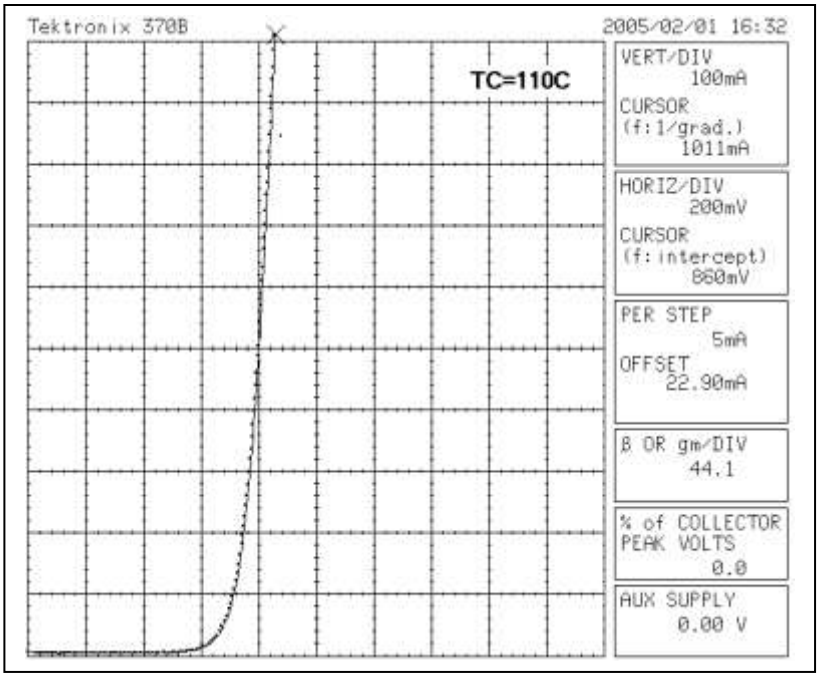
Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / STANDARD
PART NUMBER: 1SR154-400
MANUFACTURER: ROHM
REMARK: TC=110C

Bee Technologies Inc.

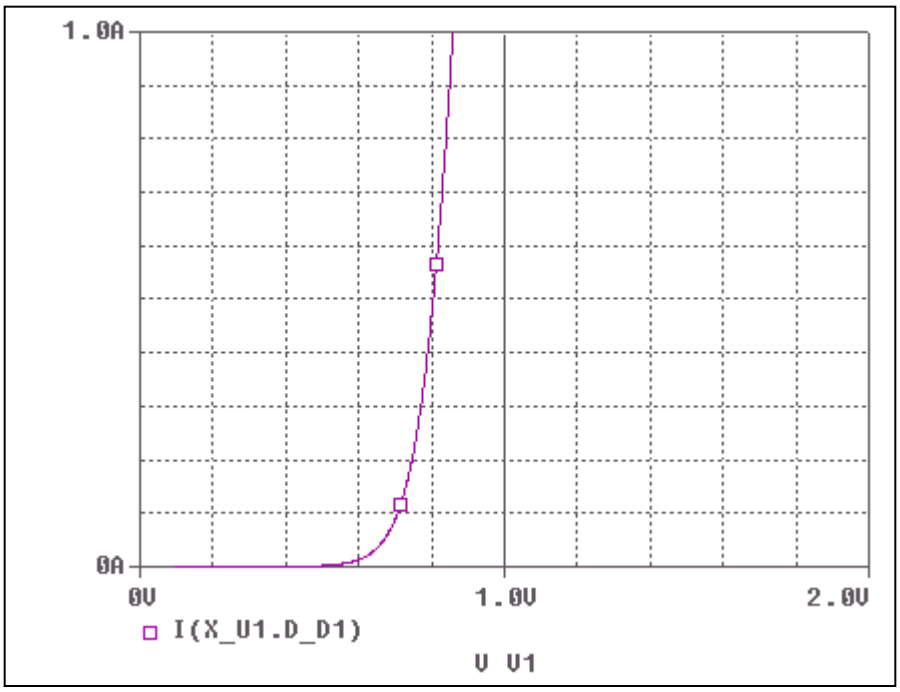
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic Reference

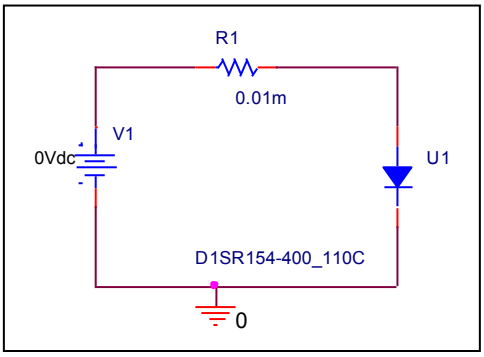


Forward Current Characteristic

Circuit Simulation Result

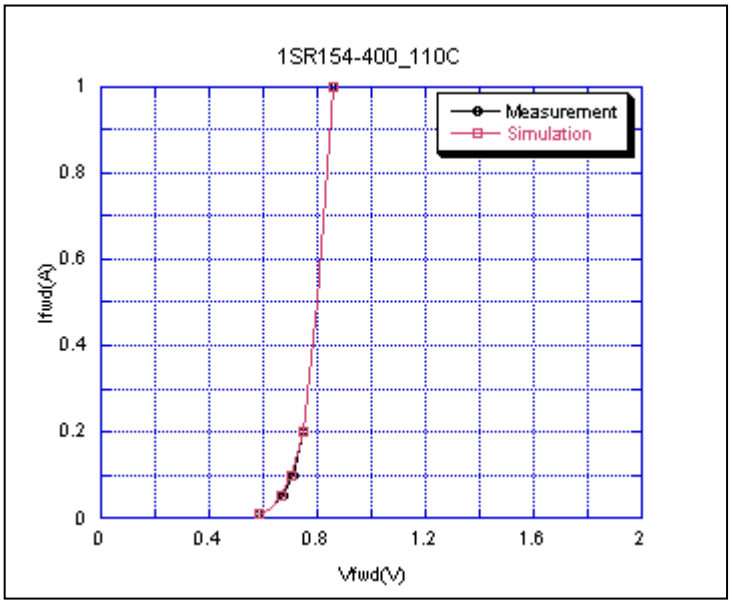


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

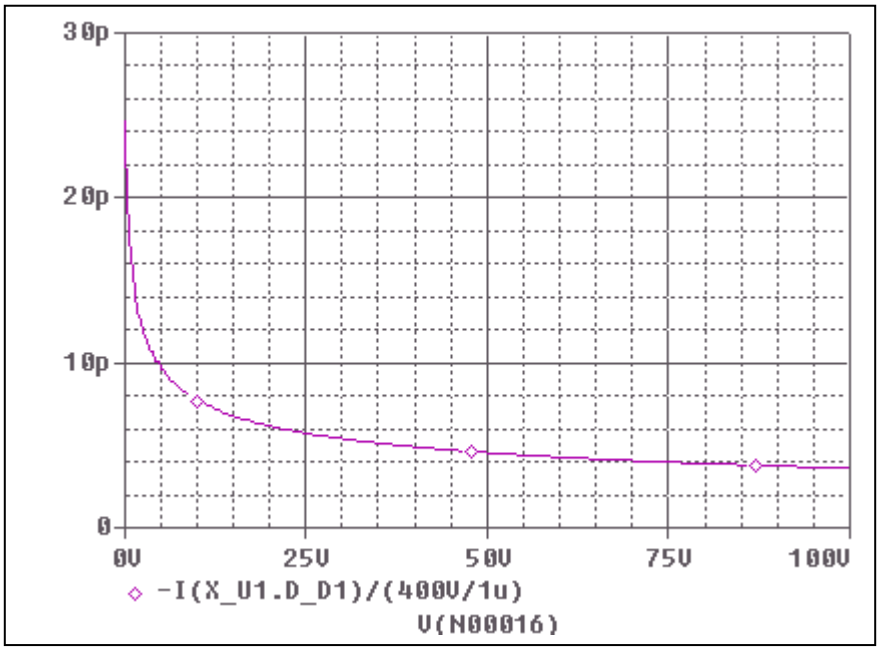


Simulation Result

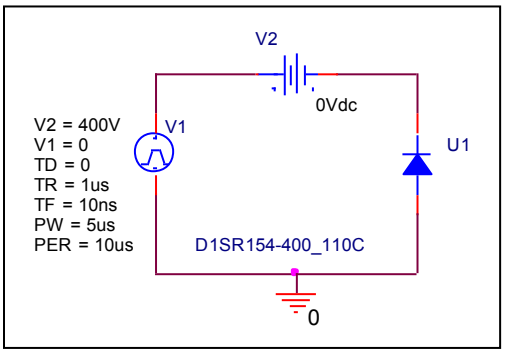
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.585	0.585	0.00
0.02	0.620	0.621	-0.16
0.05	0.671	0.669	0.30
0.1	0.710	0.706	0.56
0.2	0.746	0.746	0.00
0.5	0.800	0.804	-0.50
1	0.860	0.858	0.23

Capacitance Characteristic

Circuit Simulation Result

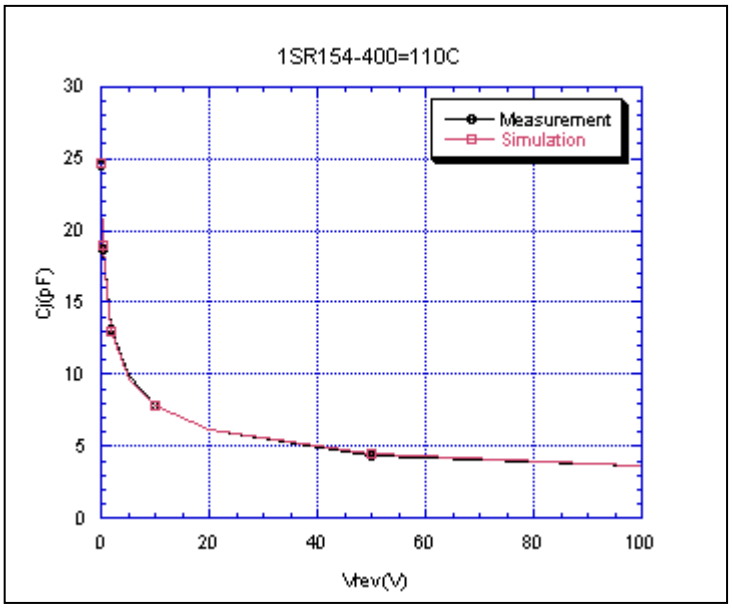


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

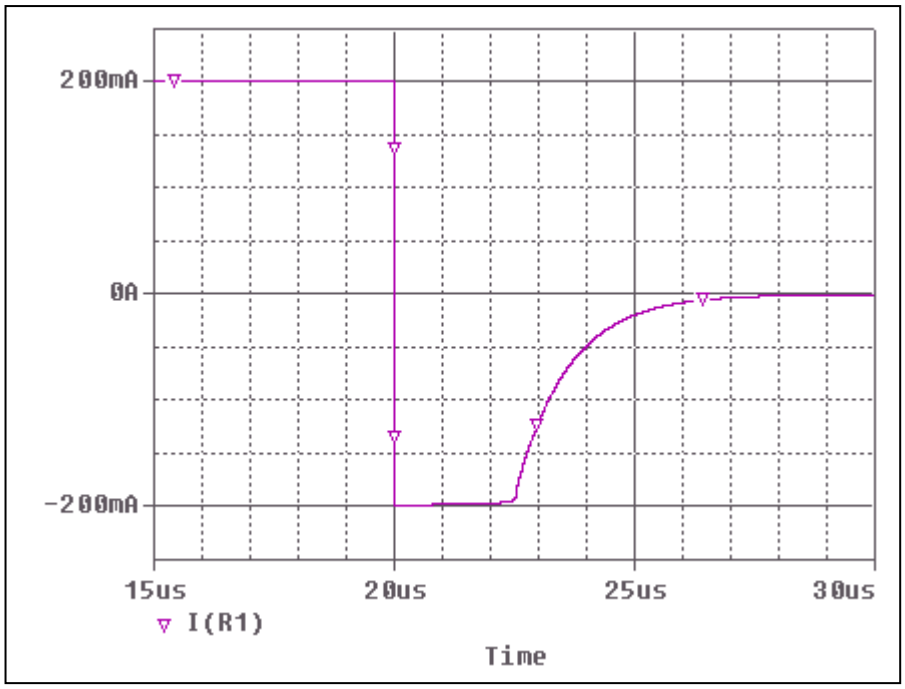


Simulation Result

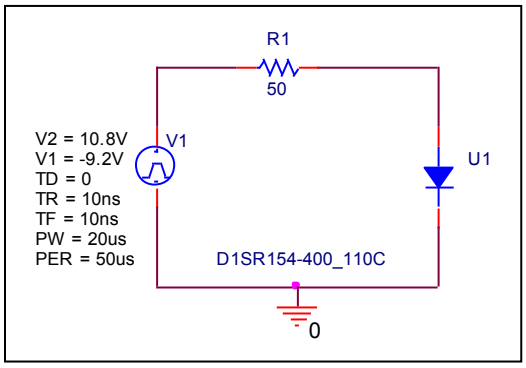
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	28.195	28.195	0.00
0.1	24.465	24.671	-0.84
0.2	22.616	22.754	-0.61
0.5	18.708	18.966	-1.38
1	16.038	15.763	1.71
2	13.108	12.931	1.35
5	9.874	9.666	2.11
10	7.807	7.763	0.56
20	6.115	6.179	-1.05
50	4.402	4.551	-3.38
100	3.450	3.550	-2.90

Reverse Recovery Characteristic

Circuit Simulation Result



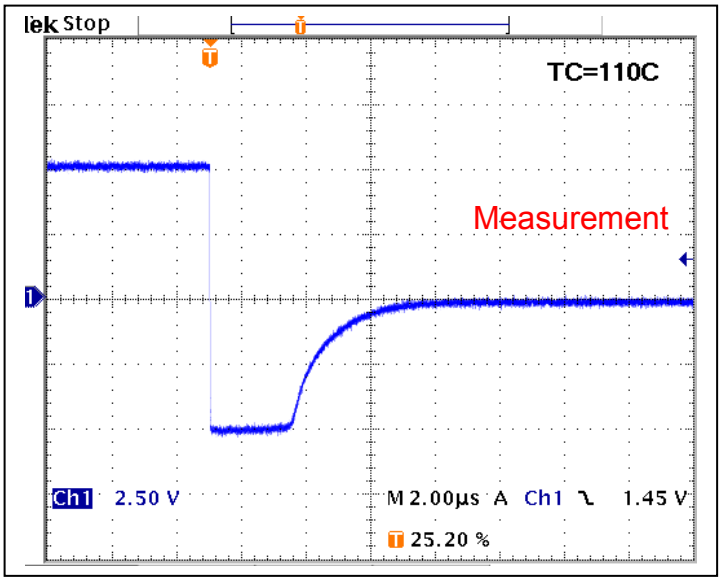
Evaluation Circuit



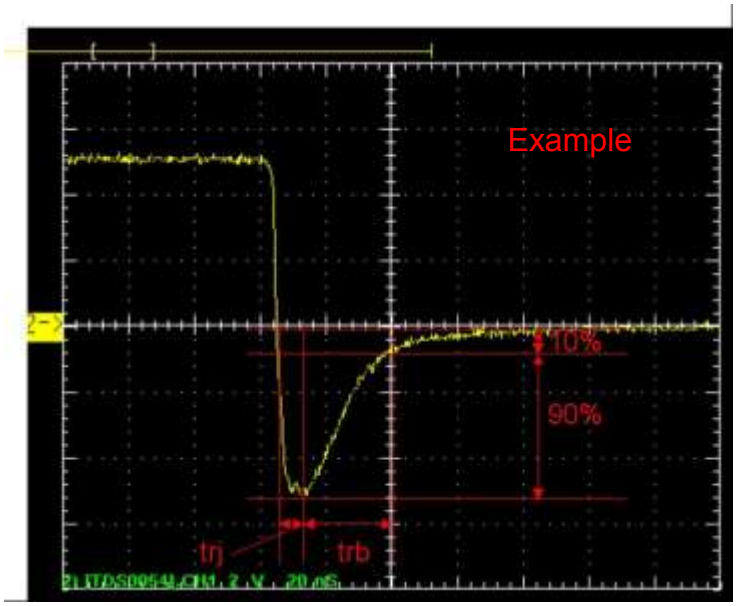
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
Trj	**2.48**	**us**	**2.484**	**us**	**0.16**
Trb	**2.48**	**us**	**2.472**	**us**	**0.32**

Reverse Recovery Characteristic Reference



Trj =2.48(us)
Trb=2.48(us)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb