Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ STANDARD
PART NUMBER: CLH02
MANUFACTURER: TOSHIBA

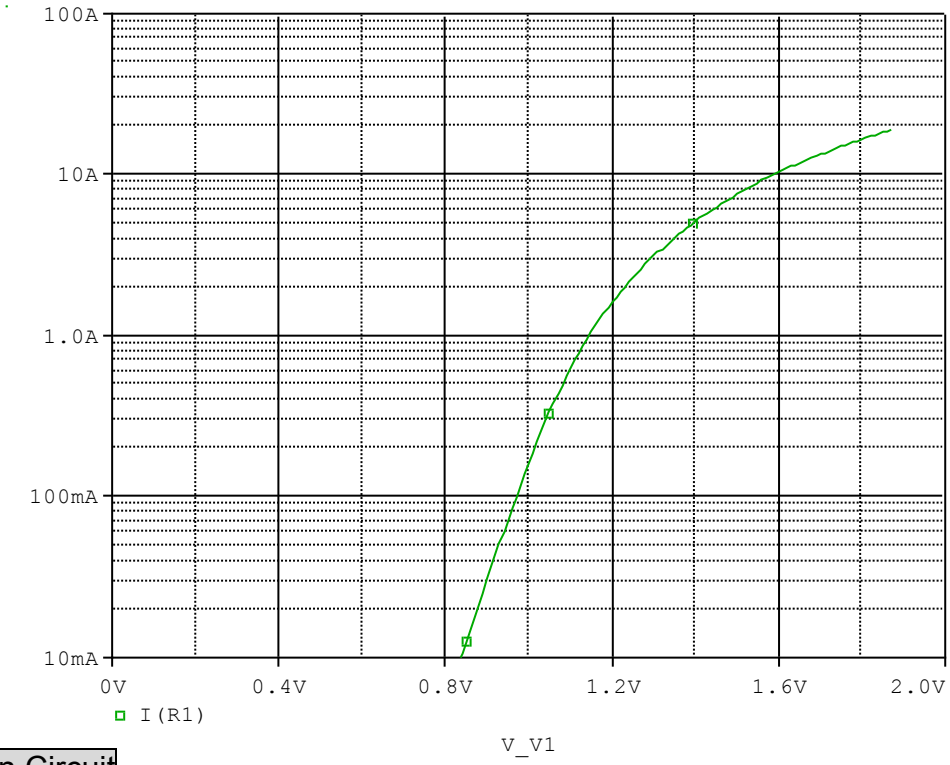
Bee Technologies Inc.

DIODE MODEL PARAMETERS

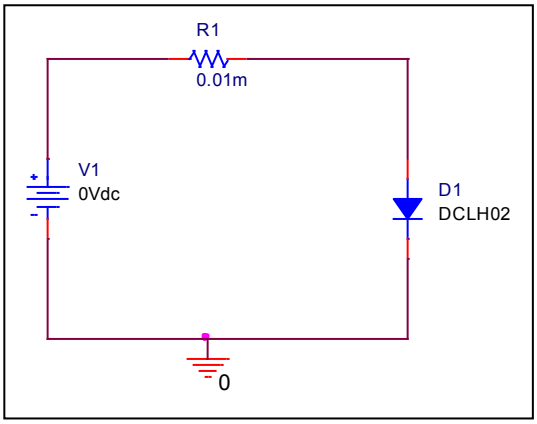
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

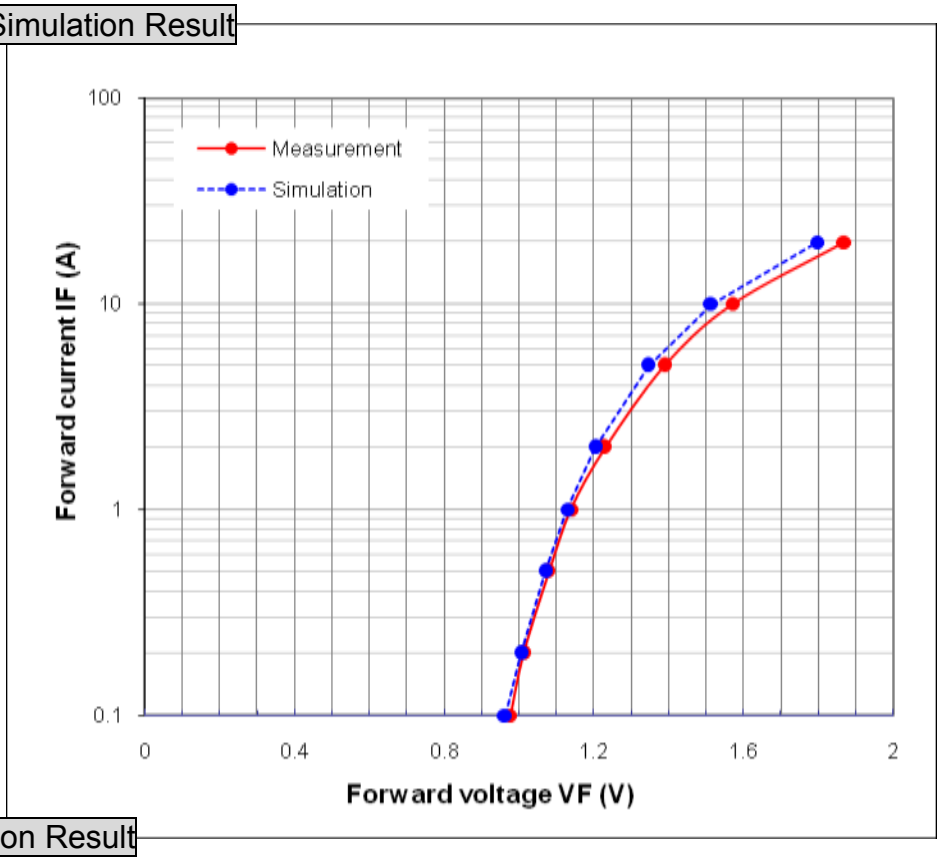


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

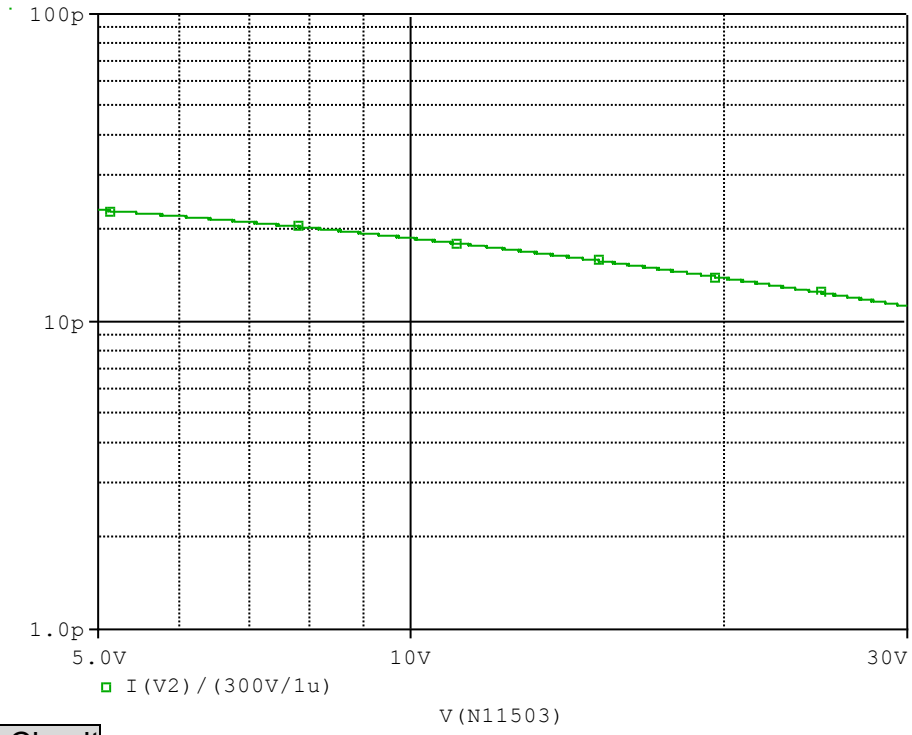


Simulation Result

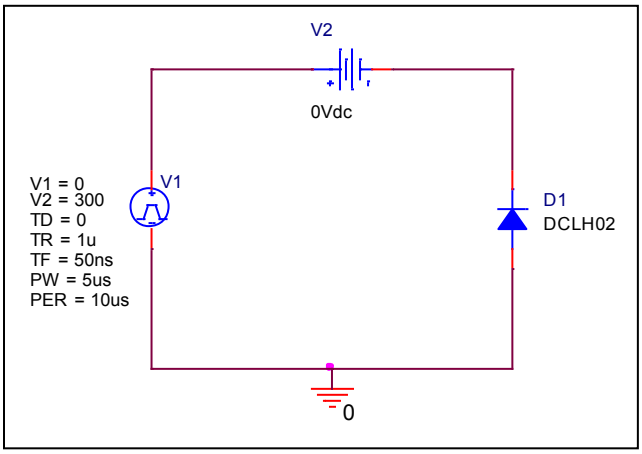
Ifwd (A)	Vfwd (V)		%Error
	Measurement	Simulation	
0.1	0.976	0.963	-1.29
0.2	1.012	1.006	-0.56
0.5	1.080	1.070	-0.90
1	1.140	1.129	-0.93
2	1.230	1.205	-2.07
5	1.390	1.346	-3.17
10	1.570	1.515	-3.53
20	1.87	1.7976	-3.87

Capacitance Characteristic

Circuit Simulation Result

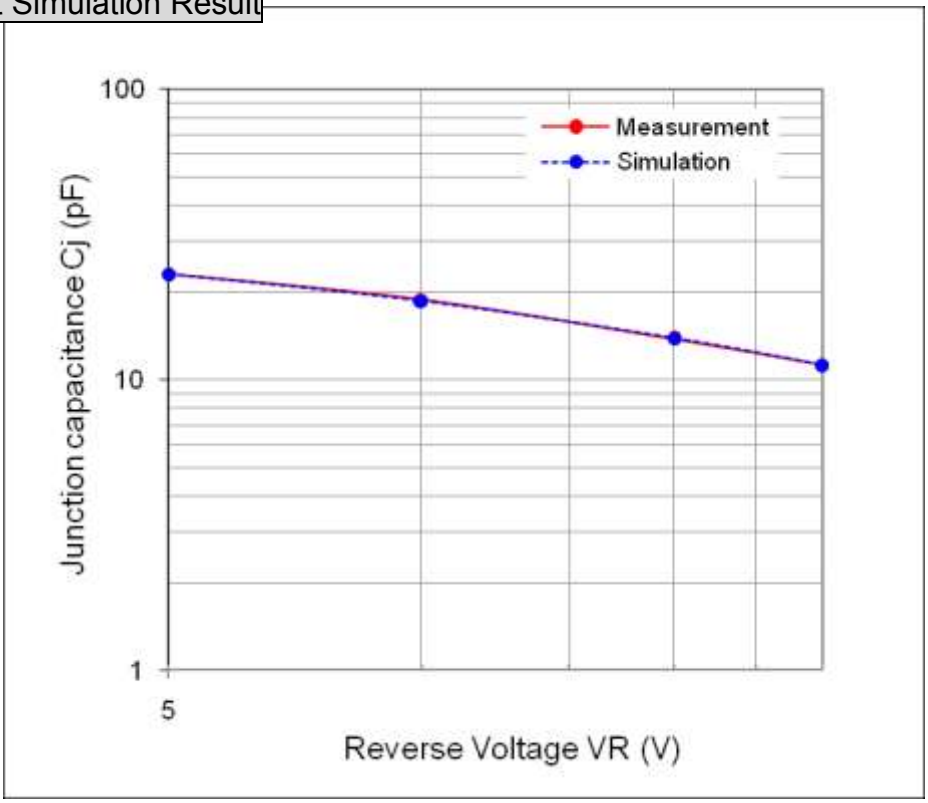


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

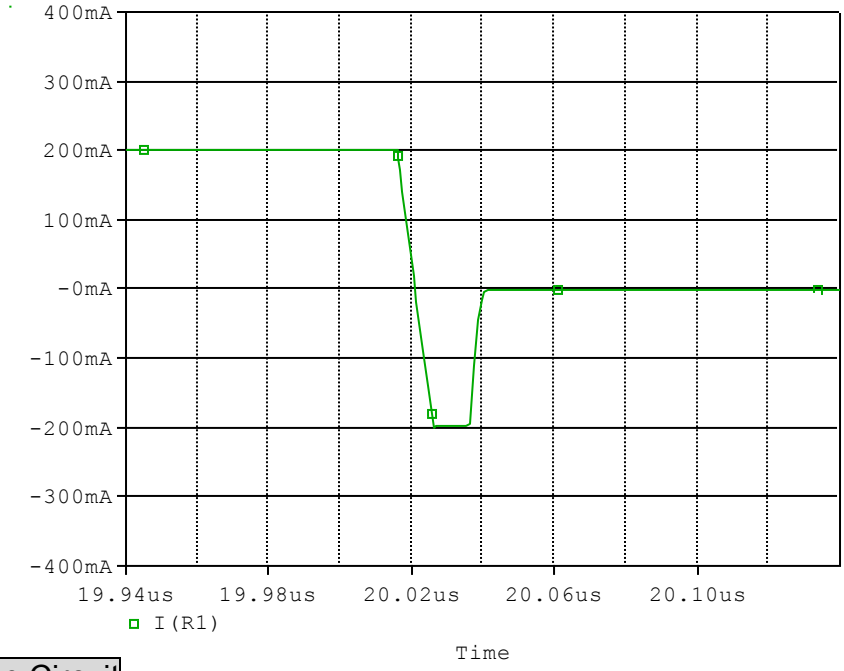


Simulation Result

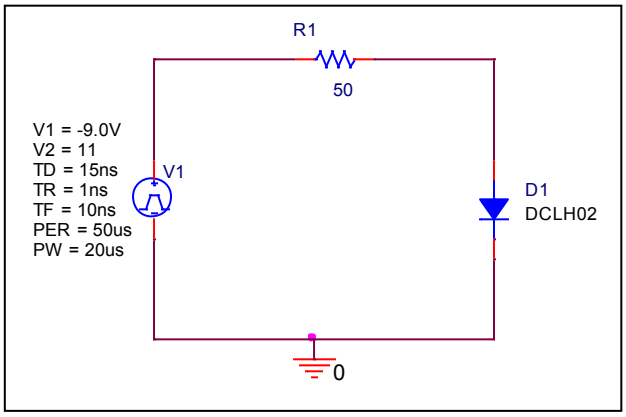
Vrev (V)	Cj (pF)		%Error
	Measurement	Simulation	
5	23.000	23.041	0.18
10	18.800	18.657	-0.76
20	13.800	13.867	0.49
30	11.200	11.213	0.12

Reverse Recovery Characteristic

Circuit Simulation Result



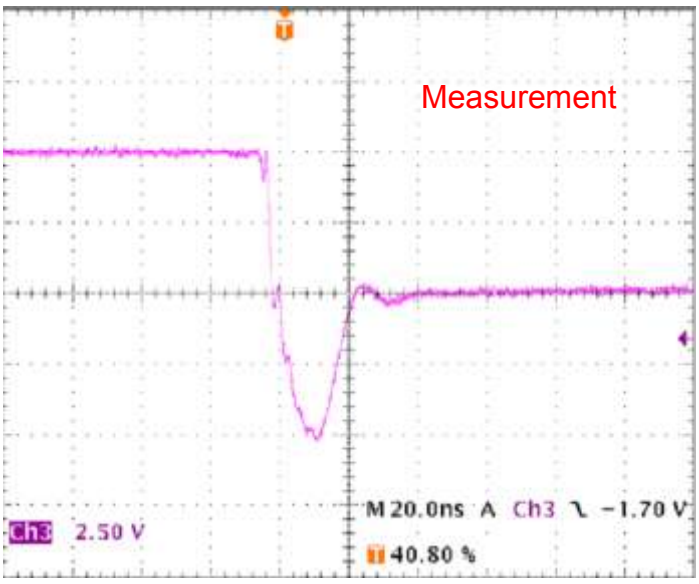
Evaluation Circuit



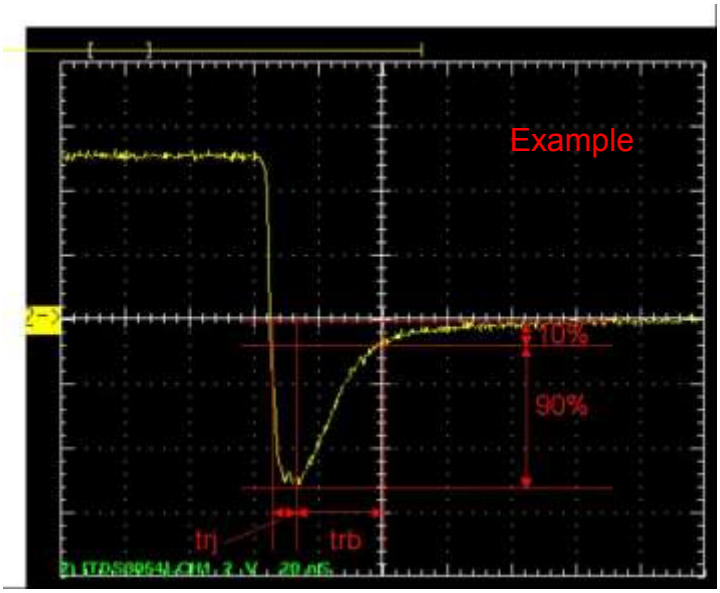
Compare Measurement vs. Simulation

		Measurement	Simulation	%Error
trj	**ns**	**12.00**	**11.80**	**-1.67**

Reverse Recovery Characteristic Reference



Trj =12.00(ns)
Trb= 9.60(ns)
Conditions: Ifwd=0.2A,Irev=0.2A, Rl=50



Relation between trj and trb