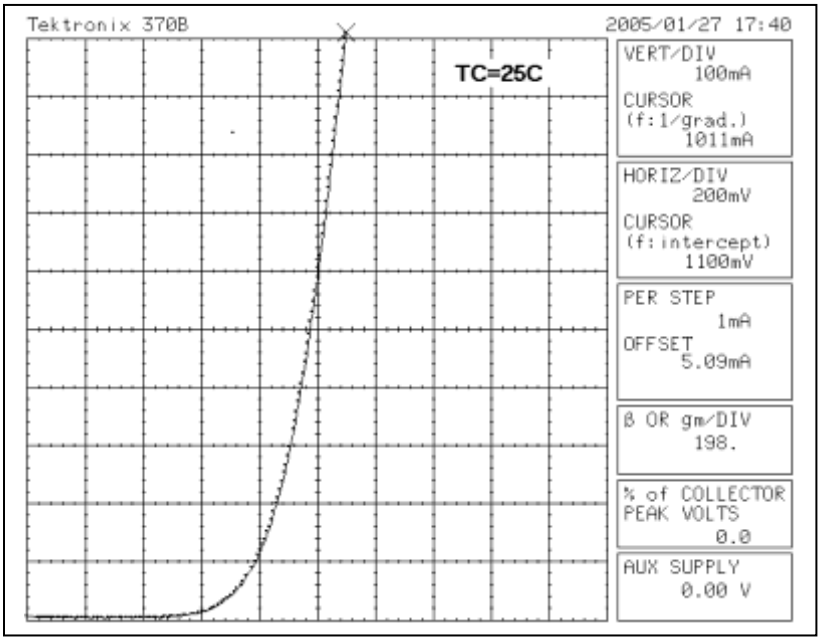
Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / PROFESSIONAL
PART NUMBER: 1SR153-400
MANUFACTURER: ROHM
REMARK: TC=25C

Bee Technologies Inc.

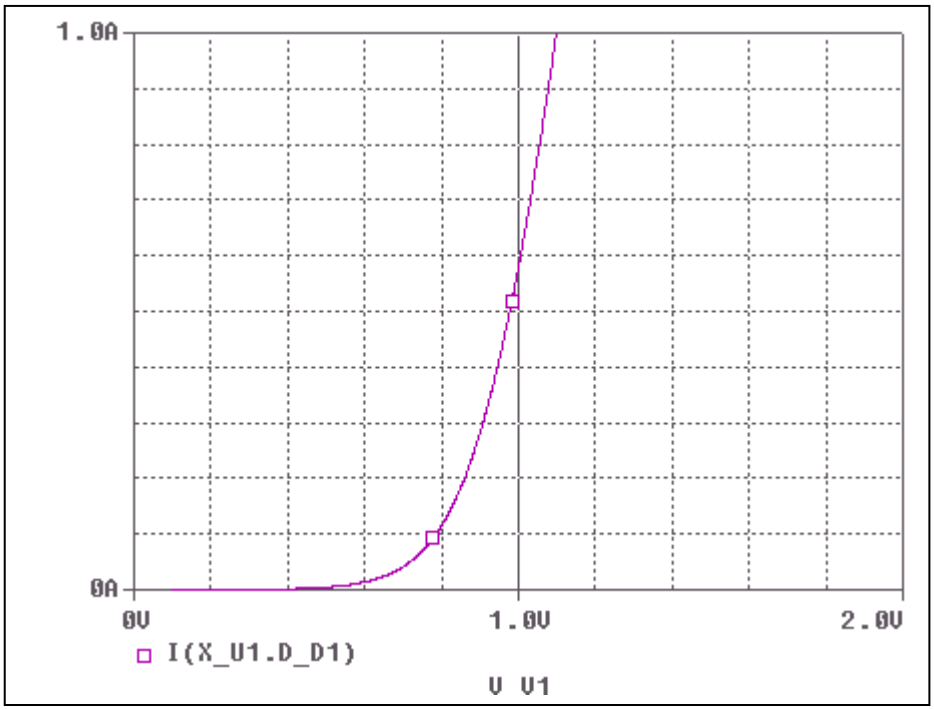
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic Reference

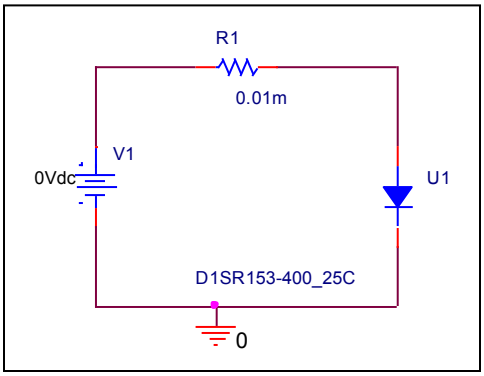


Forward Current Characteristic

Circuit Simulation Result

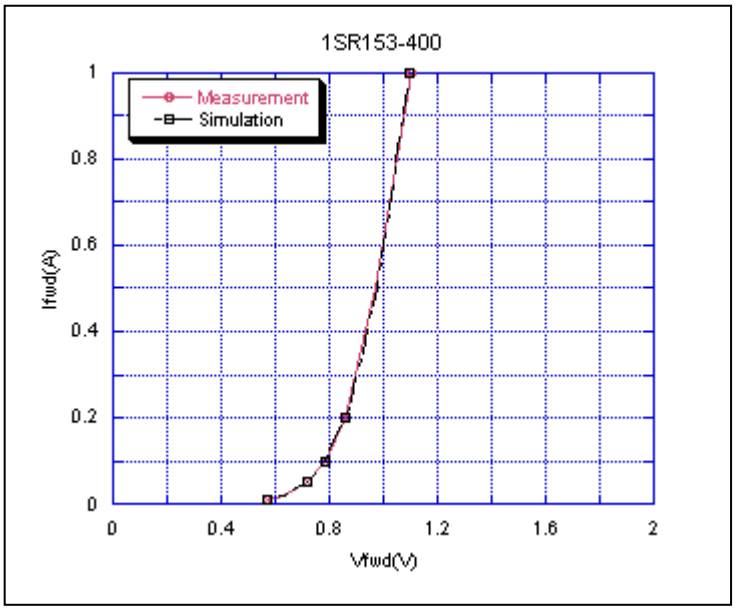


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

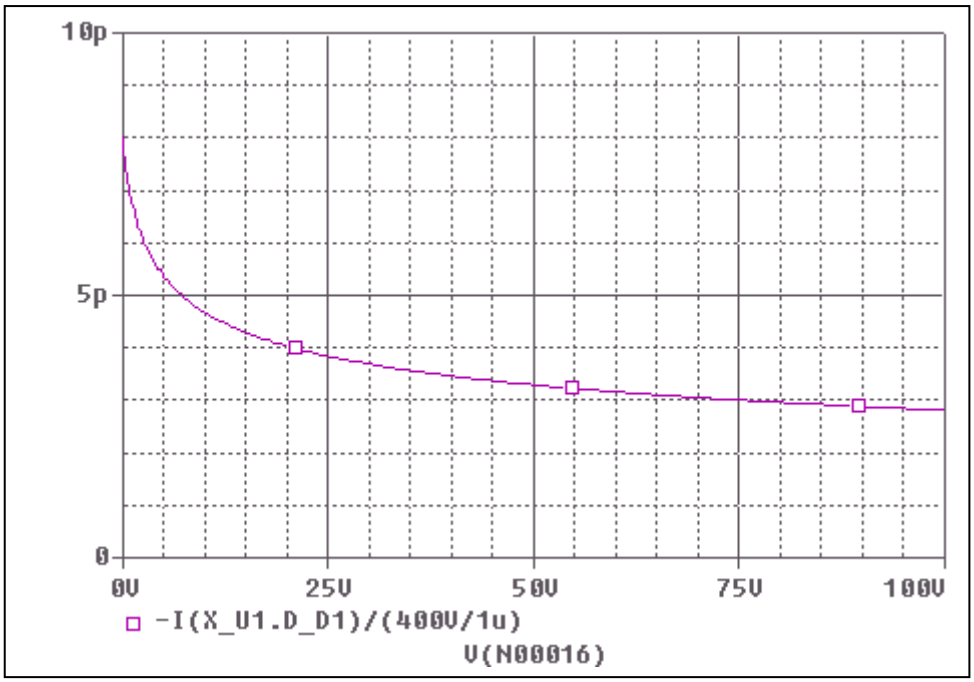


Simulation Result

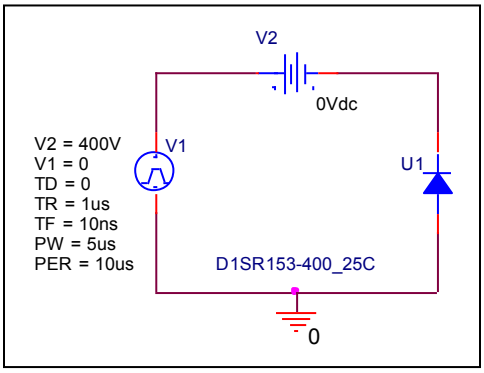
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.570	0.570	0.00
0.02	0.632	0.632	0.00
0.05	0.718	0.717	0.14
0.1	0.788	0.785	0.38
0.2	0.860	0.859	0.12
0.5	0.974	0.977	-0.31
1	1.100	1.098	0.18

Capacitance Characteristic

Circuit Simulation Result

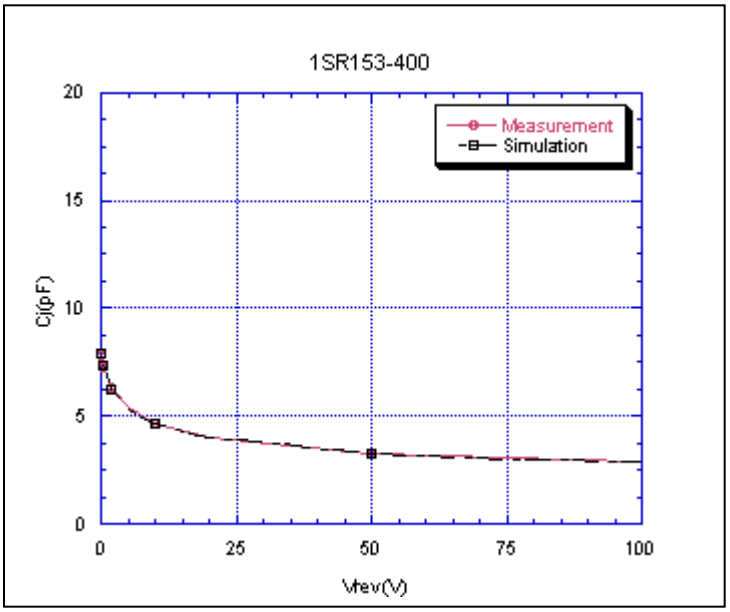


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

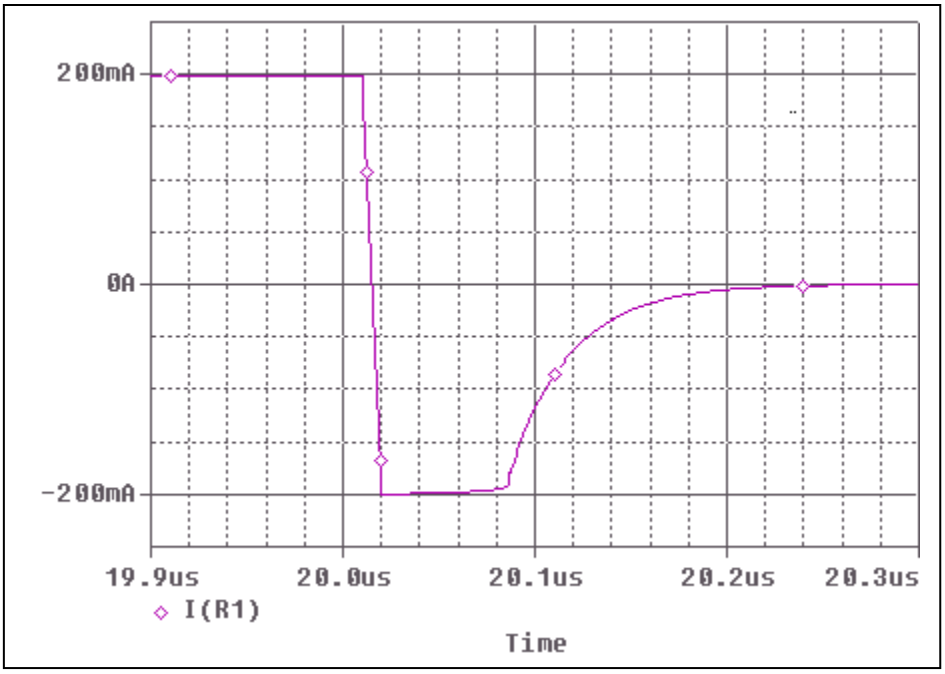


Simulation Result

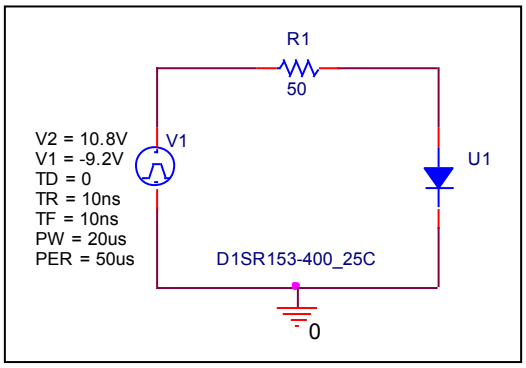
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	8.103	8.103	0.00
0.1	7.780	7.929	-1.92
0.2	7.610	7.724	-1.50
0.5	7.244	7.325	-1.12
1	6.857	6.843	0.20
2	6.335	6.271	1.01
5	5.404	5.350	1.00
10	4.683	4.683	0.00
20	4.053	4.032	0.52
50	3.272	3.294	-0.67
100	2.794	2.811	-0.61

Reverse Recovery Characteristic

Circuit Simulation Result



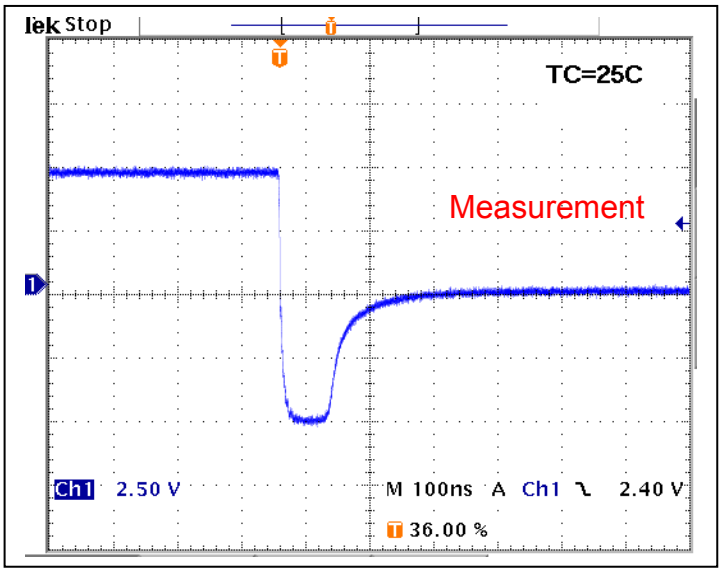
Evaluation Circuit



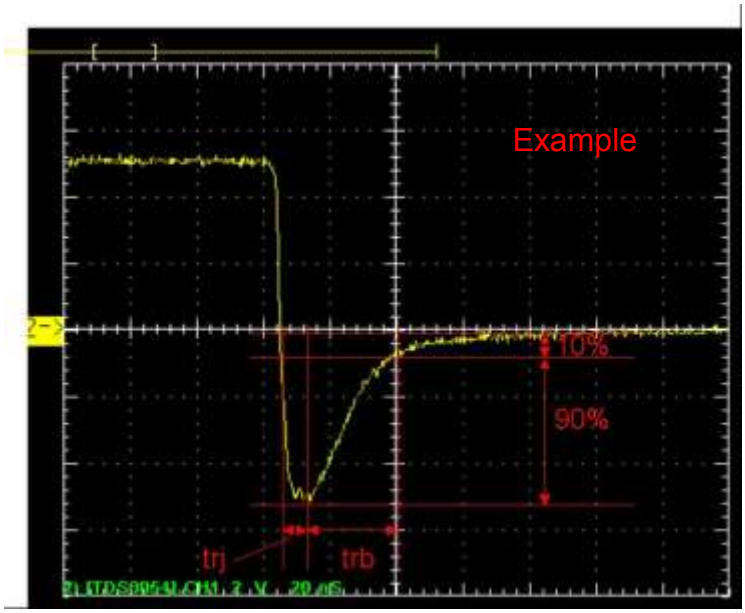
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	**70.00**	**ns**	**69.58**	**ns**	**0.60**
trb	**72.00**	**ns**	**71.76**	**ns**	**0.33**

Reverse Recovery Characteristic Reference



Trj =70(ns)
Trb=72(ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb