Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ STANDARD
PART NUMBER: RURD460S
MANUFACTURER: FAIRCHILD
REMARK: TC=25 degree



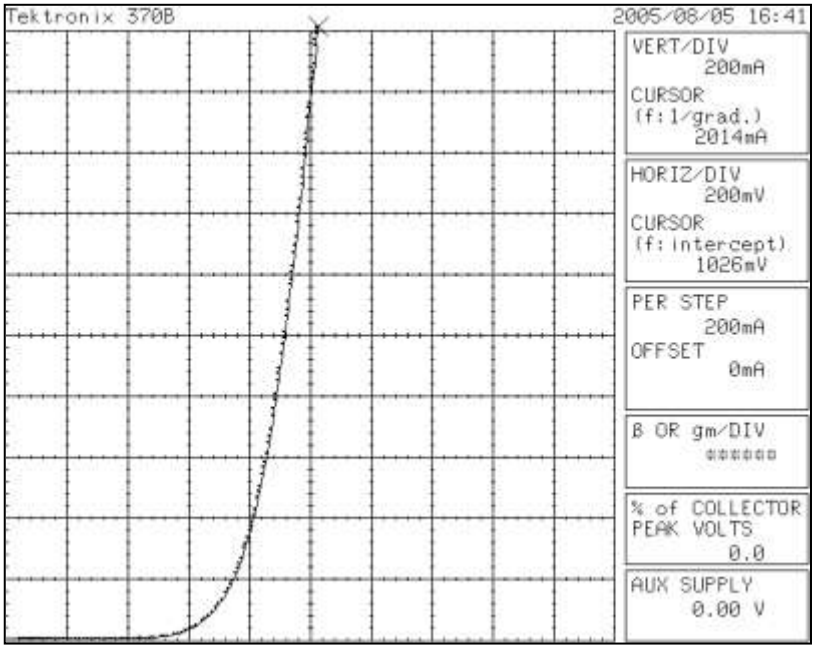
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PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current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

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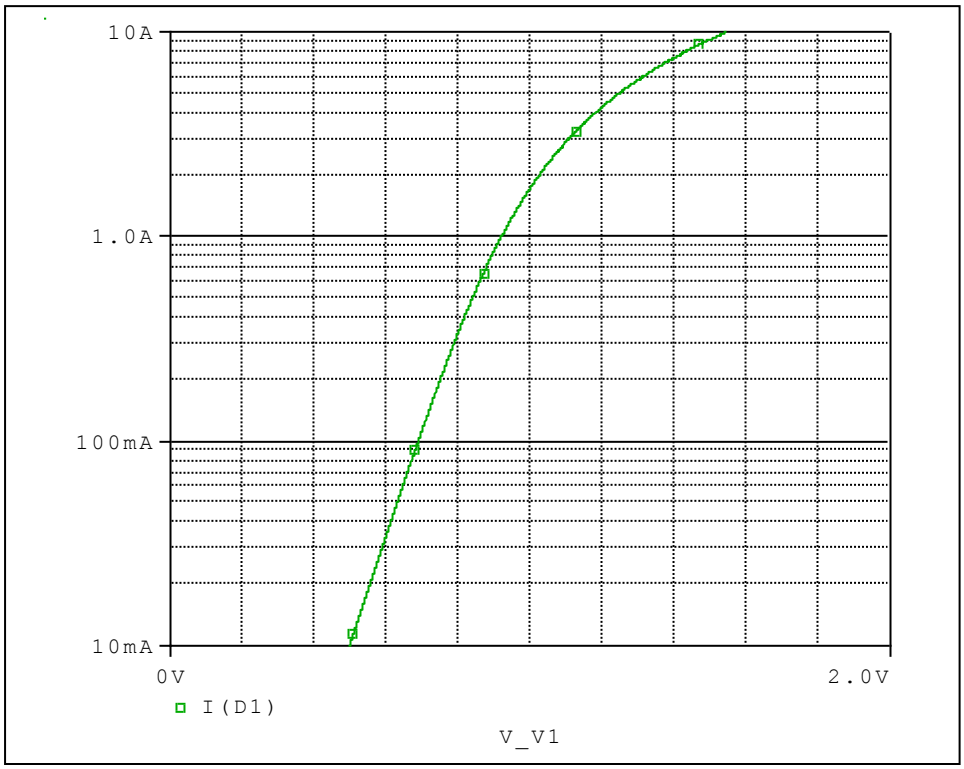
Forward Current Characteristic Reference



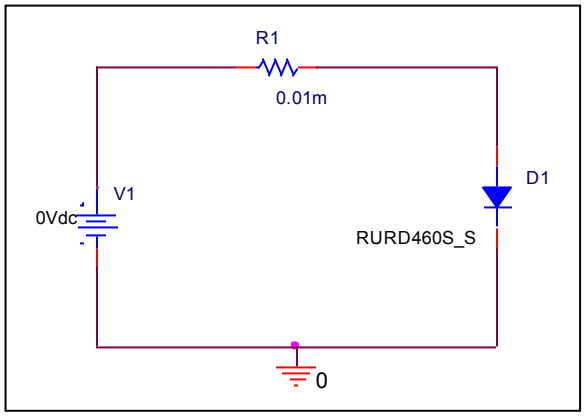
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Forward Current Characteristic

Circuit Simulation Result



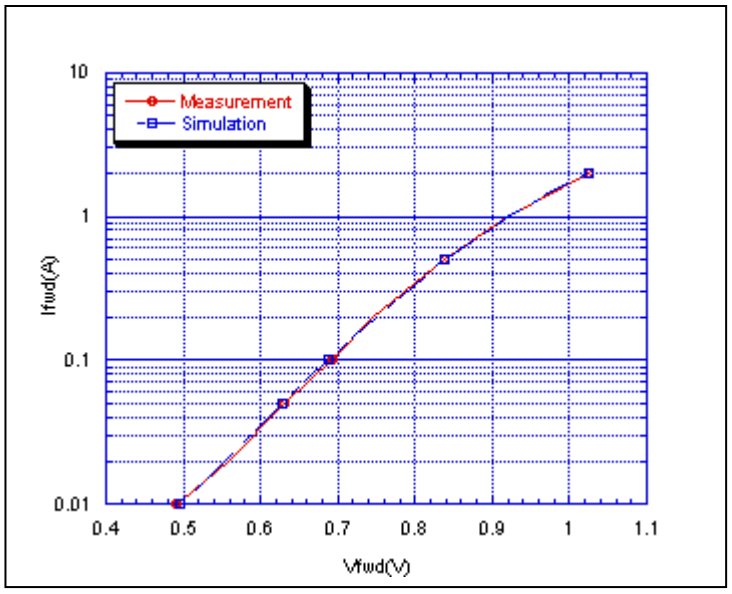
Evaluation Circuit



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Comparison Graph

Circuit Simulation Result



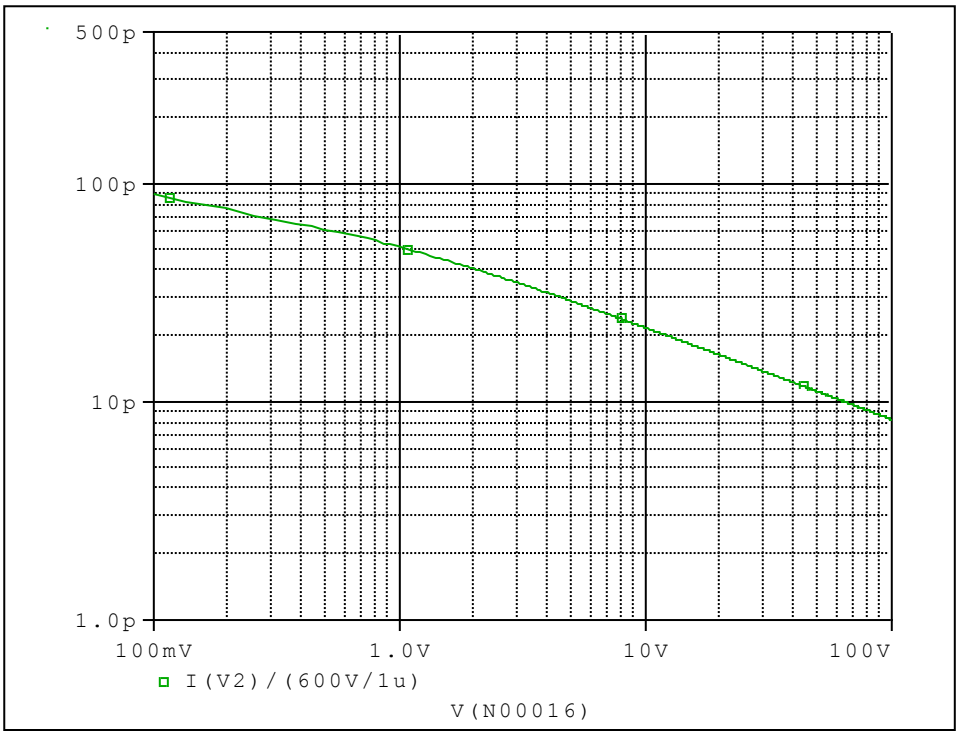
Simulation Result

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

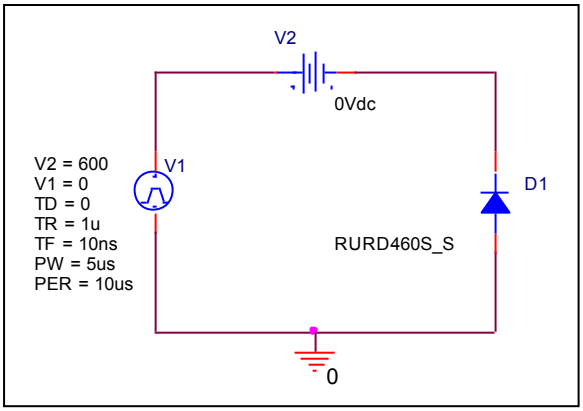
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Capacitance Characteristic

Circuit Simulation Result



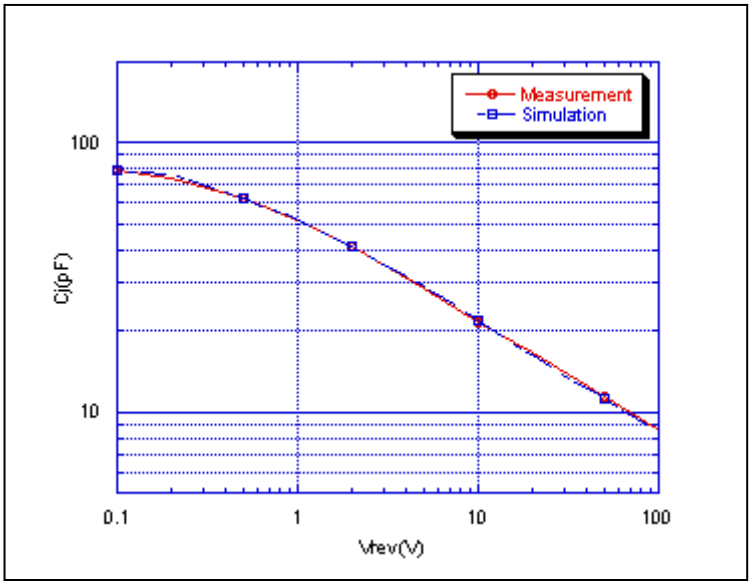
Evaluation Circuit



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Comparison Graph

Circuit Simulation Result



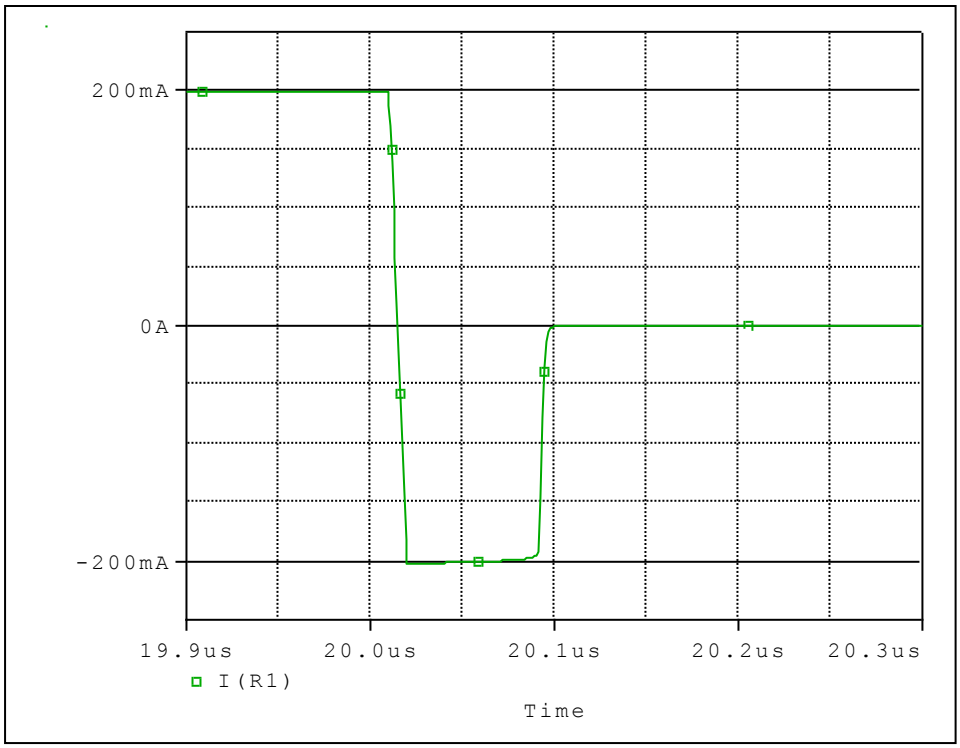
Simulation Result

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

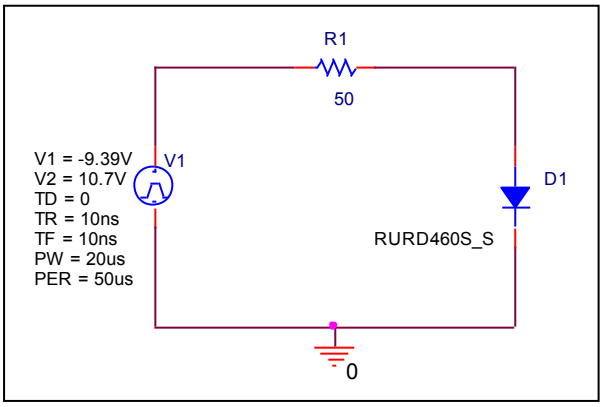
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Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

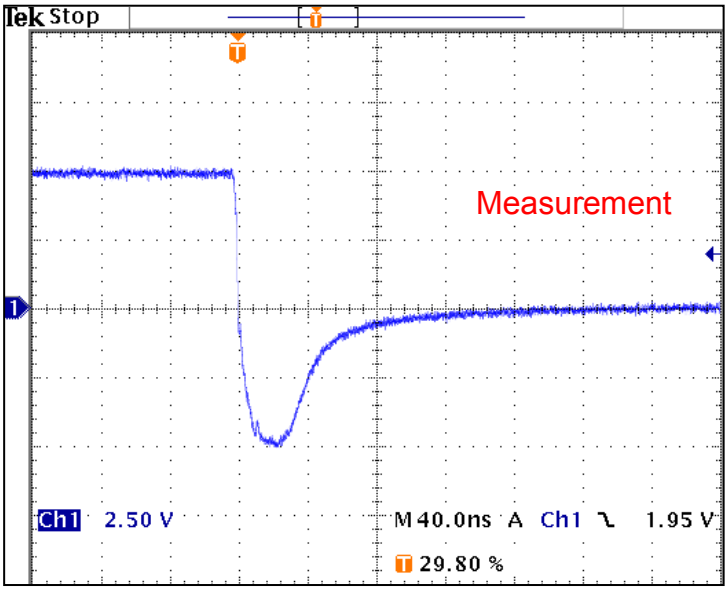


Compare Measurement vs. Simulation

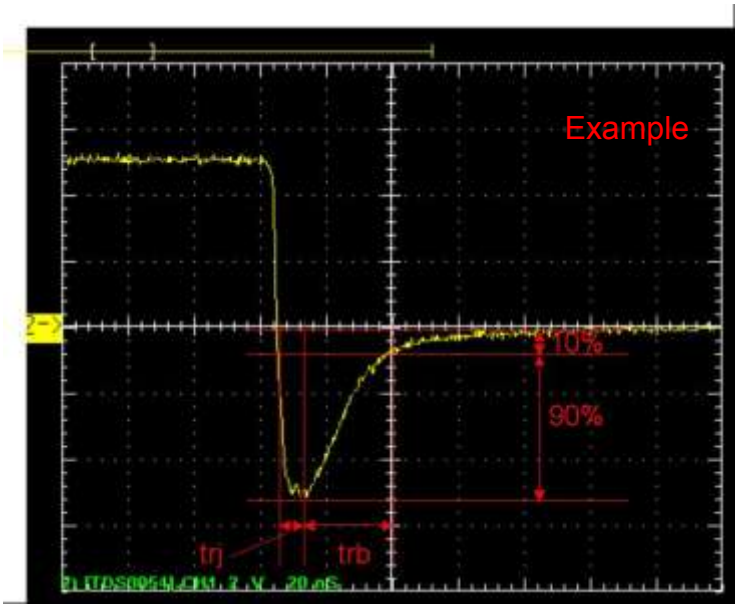
	Measurement		Simulation		%Error
trr	80	ns	79.74	ns	0.325

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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

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