Device Modeling Report

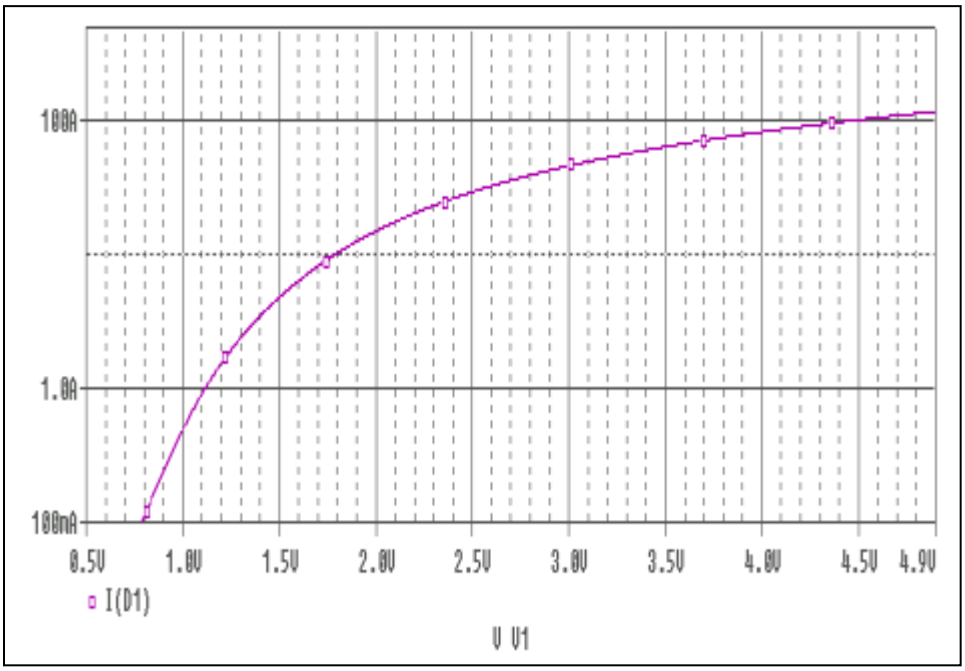
COMPONENTS:
DIODE/GENERAL PURPOSE RECTIFIER/ PROFESSIONAL
PART NUMBER: SF3L60U
MANUFACTURER: SHINDENGEN
REMARK: TC=25C

Bee Technologies Inc.

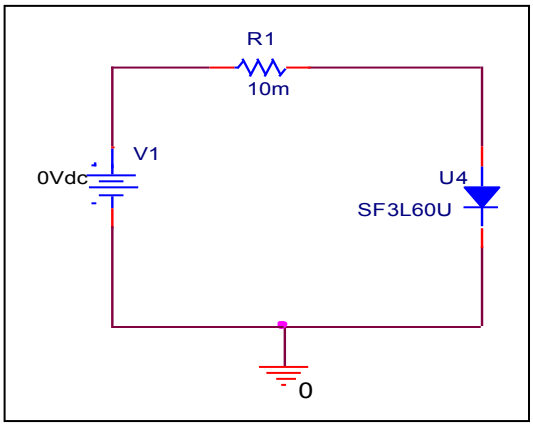
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

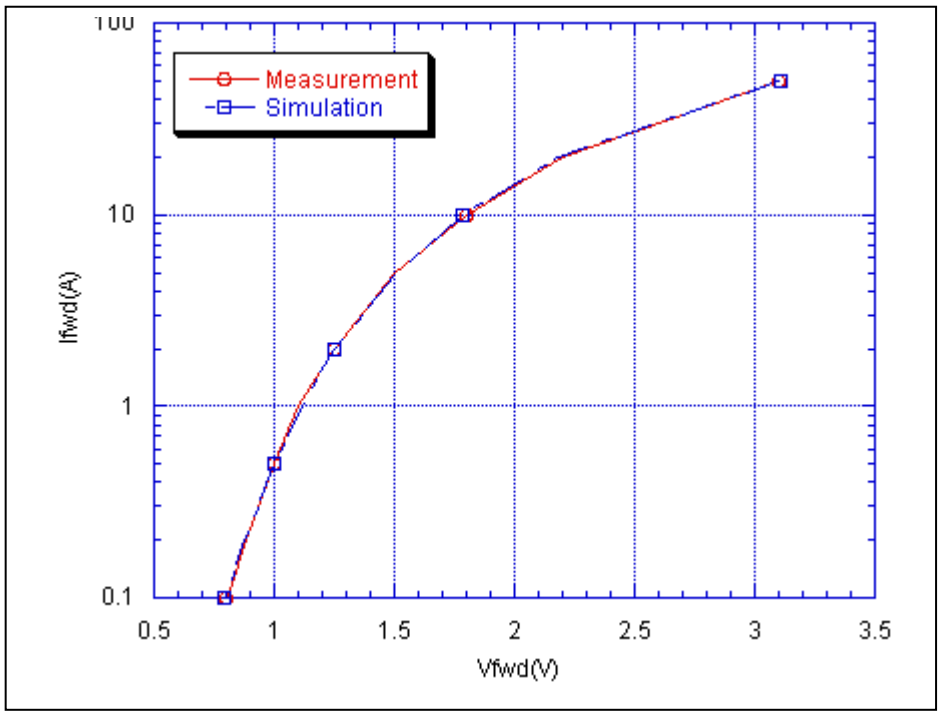


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

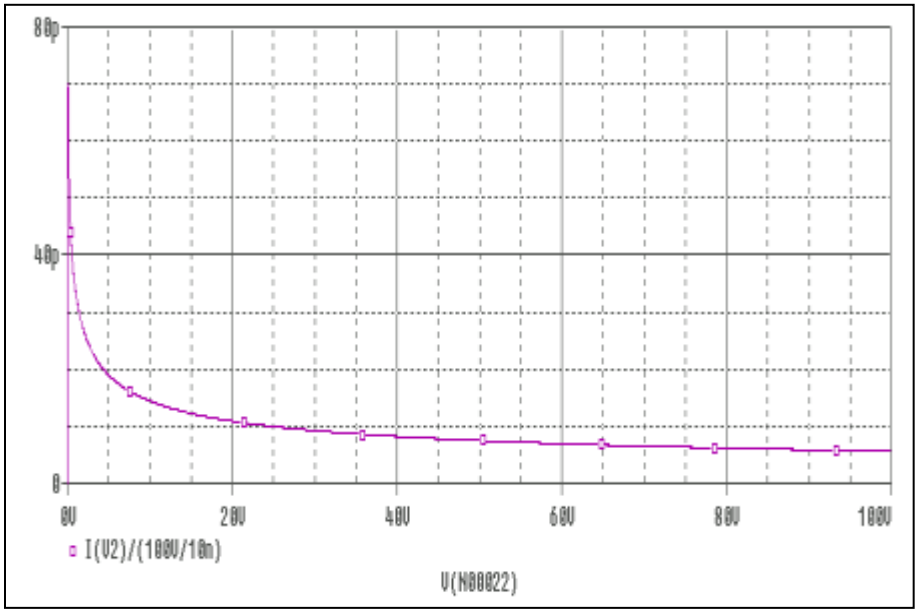


Simulation Result

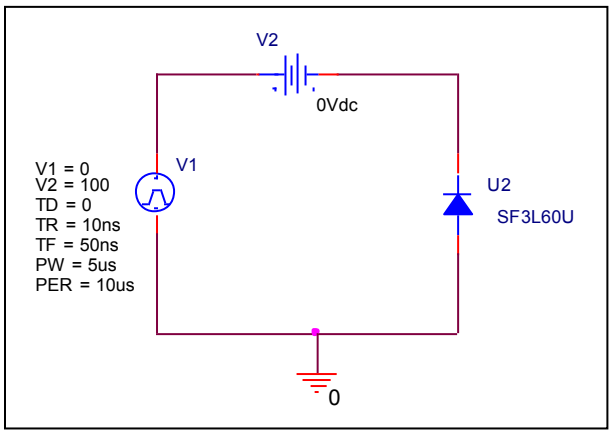
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.1	0.800	0.793	0.88
0.2	0.880	0.875	0.57
0.5	1.000	1.000	0.00
1	1.100	1.120	-1.82
2	1.250	1.250	0.00
5	1.500	1.510	-0.67
10	1.800	1.780	1.11
20	2.200	2.180	0.91
50	3.100	3.110	-0.32

Junction Capacitance Characteristic

Circuit Simulation Result

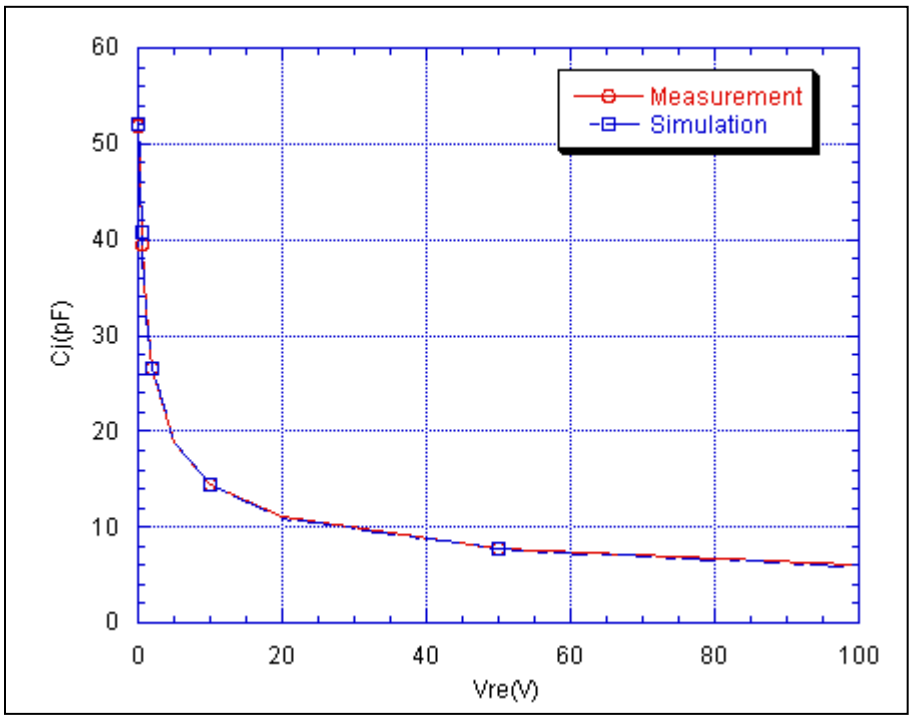


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

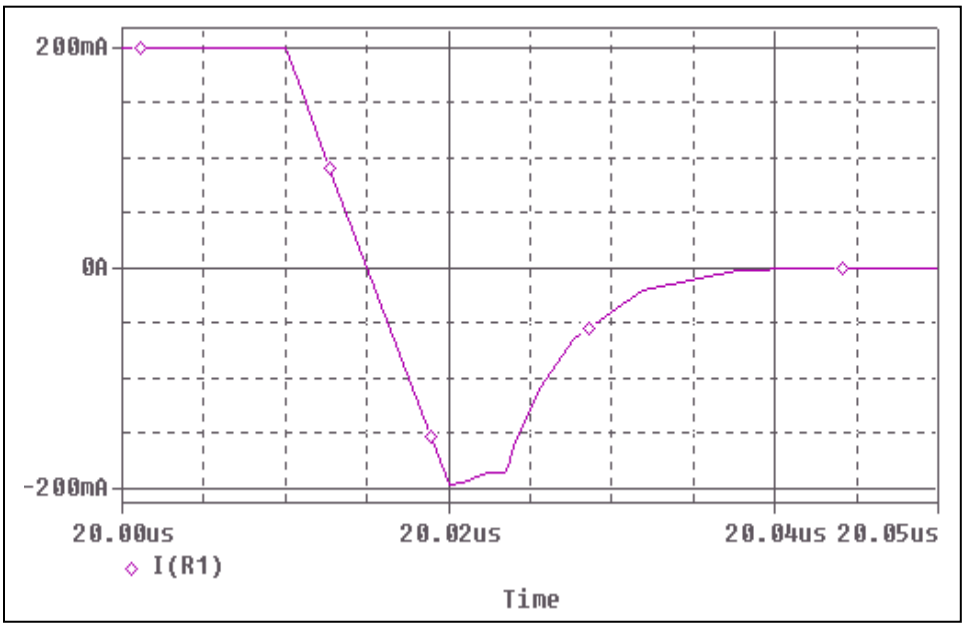


Simulation Result

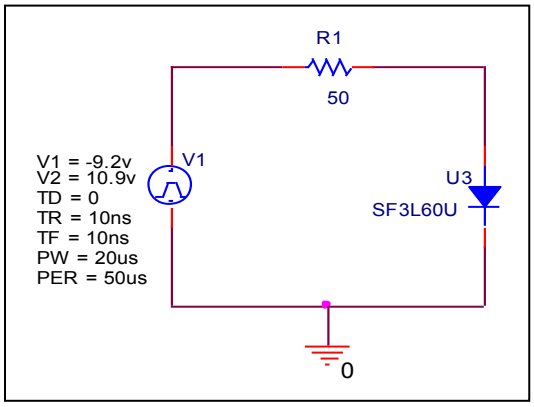
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	55.410	55.410	0.00
0.1	51.817	51.987	-0.33
0.2	47.278	47.587	-0.65
0.5	39.558	40.816	-3.18
1	32.836	33.265	-1.31
2	26.466	26.531	-0.25
5	18.906	18.776	0.69
10	14.506	14.413	0.64
20	11.037	10.900	1.24
50	7.712	7.792	-1.04
100	5.914	5.626	4.87

Reverse Recovery Characteristic

Circuit Simulation Result



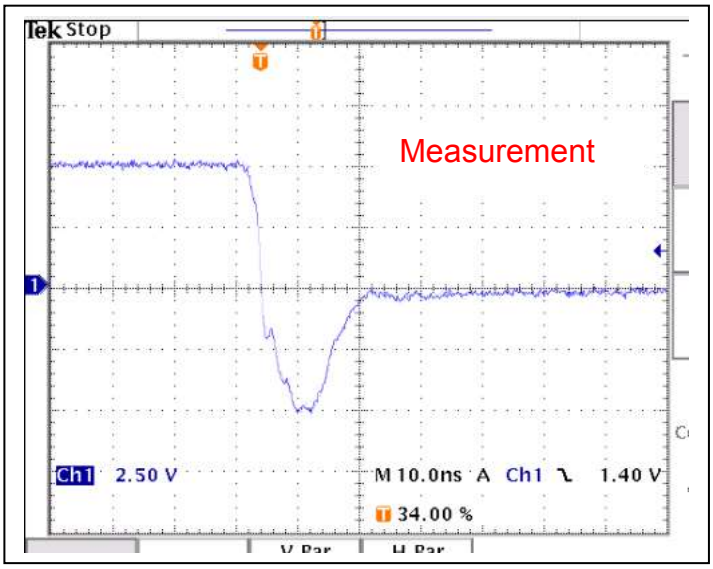
Evaluation Circuit



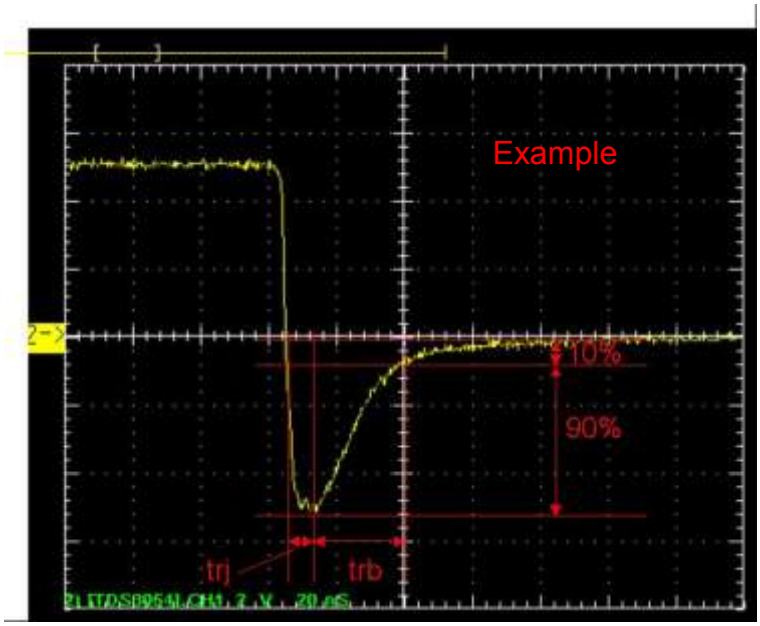
Compare Measurement vs. Simulation

	Measurement		Simulation		Error (%)
trj	**7.80**	**ns**	**7.90**	**ns**	**1.28**
trb	**8.40**	**ns**	**8.41**	**ns**	**0.11**

Reverse Recovery Characteristic Reference



Trj=7.80(ns)
Trb=8.40(ns)
Conditions: Ifwd=Irev=0.2(A),Rl=50



Relation between trj and trb