

Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ STANDARD
PART NUMBER: RURG3060
MANUFACTURER: FAIRCHILD
REMARK: TC=150 degree

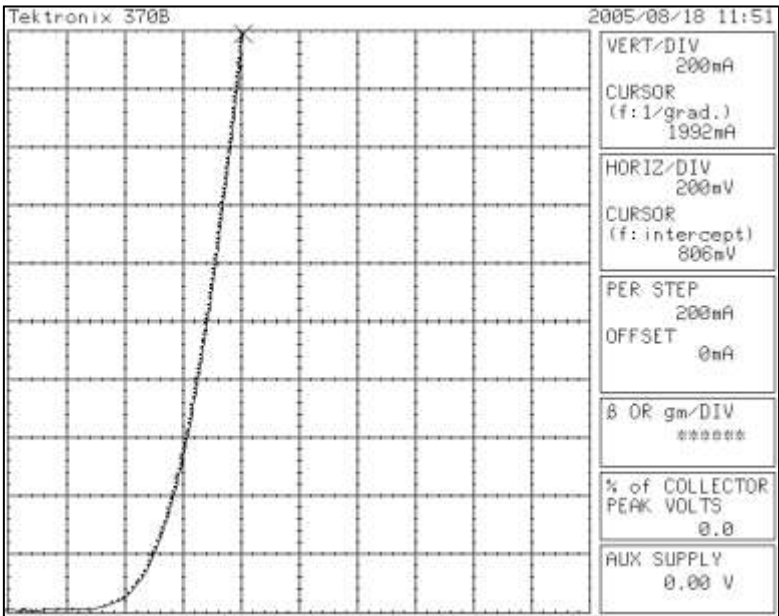


Bee Technologies Inc.

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

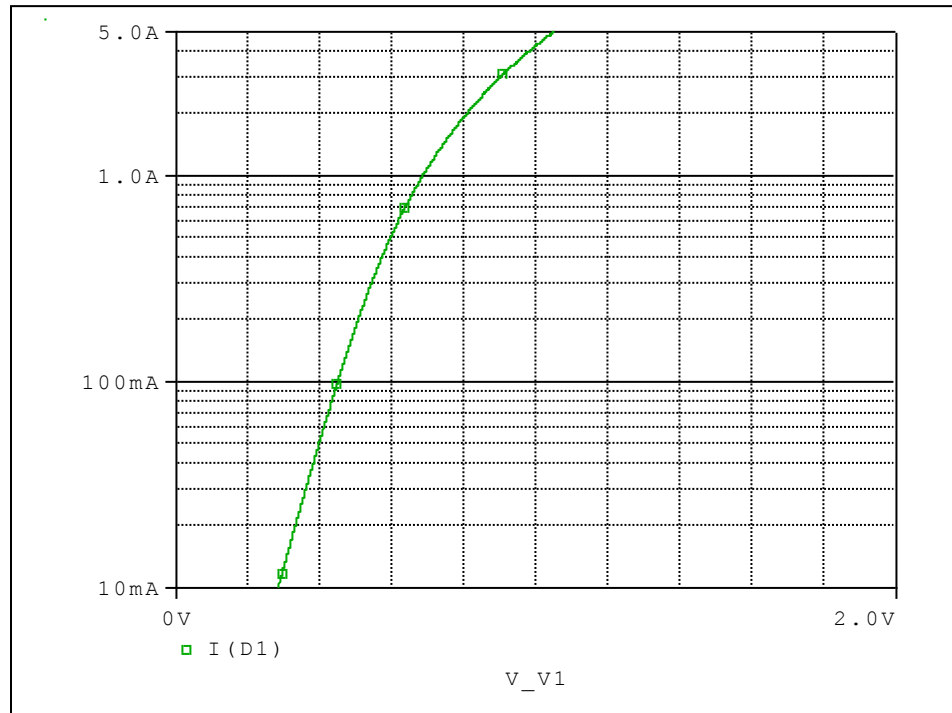
Forward Current Characteristic

Reference

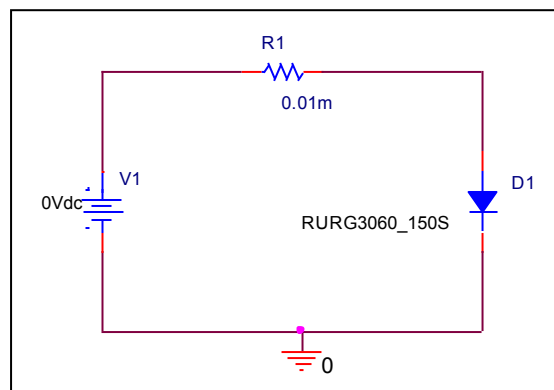


Forward Current Characteristic

Circuit Simulation Result

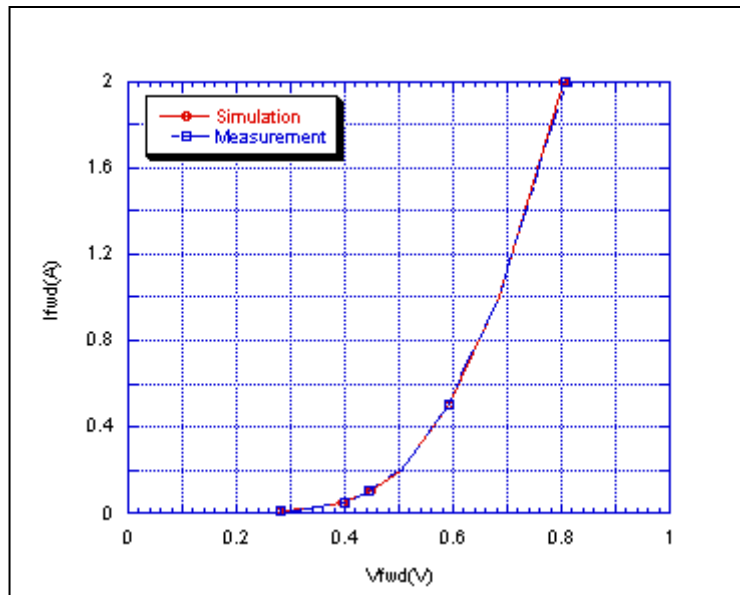


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

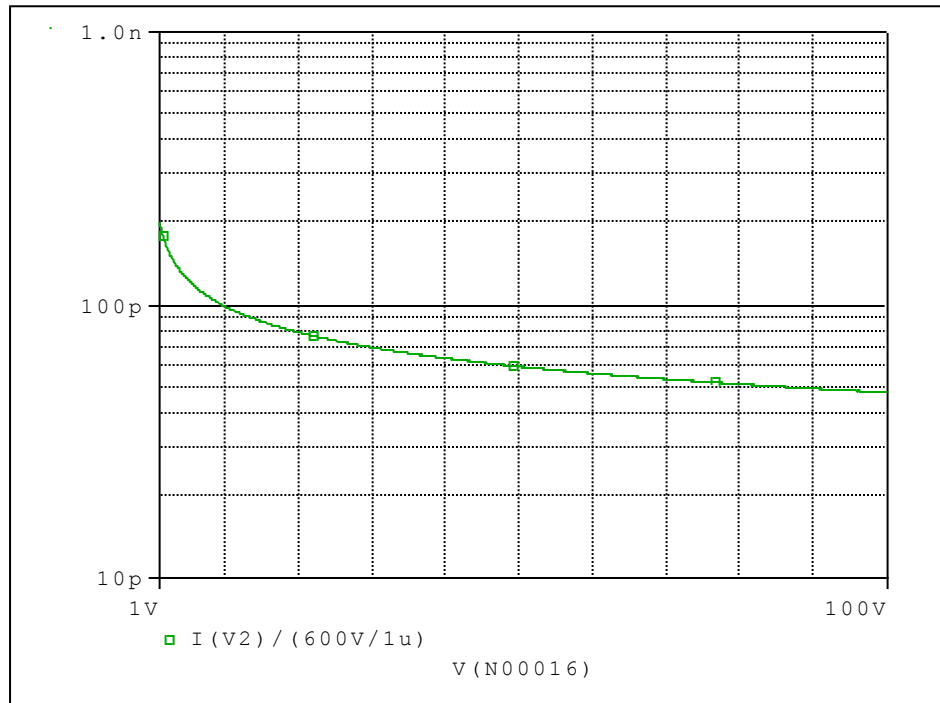


Simulation Result

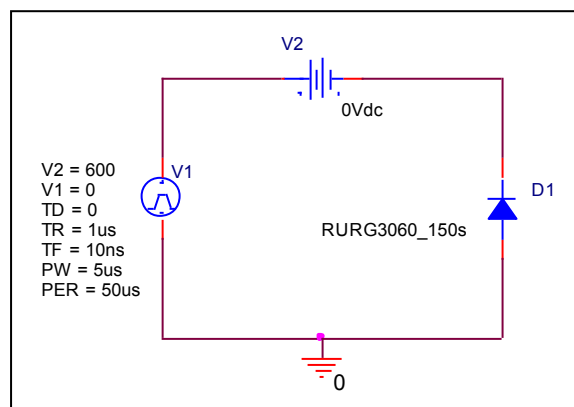
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.282	0.282	0.000
0.02	0.328	0.330	-0.610
0.05	0.402	0.396	1.493
0.1	0.446	0.448	-0.448
0.2	0.505	0.504	0.198
0.5	0.592	0.594	-0.338
1	0.686	0.684	0.292
2	0.806	0.805	0.124

Capacitance Characteristic

Circuit Simulation Result

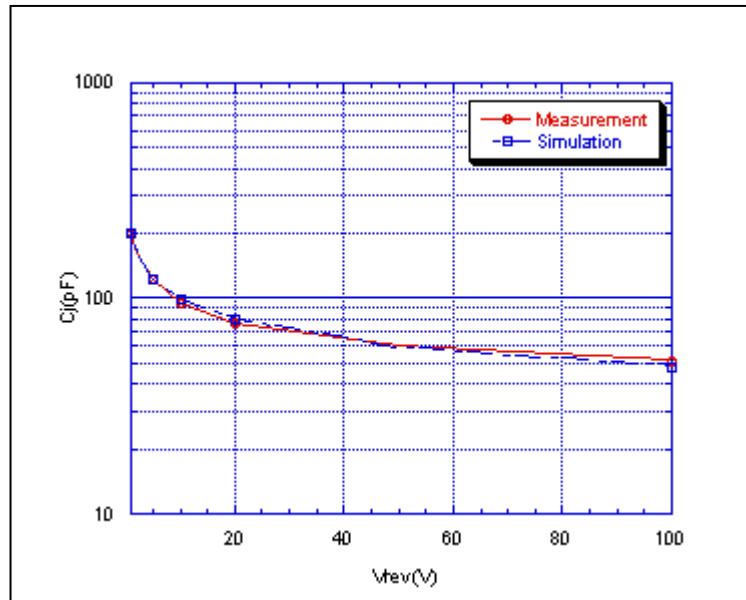


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

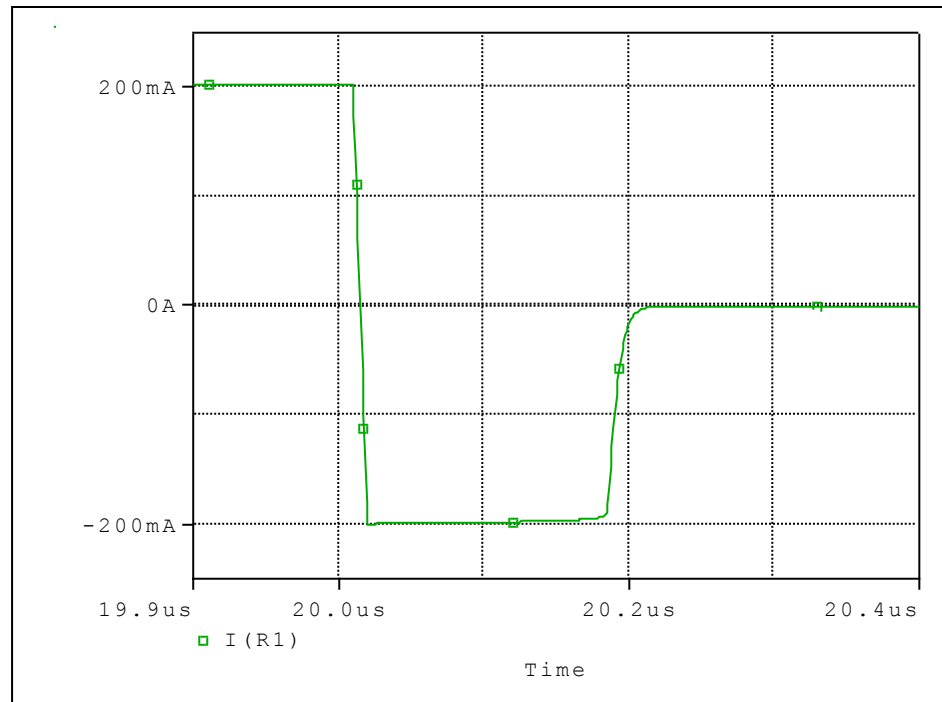


Simulation Result

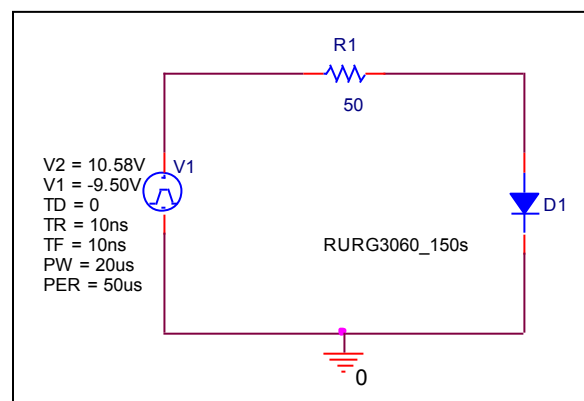
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	462.200	462.200	0.000
1	200.000	200.400	-0.200
2	162.400	162.620	-0.135
5	123.200	122.390	0.657
10	95.400	98.690	-3.449
20	76.000	79.250	-4.276
50	60.500	59.470	1.702

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

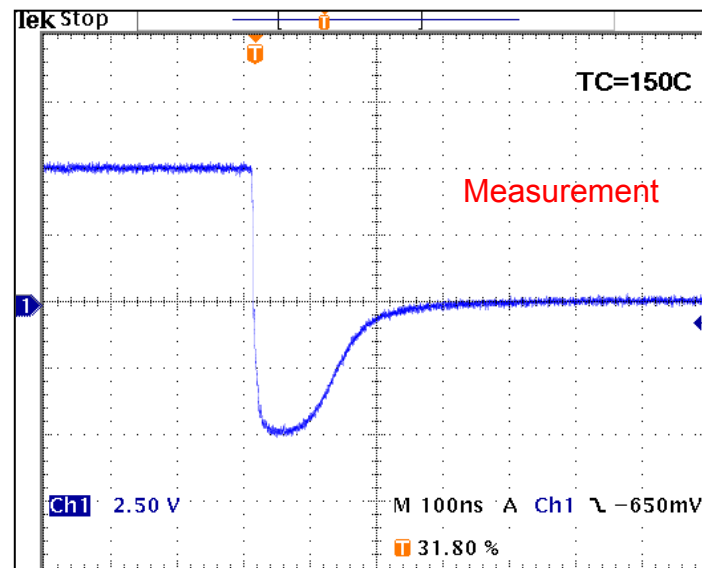


Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trr	184	ns	183.77	ns	0.125

Reverse Recovery Characteristic

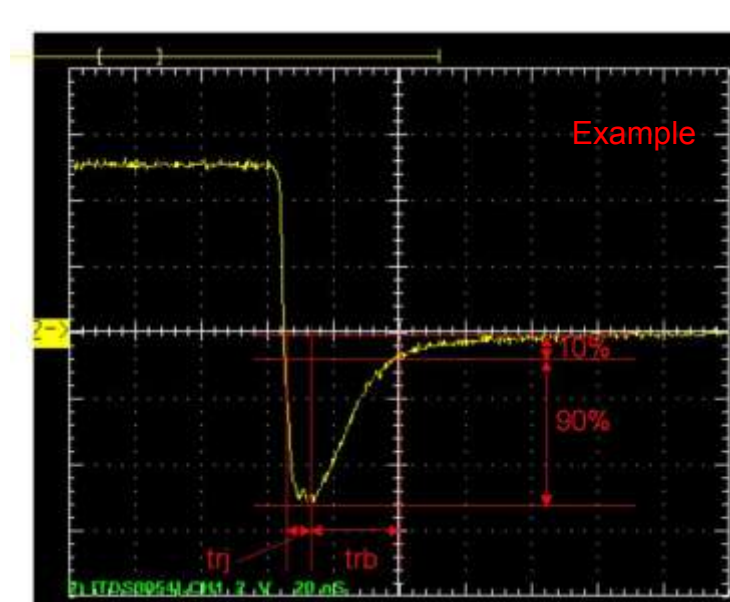
Reference



$T_{rj} = 56$ (ns)

$T_{rb} = 128$ (ns)

Conditions: $I_{fwd} = I_{rev} = 0.2$ (A), $R_I = 50$



Relation between t_{rj} and t_{rb}