Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ PROFESSIONAL
PART NUMBER: S3L60
MANUFACTURER: SHINDENGEN

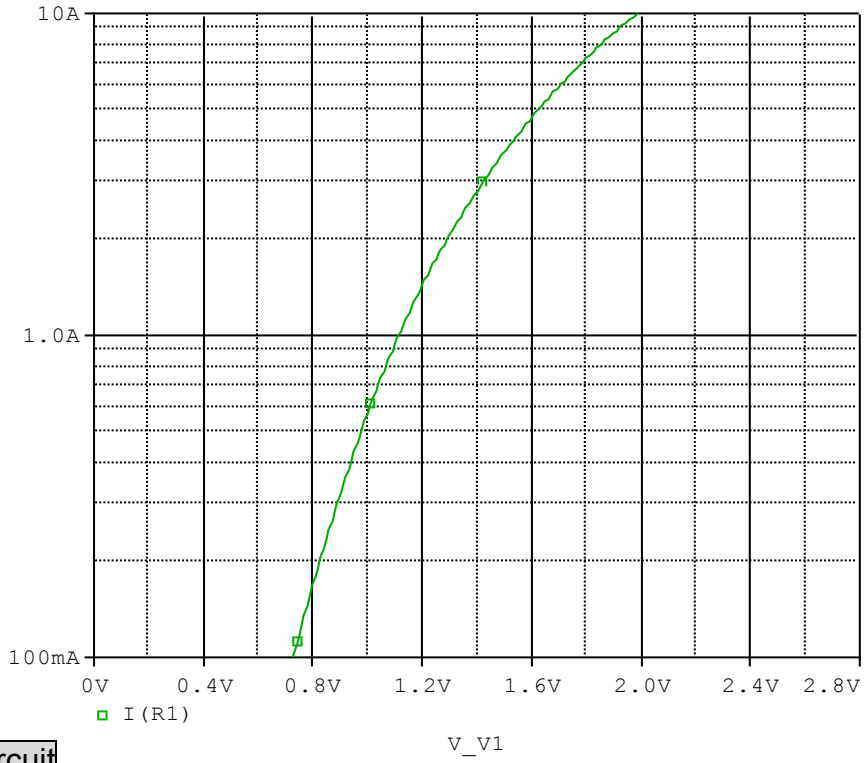
Bee Technologies Inc.

DIODE MODEL PARAMETERS

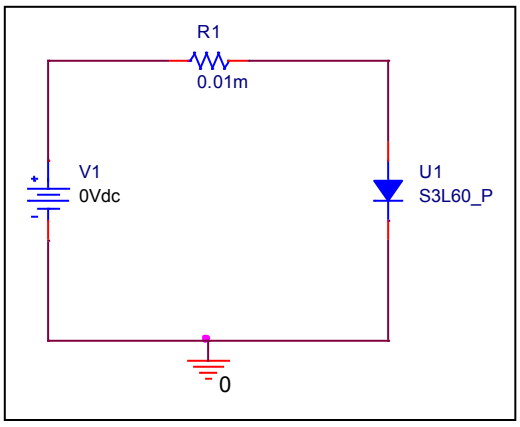
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

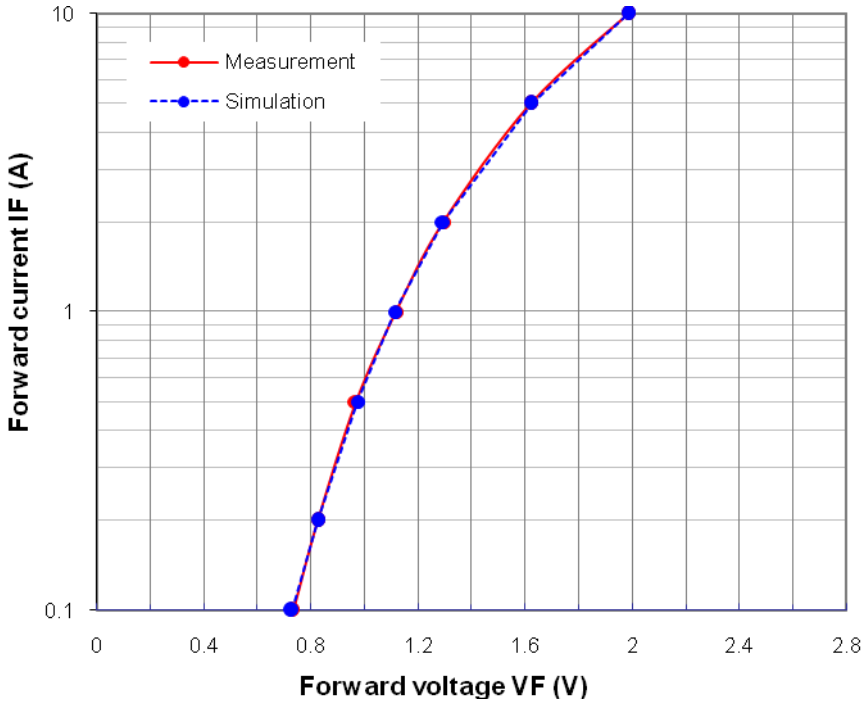


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

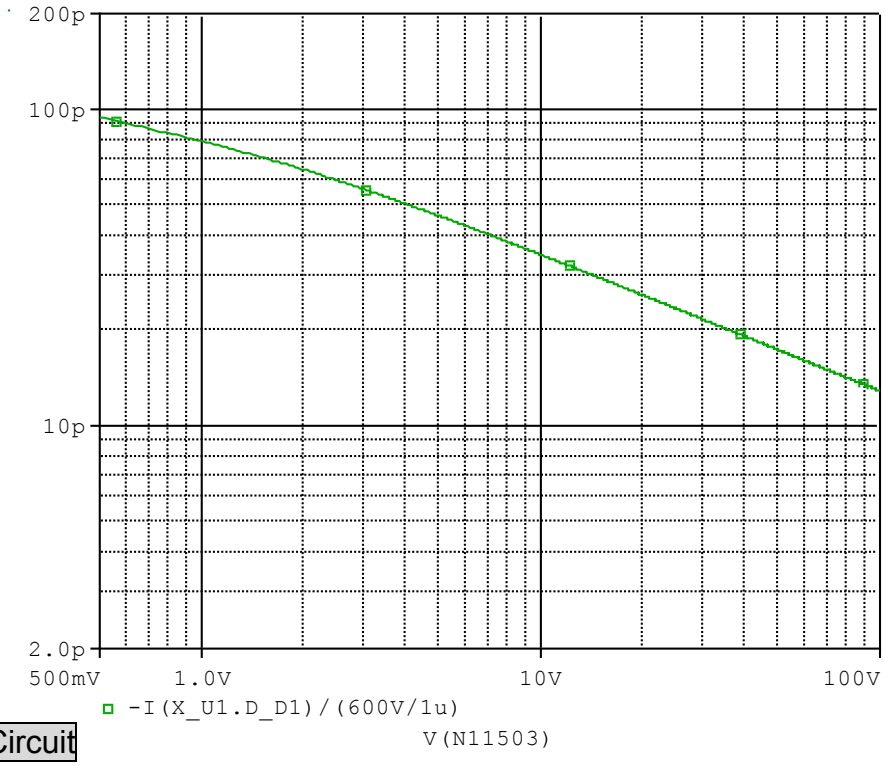


Simulation Result

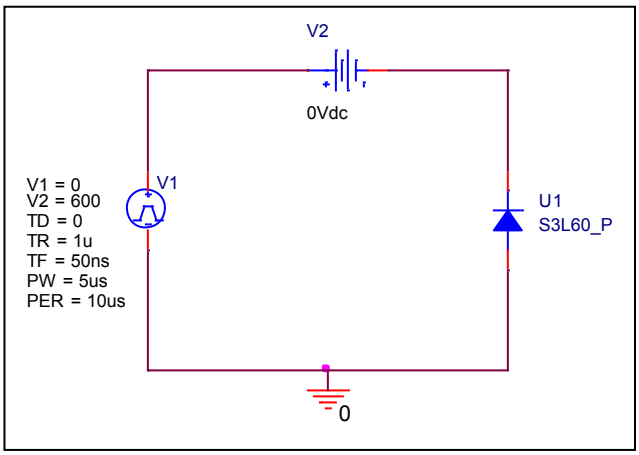
Ifwd (A)	Vfwd (V)		%Error
	Measurement	Simulation	
0.1	0.732	0.727	-0.69
0.2	0.825	0.826	0.12
0.5	0.968	0.975	0.72
1	1.117	1.114	-0.30
2	1.294	1.293	-0.11
5	1.621	1.622	0.08
10	1.985	1.985	-0.02

Capacitance Characteristic

Circuit Simulation Result

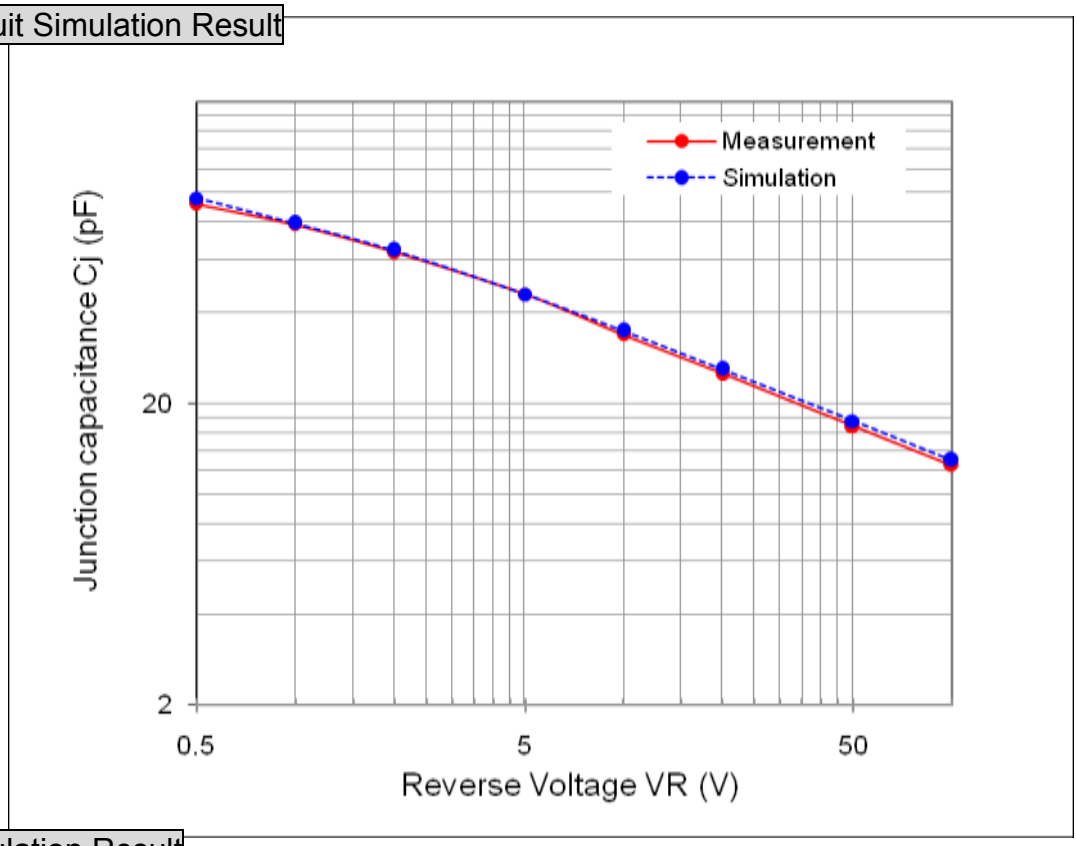


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

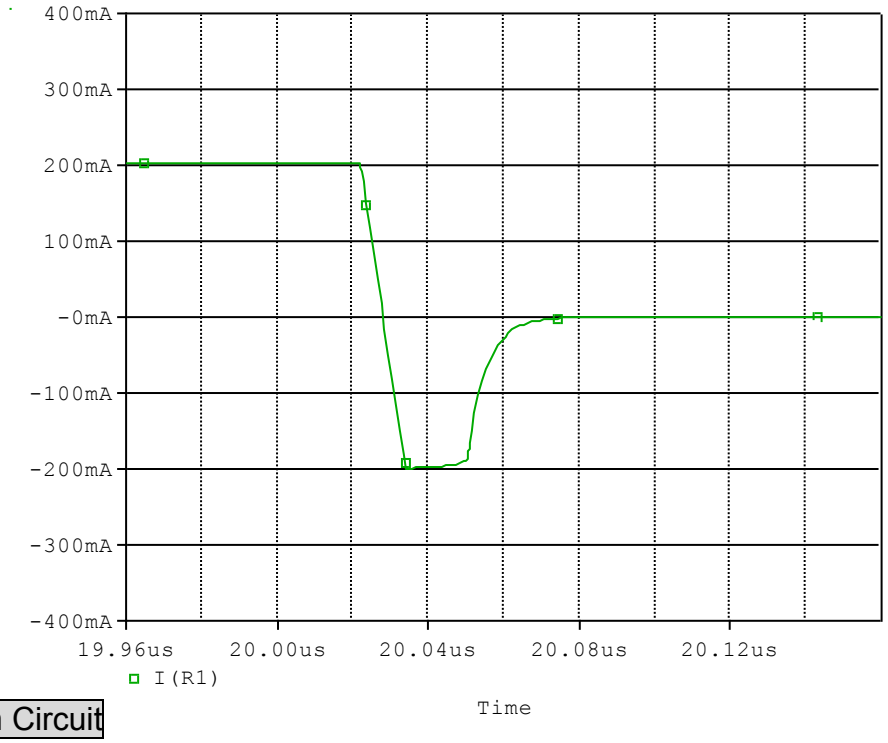


Simulation Result

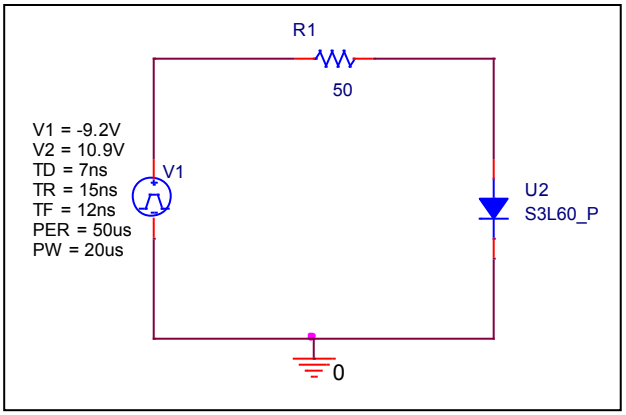
Vrev (V)	Cj (pF)		%Error
	Measurement	Simulation	
0.5	91.820	94.585	3.01
1	78.510	79.28	0.98
2	63.500	64.407	1.43
5	46.100	46.091	-0.02
10	33.900	34.805	2.67
20	25.140	25.951	3.23
50	16.800	17.466	3.96
100	12.500	12.962	3.70

Reverse Recovery Characteristic

Circuit Simulation Result



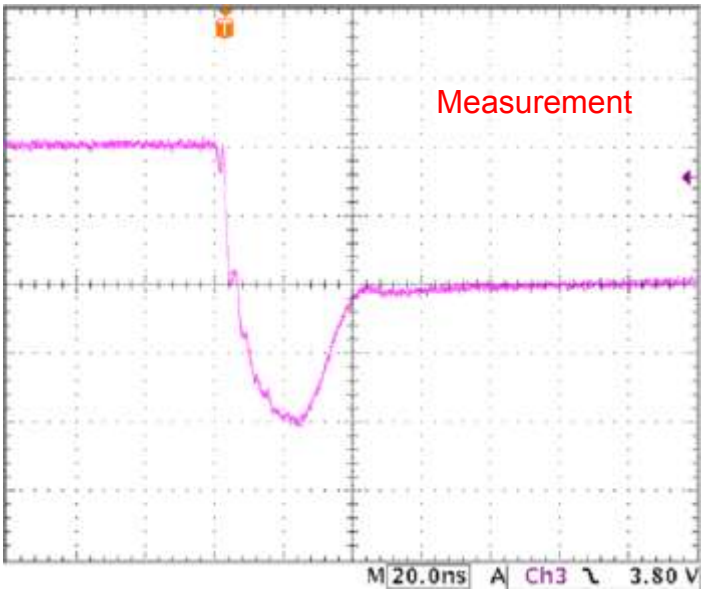
Evaluation Circuit



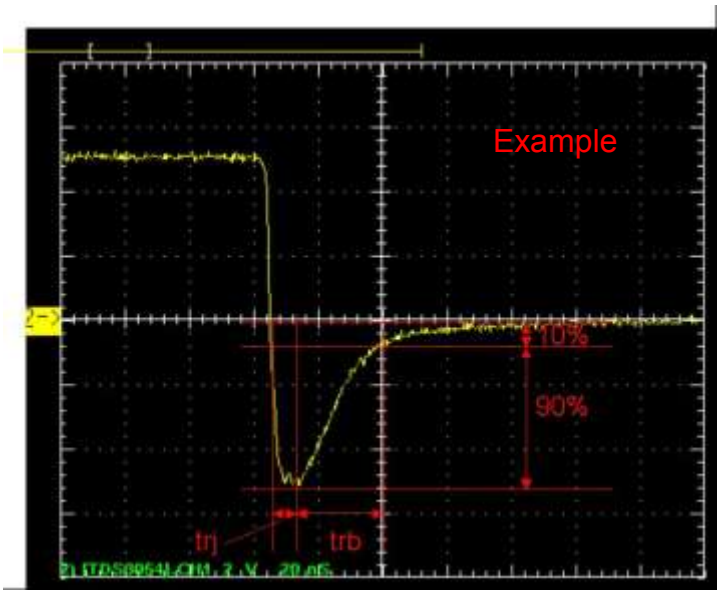
Compare Measurement vs. Simulation

		Measurement	Simulation	%Error
Trj	ns	18.00	17.41	-3.26
Trb	ns	16.00	16.14	0.88
Trr	ns	34.00	33.55	-1.31

Reverse Recovery Characteristic Reference



Trj =18.00(ns)
Trb= 16.00(ns)
Conditions: Ifwd=0.2A,Irev=0.2A, Rl=50



Relation between trj and trb