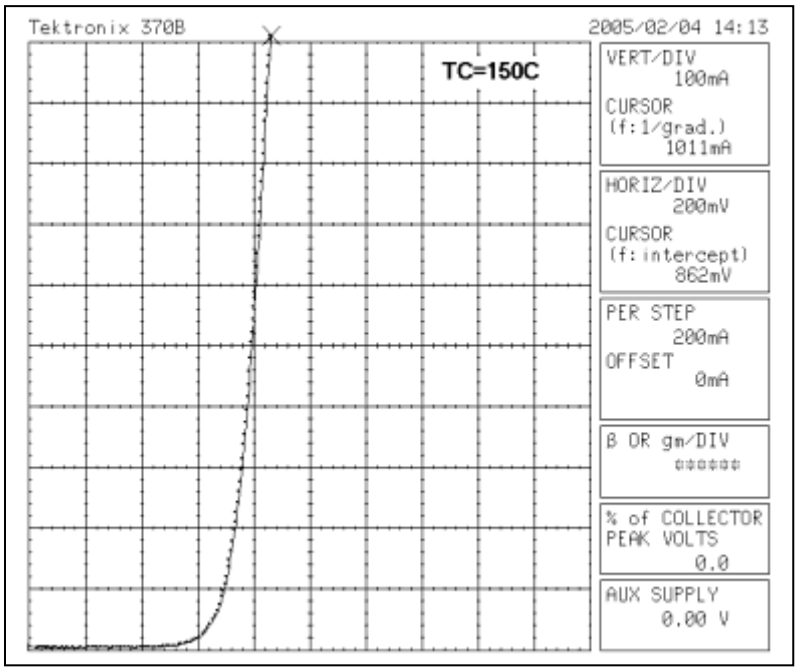
Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / STANDARD
PART NUMBER: 1SR154-600
MANUFACTURER: ROHM
REMARK: TC=150C

Bee Technologies Inc.

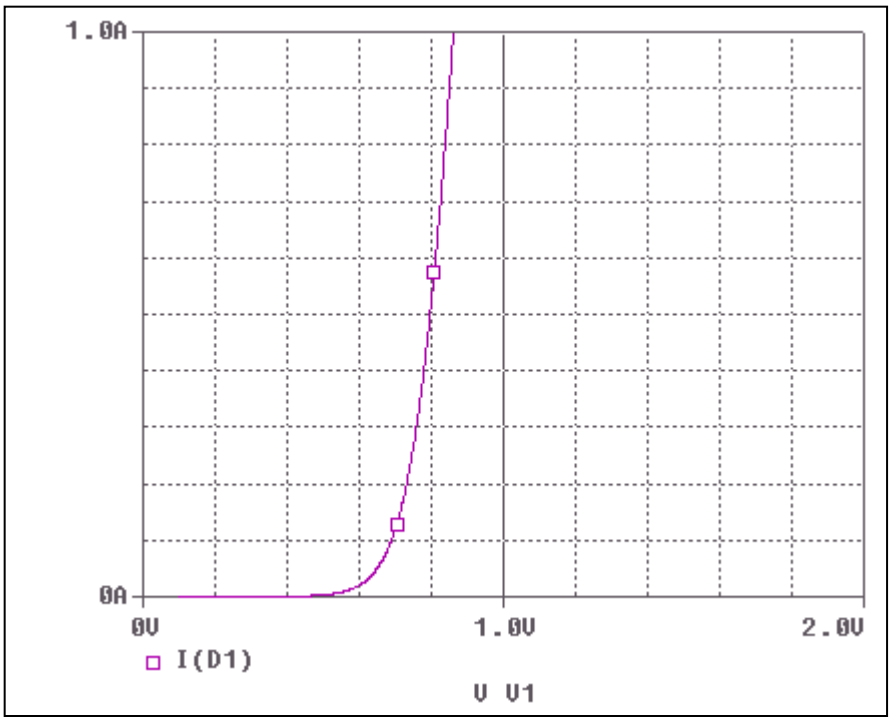
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic Reference

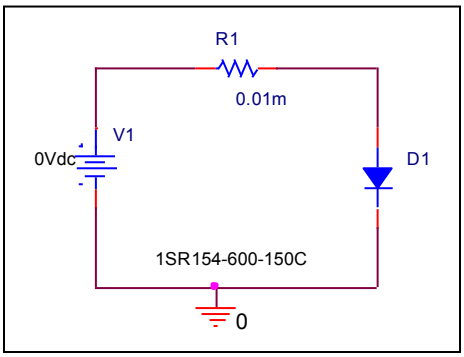


Forward Current Characteristic

Circuit Simulation Result

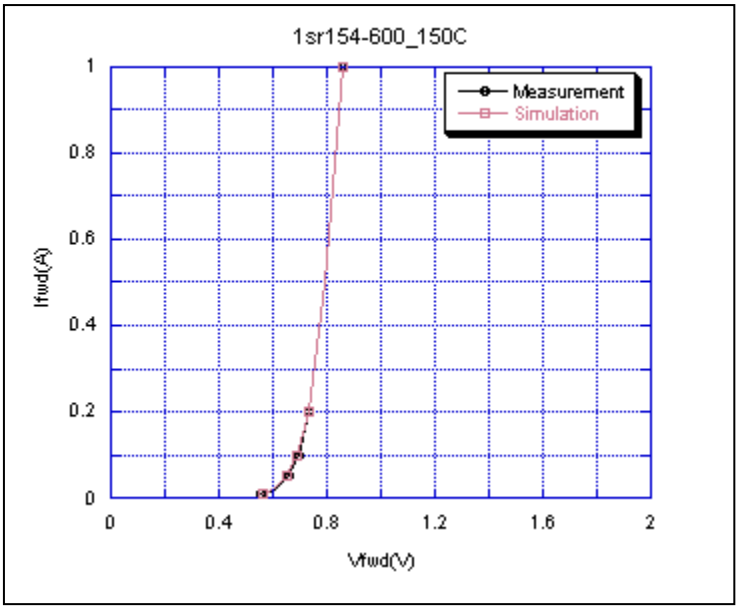


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

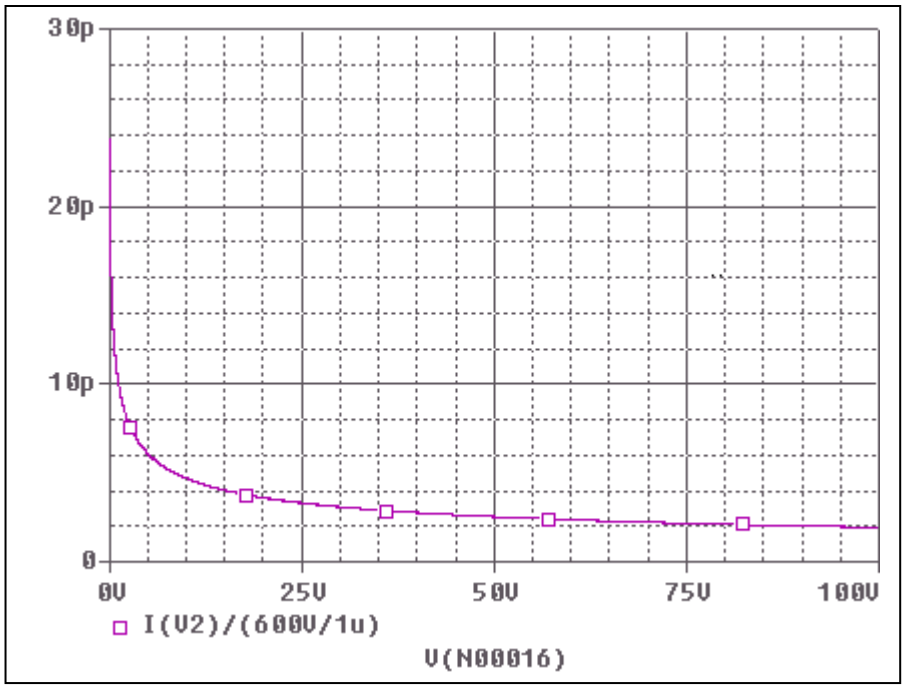


Simulation Result

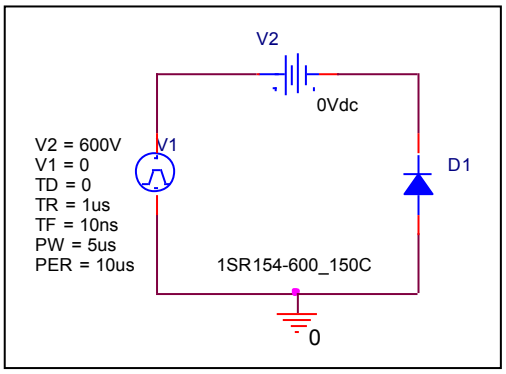
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.556	0.561	-0.90
0.02	0.608	0.598	1.64
0.05	0.658	0.649	1.37
0.1	0.694	0.688	0.86
0.2	0.732	0.730	0.27
0.5	0.794	0.796	-0.25
1	0.862	0.861	0.12

Capacitance Characteristic

Circuit Simulation Result

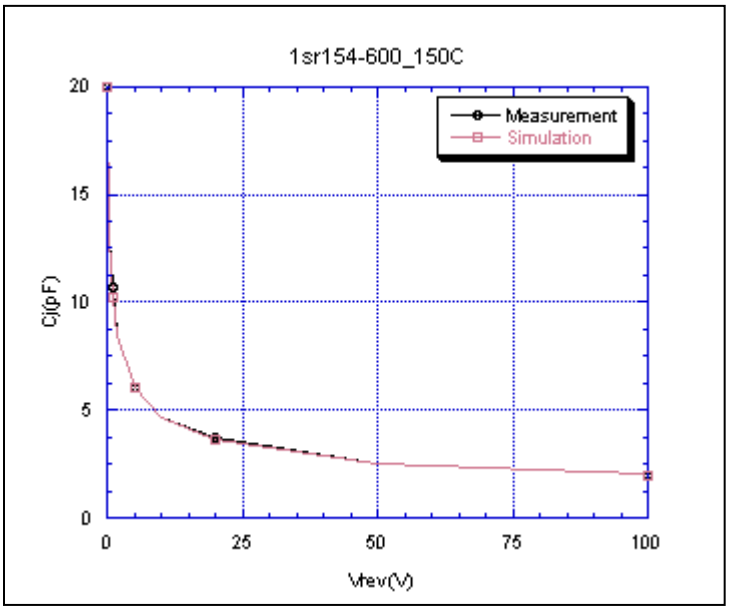


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

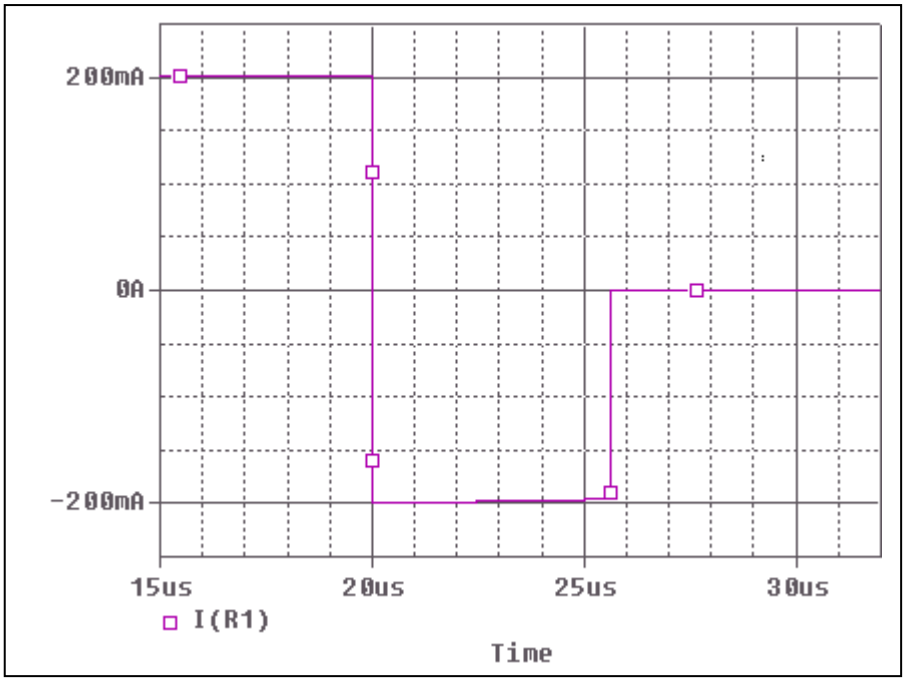


Simulation Result

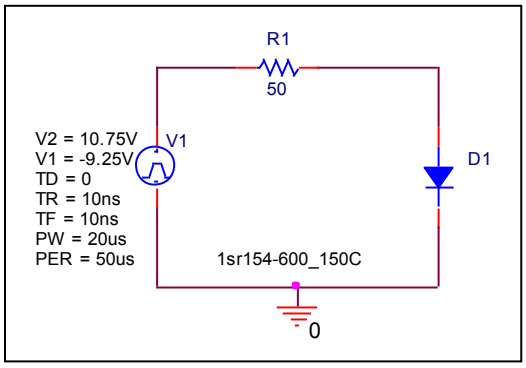
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	19.928	19.928	0.00
0.5	12.933	13.014	-0.63
1	10.664	10.182	4.52
2	8.453	8.486	-0.39
5	6.015	6.093	-1.30
10	4.655	4.702	-1.01
20	3.699	3.609	2.43
50	2.550	2.534	0.63
100	2.000	1.938	3.10

Reverse Recovery Characteristic

Circuit Simulation Result



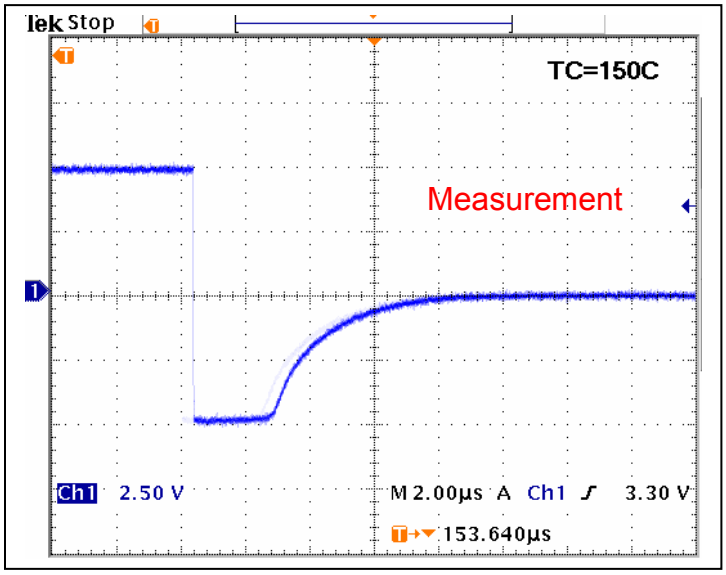
Evaluation Circuit



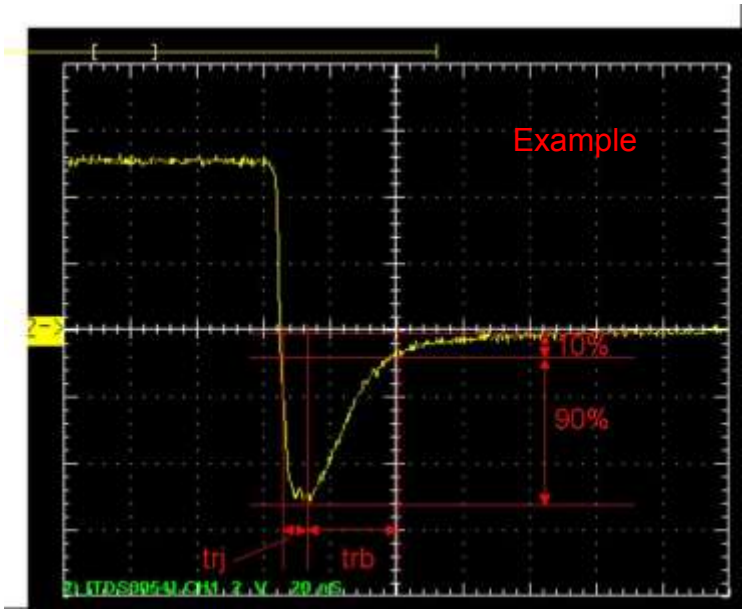
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trr	**5.60**	**us**	**5.60**	**us**	**0.00**

Reverse Recovery Characteristic Reference



Trj =2.4(us)
Trb=3.2(us)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb