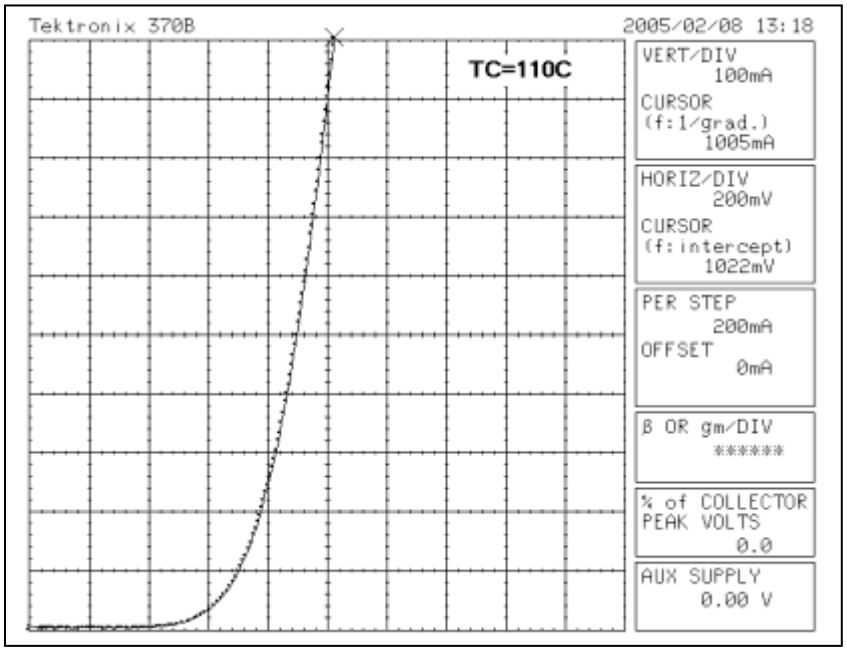
Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / PROFESSIONAL
PART NUMBER: 1SR156-400
MANUFACTURER: ROHM
REMARK: TC=110C

Bee Technologies Inc.

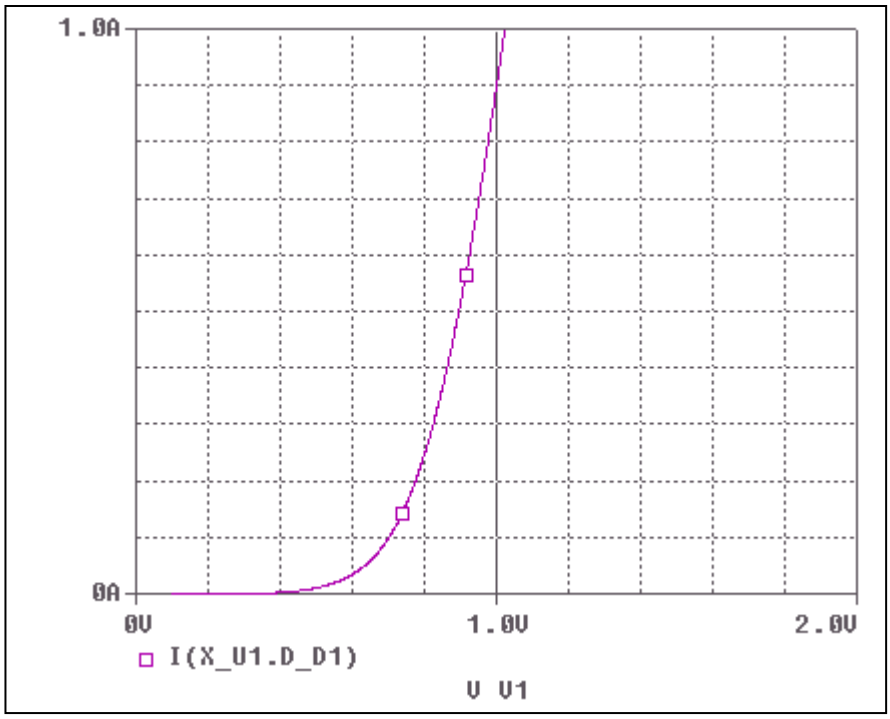
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic Reference

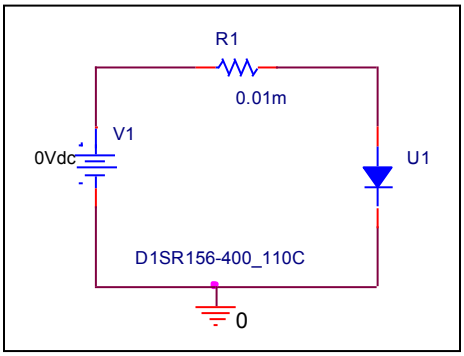


Forward Current Characteristic

Circuit Simulation Result

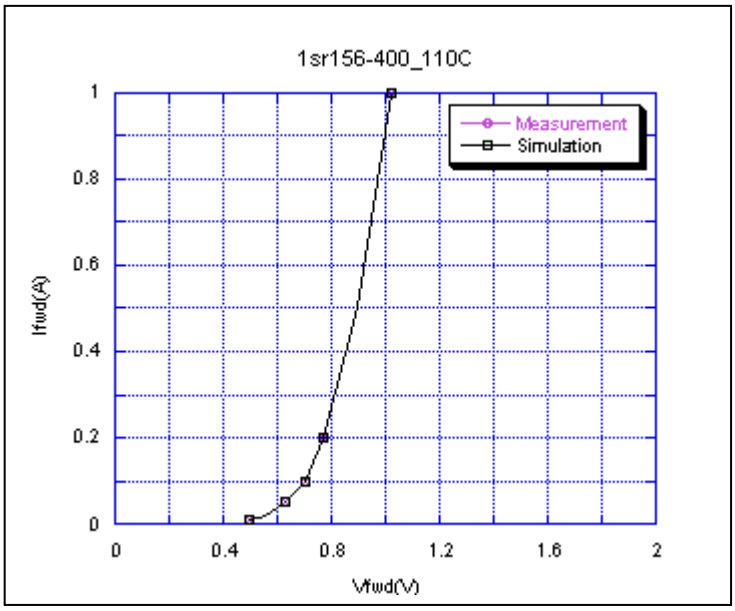


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

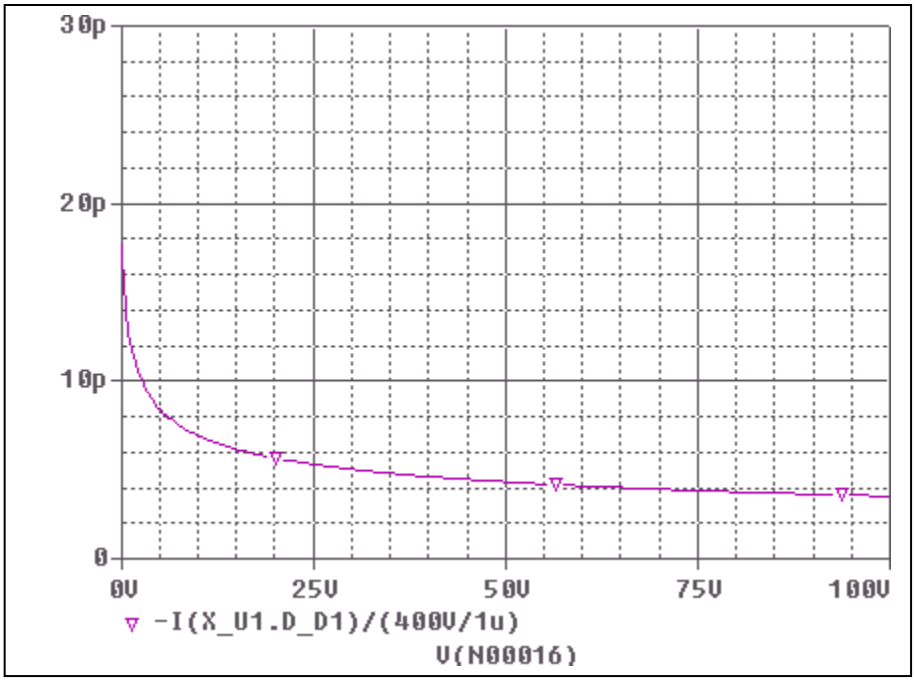


Simulation Result

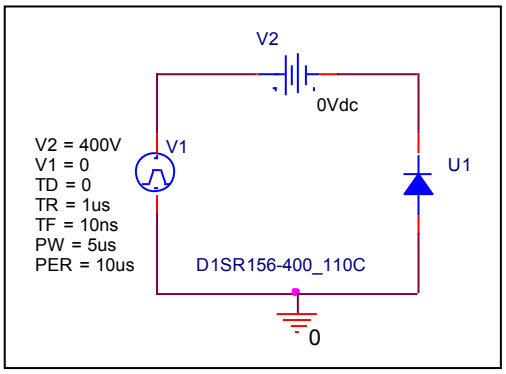
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.496	0.496	0.00
0.02	0.556	0.553	0.54
0.05	0.632	0.633	-0.16
0.1	0.702	0.703	-0.14
0.2	0.774	0.771	0.39
0.5	0.898	0.897	0.11
1	1.022	1.022	0.00

Capacitance Characteristic

Circuit Simulation Result

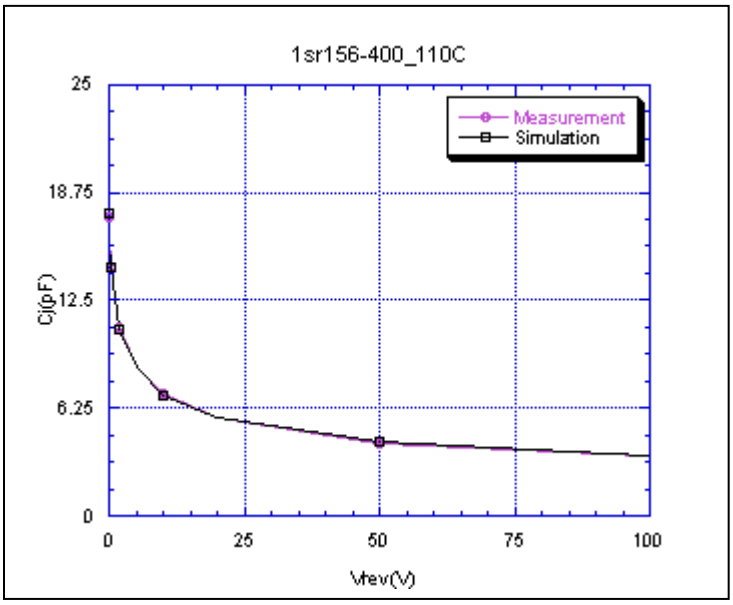


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

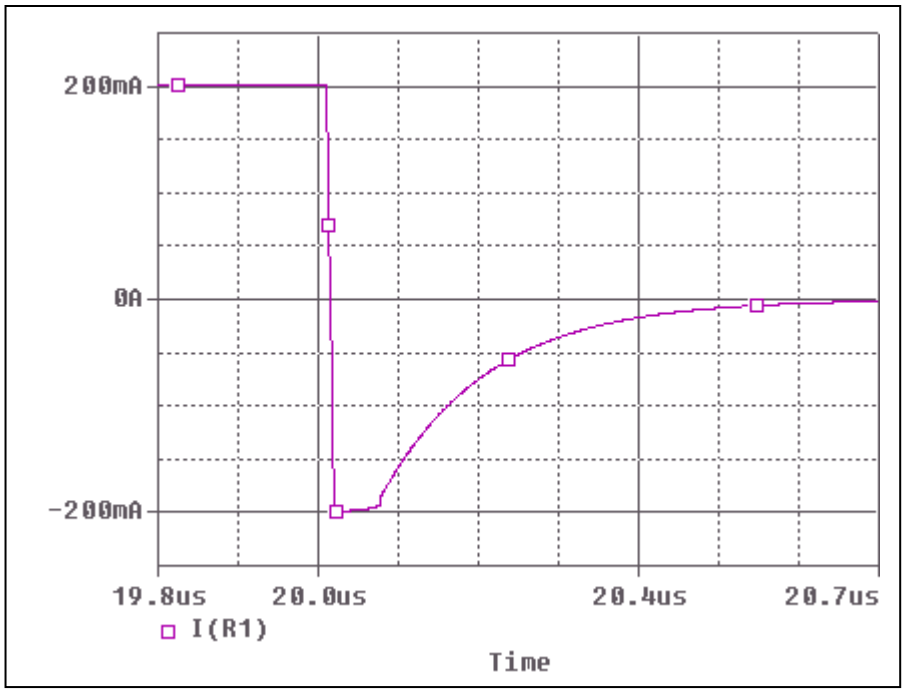


Simulation Result

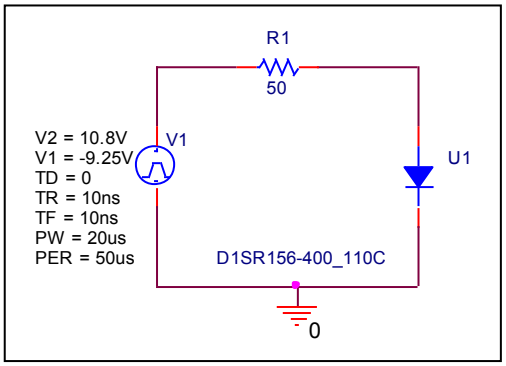
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	18.806	18.806	0.00
0.1	17.293	17.479	-1.08
0.2	16.346	15.908	2.68
0.5	14.391	14.417	-0.18
1	12.700	12.706	-0.05
2	10.896	10.794	0.94
5	8.614	8.592	0.26
10	7.042	6.948	1.33
20	5.666	5.674	-0.14
50	4.202	4.322	-2.86
100	3.389	3.420	-0.91

Reverse Recovery Characteristic

Circuit Simulation Result



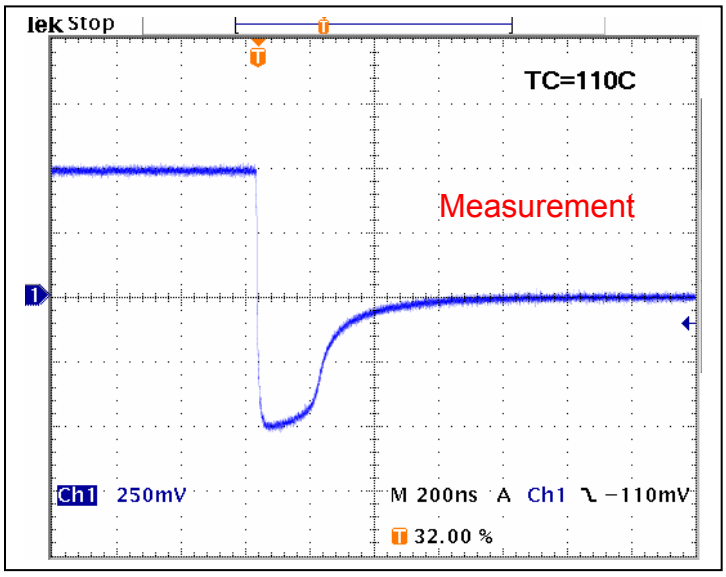
Evaluation Circuit



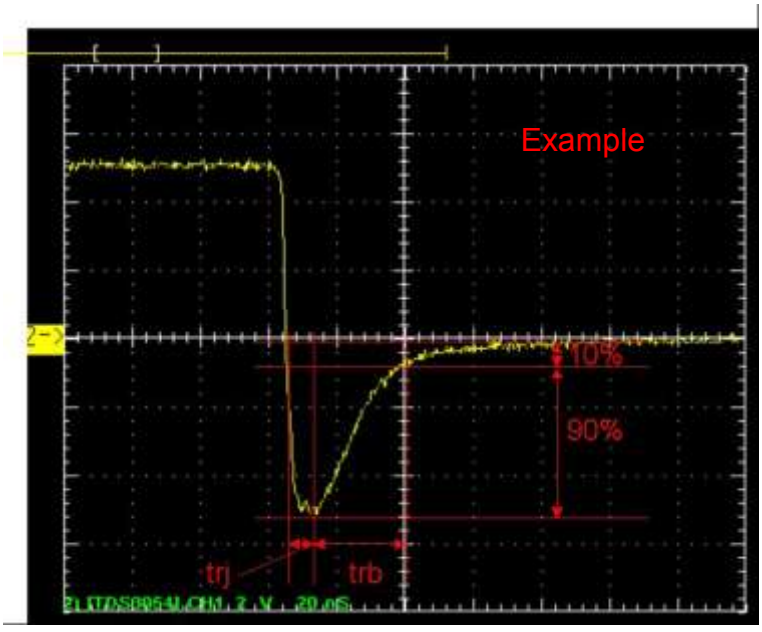
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	**60.0**	**ns**	**59.6**	**ns**	**0.66**
trb	**300.0**	**ns**	**303.0**	**ns**	**1.00**

Reverse Recovery Characteristic Reference



Trj =60(ns)
Trb=300(ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb