Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ STANDARD
PART NUMBER: CLH01
MANUFACTURER: TOSHIBA

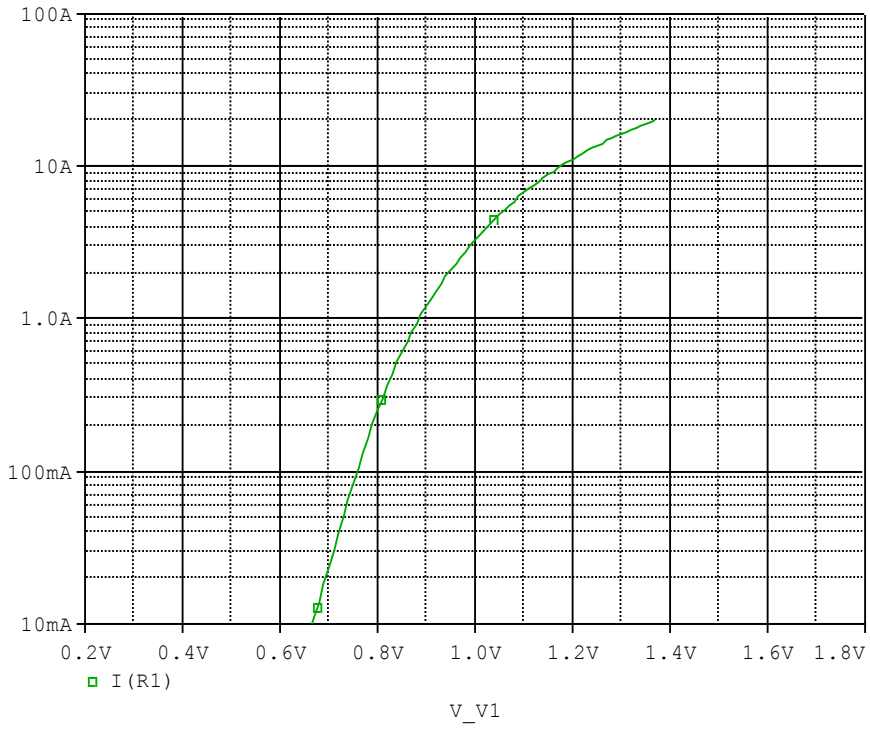
Bee Technologies Inc.

DIODE MODEL PARAMETERS

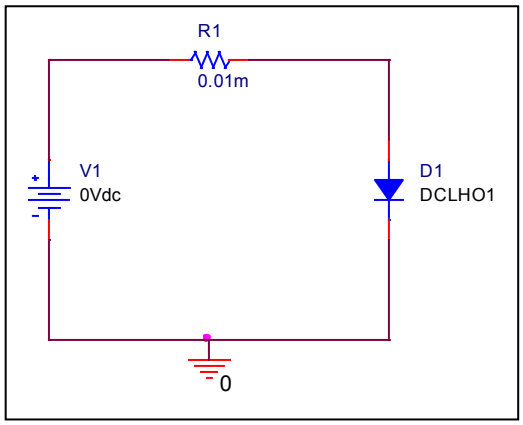
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

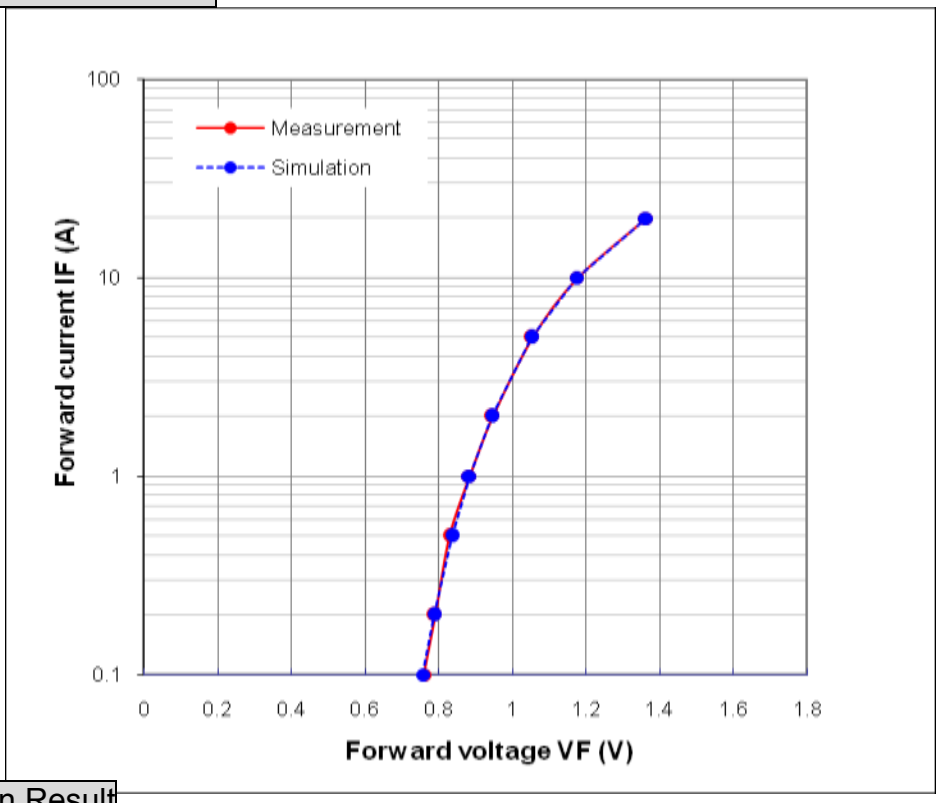


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

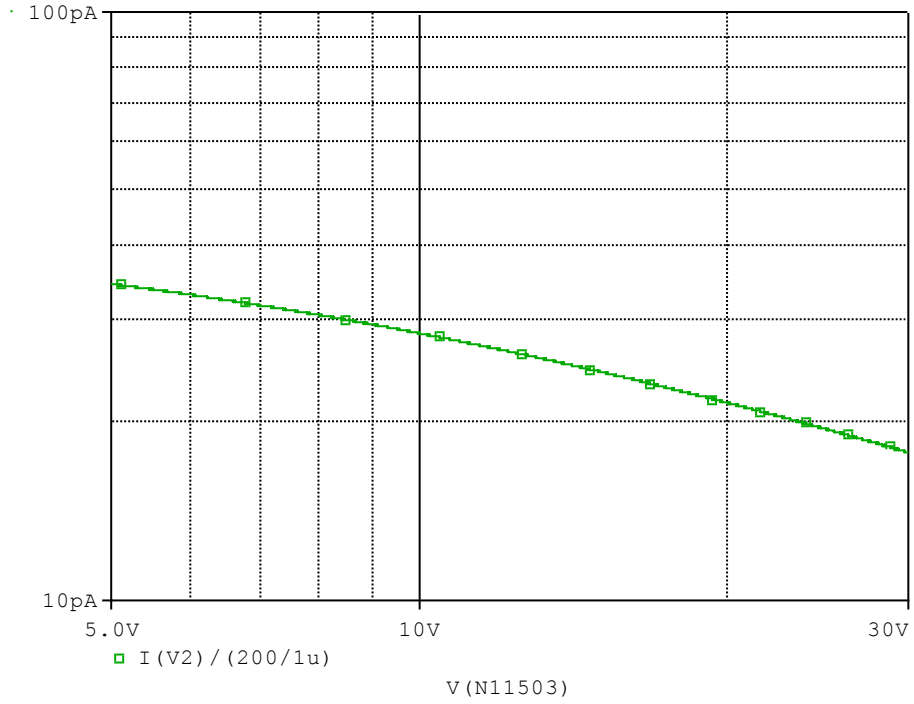


Simulation Result

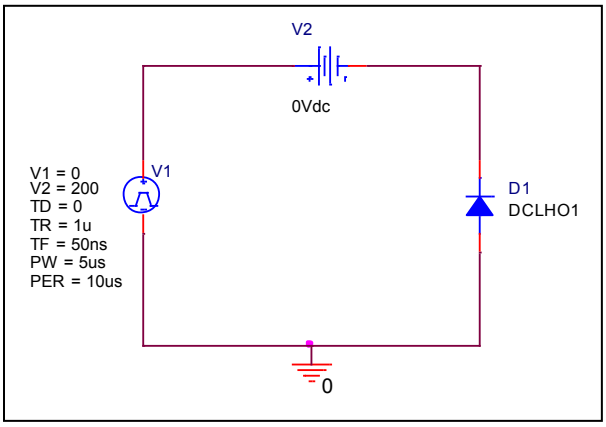
Ifwd (A)	Vfwd (V)		%Error
	Measurement	Simulation	
0.1	0.761	0.758	-0.39
0.2	0.791	0.789	-0.25
0.5	0.831	0.837	0.72
1	0.885	0.885	0.00
2	0.947	0.945	-0.21
5	1.055	1.054	-0.09
10	1.176	1.175	-0.09
20	1.364	1.3650	0.07

Capacitance Characteristic

Circuit Simulation Result

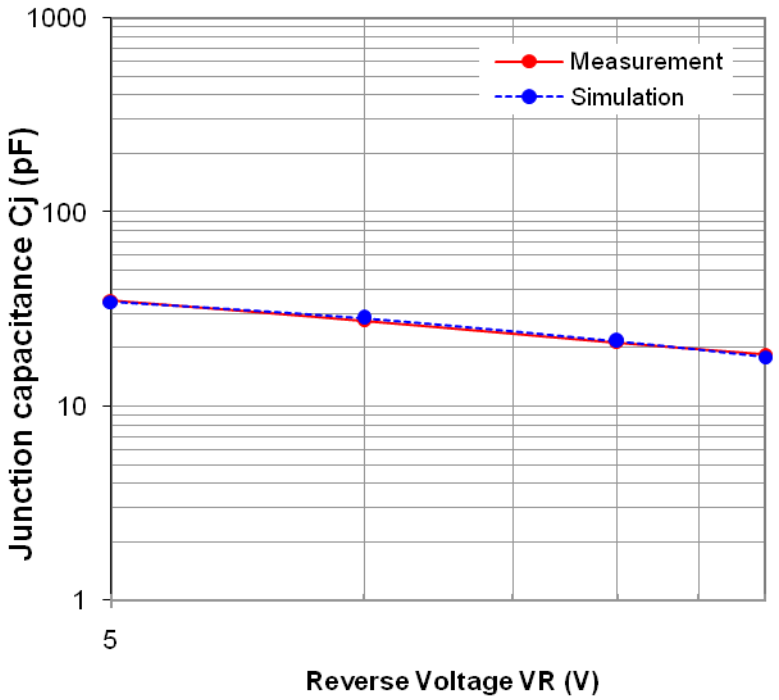


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

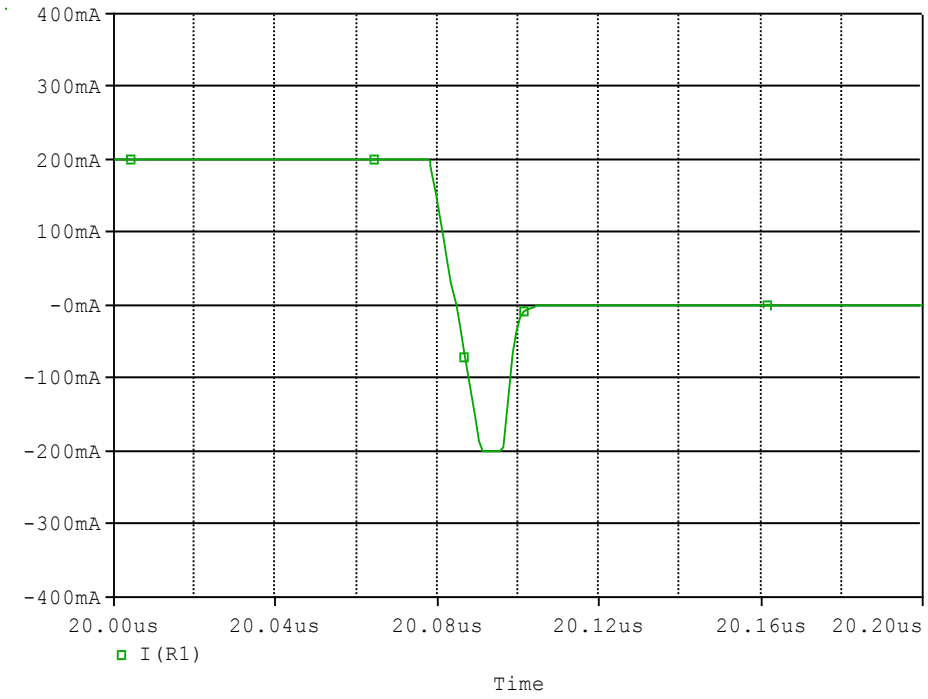


Simulation Result

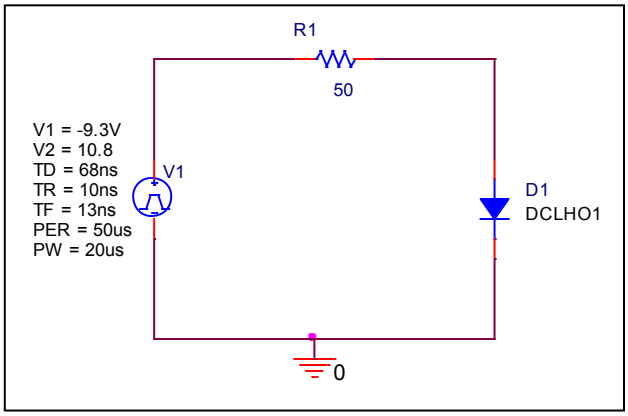
Vrev (V)	Cj (pF)		%Error
	Measurement	Simulation	
5	35.000	34.480	-1.49
10	27.700	28.444	2.69
20	21.300	21.653	1.66
30	18.500	17.841	-3.56

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

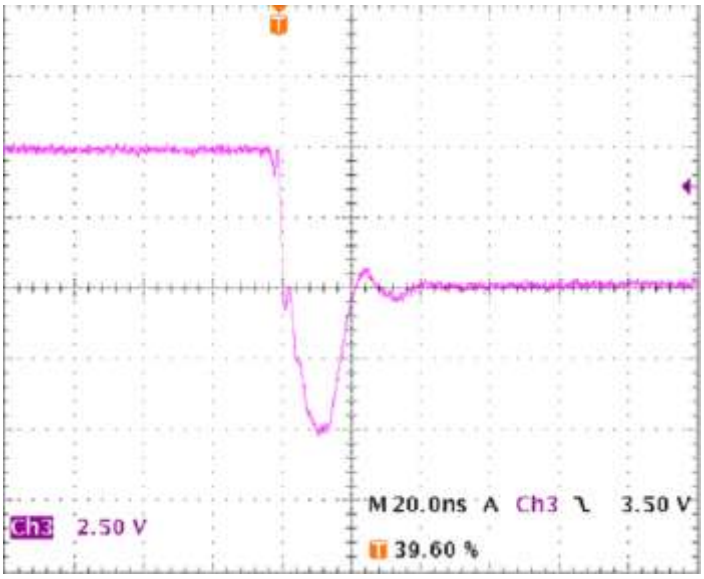


Compare Measurement vs. Simulation

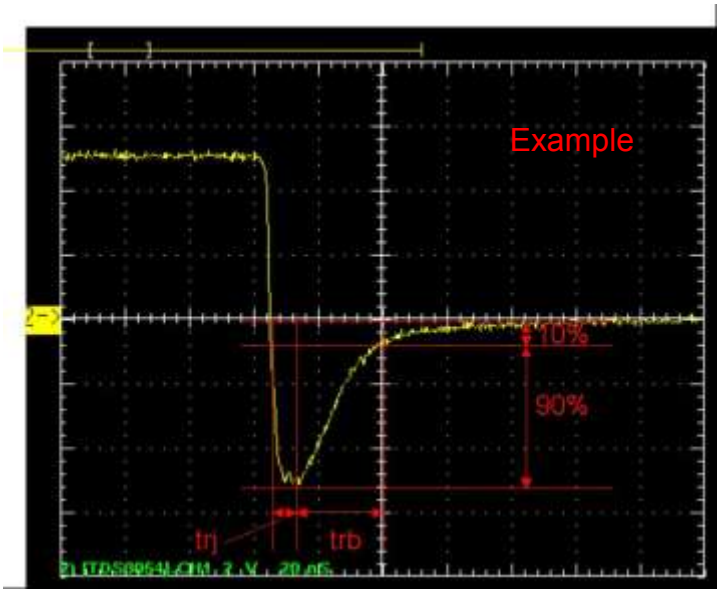
		Measurement	Simulation	%Error
trj	**ns**	**11.20**	**10.82**	**-3.39**

Reverse Recovery Characteristic Reference

Measurement



Trj =11.20(ns)
Trb= 8.00(ns)
Conditions: Ifwd=0.2A,Irev=0.2A, Rl=50



Relation between trj and trb