

Device Modeling Report

COMPONENTS:

DIODE/ GENERAL PURPOSE RECTIFIER / PROFESSIONAL

PART NUMBER: RURG8060

MANUFACTURER: INTERSIL

REMARK: TC=150C

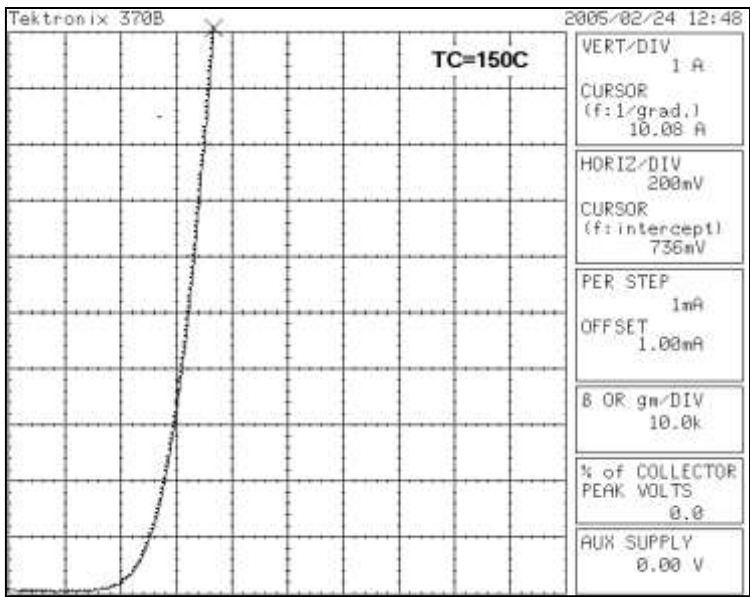


Bee Technologies Inc.

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

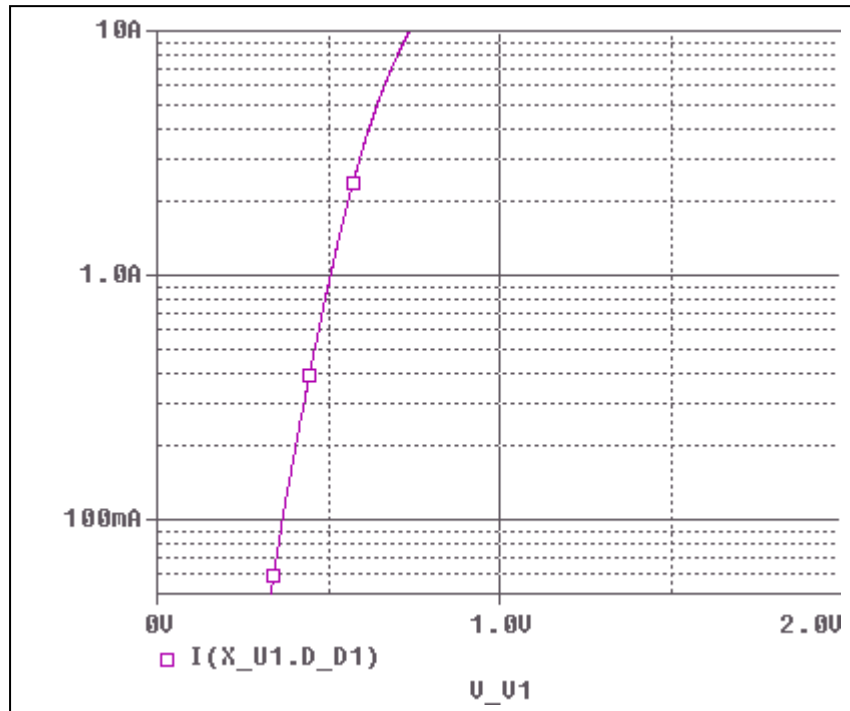
Forward Current Characteristic

Reference

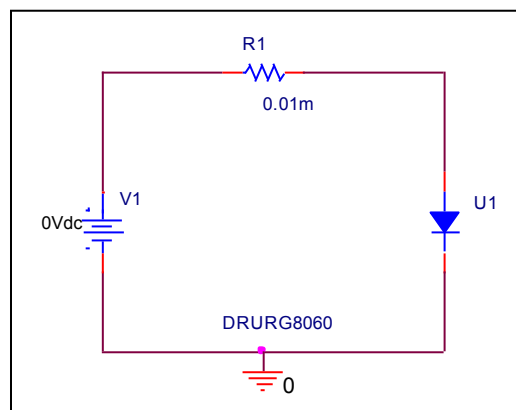


Forward Current Characteristic

Circuit Simulation Result

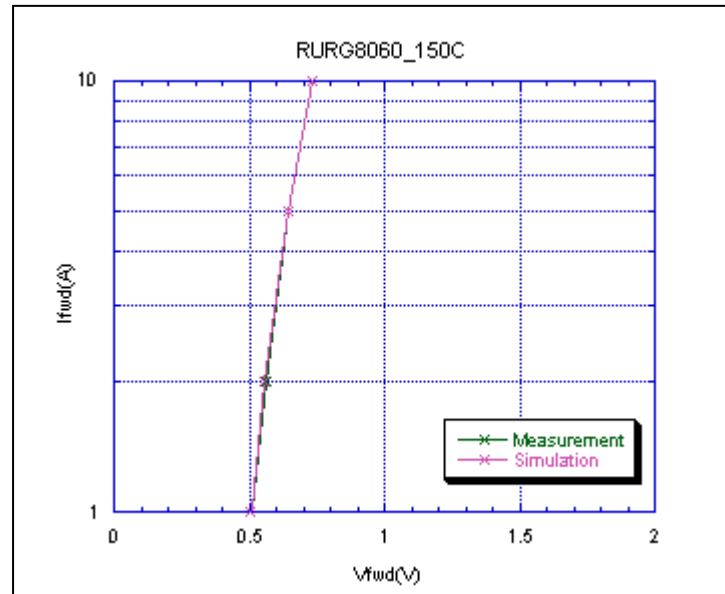


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

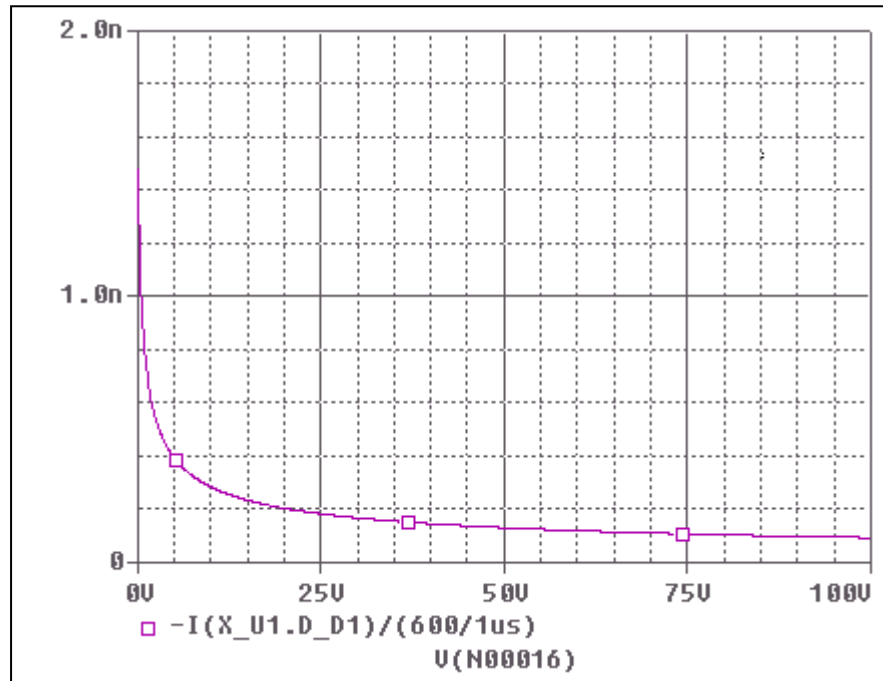


Simulation Result

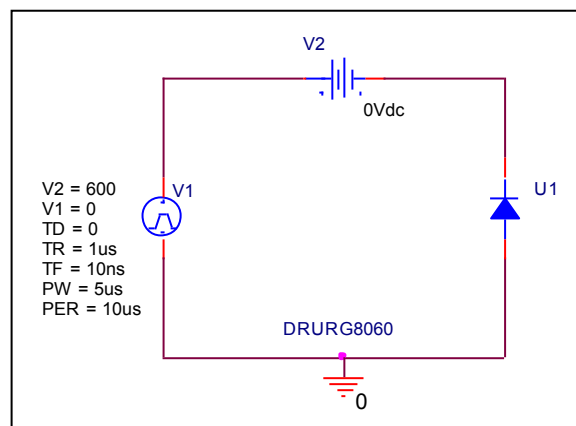
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.1	0.358	0.365	-1.96
0.2	0.404	0.404	0.00
0.5	0.464	0.460	0.86
1	0.506	0.505	0.20
2	0.560	0.557	0.54
5	0.644	0.643	0.16
10	0.736	0.737	-0.14

Capacitance Characteristic

Circuit Simulation Result

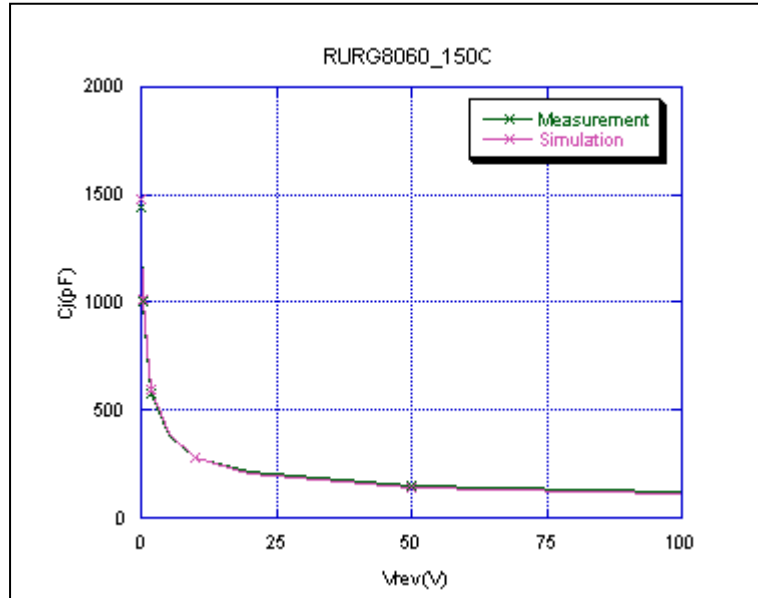


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

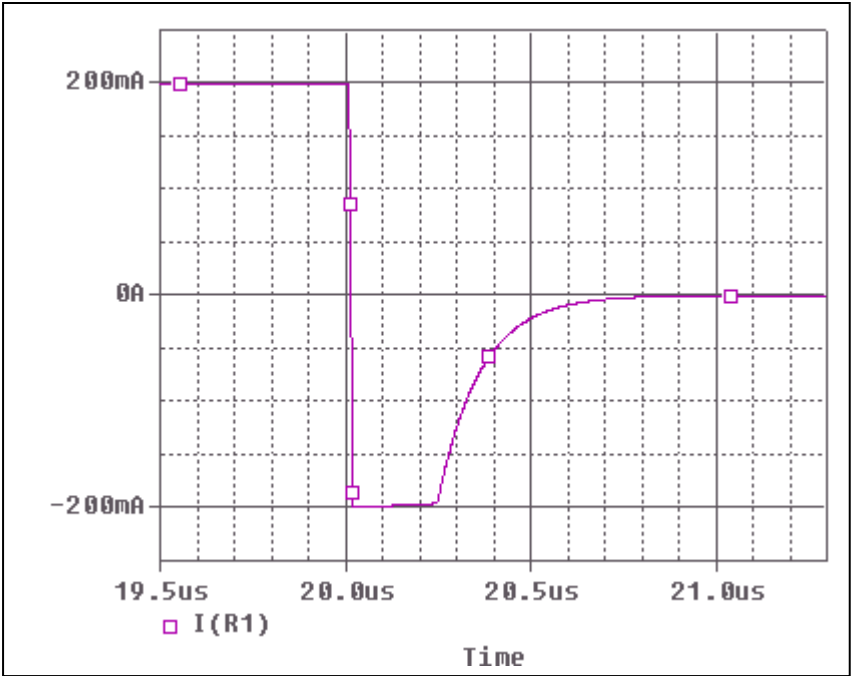


Simulation Result

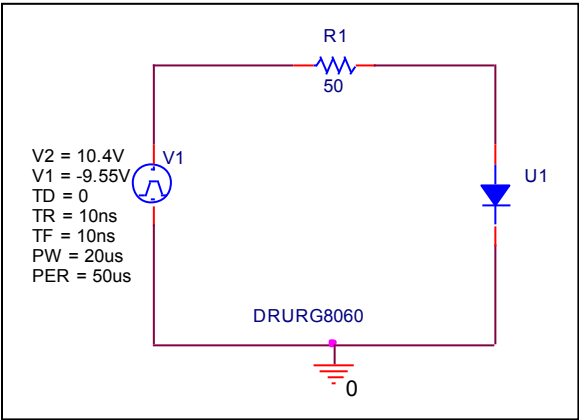
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	1660.000	1660.000	0.00
0.1	1441.000	1480.400	-2.73
0.2	1315.000	1304.700	0.78
0.5	1002.000	1016.500	-1.45
1	776.380	794.041	-2.27
2	577.680	596.982	-3.34
5	385.640	395.216	-2.48
10	282.730	284.730	-0.71
20	213.710	204.300	4.40
50	150.200	143.206	4.66
100	115.670	109.981	4.92

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

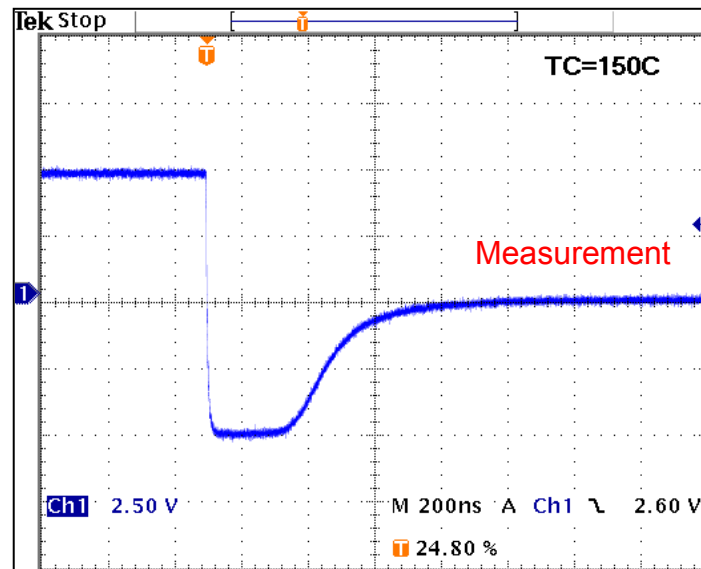


Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	232.0	ns	232.3	ns	0.129
trb	264.0	ns	263.5	ns	0.189

Reverse Recovery Characteristic

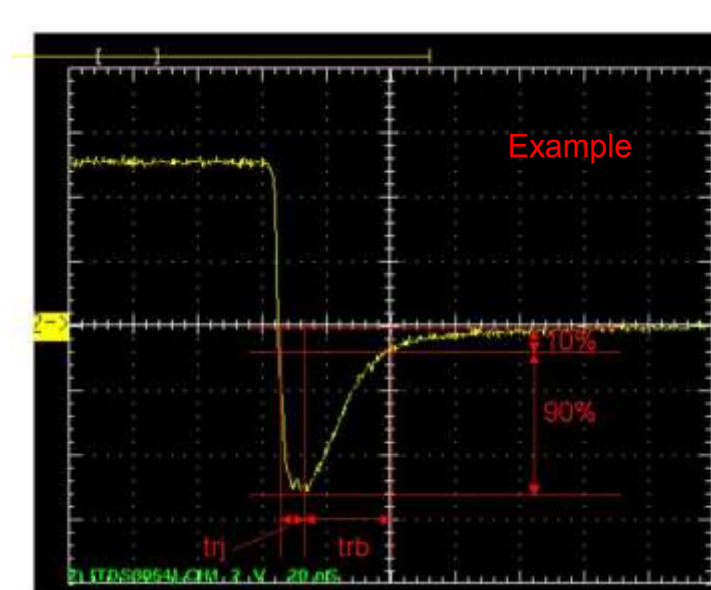
Reference



$T_{rr} = 232(\text{ns})$

$T_{rb} = 264(\text{ns})$

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



Relation between t_{rr} and t_{rb}