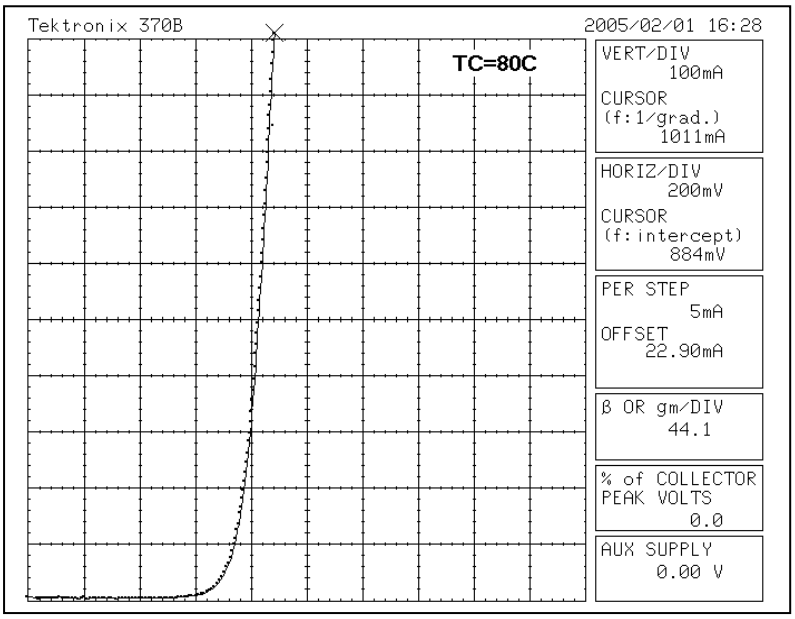
Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / STANDARD
PART NUMBER: 1SR154-400
MANUFACTURER: ROHM
REMARK: TC=80C

Bee Technologies Inc.

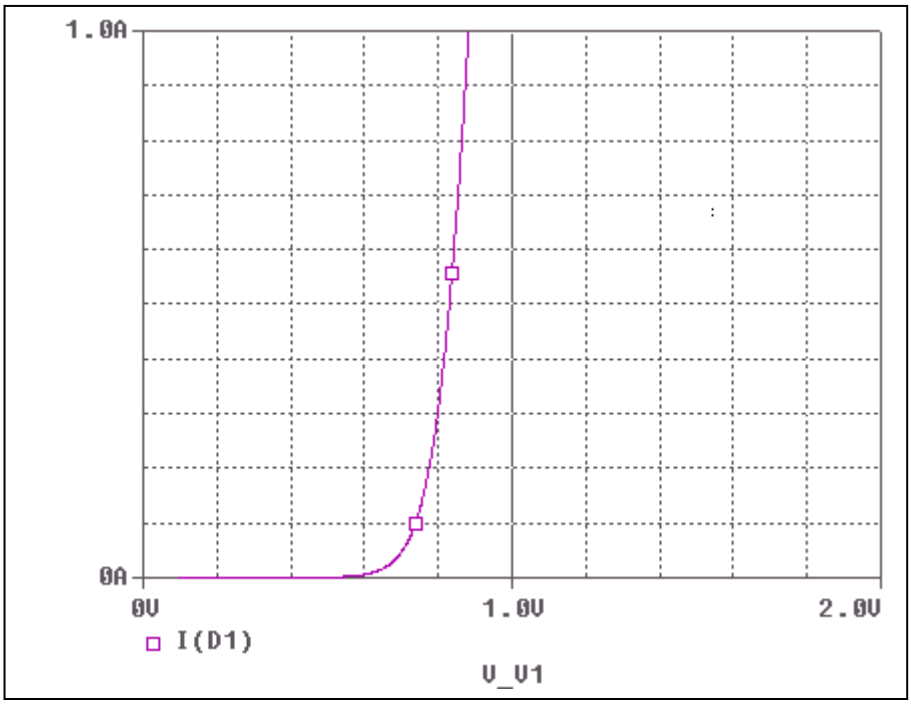
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic Reference

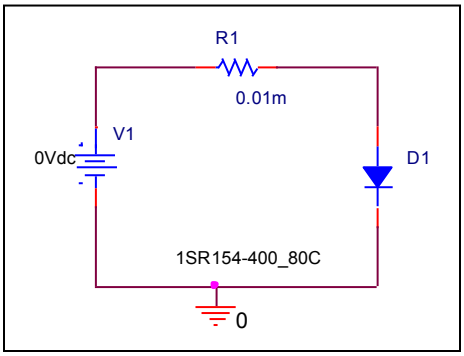


Forward Current Characteristic

Circuit Simulation Result

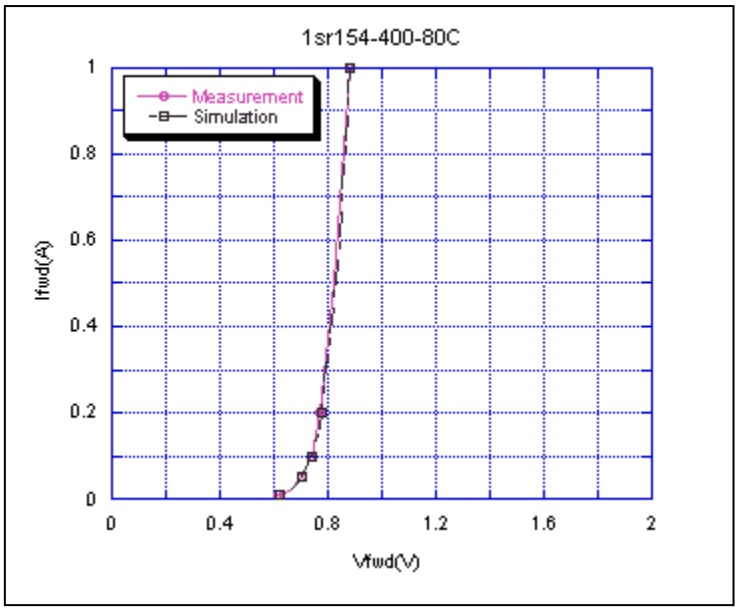


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

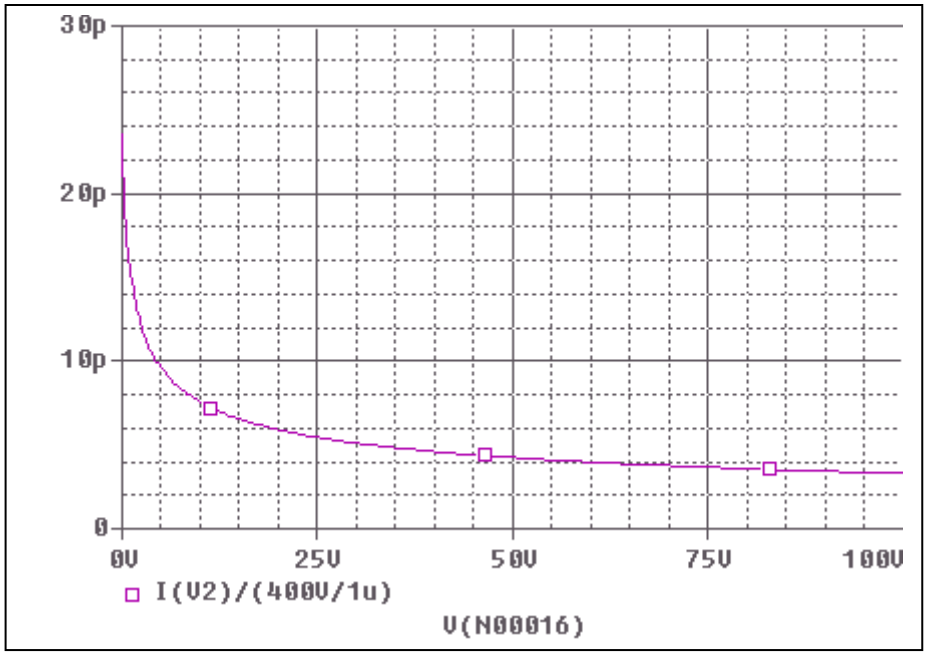


Simulation Result

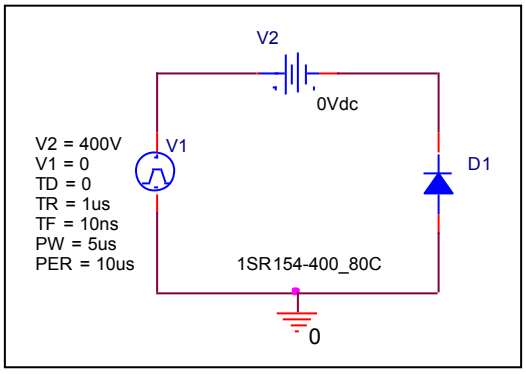
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.612	0.625	-2.12
0.02	0.662	0.658	0.60
0.05	0.706	0.703	0.42
0.1	0.742	0.738	0.54
0.2	0.772	0.775	-0.39
0.5	0.826	0.830	-0.48
1	0.884	0.881	0.34

Capacitance Characteristic

Circuit Simulation Result

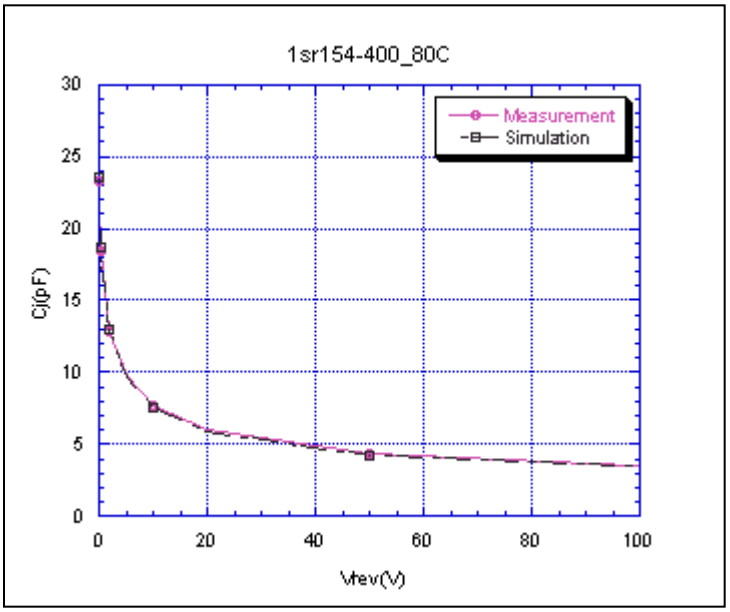


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

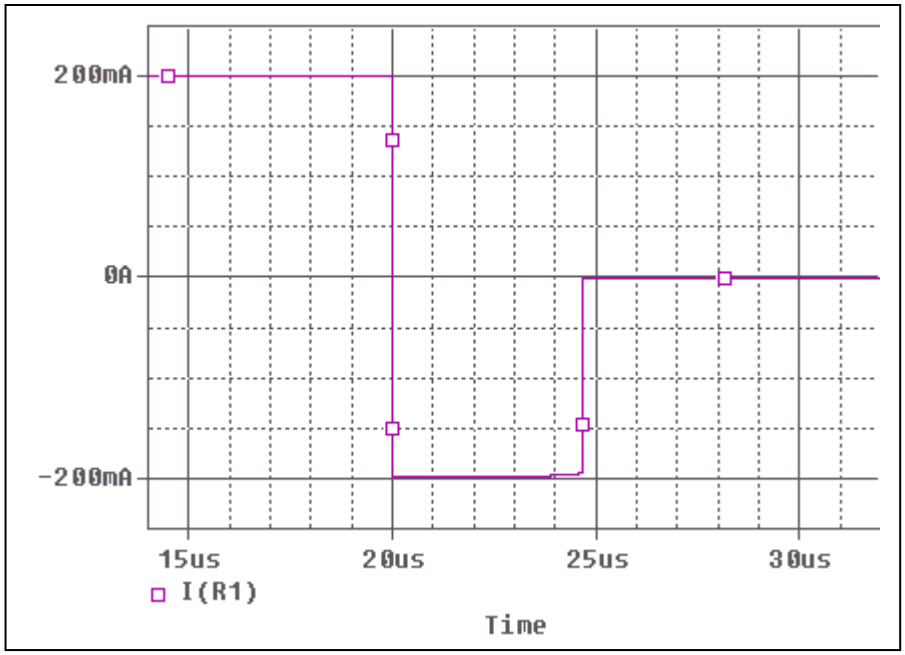


Simulation Result

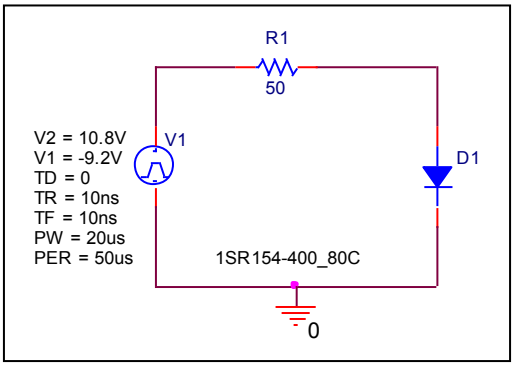
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	25.593	25.593	0.00
0.1	23.299	23.521	-0.95
0.2	21.684	21.851	-0.77
0.5	18.397	18.730	-1.81
1	15.670	15.870	-1.28
2	12.888	12.974	-0.67
5	9.715	9.629	0.89
10	7.701	7.588	1.47
20	6.045	5.930	1.90
50	4.363	4.250	2.59
100	3.429	3.303	3.67

Reverse Recovery Characteristic

Circuit Simulation Result



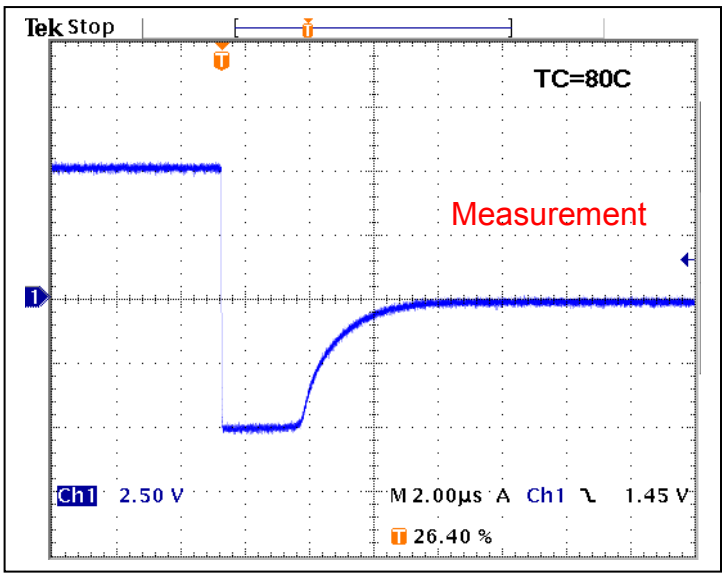
Evaluation Circuit



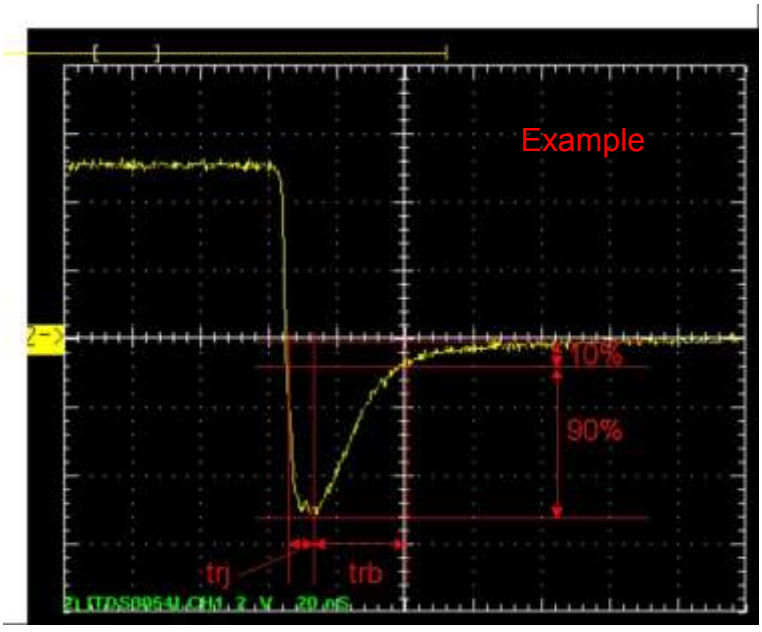
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trr	**4.68**	**us**	**4.67**	**us**	**0.21**

Reverse Recovery Characteristic Reference



Trj =2.48(us)
Trb=2.20(us)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb