

Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / PROFESSIONAL
PART NUMBER: RURG8060
MANUFACTURER: INTERSIL
REMARK: TC=80C

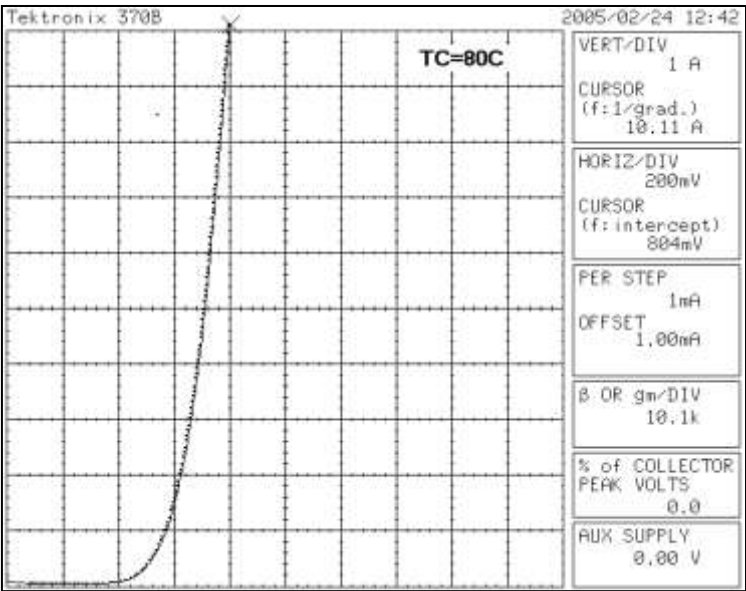


Bee Technologies Inc.

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

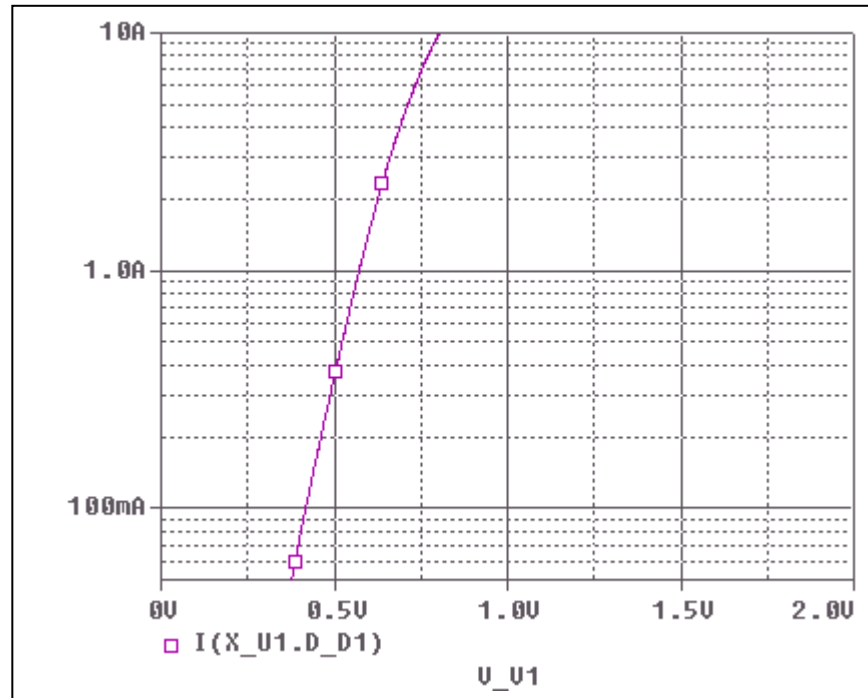
Forward Current Characteristic

Reference

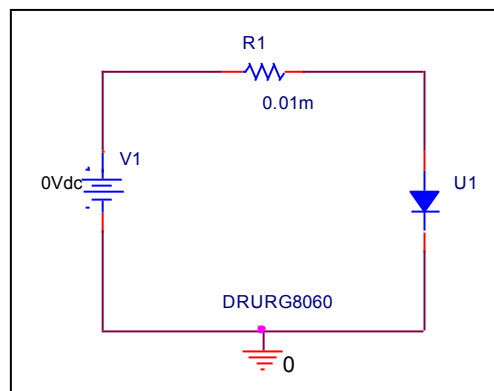


Forward Current Characteristic

Circuit Simulation Result

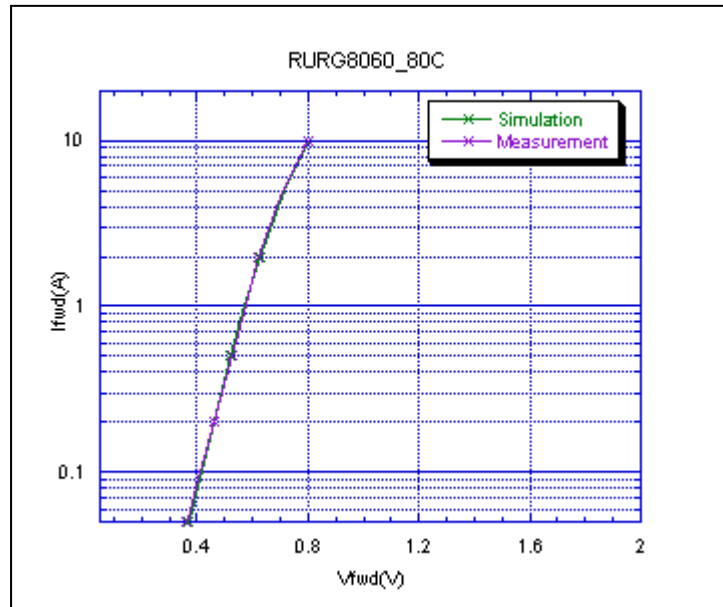


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

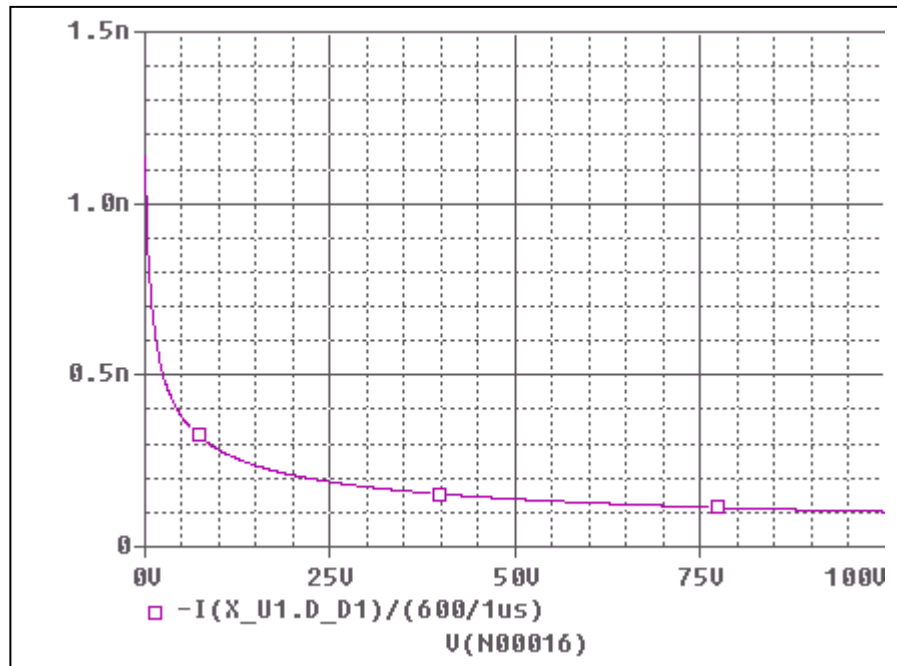


Simulation Result

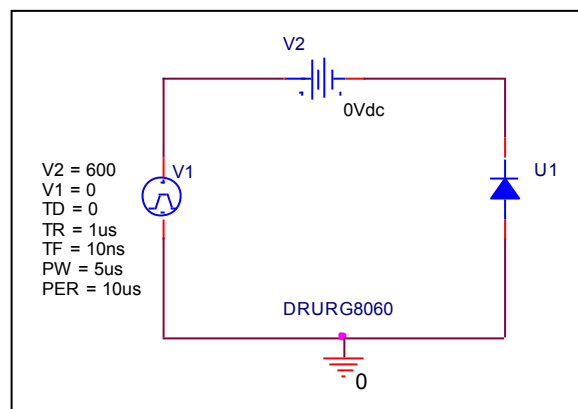
I_{fwd} (A)	V_{fwd} (V) Measurement	V_{fwd} (V) Simulation	%Error
0.05	0.360	0.366	-1.67
0.1	0.412	0.417	-1.24
0.2	0.462	0.462	0.00
0.5	0.526	0.523	0.57
1	0.574	0.517	9.93
2	0.624	0.625	-0.16
5	0.710	0.713	-0.42
10	0.804	0.802	0.25

Capacitance Characteristic

Circuit Simulation Result

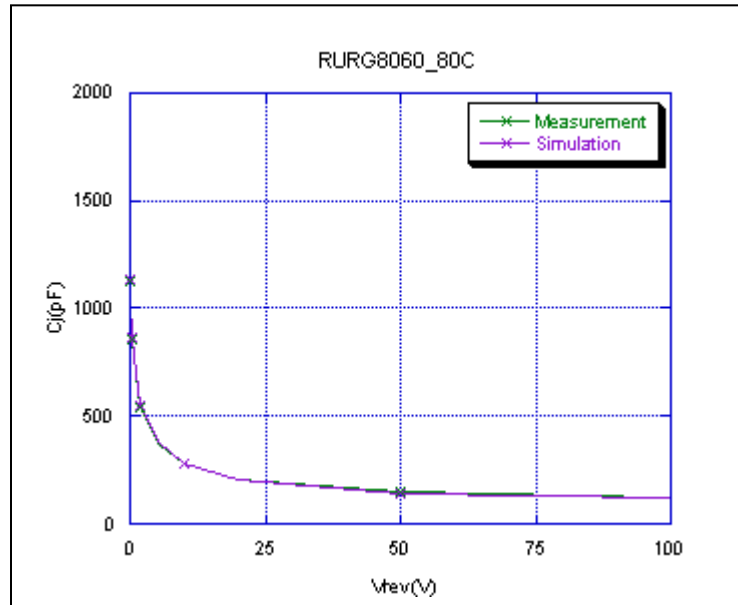


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

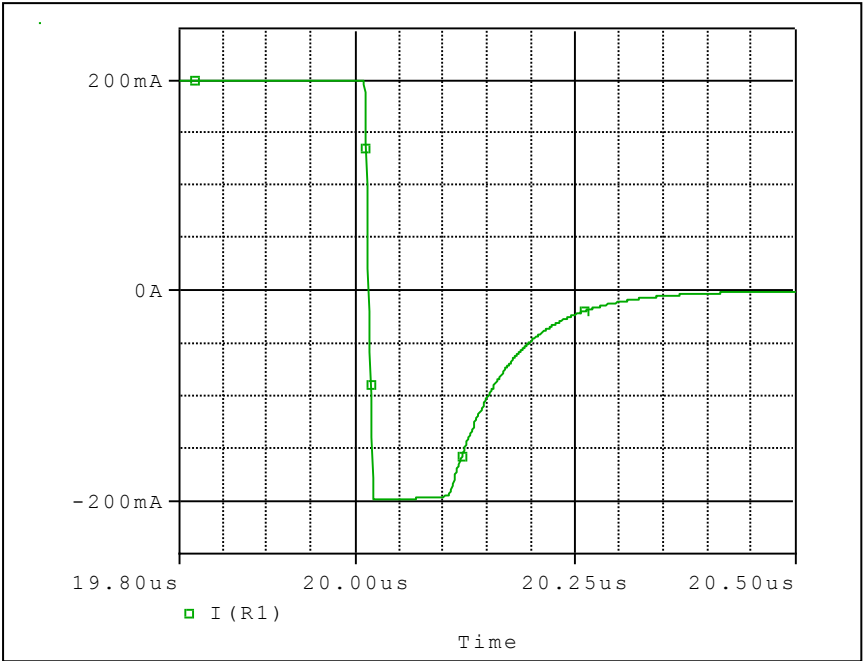


Simulation Result

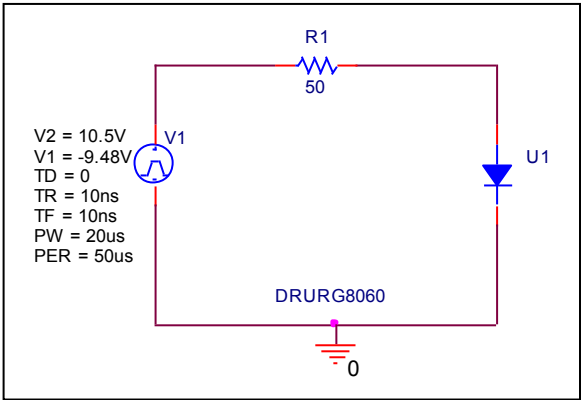
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	1238.000	1238.000	0.00
0.1	1128.000	1137.200	-0.82
0.2	1039.000	1040.500	-0.14
0.5	856.670	860.781	-0.48
1	699.970	701.361	-0.20
2	541.060	548.563	-1.39
5	372.330	380.299	-2.14
10	276.160	282.628	-2.34
20	210.740	208.531	1.05
50	149.960	142.778	4.79
100	112.290	110.167	1.89

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

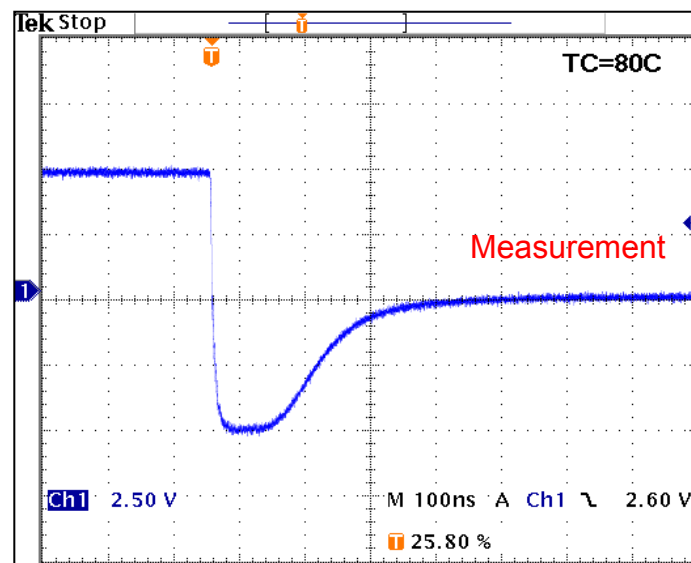


Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	92.00	ns	91.61	ns	0.423
trb	150.00	ns	149.29	ns	0.473

Reverse Recovery Characteristic

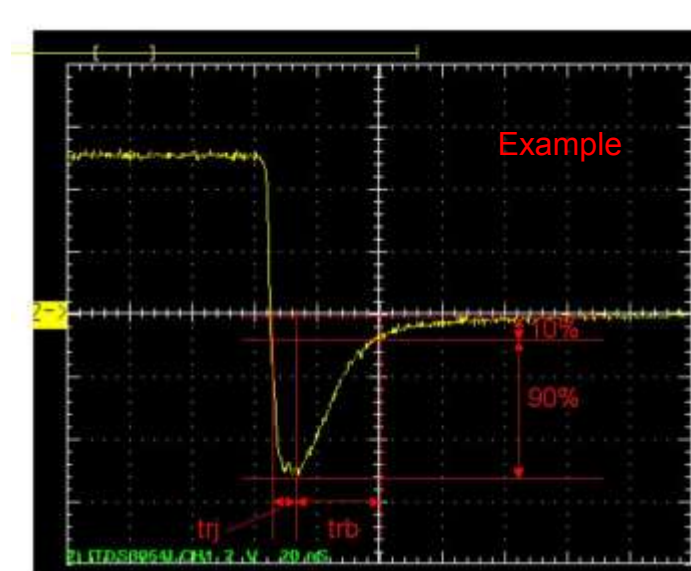
Reference



$T_{rj} = 92(\text{ns})$

$T_{rb} = 150(\text{ns})$

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



Relation between t_{rj} and t_{rb}