Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ PROFESSIONAL
PART NUMBER: RURD460S
MANUFACTURER: FAIRCHILD
REMARK: TC=25 degree
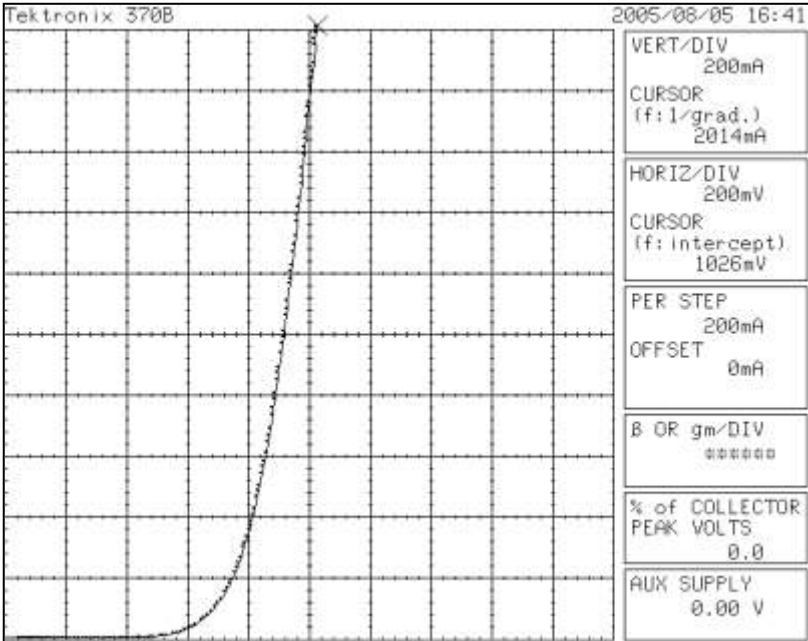
Bee Technologies Inc.

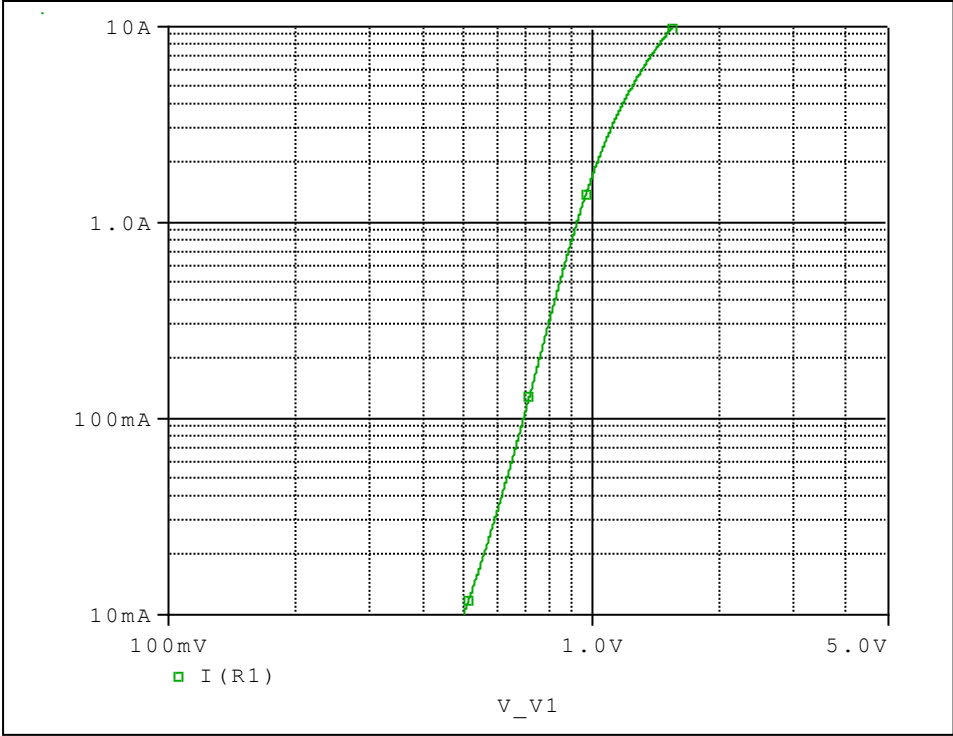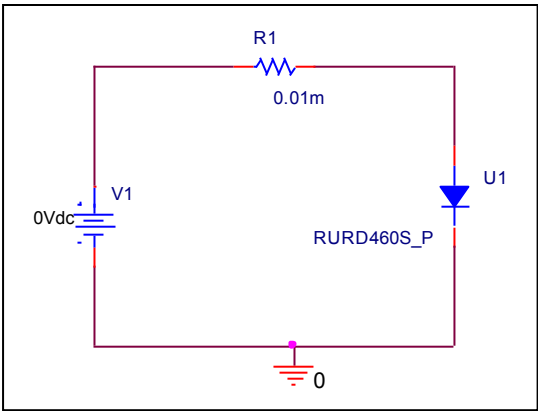| PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic   Reference

Tektronix 370B	2005/08/05 16:41

VERT/DIV
200mA

CURSOR
(f:1/grad.)
2014mA

HORIZ/DIV
200mV

CURSOR
(f:intercept)
1026mV

PER STEP
200mA

OFFSET
0mA

β OR gm/DIV
******

% of COLLECTOR
PEAK VOLTS
0.0

AUX SUPPLY
0.00 V

Forward Current Characteristic

I(R1)

V_V1

Evaluation Circuit

Comparison Graph
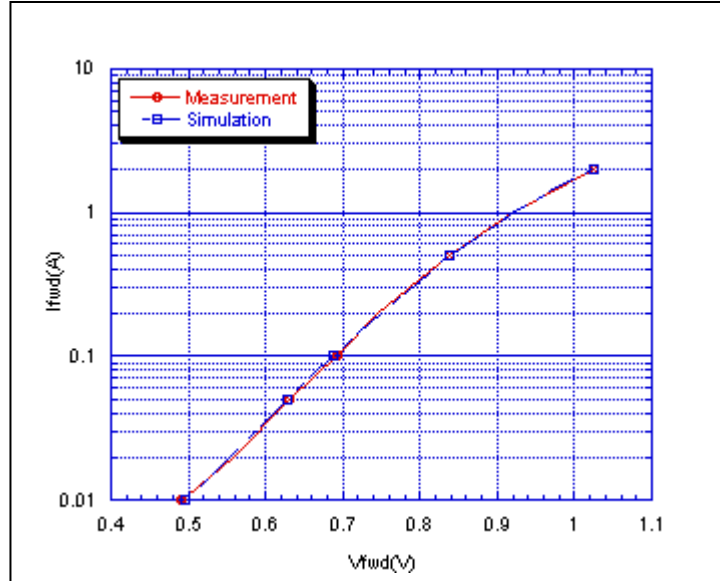
Simulation Result

Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.492	0.497	-1.016
0.02	0.558	0.553	0.896
0.05	0.630	0.629	0.159
0.1	0.694	0.688	0.865
0.2	0.746	0.749	-0.402
0.5	0.838	0.838	0.000
1	0.918	0.919	-0.109
2	1.026	1.024	0.195

Capacitance Characteristic

500p

100p

10p

1.0p

100mV   1.0V   10V   100V

□ -I(X_U1.D_D1)/(600V/1u)
V(N00016)

Evaluation Circuit

V2

0Vdc

V2 = 600
V1 = 0
TD = 0
TR = 1u
TF = 10ns
PW = 5us
PER = 10us

V1

U1

RURD460S_P

0
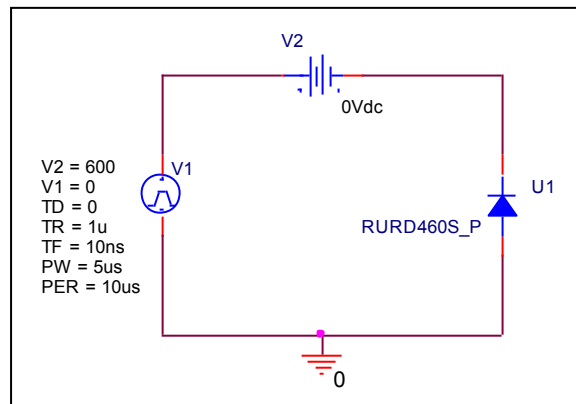
Comparison Graph
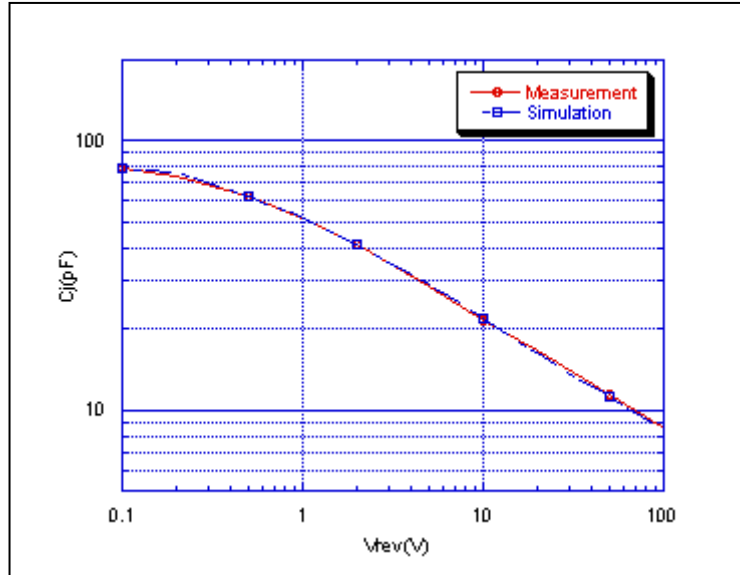
Simulation Result

Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	86.775	86.775	0.000
0.1	78.985	79.000	-0.019
0.2	73.341	76.614	-4.463
0.5	61.863	61.969	-0.171
1	51.787	51.514	0.527
2	41.174	41.013	0.391
5	28.568	29.055	-1.705
10	21.53	21.917	-1.797
20	16.568	16.463	0.634
50	11.34	11.163	1.561
100	8.475	8.319	1.841

Reverse Recovery Characteristic
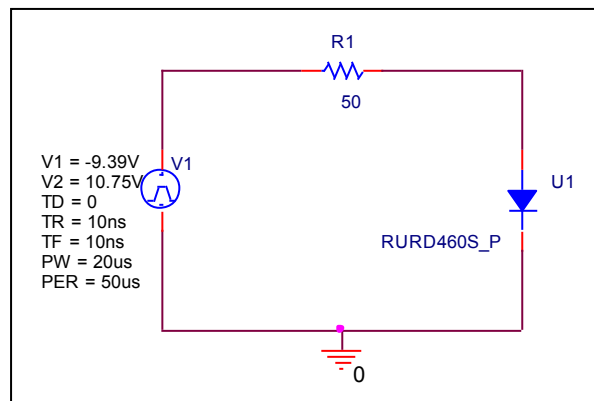
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	23.2	ns	23.37	ns	0.732
trb	56.8	ns	56.63	ns	0.299

Reverse Recovery Characteristic   Reference
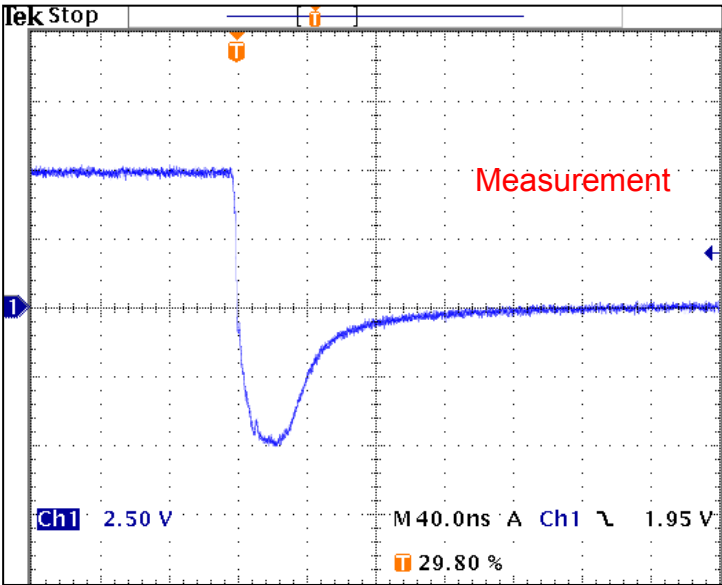
Trj =23.2 (ns)
Trb= 56.8 (ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50
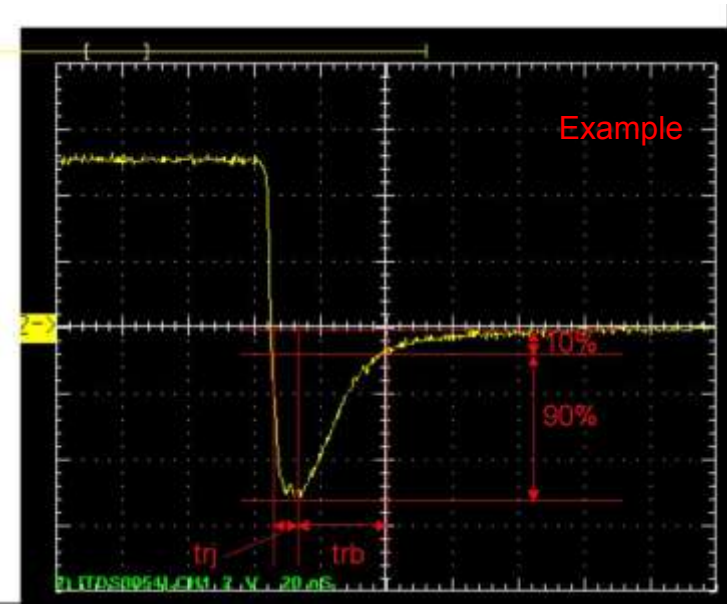
Relation between trj and trb