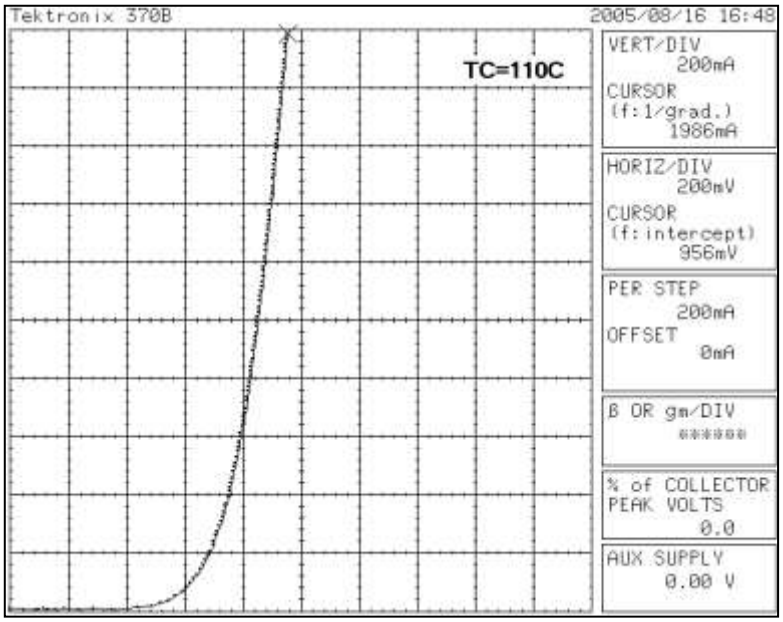
Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ PROFESSIONAL
PART NUMBER: RURD460S
MANUFACTURER: FAIRCHILD
REMARK: TC=110 degree

Bee Technologies Inc.

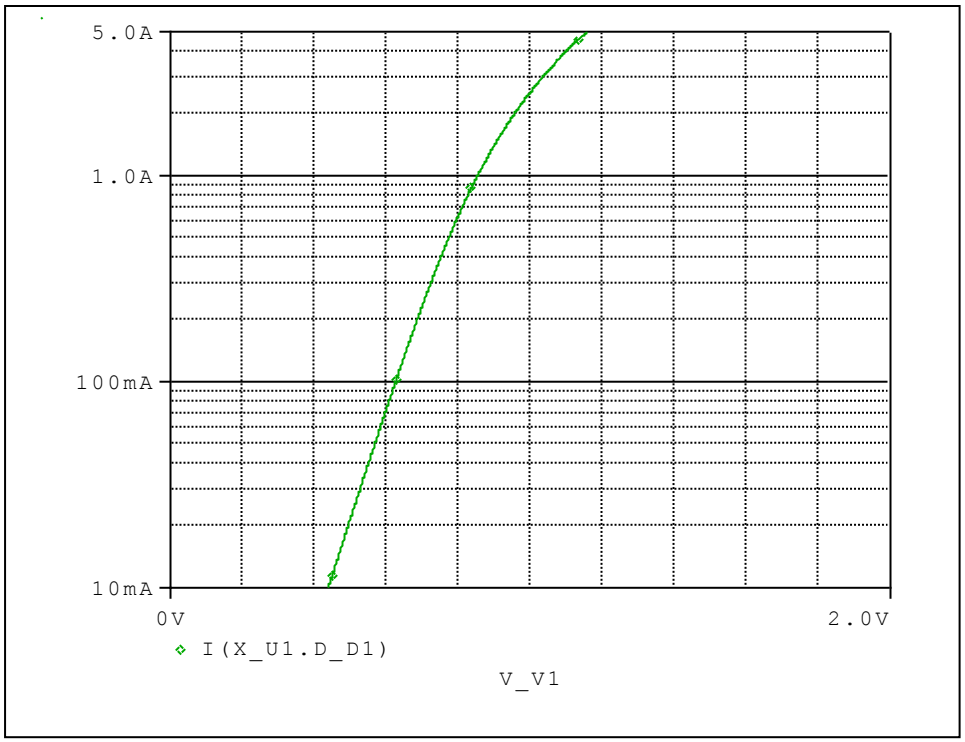
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic Reference

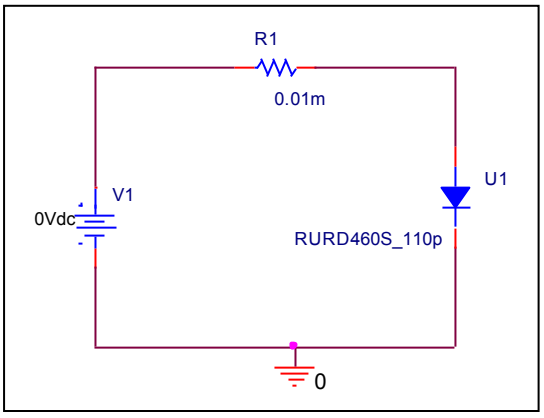


Forward Current Characteristic

Circuit Simulation Result

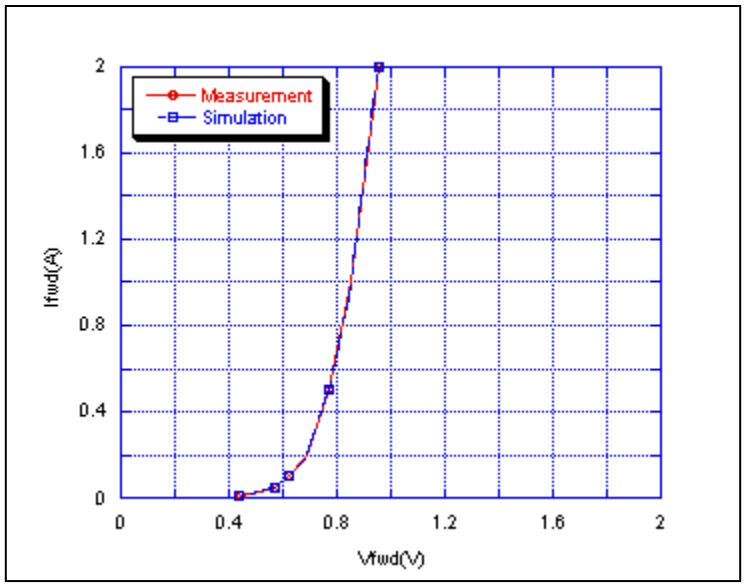


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

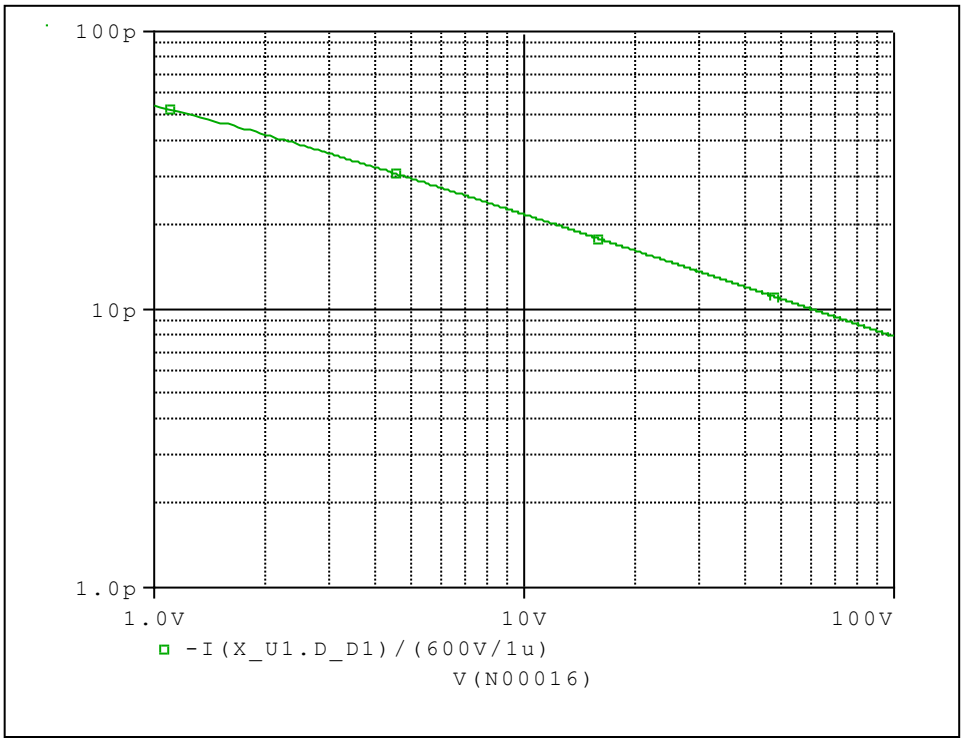


Simulation Result

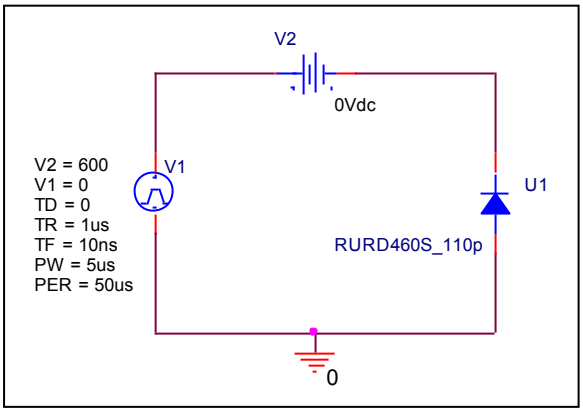
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.442	0.438	0.905
0.02	0.488	0.490	-0.410
0.05	0.570	0.567	0.526
0.1	0.622	0.623	-0.161
0.2	0.688	0.686	0.291
0.5	0.774	0.773	0.129
1	0.852	0.852	0.000
2	0.956	0.955	0.105

Capacitance Characteristic

Circuit Simulation Result

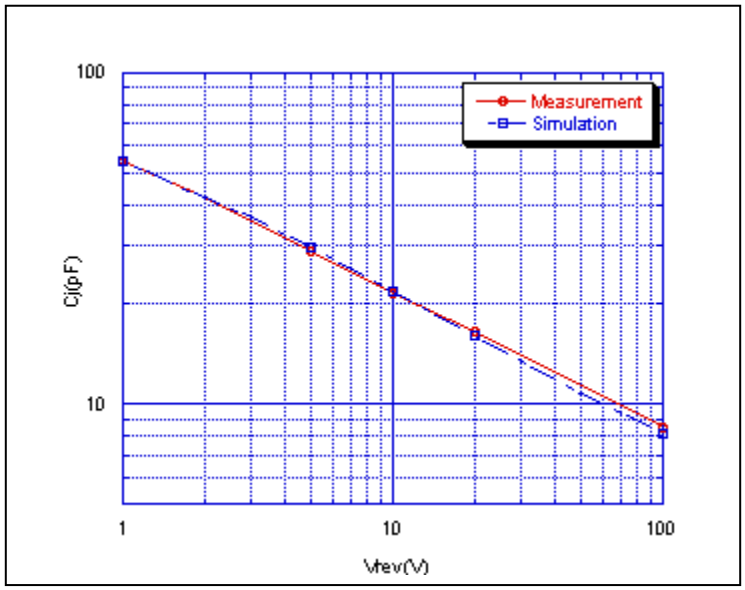


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

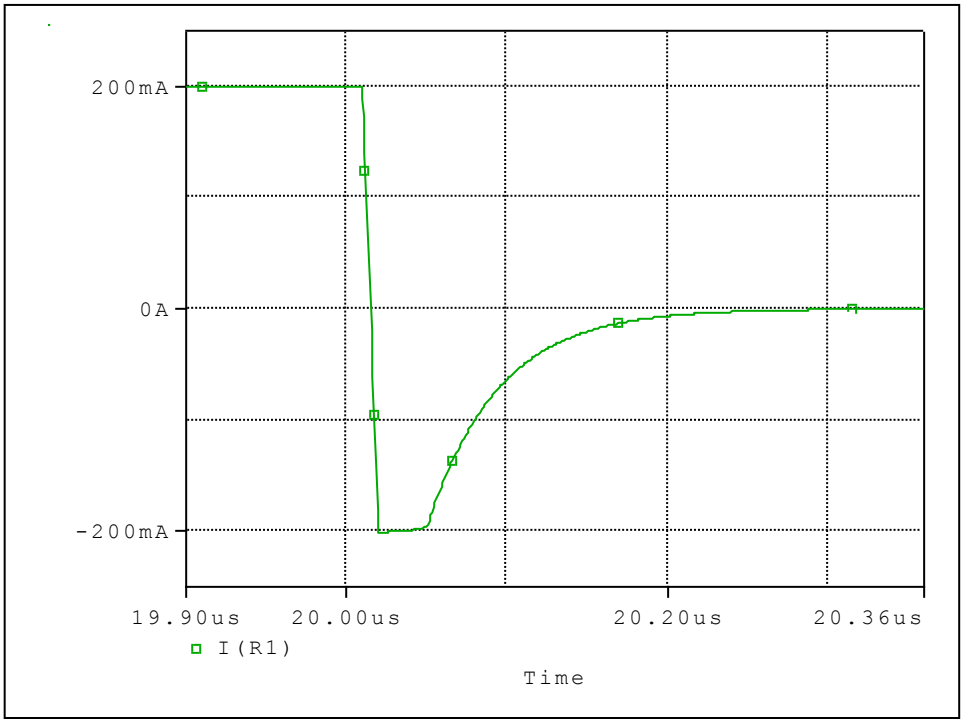


Simulation Result

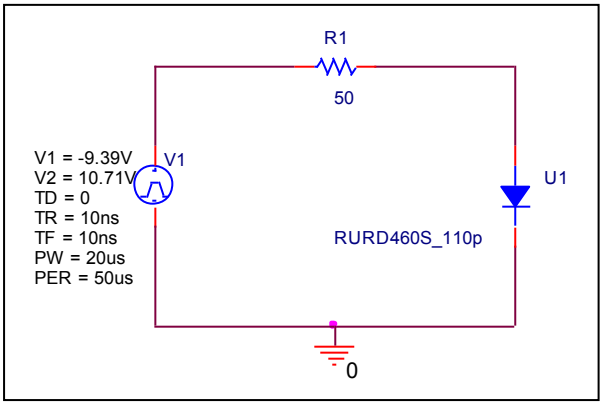
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	94.700	94.712	-0.013
1	53.800	53.702	0.182
2	42.000	42.317	-0.755
5	28.900	29.548	-2.242
10	21.600	21.934	-1.546
20	16.600	16.215	2.319
50	11.400	10.803	5.237
100	8.550	8.111	5.135

Reverse Recovery Characteristic

Circuit Simulation Result



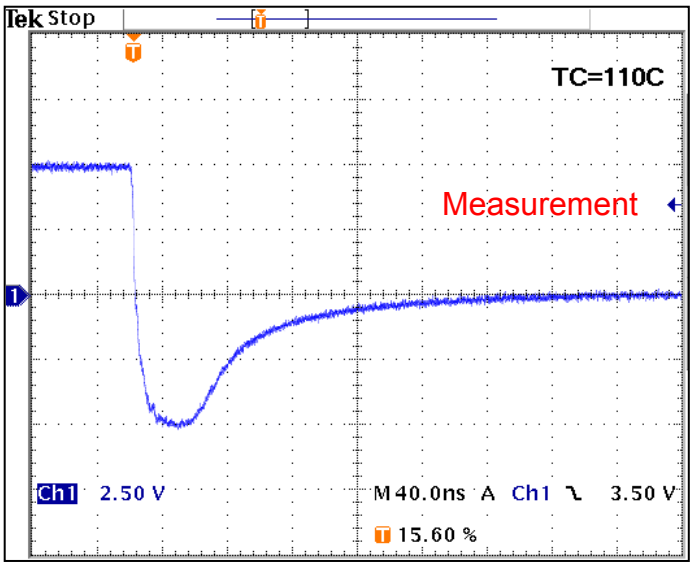
Evaluation Circuit



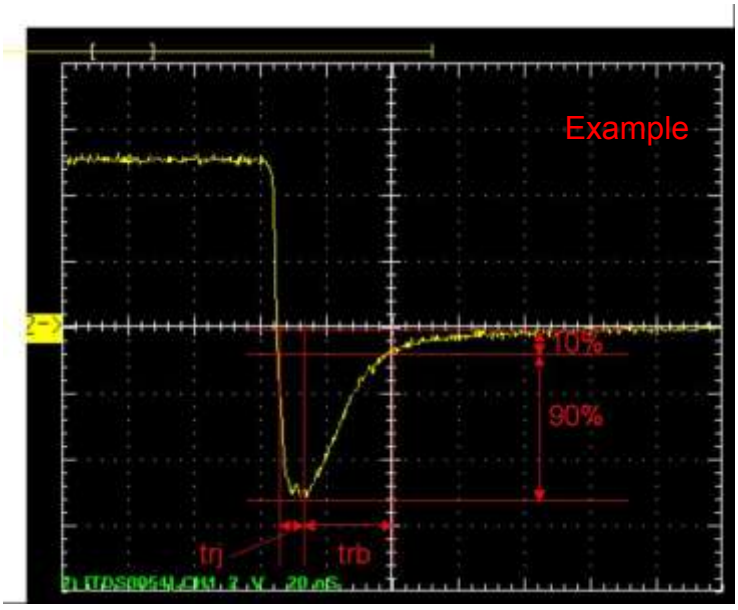
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	33.6	ns	33.25	ns	1.04
trb	102	ns	102.2	ns	0.19

Reverse Recovery Characteristic Reference



Trj =33.6 (ns)
Trb= 102 (ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb