Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ PROFESIONAL
PART NUMBER: MA2YF80
MANUFACTURER: PANASONIC

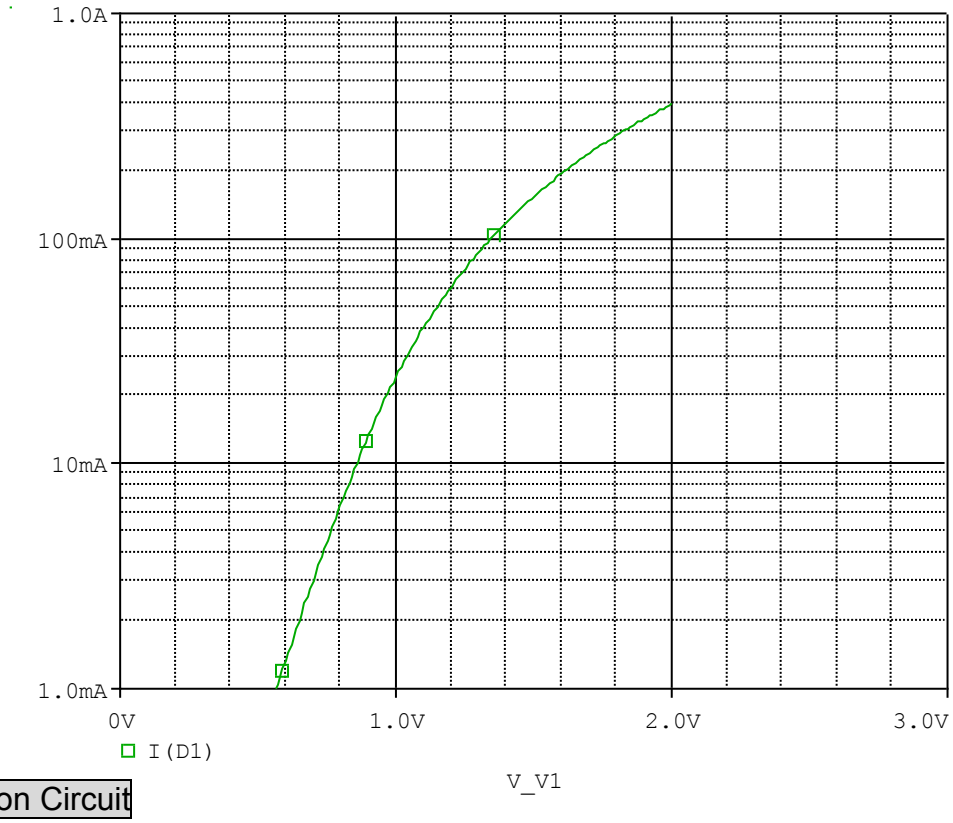
Bee Technologies Inc.

DIODE MODEL PARAMETERS

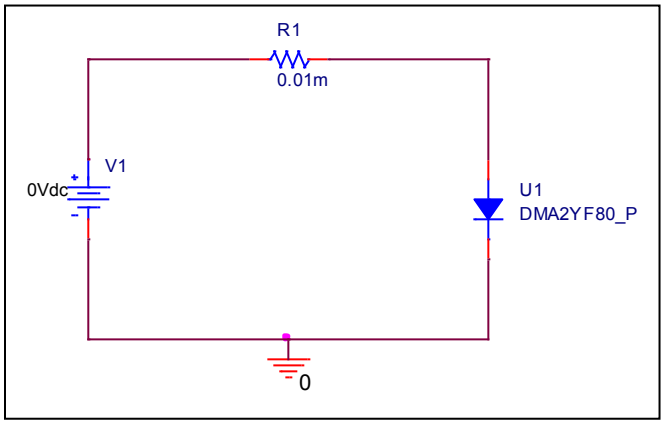
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

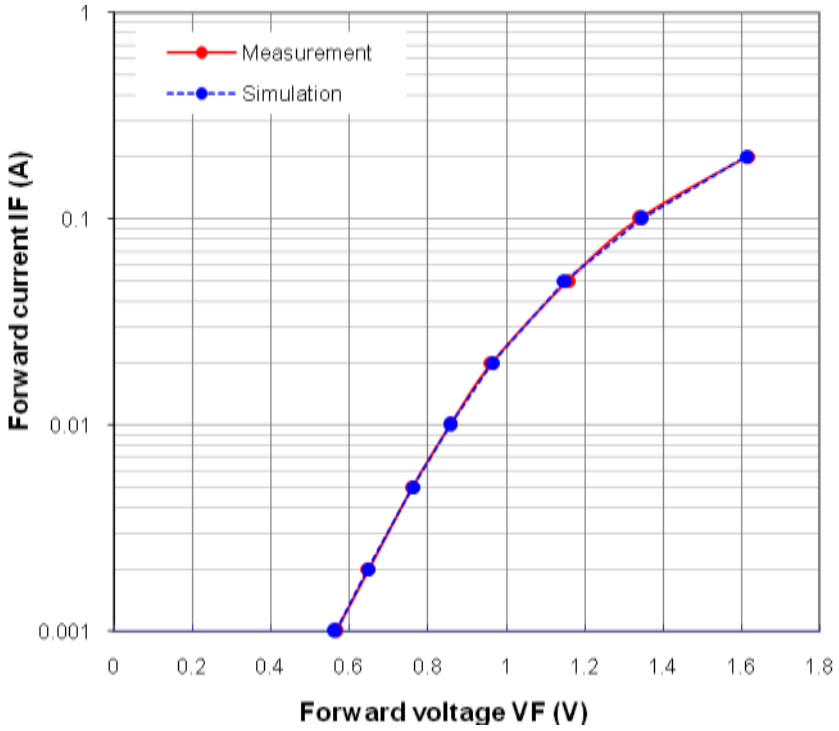


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

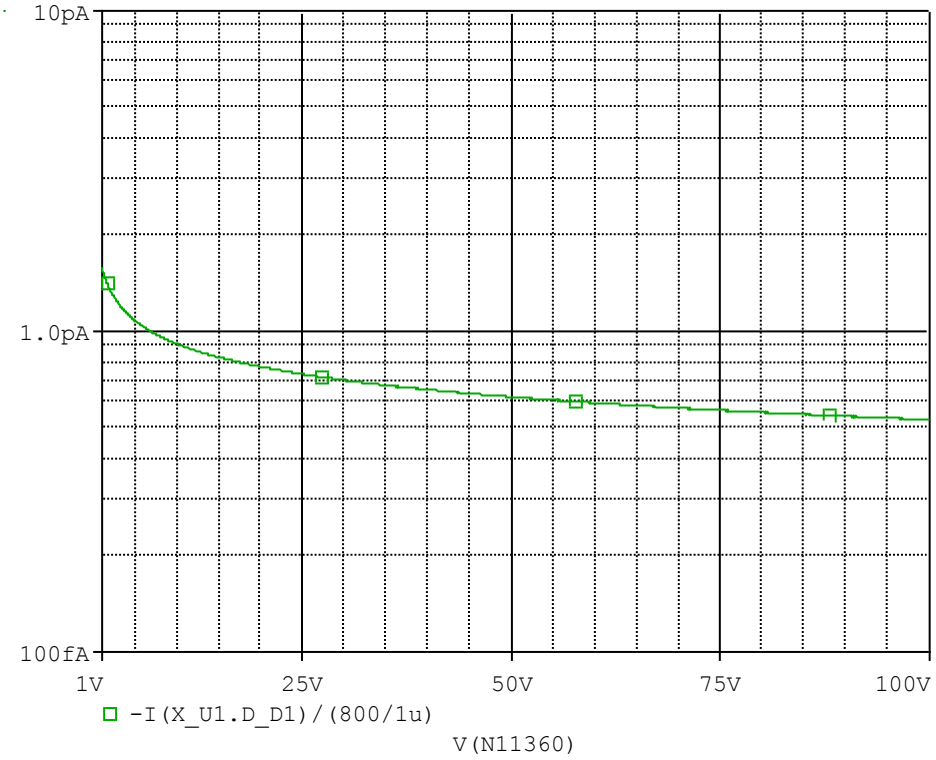


Simulation Result

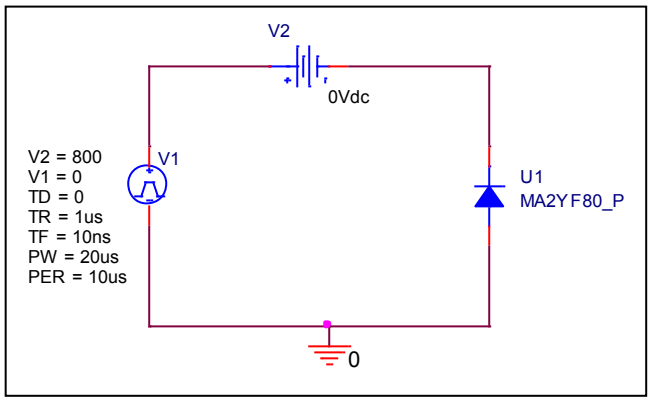
Ifwd (A)	Vfwd (V)		%Error
	Measurement	Simulation	
0.001	0.566	0.565	-0.18
0.002	0.650	0.648	-0.31
0.005	0.760	0.763	0.39
0.01	0.858	0.857	-0.12
0.02	0.964	0.965	0.10
0.05	1.158	1.150	-0.69
0.1	1.338	1.345	0.51
0.2	1.616	1.614	-0.12

Capacitance Characteristic

Circuit Simulation Result

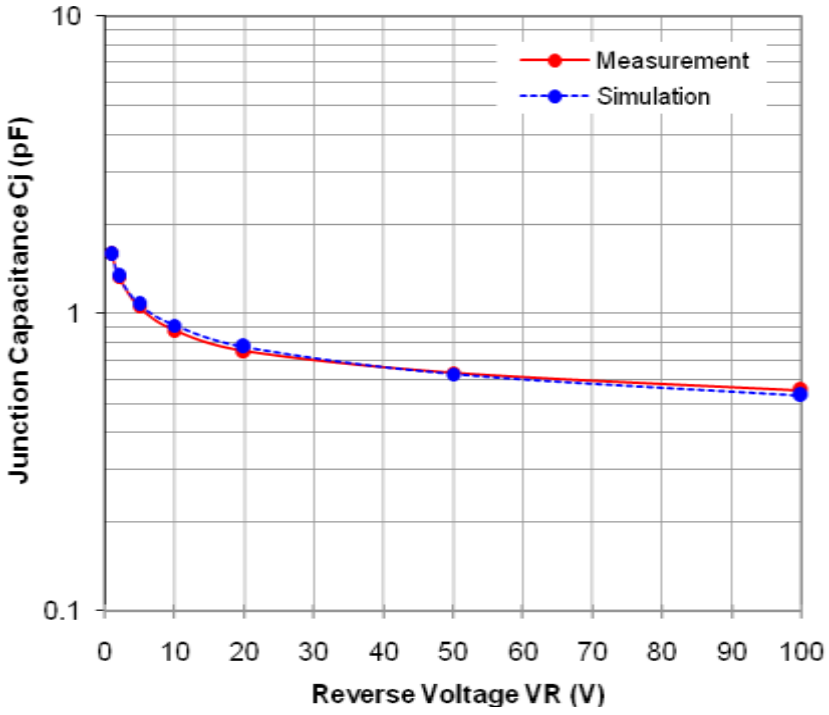


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

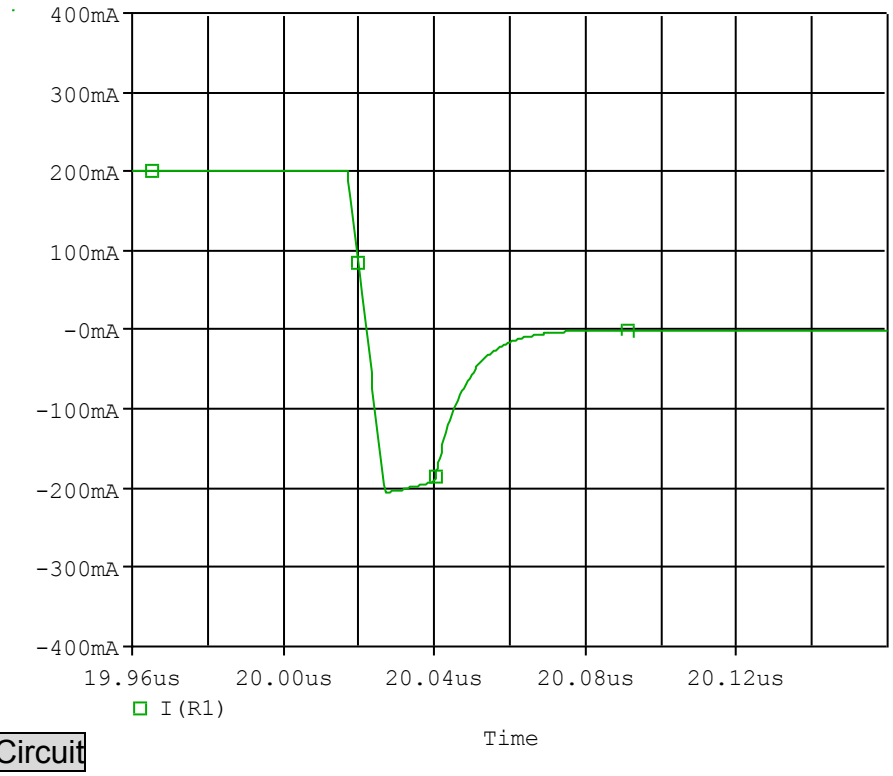


Simulation Result

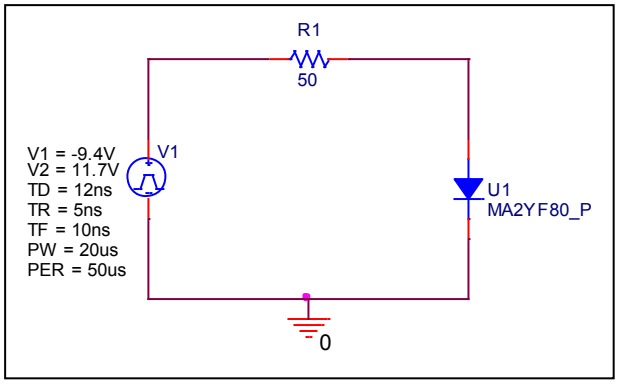
Vrev (V)	Cj (pF)		%Error
	Measurement	Simulation	
1	1.581	1.583	0.11
2	1.329	1.337	0.59
5	1.054	1.076	2.09
10	0.876	0.913	4.20
20	0.746	0.775	3.89
50	0.631	0.624	-1.11
100	0.553	0.531	-3.98

Reverse Recovery Characteristic

Circuit Simulation Result



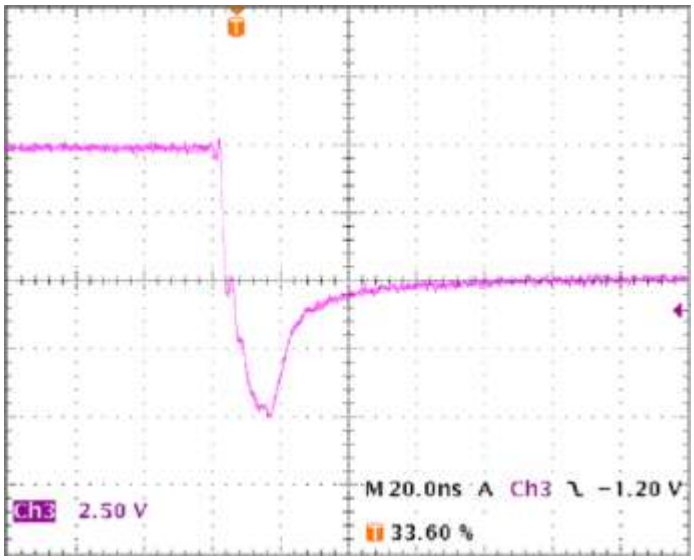
Evaluation Circuit



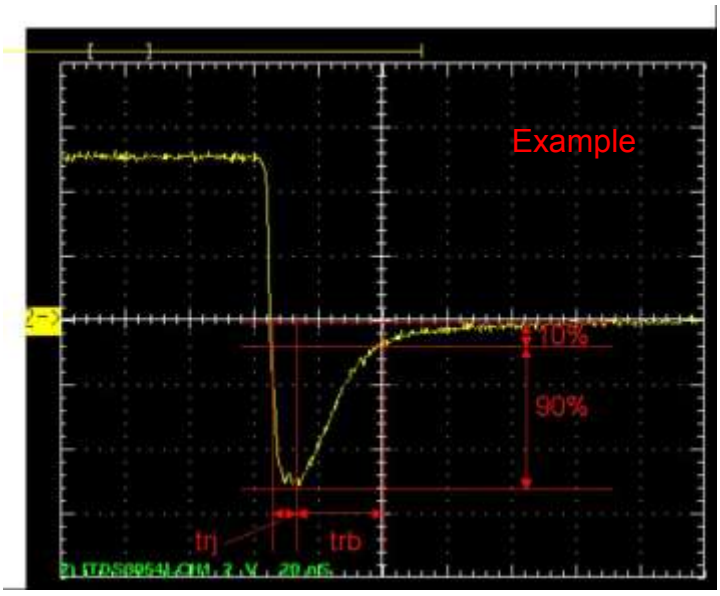
Compare Measurement vs. Simulation

		Measurement	Simulation	%Error
trj	ns	14.00	13.95	-0.36
trb	ns	12.00	11.85	-1.25
trr	ns	26.00	25.85	-0.58

Reverse Recovery Characteristic Reference



Trj = 13.2(ns)
Trb= 24.0(ns)
Conditions: Ifwd=0.2A,Irev=0.2A, Rl=50



Relation between trj and trb