

Device Modeling Report

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



Bee Technologies Inc.

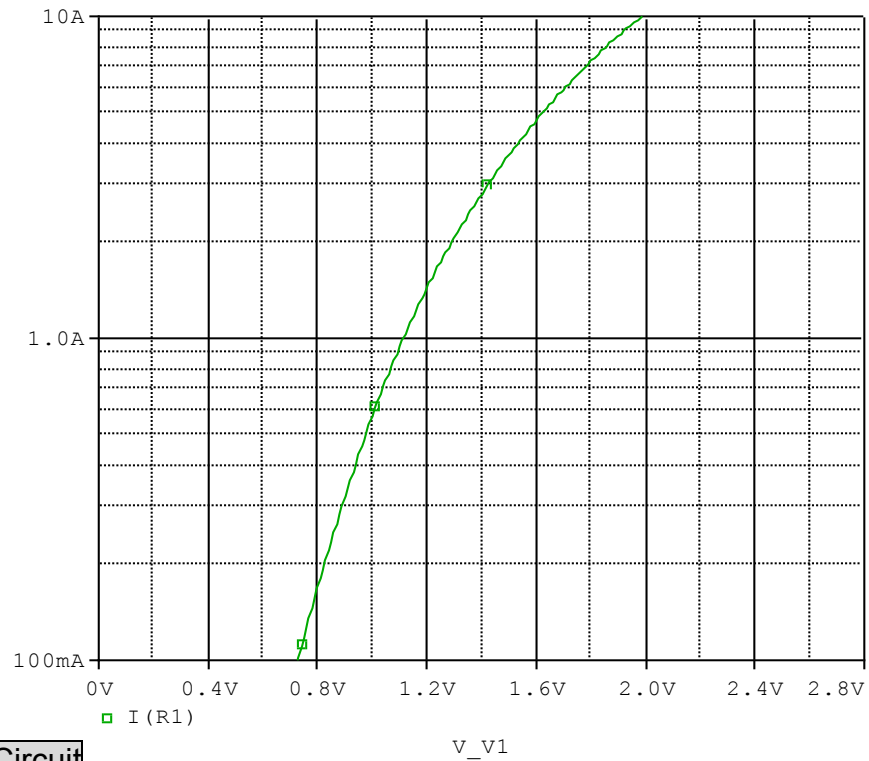
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DIODE MODEL PARAMETERS

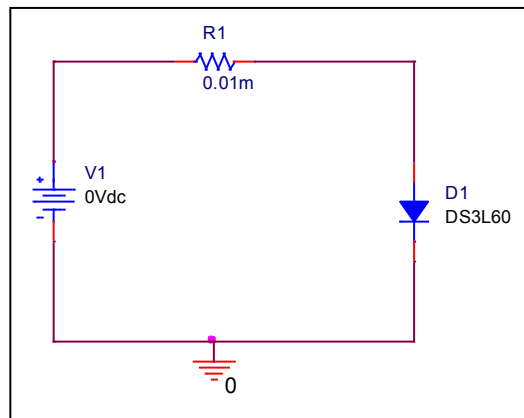
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

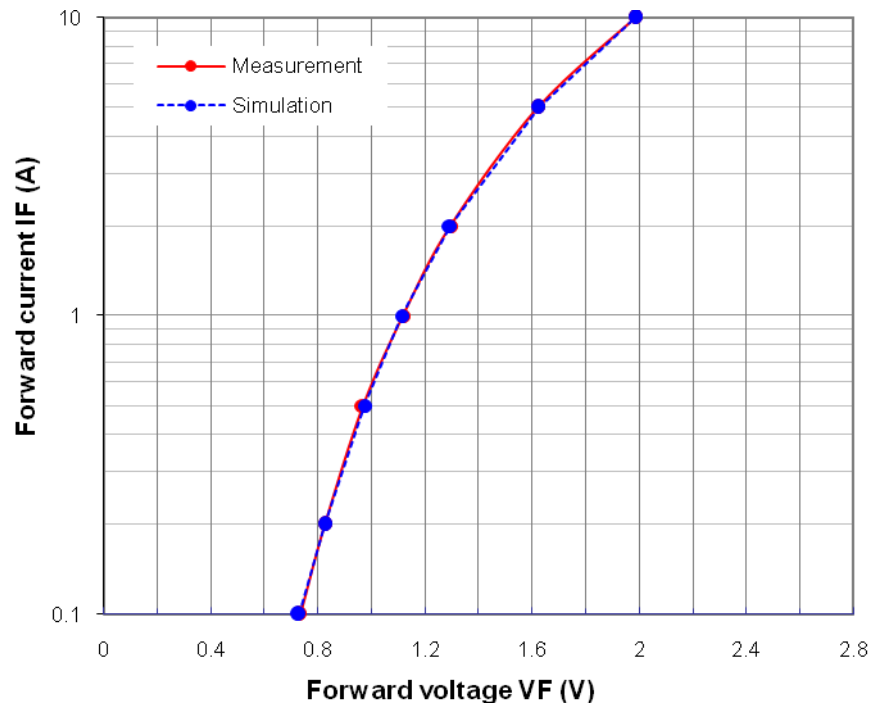


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

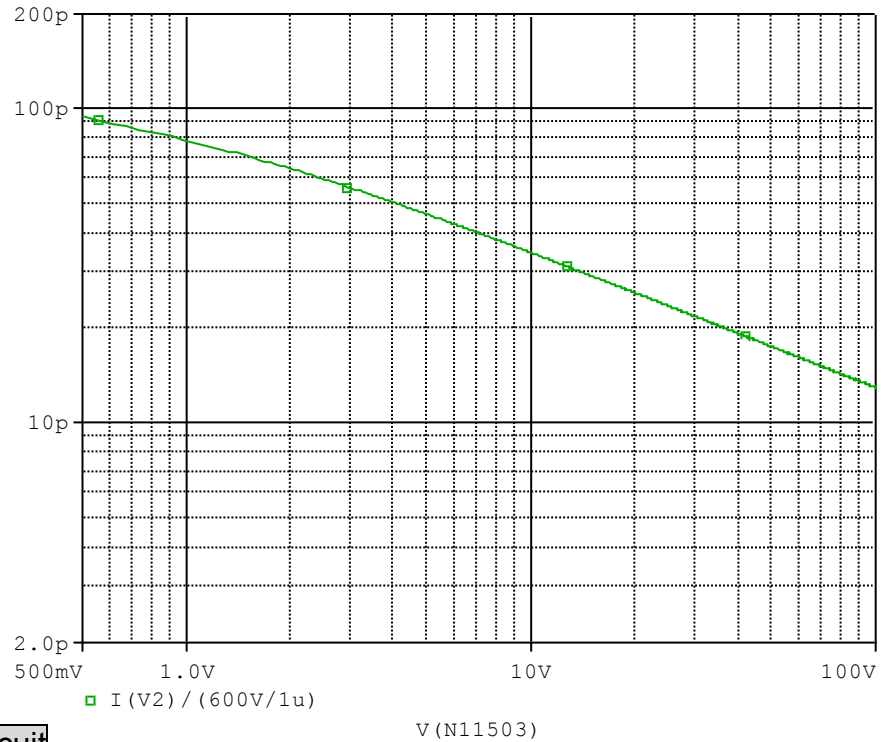


Simulation Result

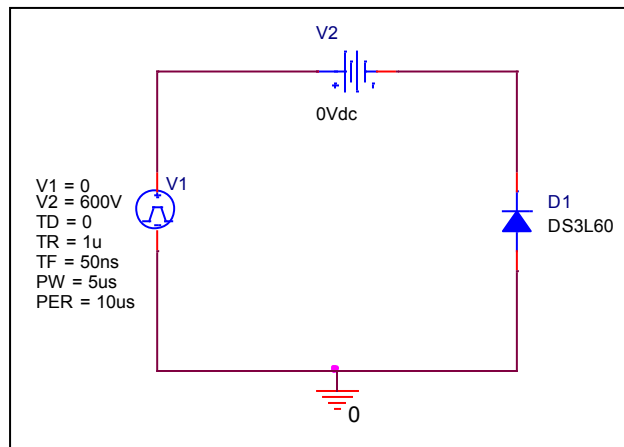
Ifwd (A)	Vfwd (V)		%Error
	Measurement	Simulation	
0.1	0.732	0.727	-0.69
0.2	0.825	0.826	0.12
0.5	0.968	0.975	0.72
1	1.117	1.114	-0.30
2	1.294	1.293	-0.11
5	1.621	1.622	0.08
10	1.985	1.985	-0.02

Capacitance Characteristic

Circuit Simulation Result

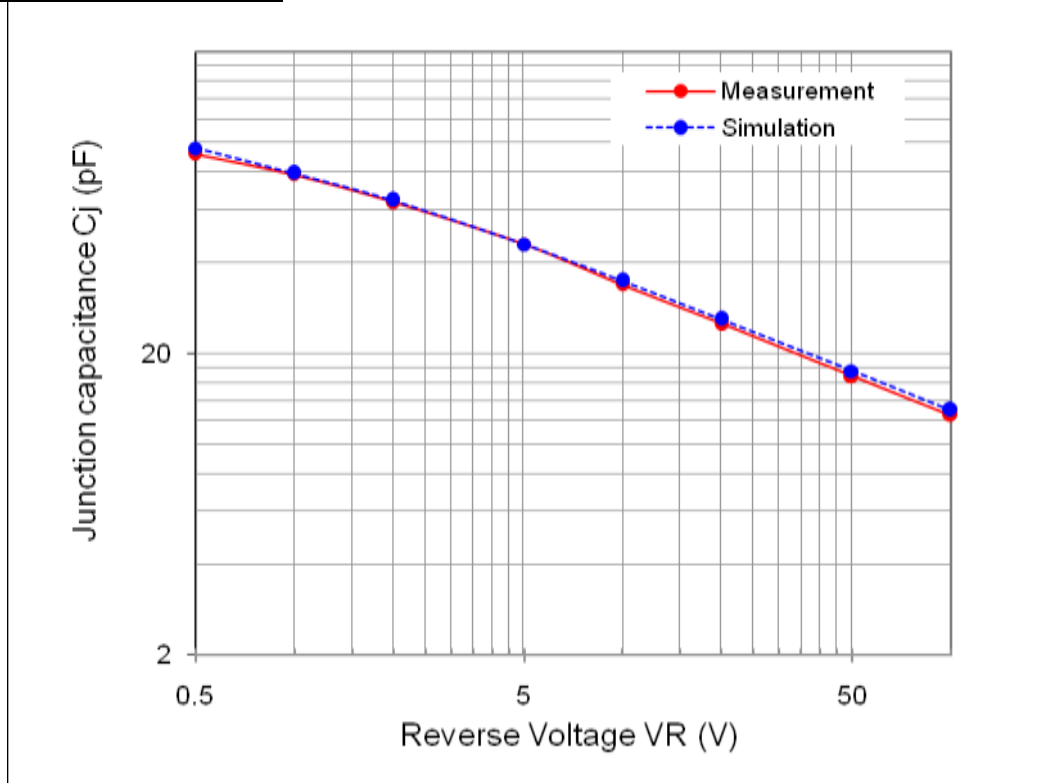


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

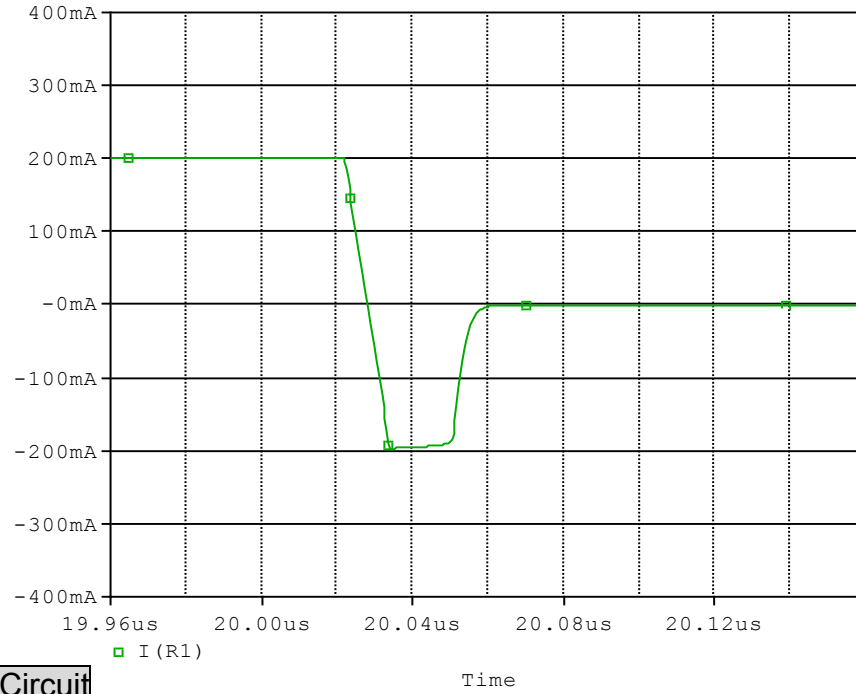


Simulation Result

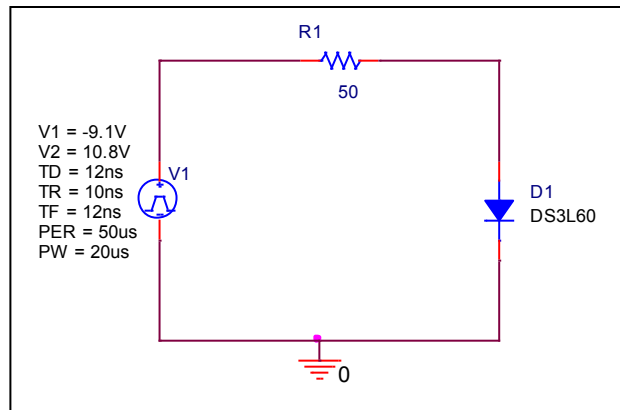
Vrev (V)	Cj (pF)		%Error
	Measurement	Simulation	
0.5	91.820	94.506	2.93
1	78.510	79.309	1.02
2	63.500	64.459	1.51
5	46.100	46.117	0.04
10	33.900	34.803	2.66
20	25.140	25.931	3.15
50	16.800	17.485	4.08
100	12.500	12.958	3.66

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

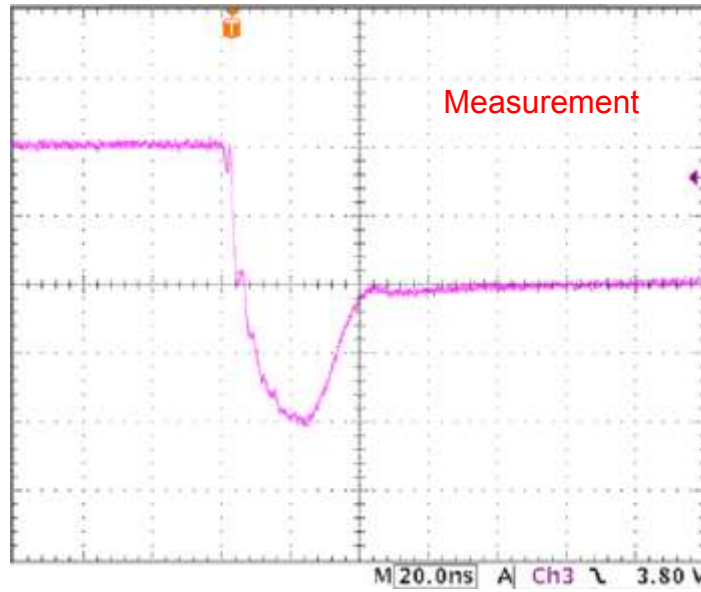


Compare Measurement vs. Simulation

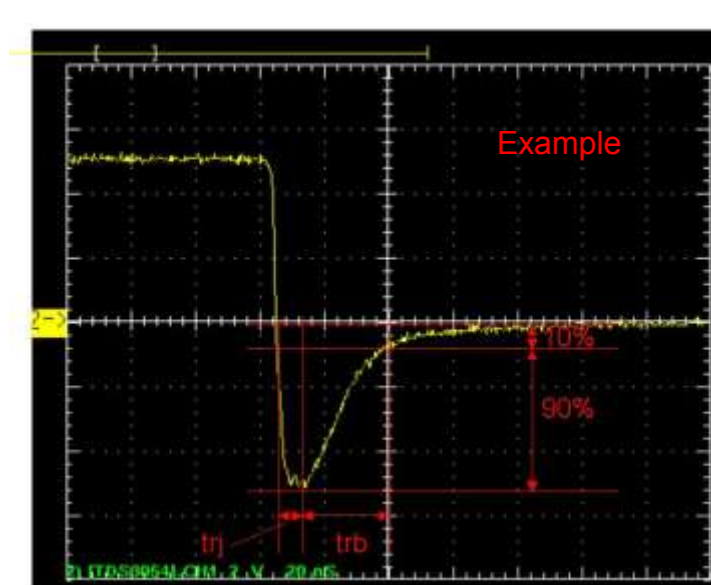
		Measurement	Simulation	%Error
trj	ns	18.00	17.59	-2.29

Reverse Recovery Characteristic

Reference



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



Relation between trj and trb