

Device Modeling Report

COMPONENTS:

DIODE/ GENERAL PURPOSE RECTIFIER / PROFESSIONAL

PART NUMBER: RURG8060

MANUFACTURER: INTERSIL

REMARK: TC=25C

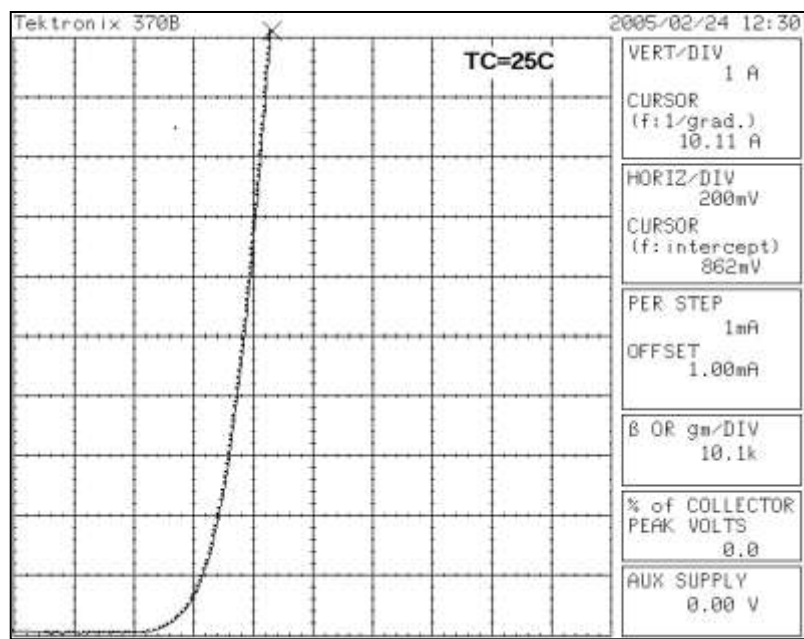


Bee Technologies Inc.

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

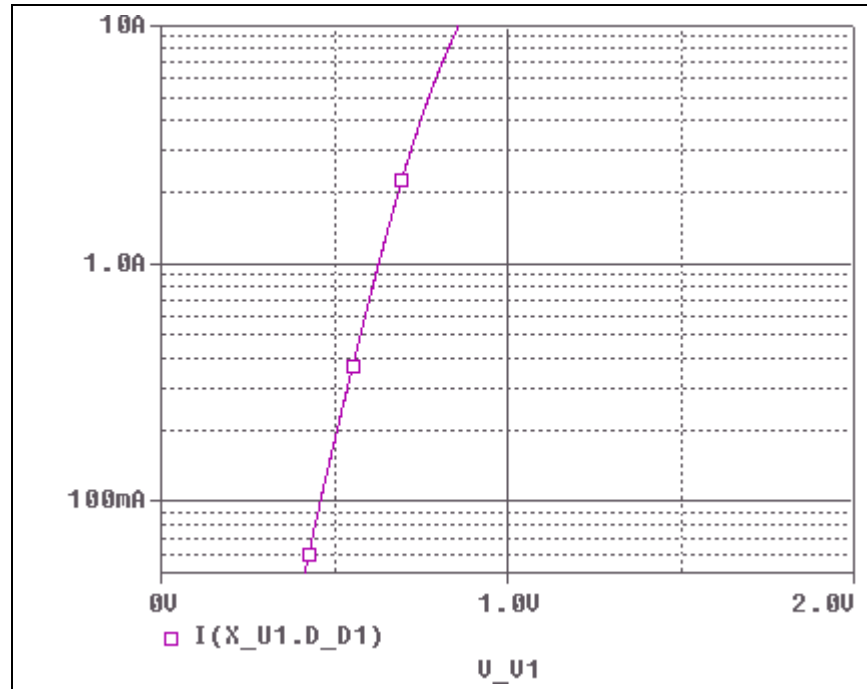
Forward Current Characteristic

Reference

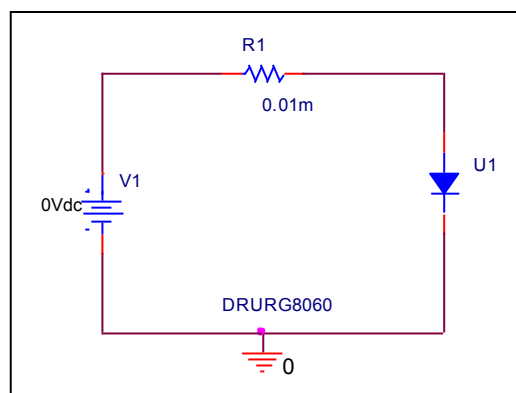


Forward Current Characteristic

Circuit Simulation Result

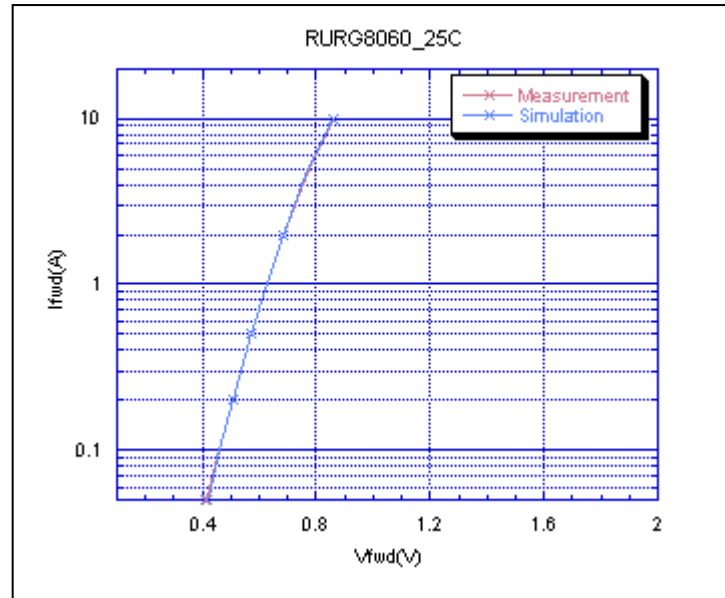


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

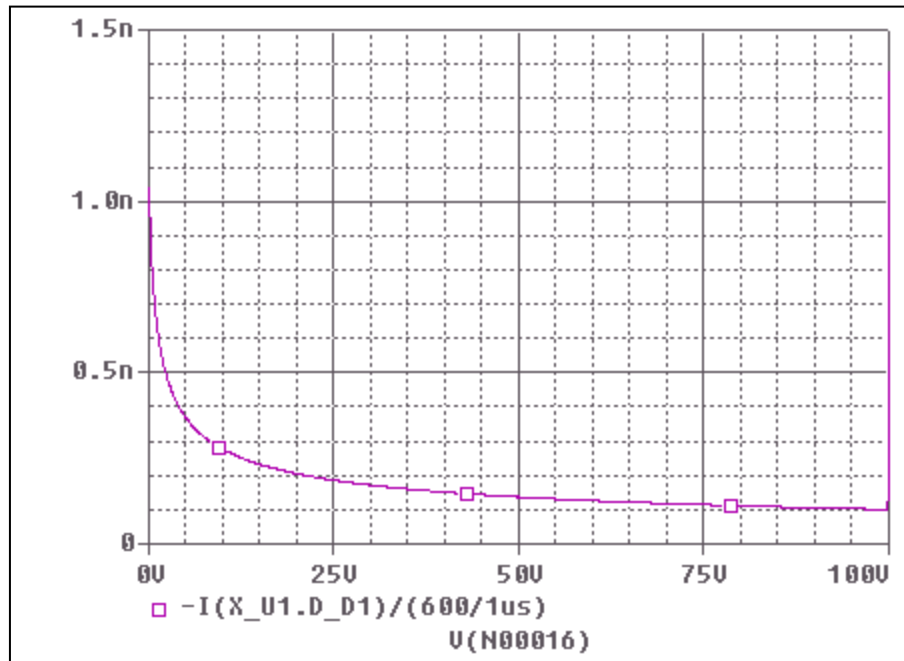


Simulation Result

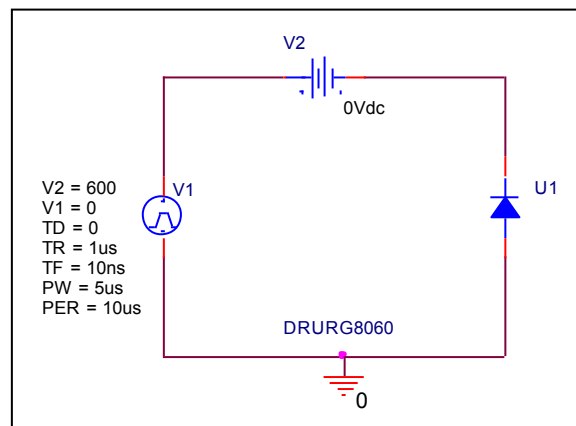
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.05	0.410	0.415	-1.22
0.1	0.462	0.459	0.65
0.2	0.508	0.508	0.00
0.5	0.574	0.575	-0.17
1	0.630	0.628	0.32
2	0.686	0.684	0.29
5	0.774	0.772	0.26
10	0.858	0.859	-0.12

Capacitance Characteristic

Circuit Simulation Result

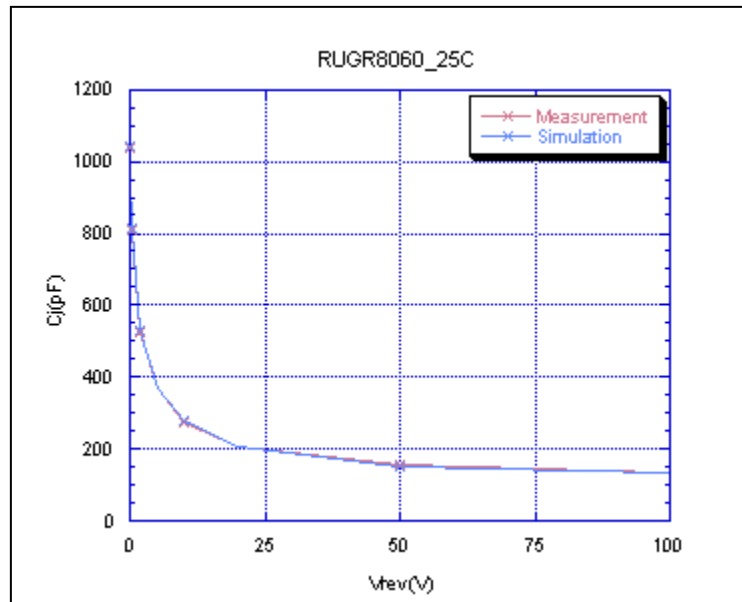


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

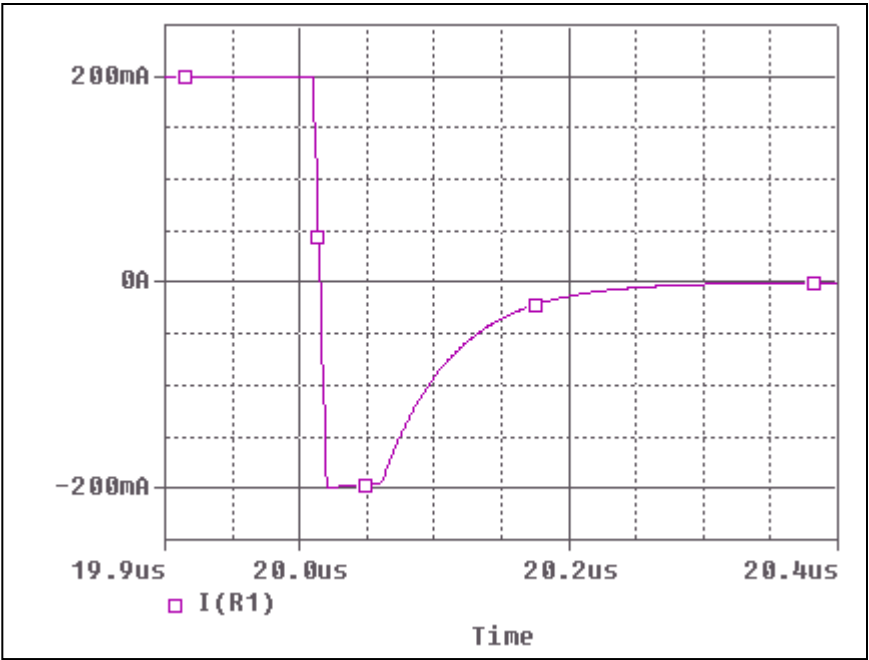


Simulation Result

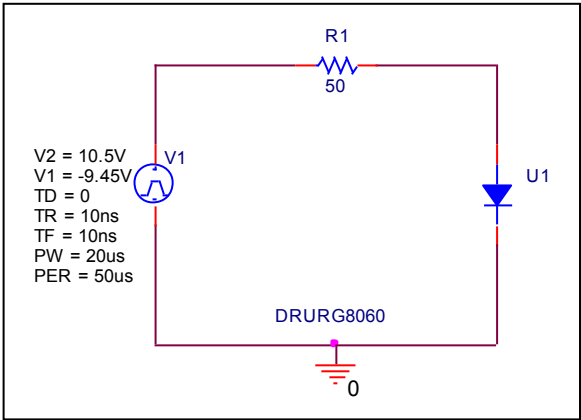
$V_{rev}(V)$	$C_j(pF)$ Measurement	$C_j(pF)$ Simulation	%Error
0	1123.800	1123.800	0.00
0.1	1035.600	1041.900	-0.61
0.2	966.330	964.835	0.15
0.5	809.260	812.782	-0.44
1	670.910	672.107	-0.18
2	526.730	530.743	-0.76
5	366.340	371.220	-1.33
10	273.730	277.134	-1.24
20	209.550	205.375	1.99
50	158.600	152.609	3.78
100	131.380	127.220	3.17

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

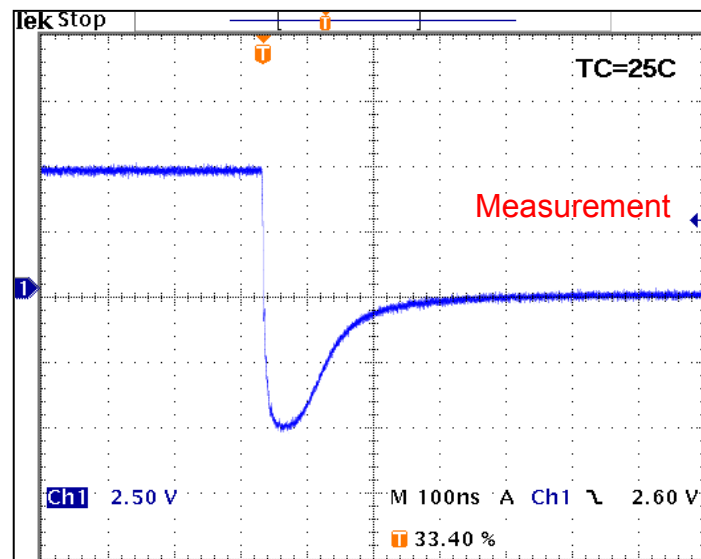


Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	44.0	ns	44.3	ns	0.681
trb	120.0	ns	120.0	ns	0.000

Reverse Recovery Characteristic

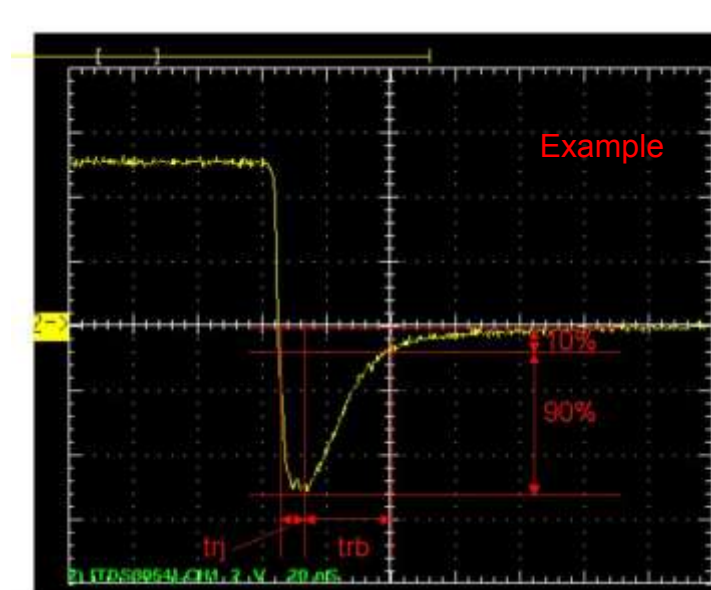
Reference



$T_{rj} = 44(\text{ns})$

$T_{rb} = 120(\text{ns})$

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



Relation between t_{rj} and t_{rb}