Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ STANDARD
PART NUMBER: CMH08
MANUFACTURER: TOSHIBA

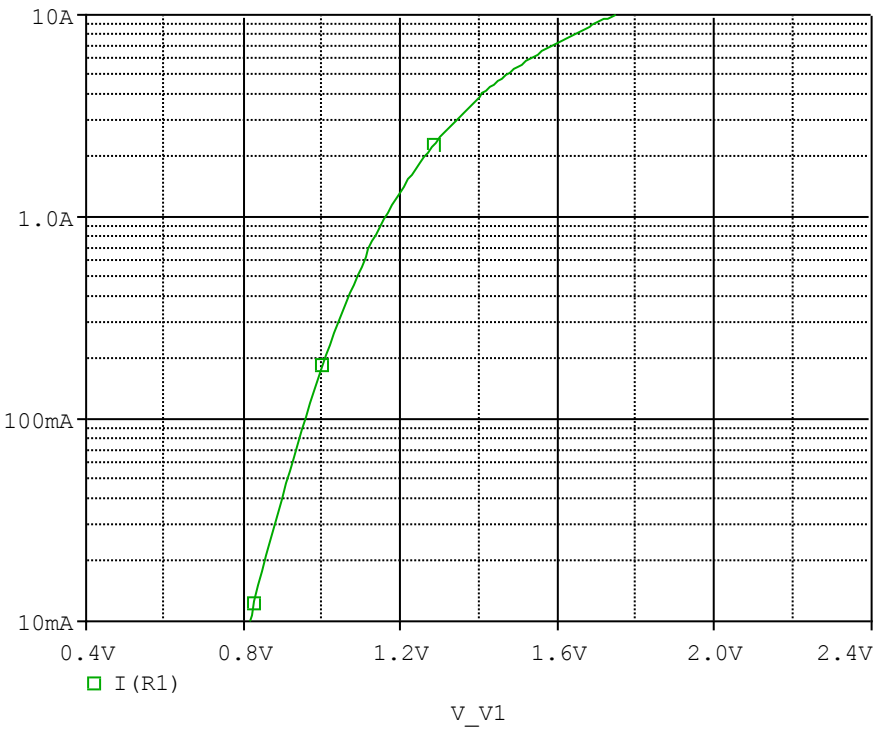
Bee Technologies Inc.

DIODE MODEL PARAMETERS

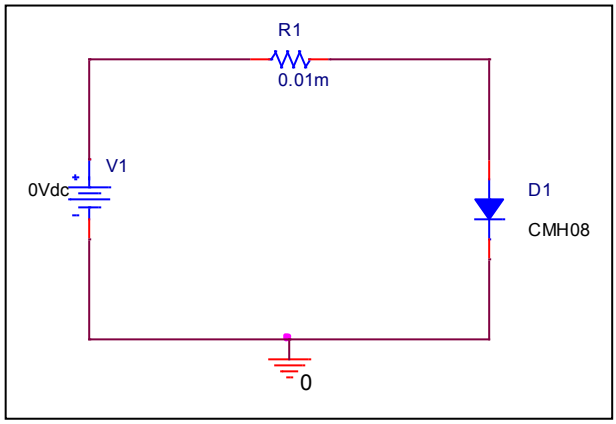
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

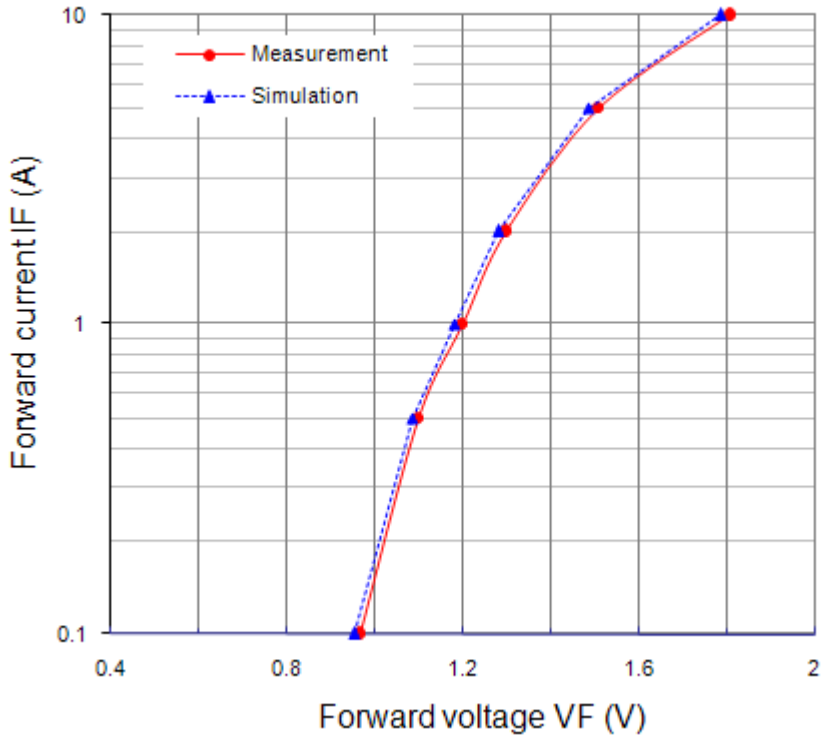


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

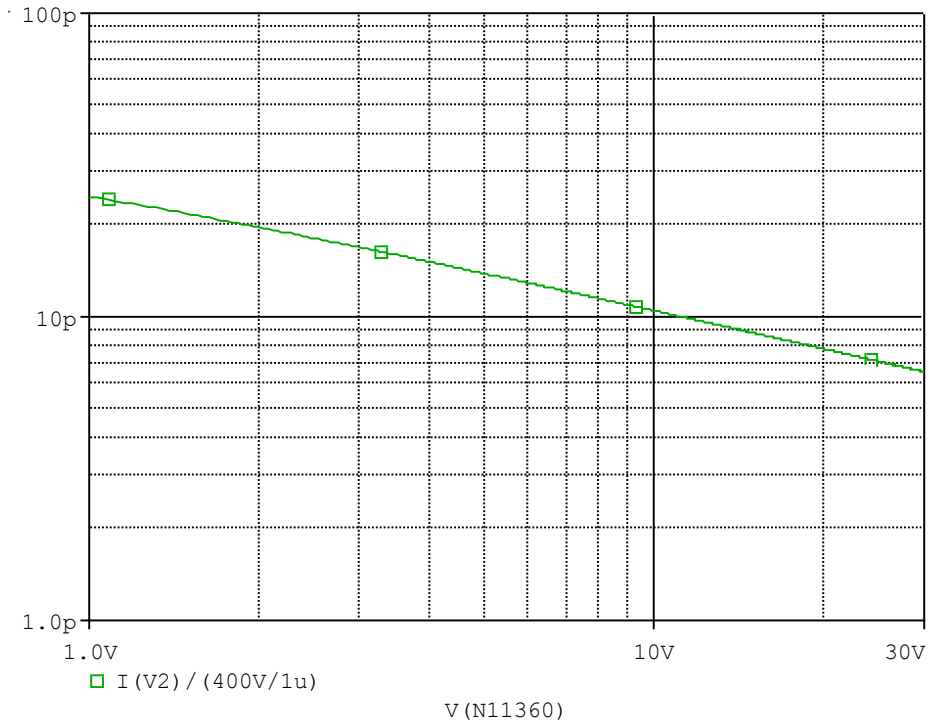


Simulation Result

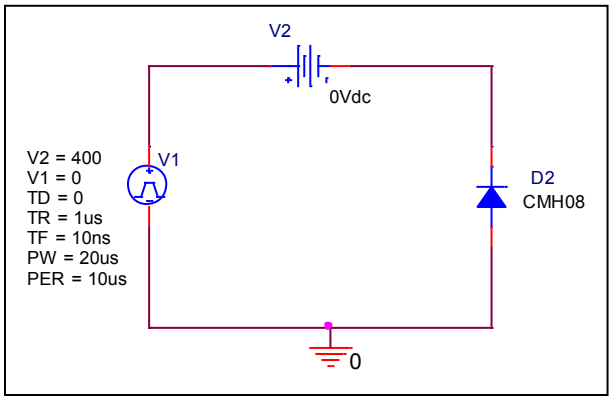
Ifwd (A)	Vfwd (V)		%Error
	Measurement	Simulation	
0.1	0.970	0.957	-1.34
0.5	1.100	1.087	-1.18
1	1.200	1.183	-1.42
2	1.300	1.282	-1.38
5	1.510	1.488	-1.46
10	1.810	1.789	-1.16

Capacitance Characteristic

Circuit Simulation Result

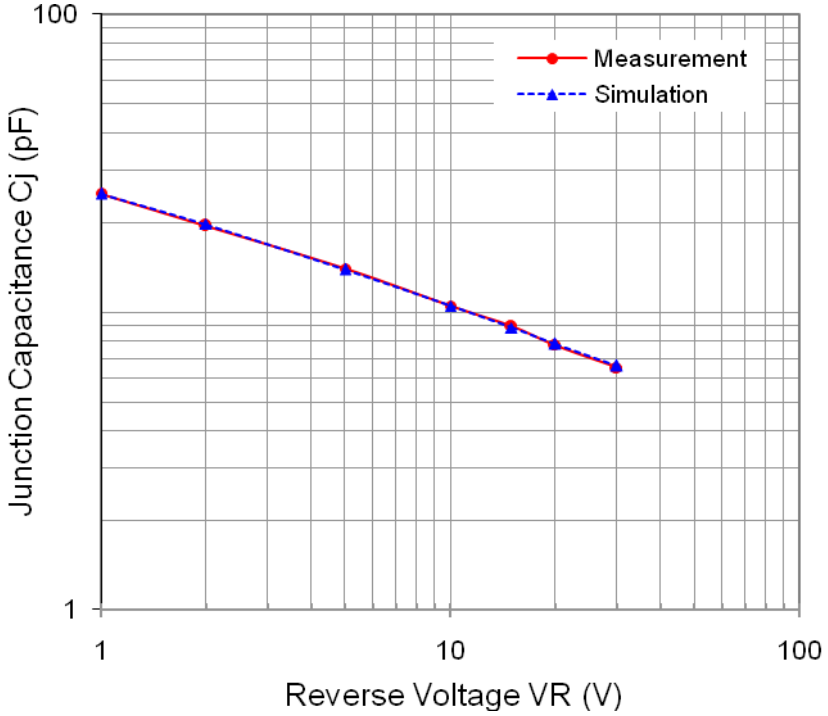


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

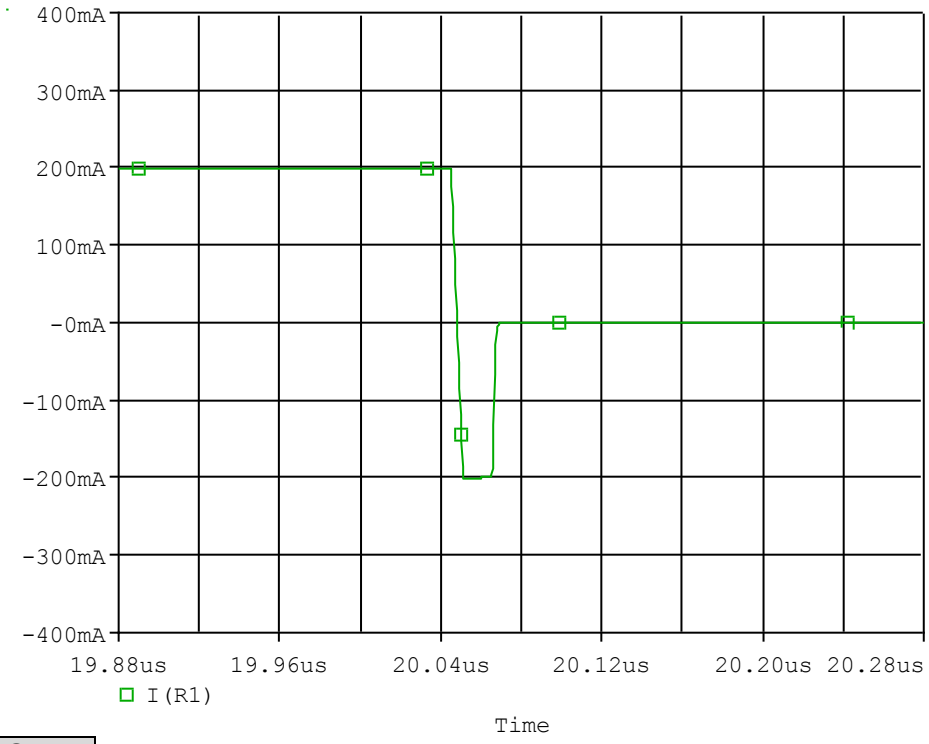


Simulation Result

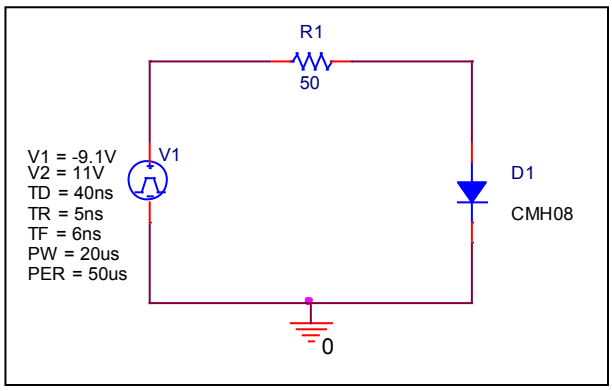
Vrev (V)	Cj (pF)		%Error
	Measurement	Simulation	
1	25.000	24.930	-0.28
2	19.500	19.706	1.06
5	14.000	13.902	-0.70
10	10.500	10.469	-0.30
15	9.000	8.833	-1.86
20	7.750	7.826	0.98
30	6.500	6.598	1.51

Reverse Recovery Characteristic

Circuit Simulation Result



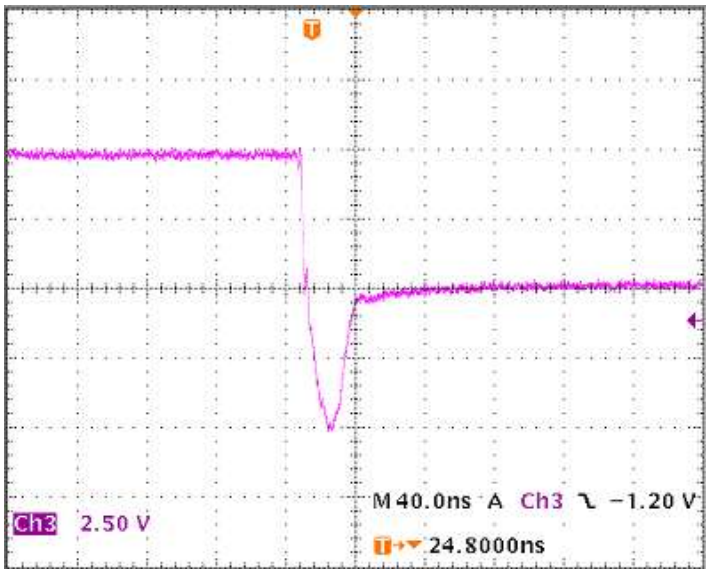
Evaluation Circuit



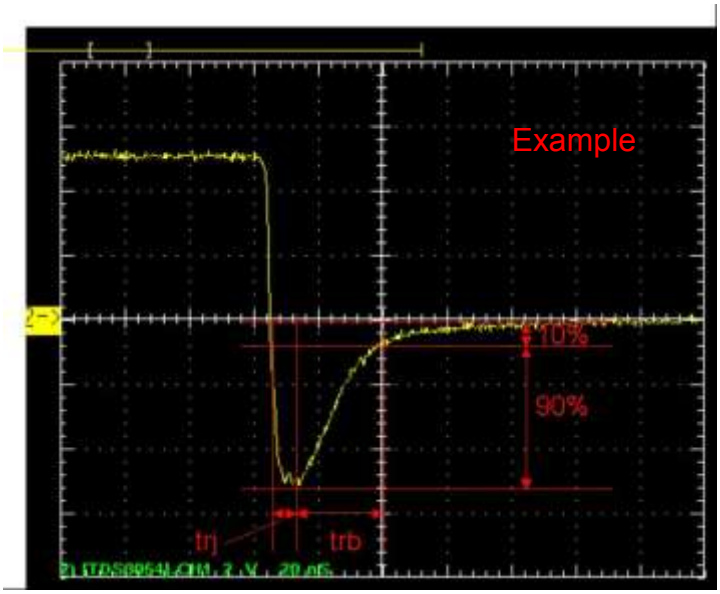
Compare Measurement vs. Simulation

		Measurement	Simulation	%Error
trj	**ns**	**13.60**	**13.55**	**-0.37**

Reverse Recovery Characteristic Reference



Trj =13.6(ns)
Trb= 13.6(ns)
Conditions: Ifwd=0.2A,Irev=0.2A, Rl=50



Relation between trj and trb