

Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / PROFESSIONAL
PART NUMBER: RURG5060
MANUFACTURER: INTERSIL
REMARK: TC=150C

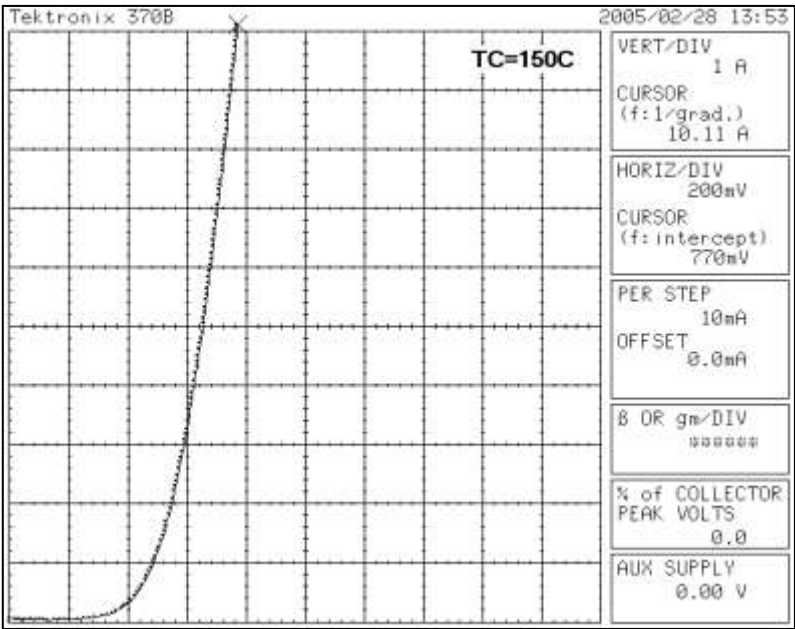


Bee Technologies Inc.

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

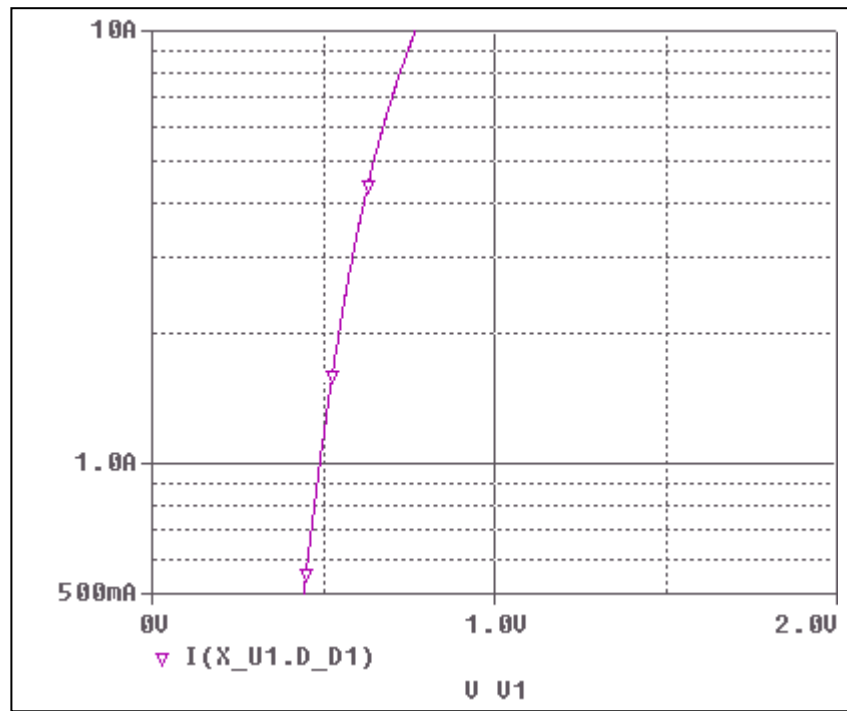
Forward Current Characteristic

Reference

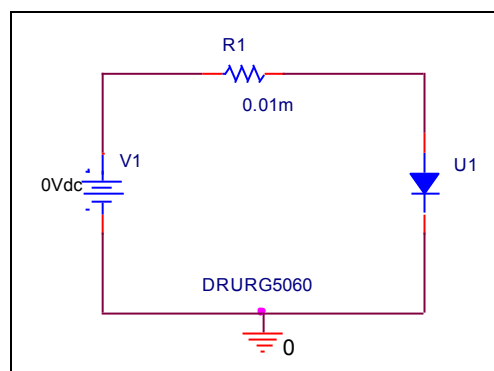


Forward Current Characteristic

Circuit Simulation Result

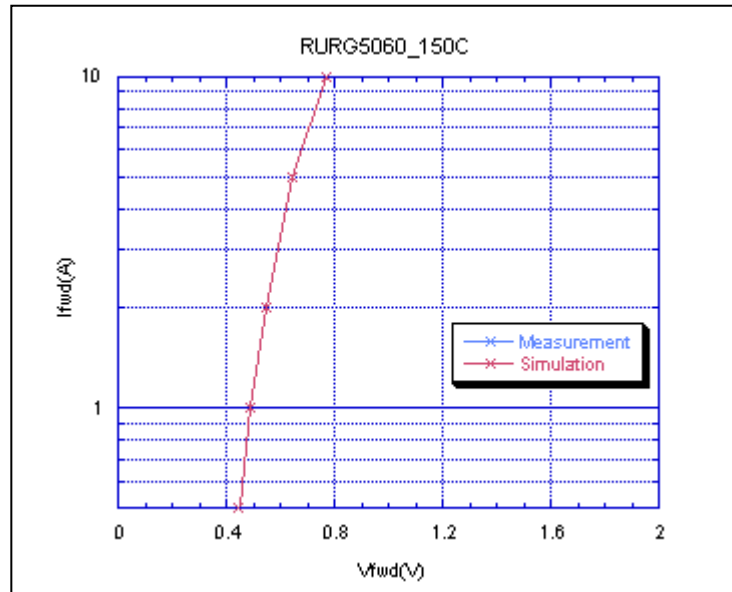


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

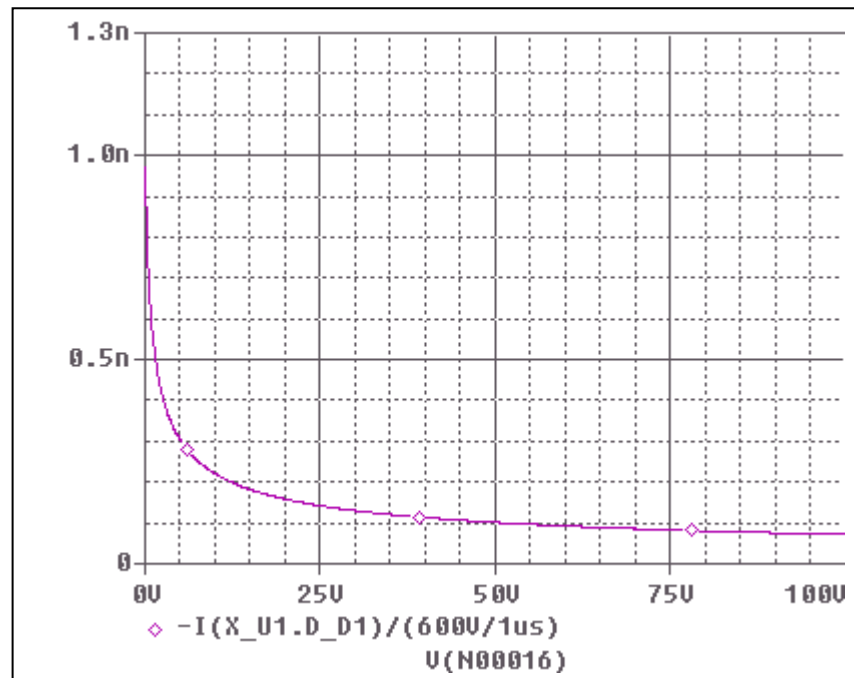


Simulation Result

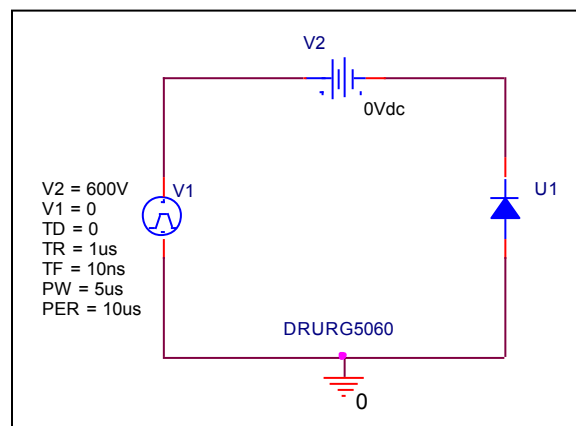
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.5	0.444	0.443	0.23
1	0.488	0.489	-0.20
2	0.548	0.547	0.18
5	0.646	0.647	-0.15
10	0.770	0.771	-0.13

Capacitance Characteristic

Circuit Simulation Result

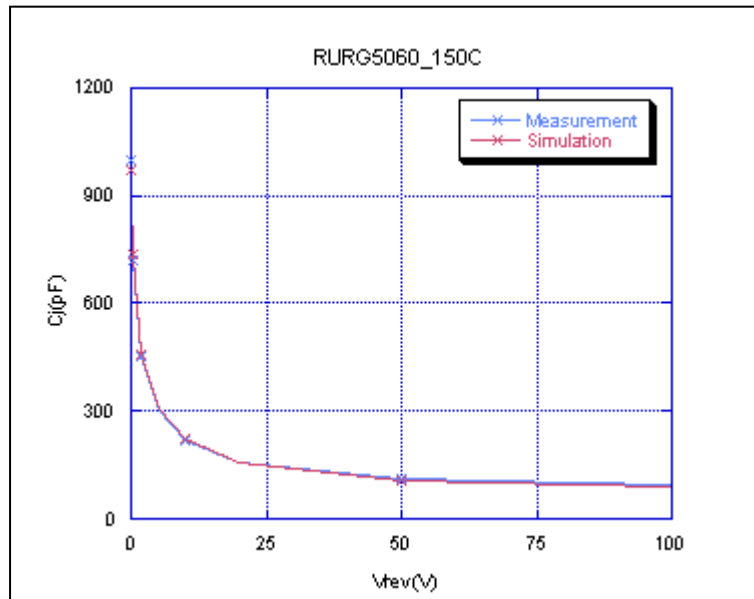


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

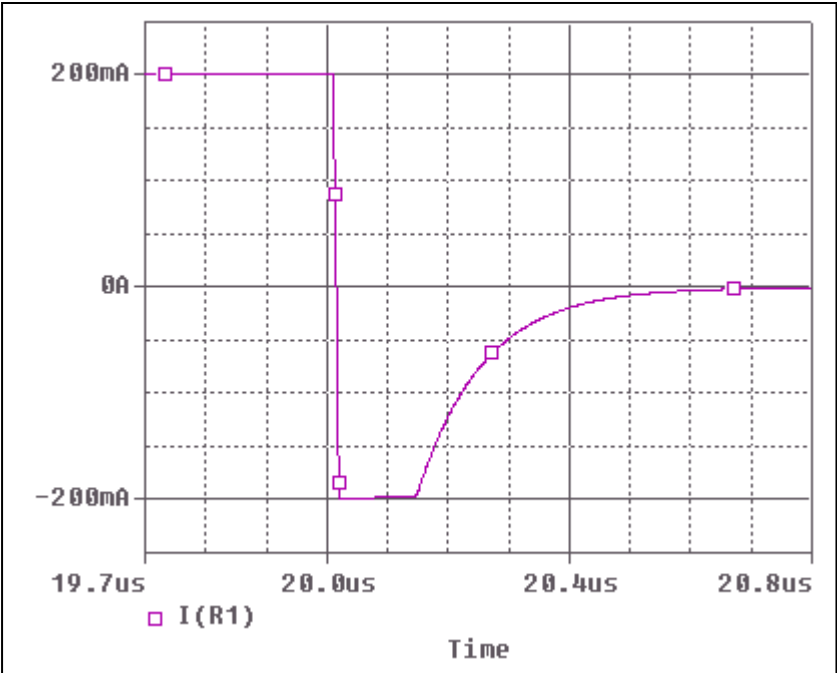


Simulation Result

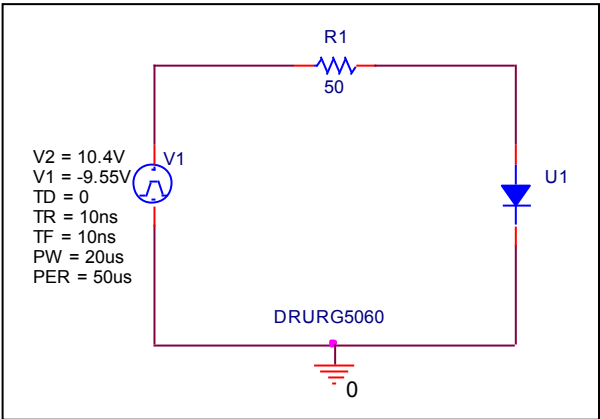
$V_{rev}(V)$	$C_j(pF)$ Measurement	$C_j(pF)$ Simulation	%Error
0	1024.500	1024.500	0.00
0.1	1000.300	972.127	2.82
0.2	873.719	891.484	-2.03
0.5	716.756	734.007	-2.41
1	591.286	593.228	-0.33
2	450.101	456.899	-1.51
5	299.470	306.362	-2.30
10	220.151	221.603	-0.66
20	155.711	158.498	-1.79
50	110.788	107.342	3.11
100	90.100	85.854	4.71

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

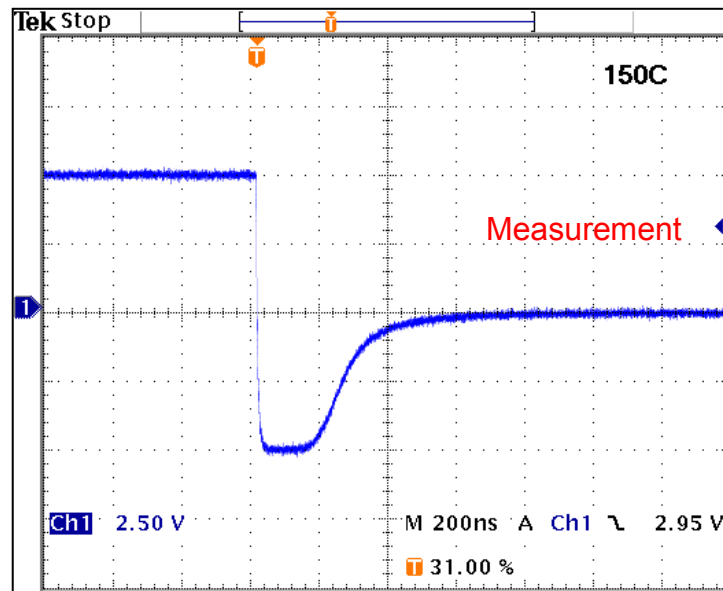


Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	132.0	ns	132.6	ns	0.454
trb	248.0	ns	247.7	ns	0.120

Reverse Recovery Characteristic

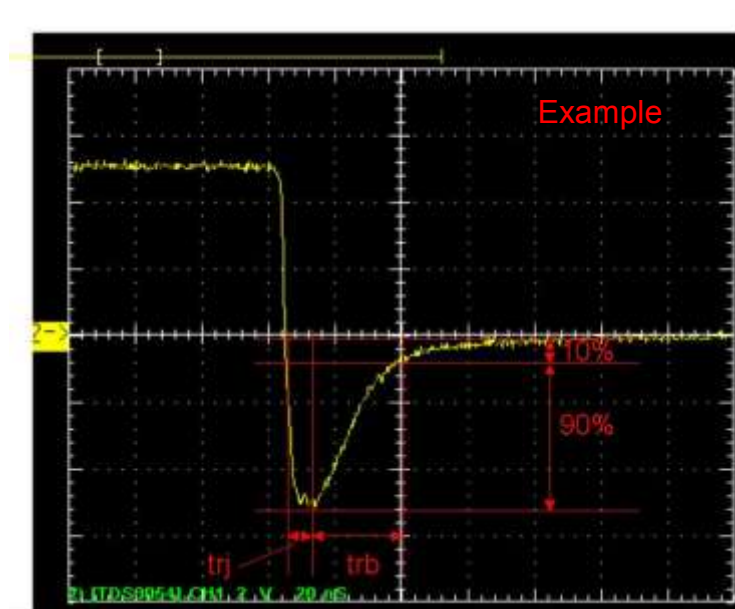
Reference



$T_{rj} = 132 \text{ (ns)}$

$T_{rb} = 248 \text{ (ns)}$

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



Relation between t_{rj} and t_{rb}