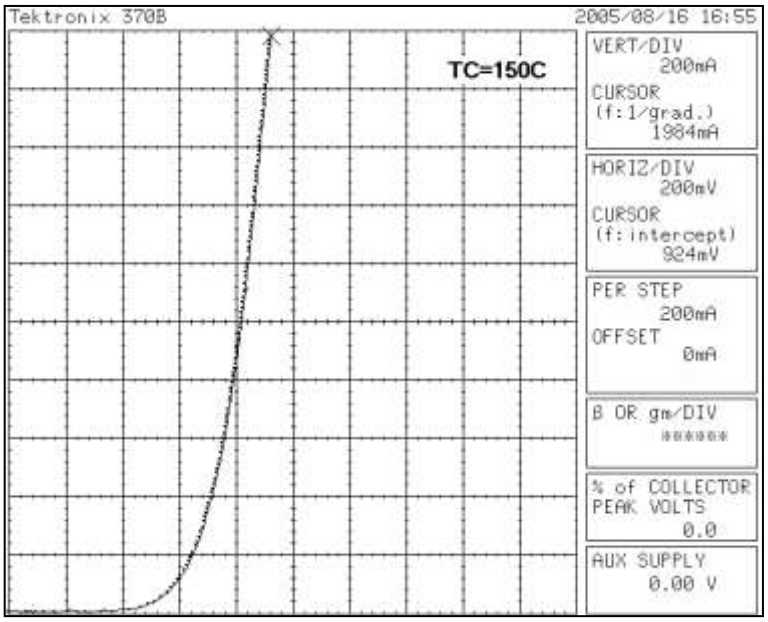
Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ STANDARD
PART NUMBER: RURD460S
MANUFACTURER: FAIRCHILD
REMARK: TC=150 degree

Bee Technologies Inc.

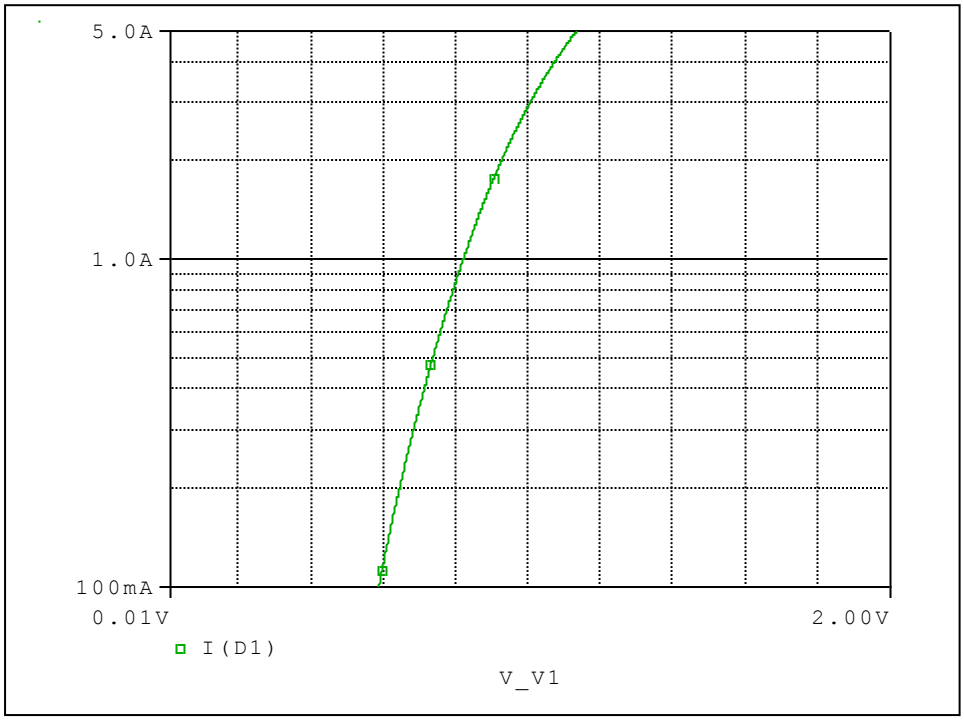
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic Reference

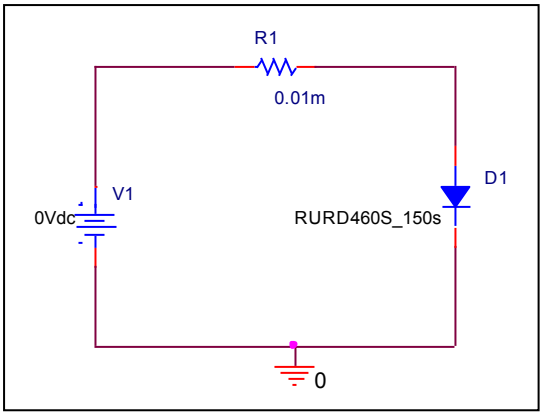


Forward Current Characteristic

Circuit Simulation Result

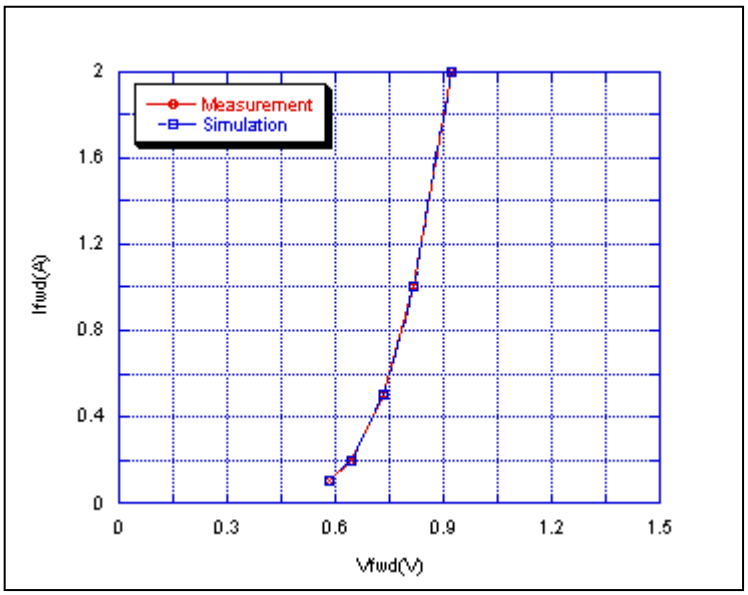


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

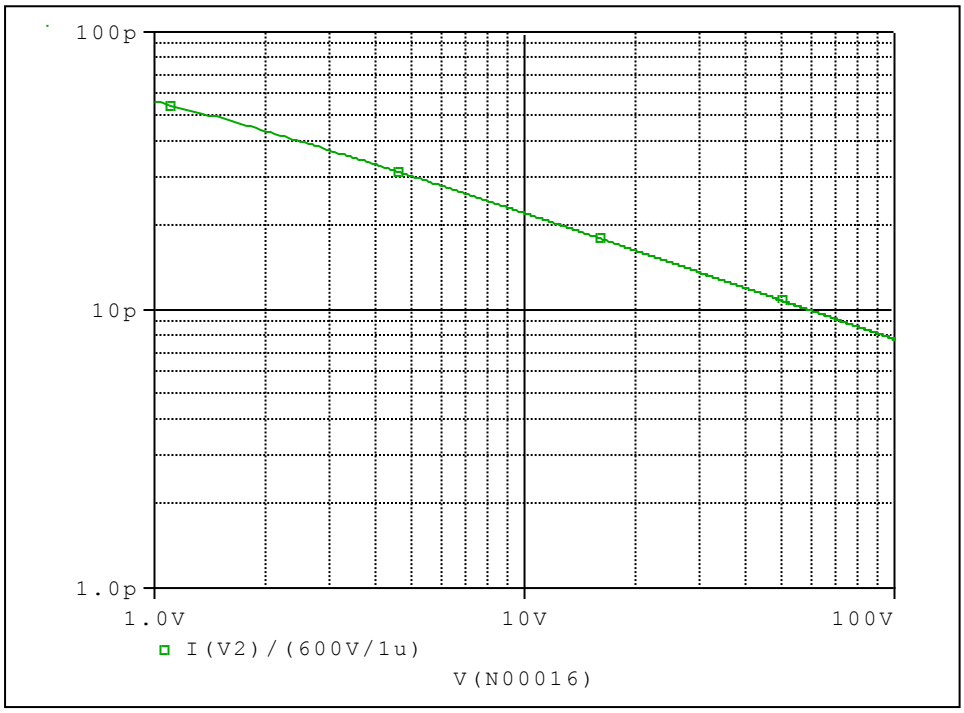


Simulation Result

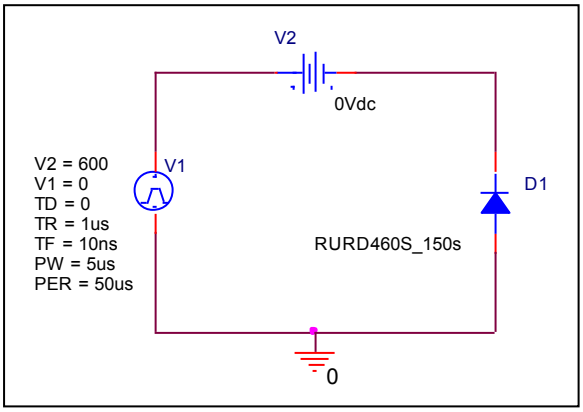
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.1	0.586	0.585	0.171
0.2	0.642	0.644	-0.312
0.5	0.736	0.733	0.408
1	0.818	0.818	0.000
2	0.924	0.922	0.216

Capacitance Characteristic

Circuit Simulation Result

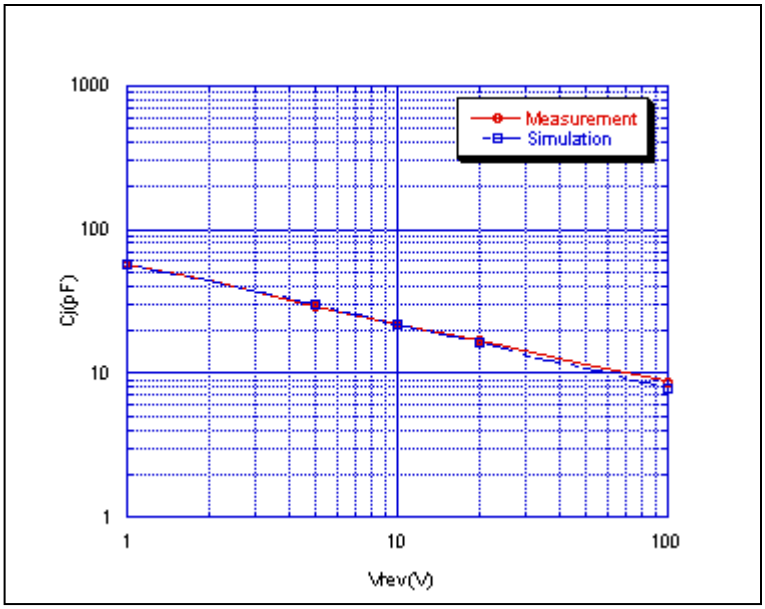


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

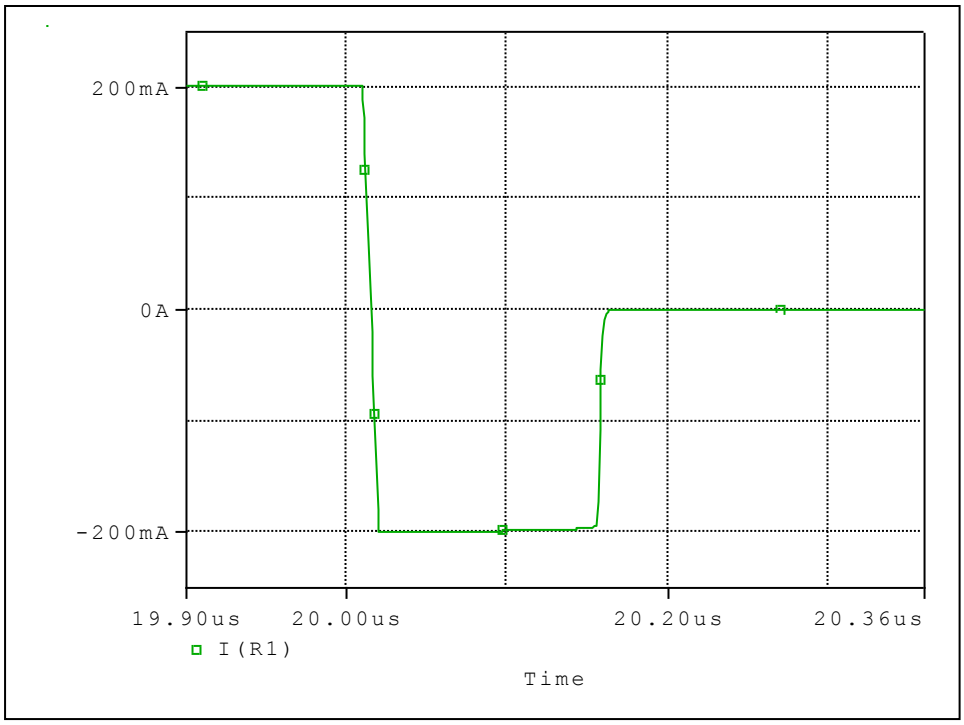


Simulation Result

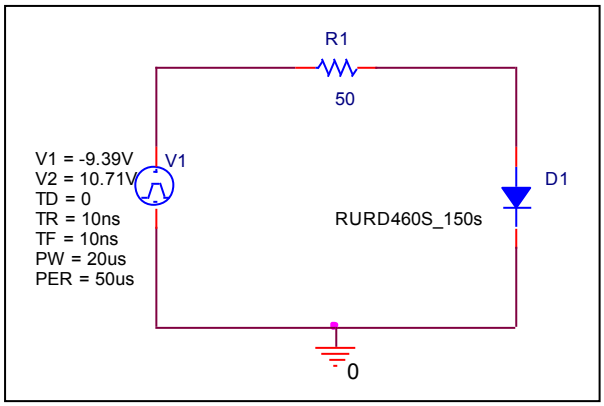
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	101.600	101.600	0.000
1	57.300	56.368	1.627
2	43.600	44.000	-0.917
5	29.200	30.200	-3.425
10	21.700	22.112	-1.899
20	16.650	16.365	1.712
50	11.450	10.800	5.677

Reverse Recovery Characteristic

Circuit Simulation Result



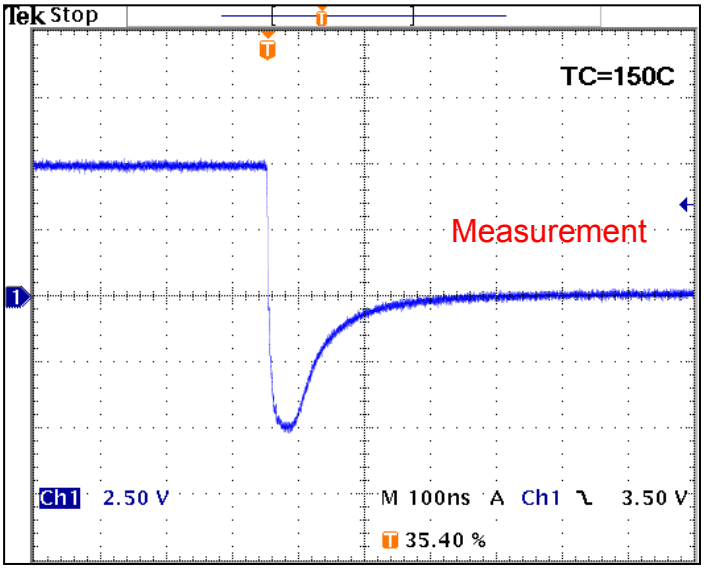
Evaluation Circuit



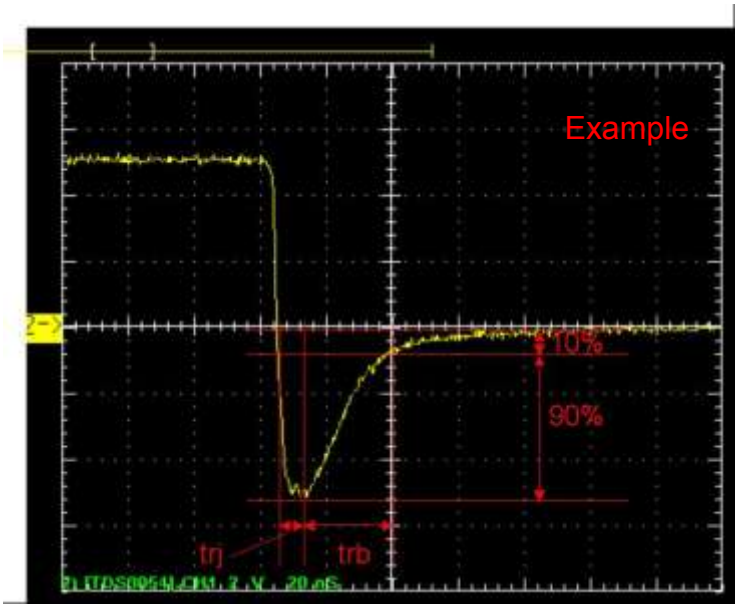
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trr	144.00	ns	144.20	ns	0.133

Reverse Recovery Characteristic Reference



Trj =36 (ns)
Trb= 108 (ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb