

Device Modeling Report

COMPONENTS:

DIODE/ SCHOTTKY RECTIFIER/PROFESSIONAL

PART NUMBER: RB051L-40

MANUFACTURER: ROHM

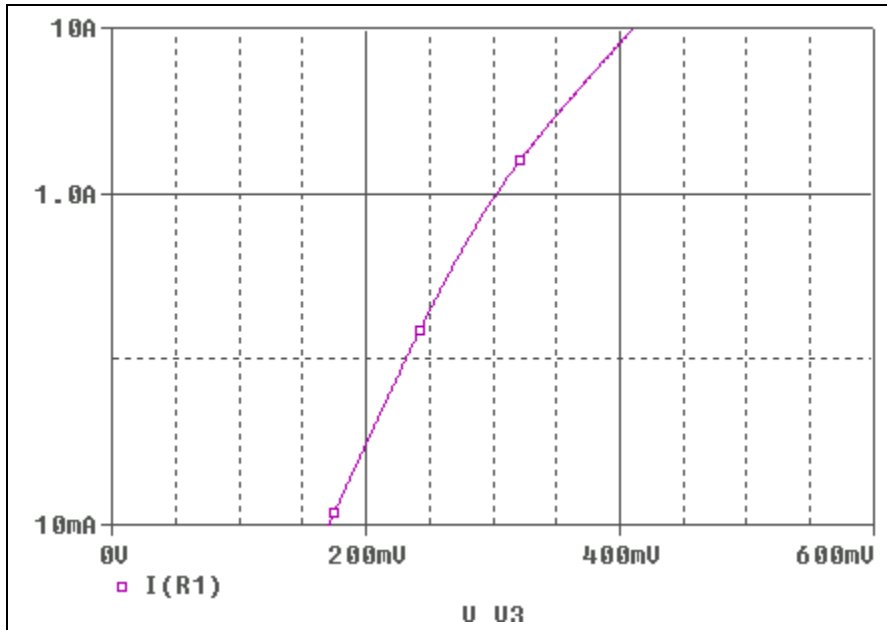


Bee Technologies Inc.

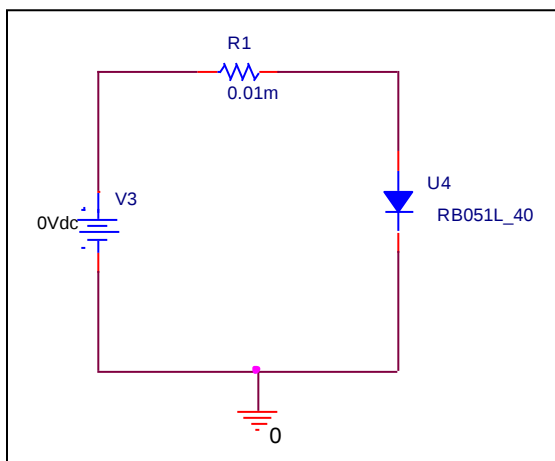
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

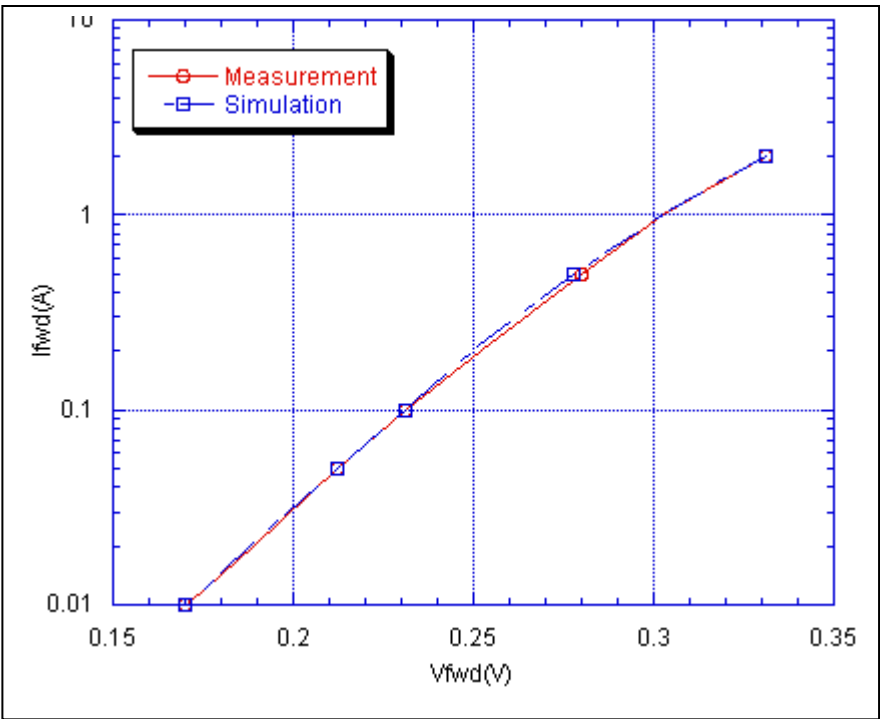


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

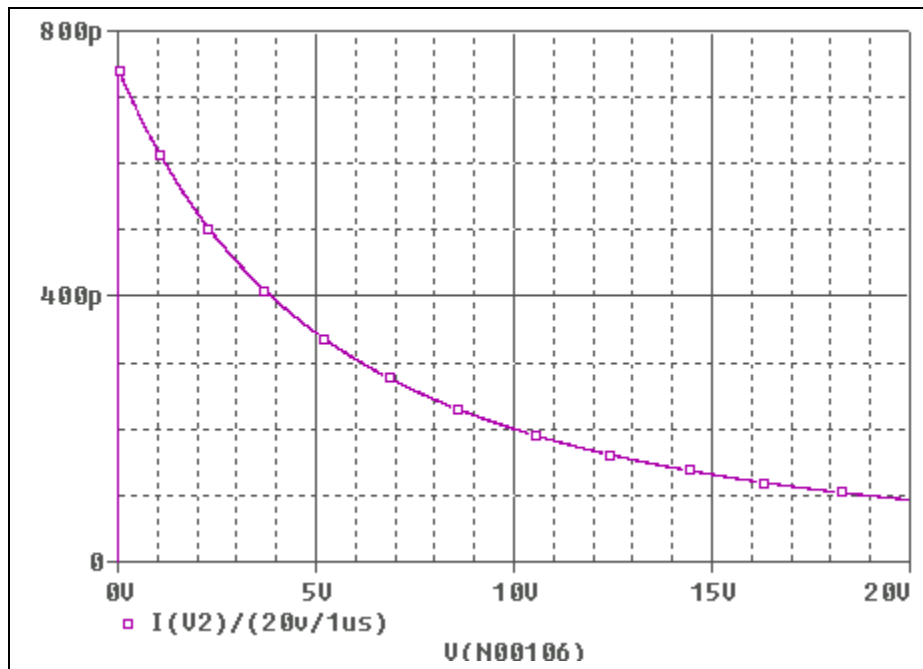


Simulation Result

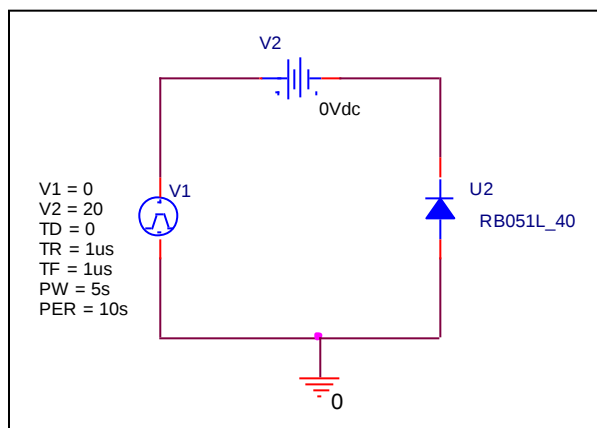
I_{fwd} (A)	V_{fwd} (V) Measurement	V_{fwd} (V) Simulation	%Error
0.01	0.170	0.168	-1.19
0.02	0.189	0.188	-0.53
0.05	0.212	0.211	-0.47
0.1	0.231	0.230	-0.43
0.2	0.252	0.250	-0.80
0.5	0.280	0.278	-0.72
1	0.303	0.302	-0.33
2	0.331	0.330	-0.30

Junction Capacitance Characteristic

Circuit Simulation Result

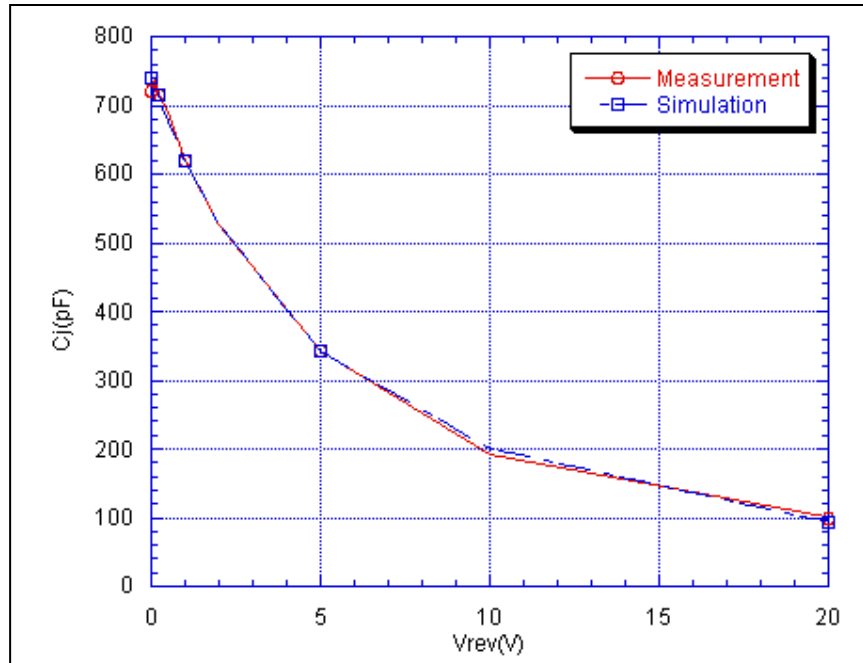


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

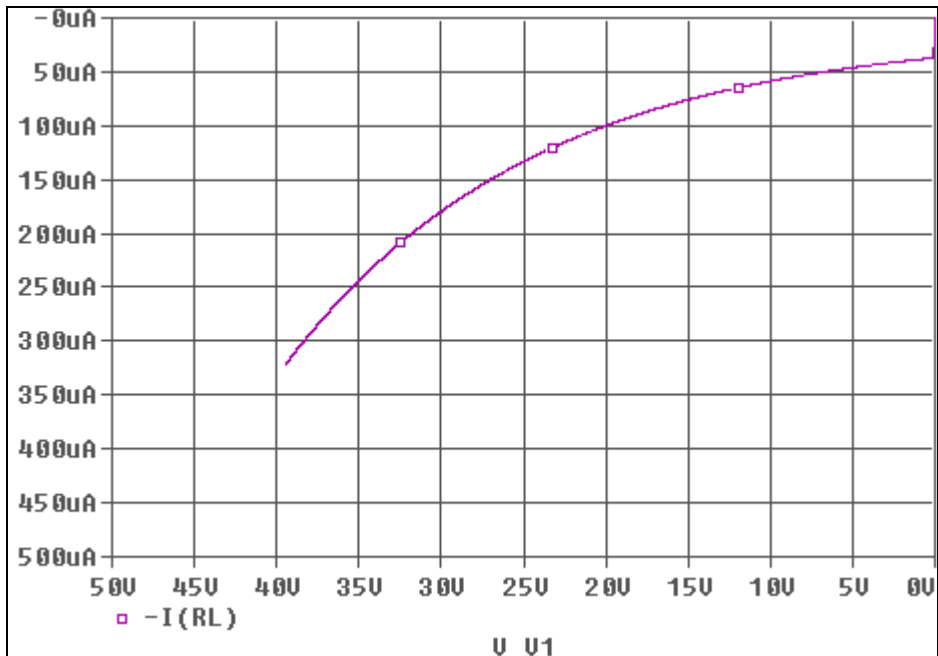


Simulation Result

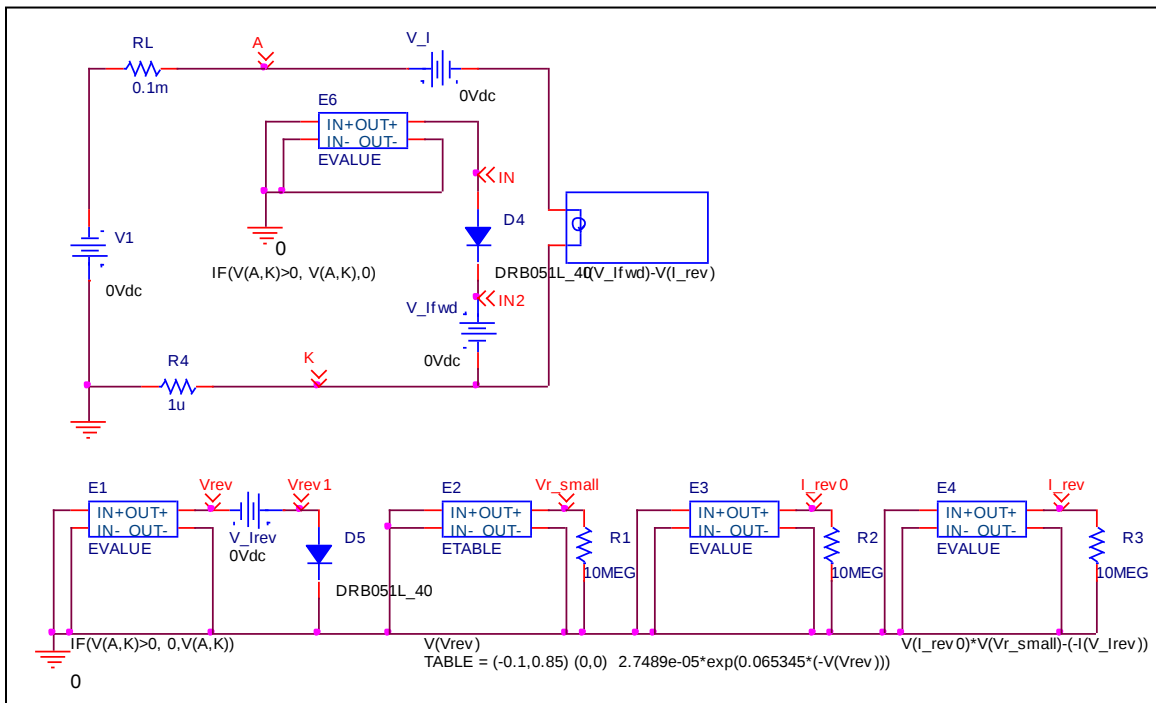
V_{rev} (V)	C_j (pF) Measurement	C_j (pF) Simulation	%Error
0	721.108	741.149	2.70
0.1	738.835	730.857	-1.09
0.2	716.329	716.265	-0.01
0.5	690.282	679.126	-1.64
1	618.645	620.251	0.26
2	527.023	527.816	0.15
5	341.817	346.021	1.21
10	191.916	200.460	4.26
20	97.53	97.38	-0.15

Reverse Characteristic

Circuit Simulation Result

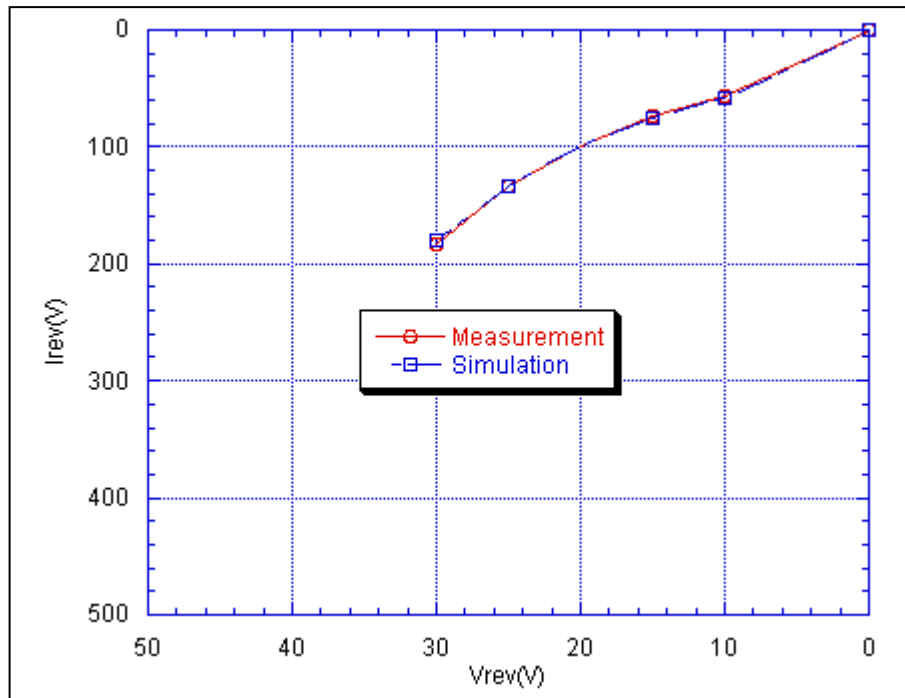


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

$V_{rev}(V)$	$I_{rev}(uA)$ Measurement	$I_{rev}(uA)$ Simulation	%Error
10	56.500	58.570	3.53
15	74.000	75.930	2.54
20	99.500	99.990	0.49
25	134.000	133.300	-0.53
30	183.000	179.600	-1.89

Reverse Characteristic

Reference

