

Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / PROFESSIONAL
PART NUMBER: RHRG75120
MANUFACTURER: INTERSIL
REMARK: TC=25C

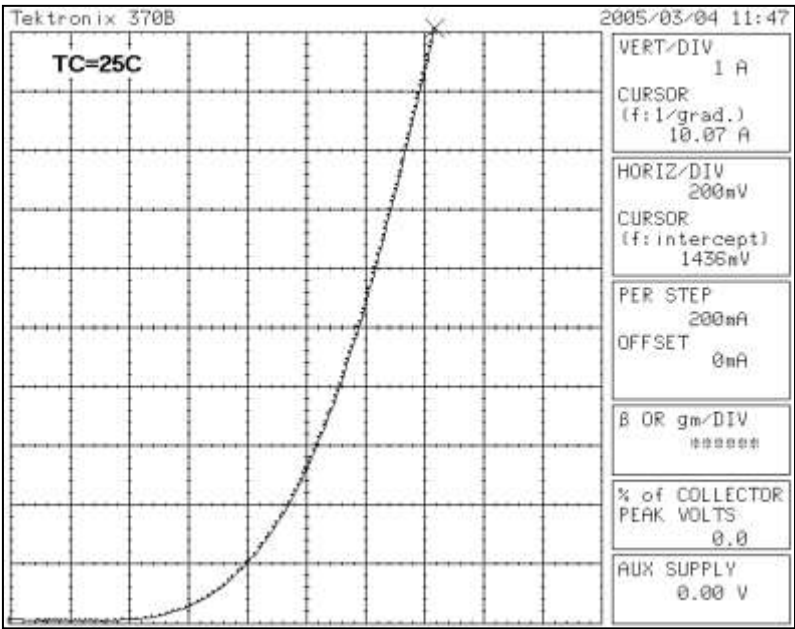


Bee Technologies Inc.

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

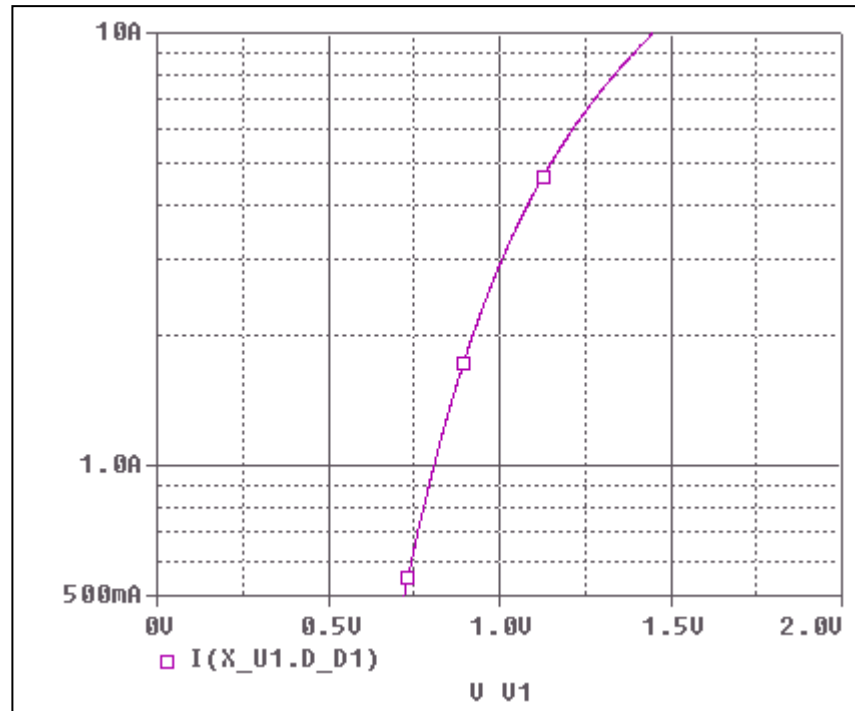
Forward Current Characteristic

Reference

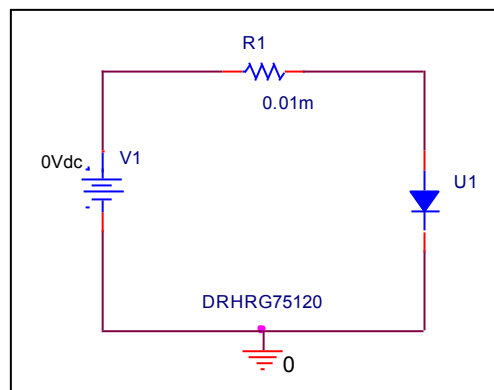


Forward Current Characteristic

Circuit Simulation Result

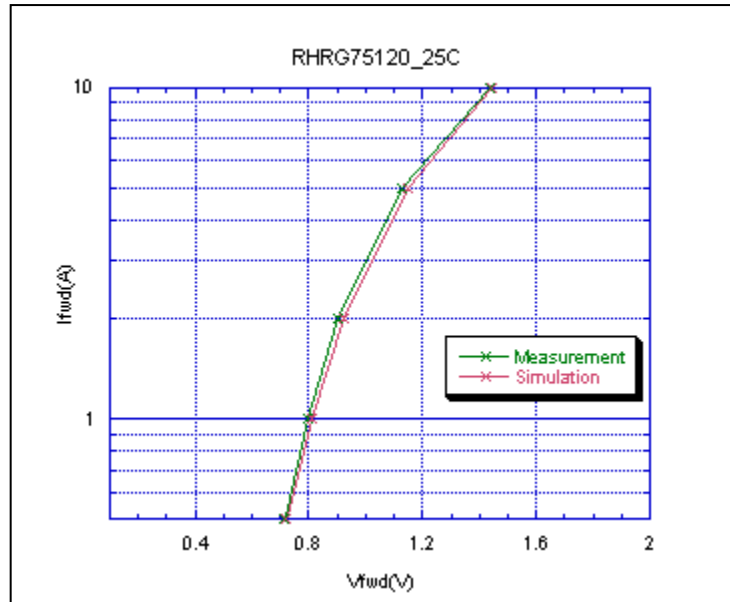


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

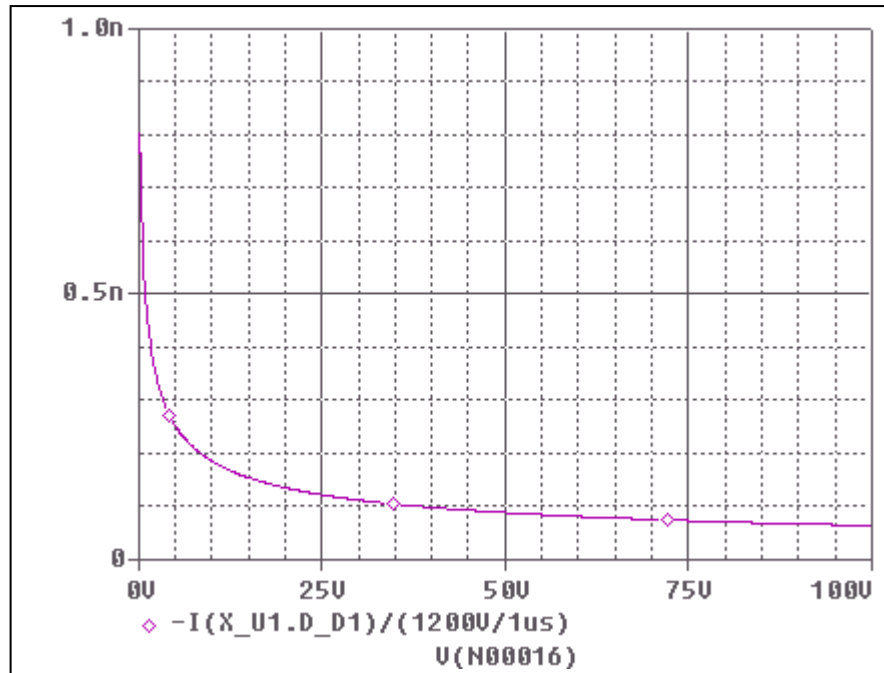


Simulation Result

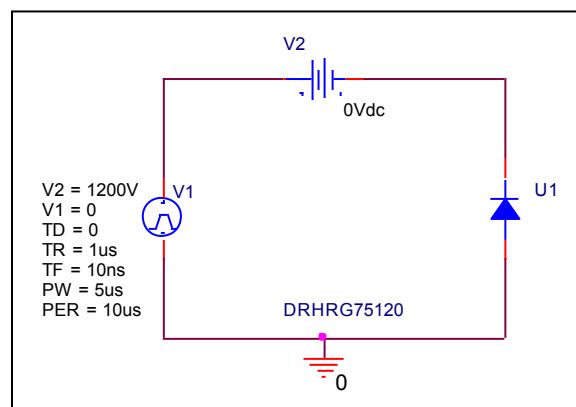
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.5	0.710	0.720	-1.41
1	0.800	0.808	-1.00
2	0.906	0.920	-1.55
5	1.126	1.147	-1.87
10	1.436	1.447	-0.77

Capacitance Characteristic

Circuit Simulation Result

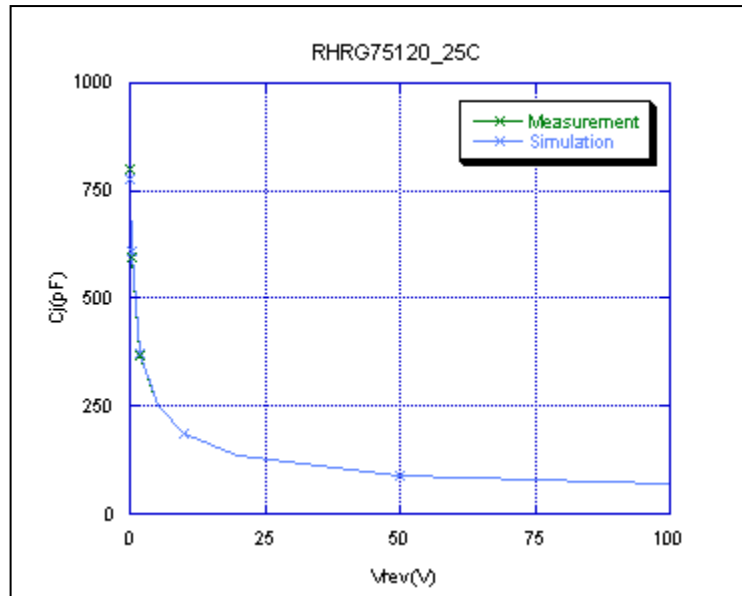


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

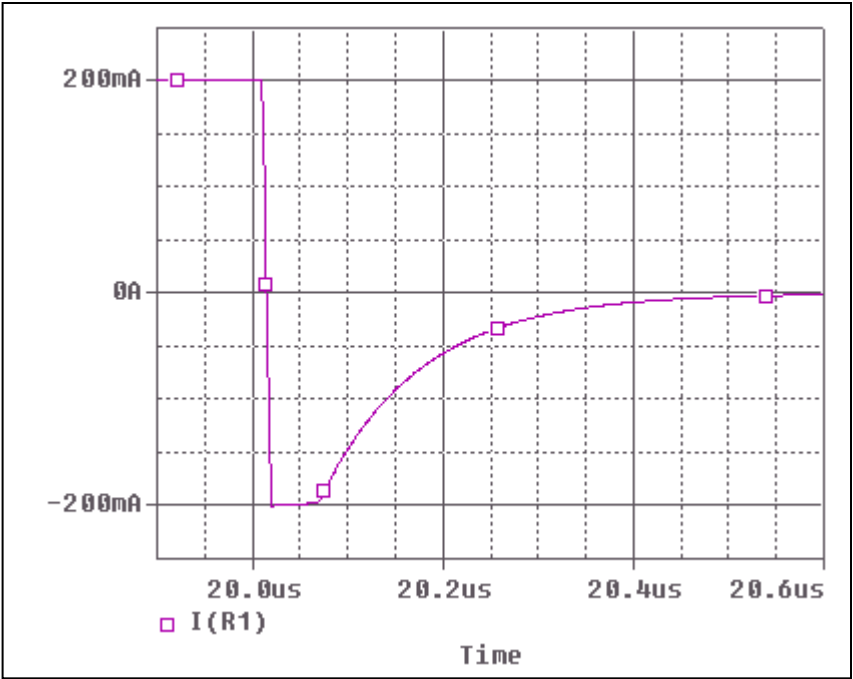


Simulation Result

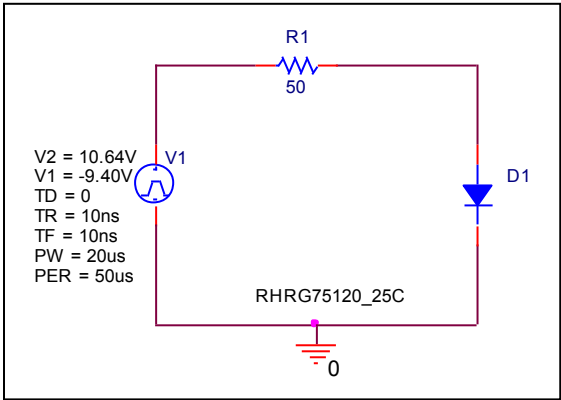
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	897.340	897.345	0.00
0.1	800.330	775.918	3.05
0.2	732.380	754.776	-3.06
0.5	593.380	610.450	-2.88
1	482.720	489.742	-1.45
2	367.520	374.006	-1.76
5	253.620	253.473	0.06
10	186.040	186.112	-0.04
20	135.910	135.625	0.21
50	89.263	88.760	0.56
100	64.908	64.326	0.90

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

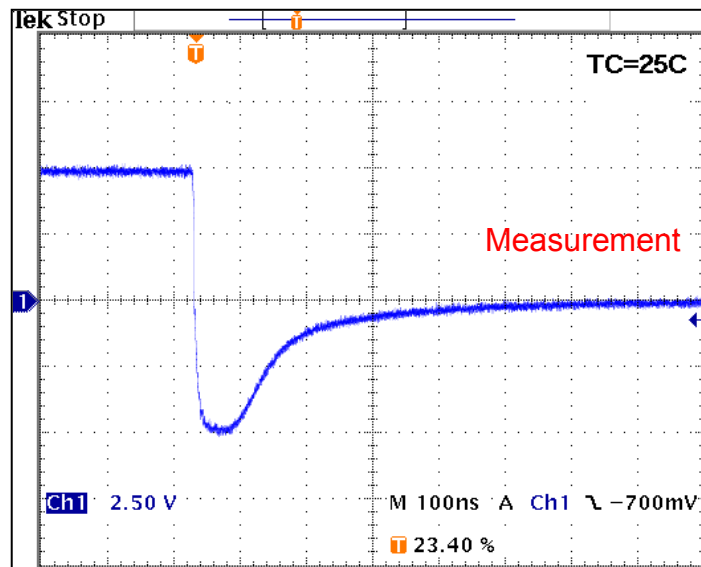


Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	56.0	ns	55.8	ns	0.357
trb	238.0	ns	237.7	ns	0.126

Reverse Recovery Characteristic

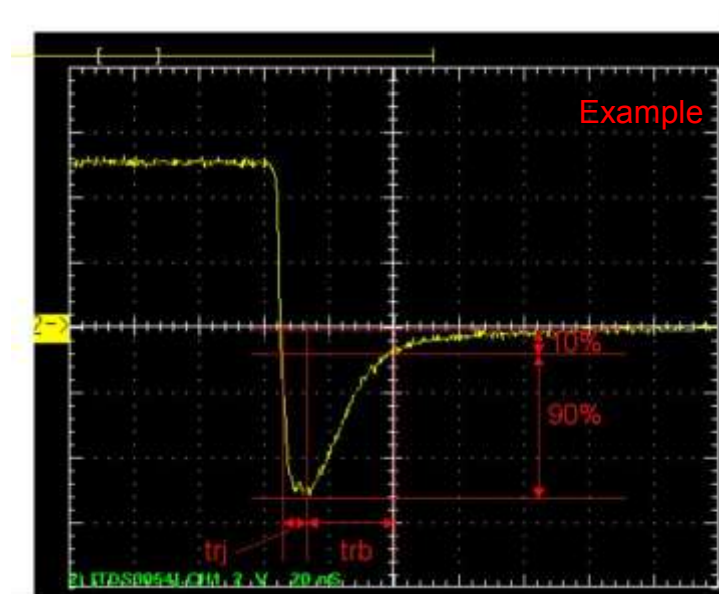
Reference



$T_{rj} = 56$ (ns)

$T_{rb} = 238$ (ns)

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



Relation between t_{rj} and t_{rb}