Device Modeling Report

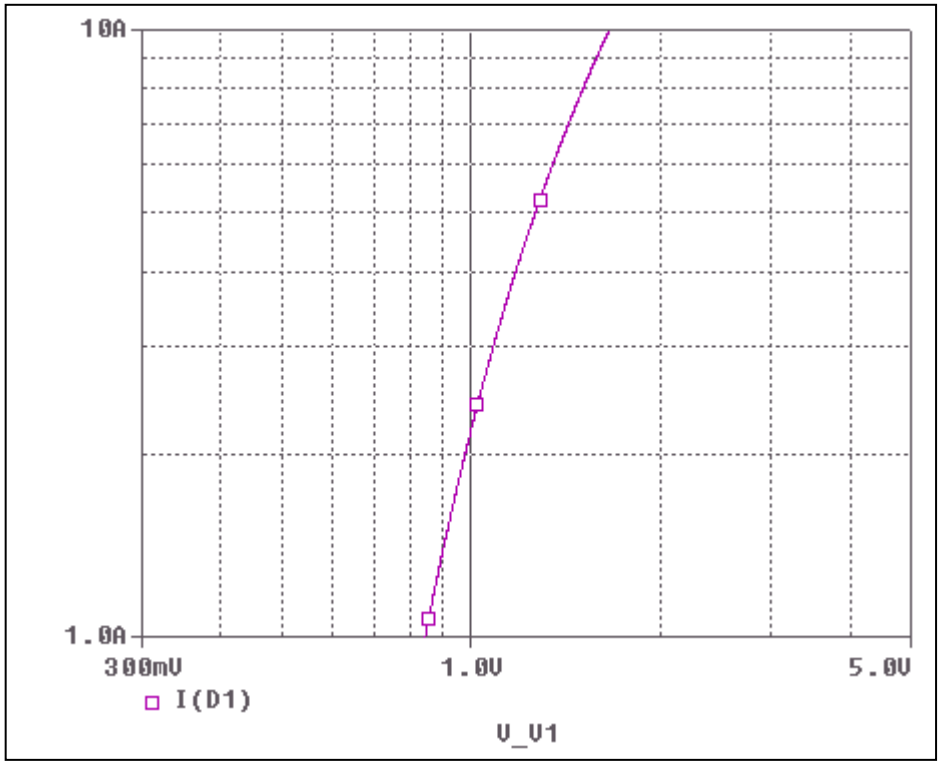
COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / STANDARD
PART NUMBER: RHRP30120
MANUFACTURER: INTERSIL
REMARK: TC=80C

Bee Technologies Inc.

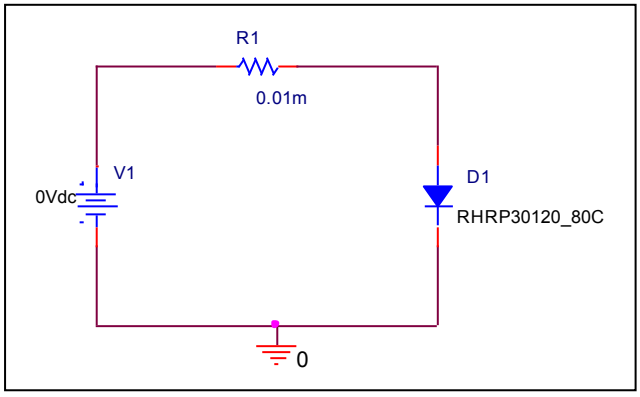
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a positive value)
IBV	Reverse Breakdown Current(a positive value)
TT	Transit Time
EG	Energy-band Gap

Forward Current Characteristic

Circuit Simulation Result

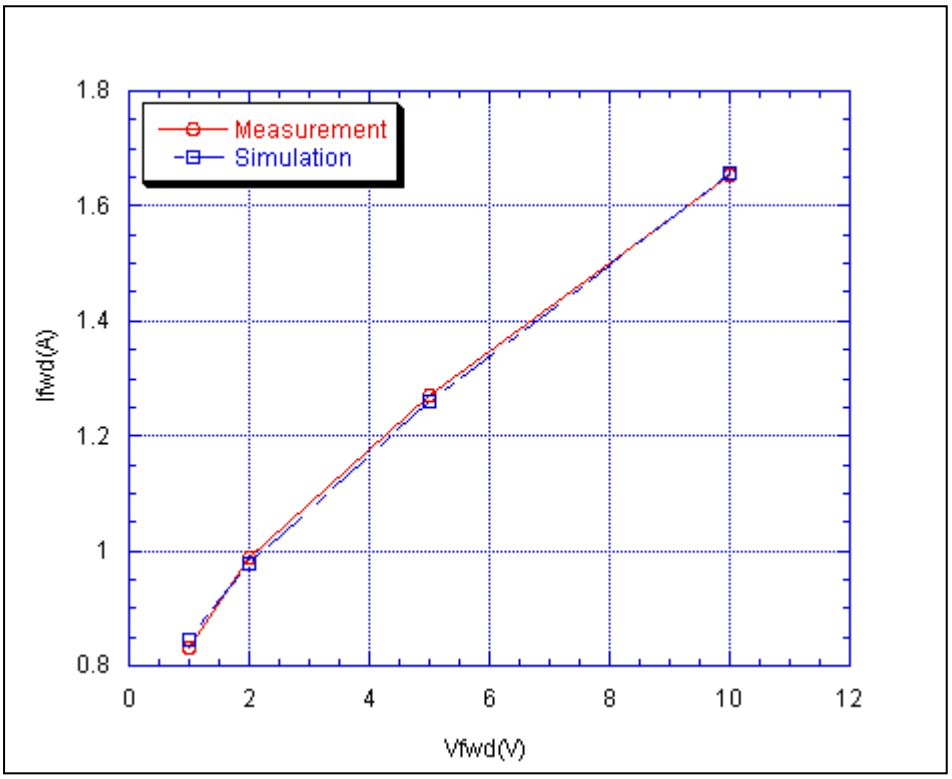


Evaluation Circuit



Comparison Graph

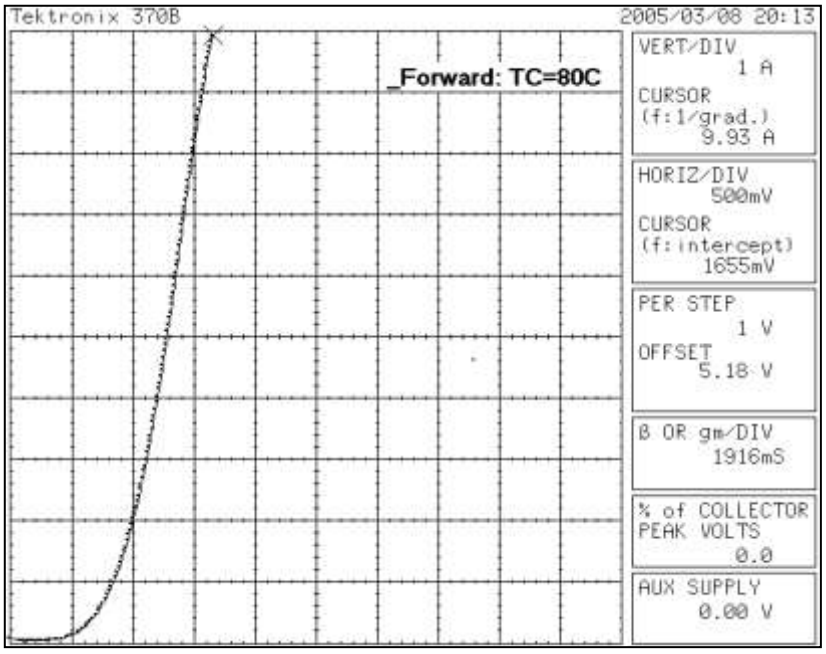
Circuit Simulation Result



Simulation Result

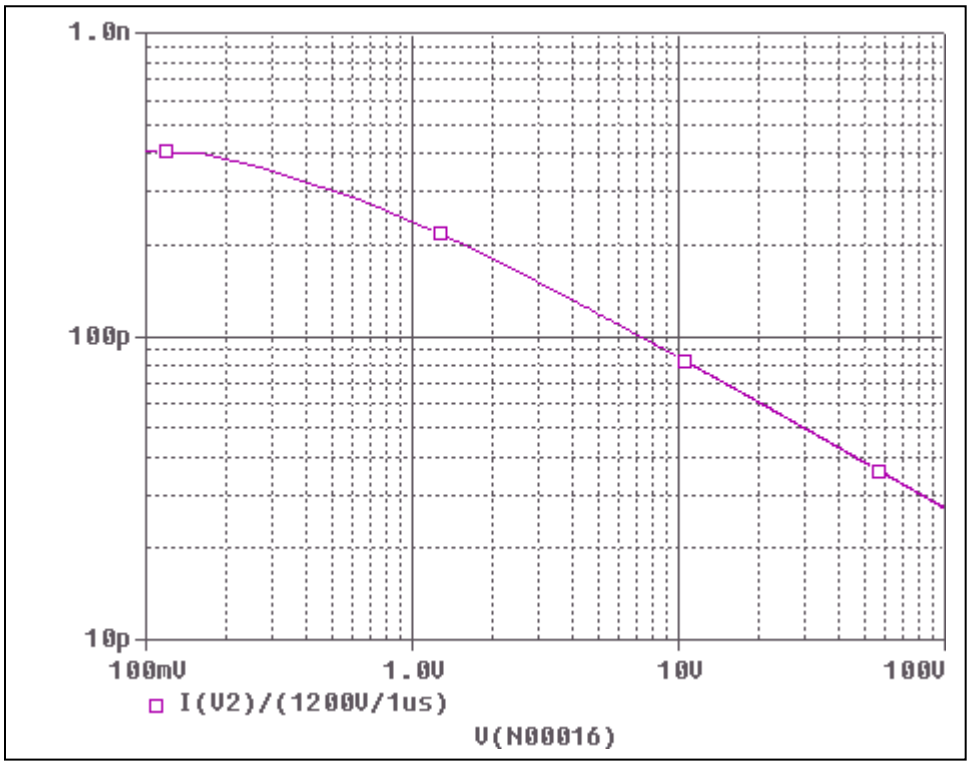
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
1	0.830	0.845	-1.86
2	0.990	0.978	1.18
5	1.270	1.261	0.71
10	1.655	1.658	-0.18

Forward Current Characteristic Reference

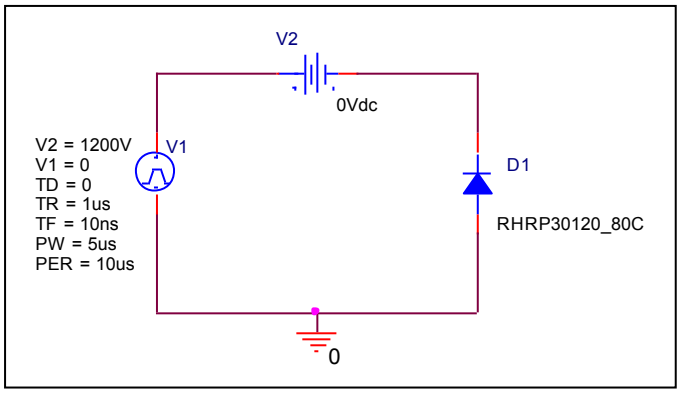


Capacitance Characteristic

Circuit Simulation Result

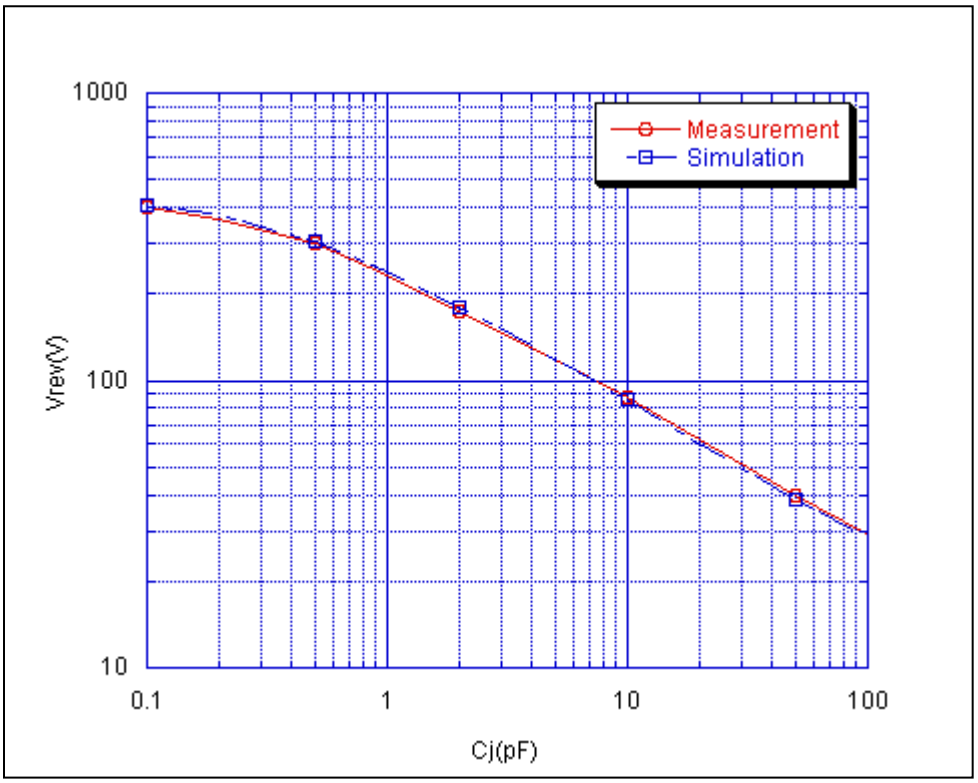


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

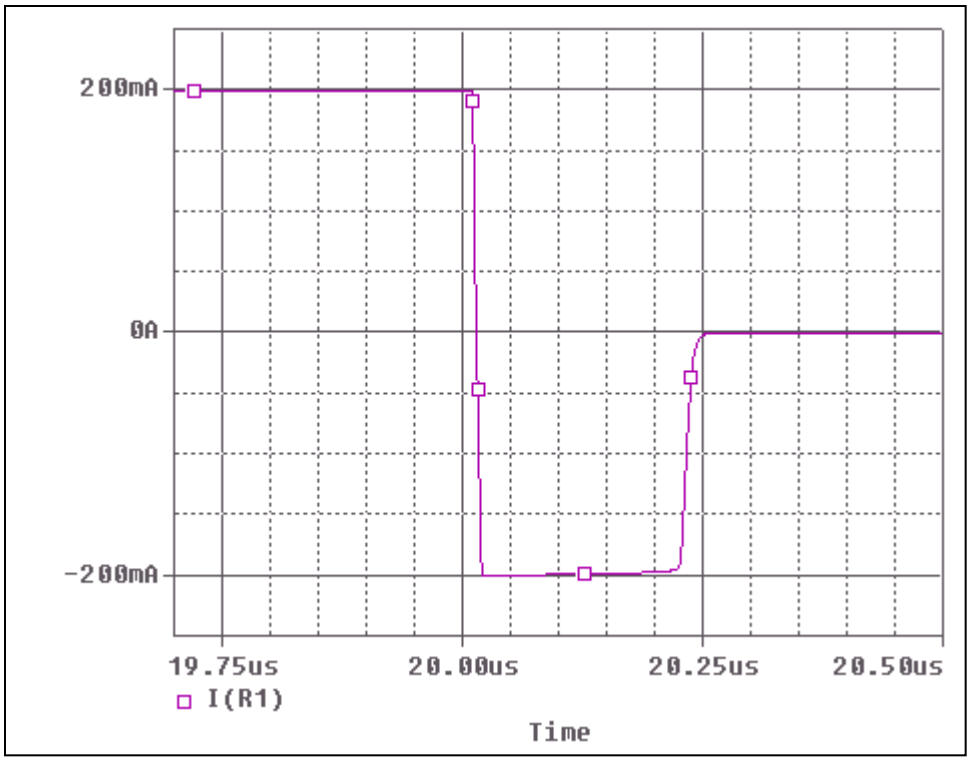


Simulation Result

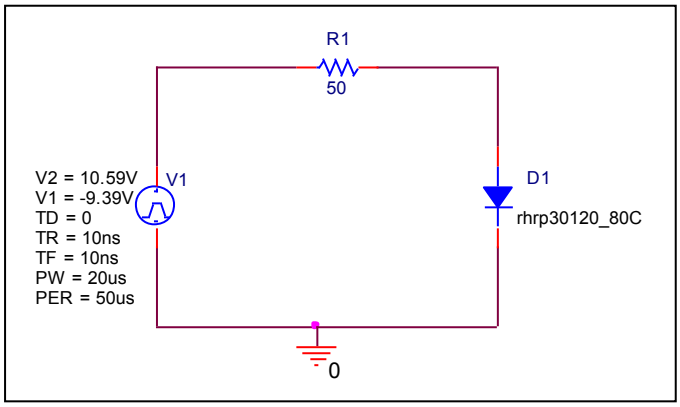
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	449.000	449.000	0.00
0.1	401.000	410.500	-2.37
0.2	366.000	374.200	-2.24
0.5	302.000	303.600	-0.53
1	231.000	238.778	-3.37
2	174.000	180.283	-3.61
5	118.000	119.055	-0.89
10	87.000	85.276	1.98
20	62.000	60.505	2.41
50	40.000	38.597	3.51
100	29.000	28.000	3.45

Reverse Recovery Characteristic

Circuit Simulation Result



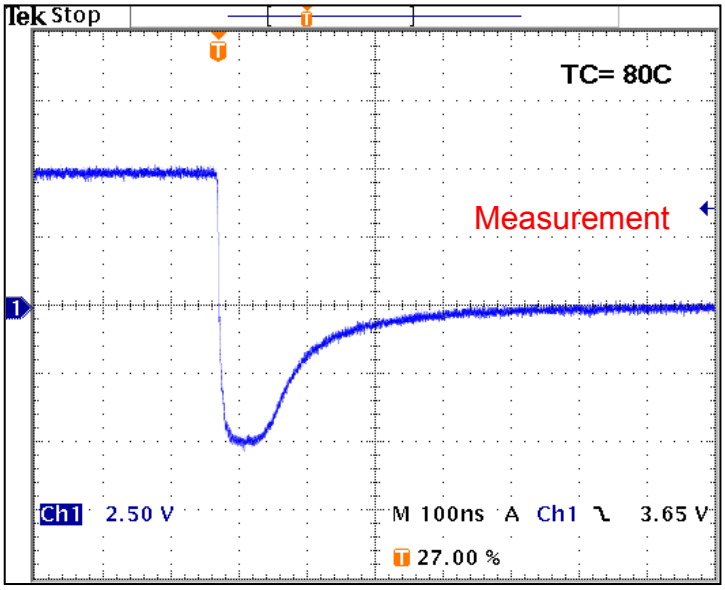
Evaluation Circuit



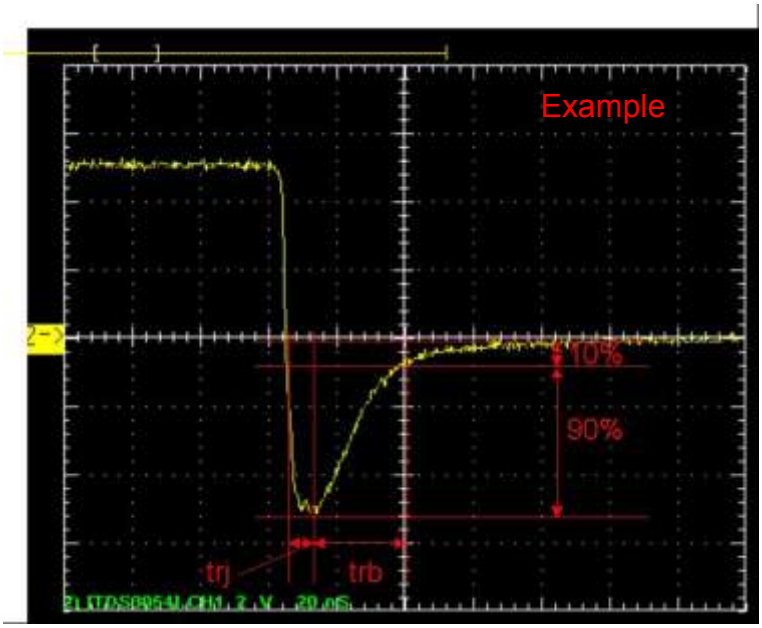
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trr	226.00	ns	225.73	ns	- 0.115

Reverse Recovery Characteristic Reference



Trj =52 (ns)
Trb=174 (ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb