

Device Modeling Report

COMPONENTS:
DIODE/ SCHOTTKY RECTIFIER/ PROFESSIONAL
PARTNUMBER: 50WQ04FN
MANUFACTURER: INTERNATIONAL RECTIFIER

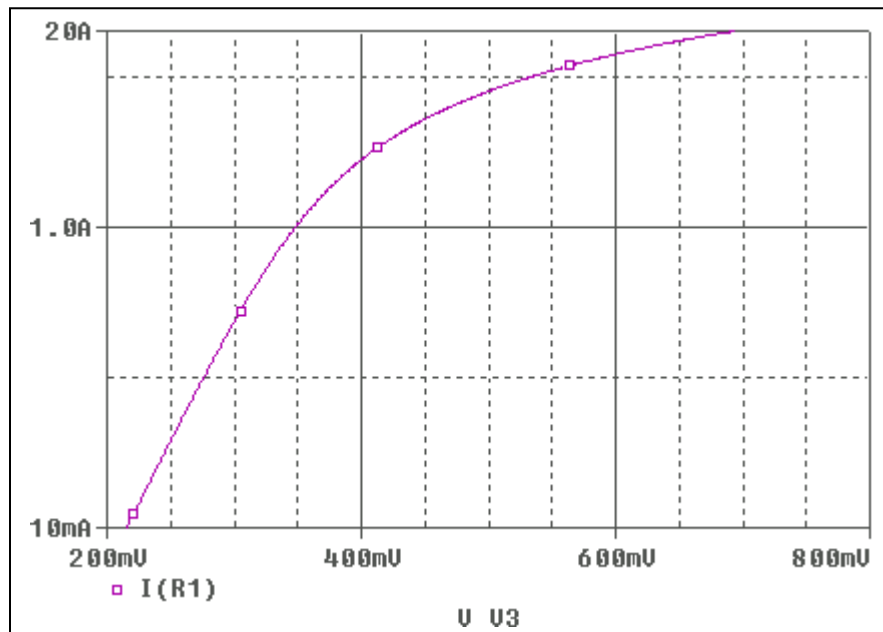


Bee Technologies Inc.

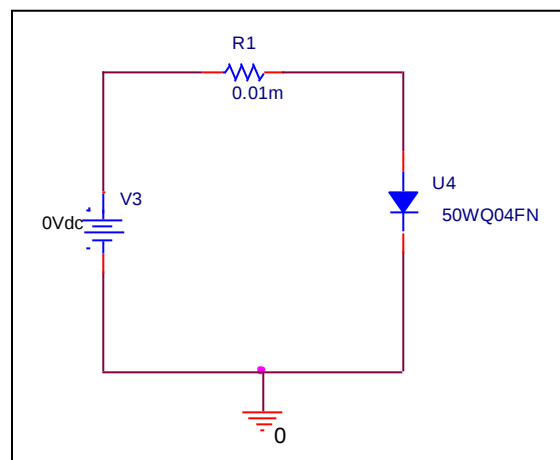
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

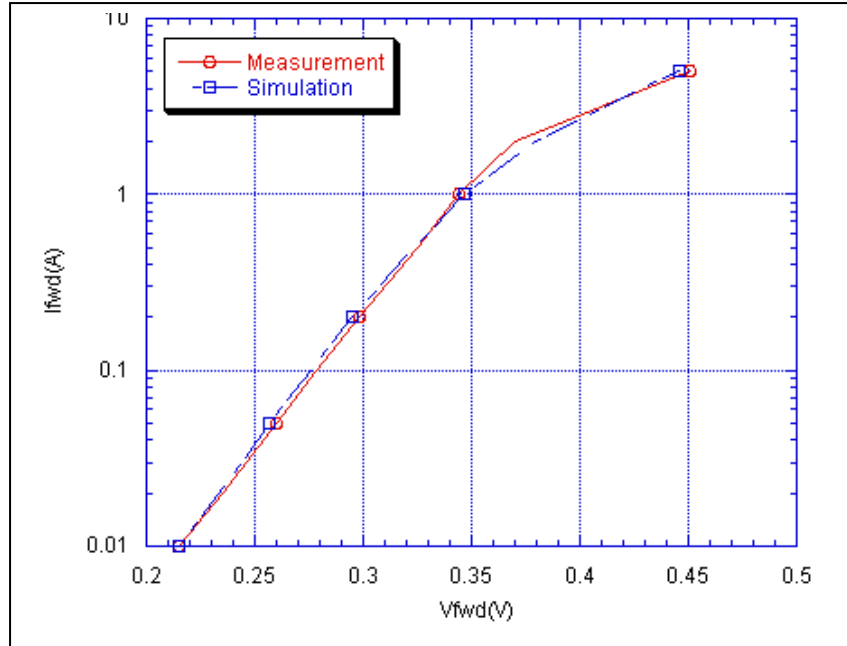


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

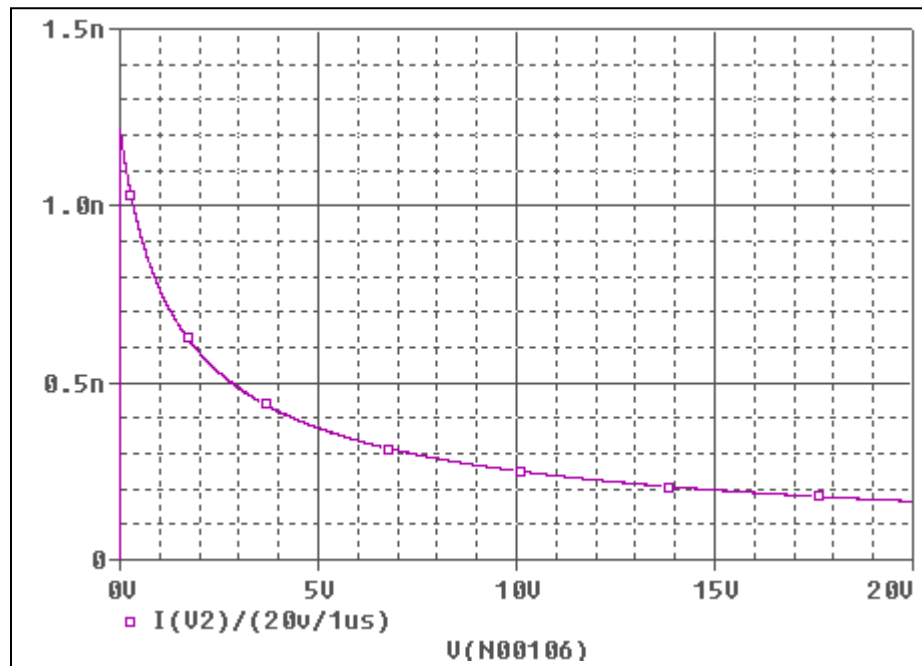


Simulation Result

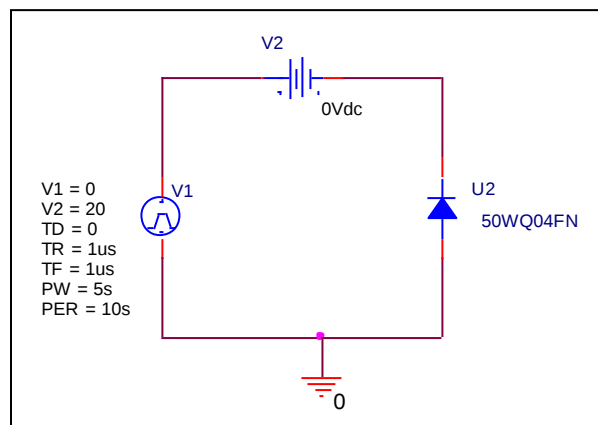
$I_{fwd}(A)$	$V_{fwd}(V)$ Measurement	$V_{fwd}(V)$ Simulation	%Error
0.01	0.215	0.214	-0.47
0.02	0.235	0.233	-0.86
0.05	0.260	0.257	-1.17
0.1	0.278	0.276	-0.72
0.2	0.298	0.295	-1.02
0.5	0.325	0.323	-0.62
1	0.344	0.347	0.86
2	0.370	0.379	2.37
5	0.451	0.446	-1.12

Junction Capacitance Characteristic

Circuit Simulation Result

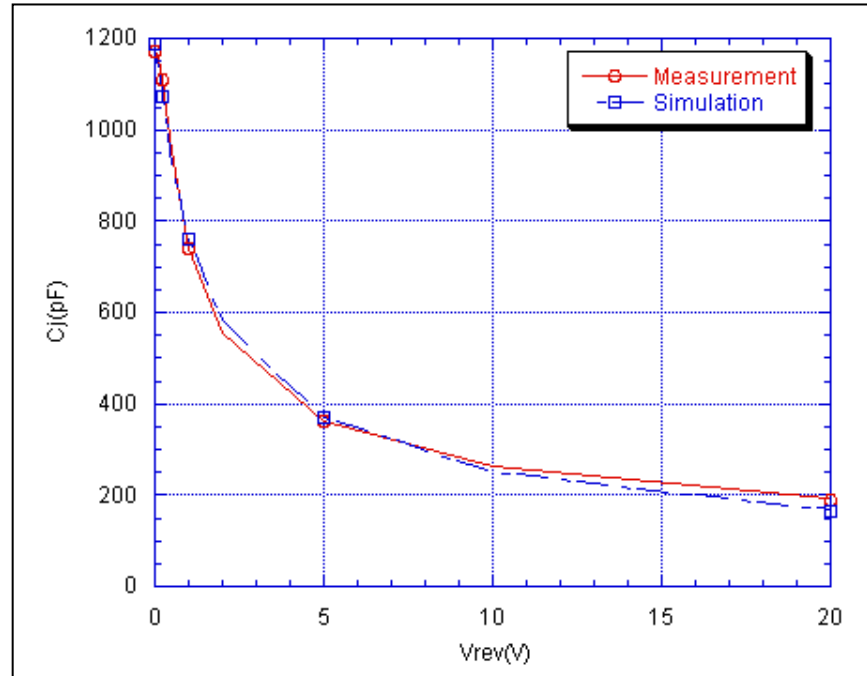


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

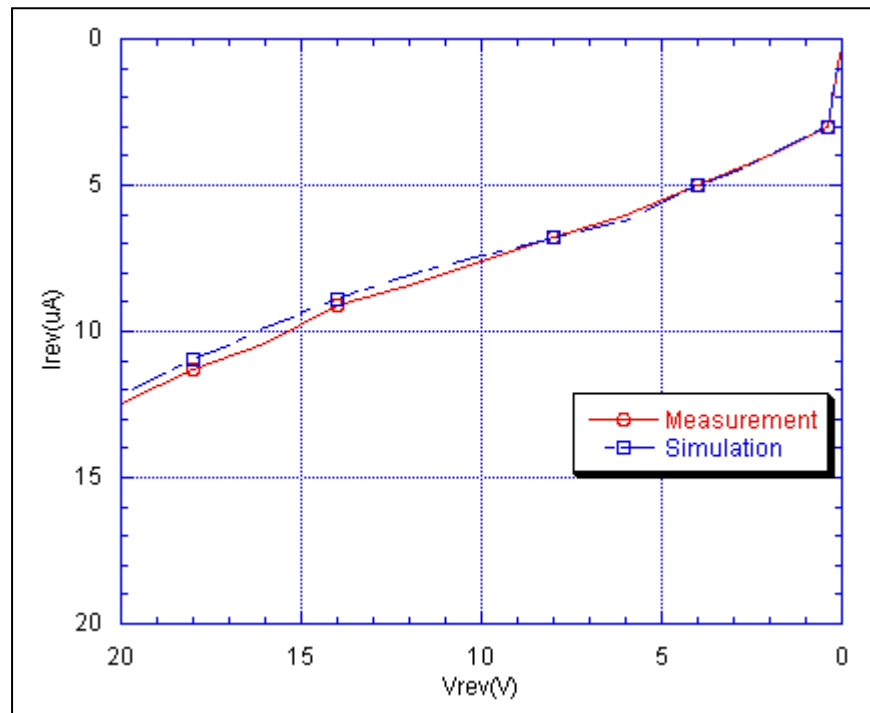


Simulation Result

V_{rev} (V)	C_j (pF) Measurement	C_j (pF) Simulation	%Error
0	1172.000	1189.000	1.43
0.1	1158.000	1140.000	-1.58
0.2	1108.000	1074.000	-3.17
0.5	953.726	926.687	-2.92
1	741.756	765.517	3.10
2	565.024	585.130	3.44
5	363.520	371.721	2.21
10	261.470	251.186	-4.09
20	172.381	165.641	-4.07

Comparison Graph

Circuit Simulation Result



Simulation Result

$V_{rev}(V)$	$I_{rev}(\mu A)$ Measurement	$I_{rev}(\mu A)$ Simulation	%Error
6	6.000	6.210	3.38
8	6.800	6.760	-0.59
10	7.600	7.390	-2.84
12	8.450	8.110	-4.19
14	9.140	8.940	-2.24
16	10.400	9.980	-4.21
18	11.300	10.970	-3.01
20	12.500	12.200	-2.46

Reverse Characteristic

Reference

