Device Modeling Report

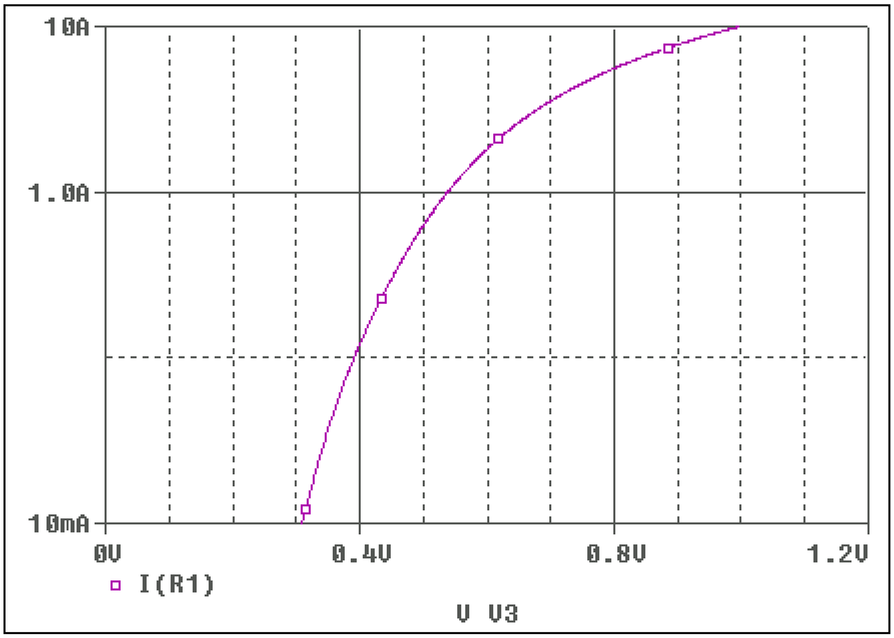
COMPONENTS:
DIODE/ SCHOTTKY RECTIFIER/ PROFESSIONAL
PART NUMBER: 30WQ10FN
MANUFACTURER: INTERNATIONAL RECTIFIER

Bee Technologies Inc.

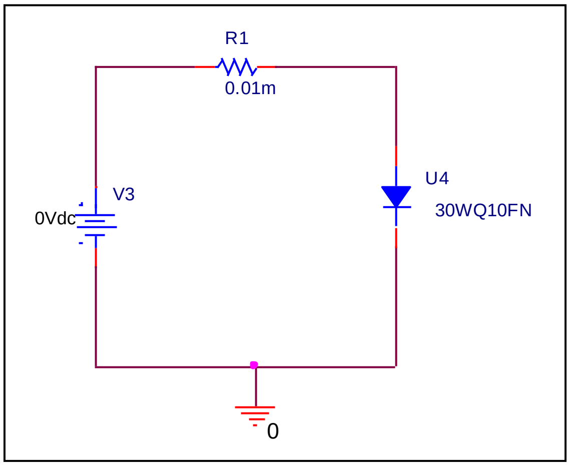
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

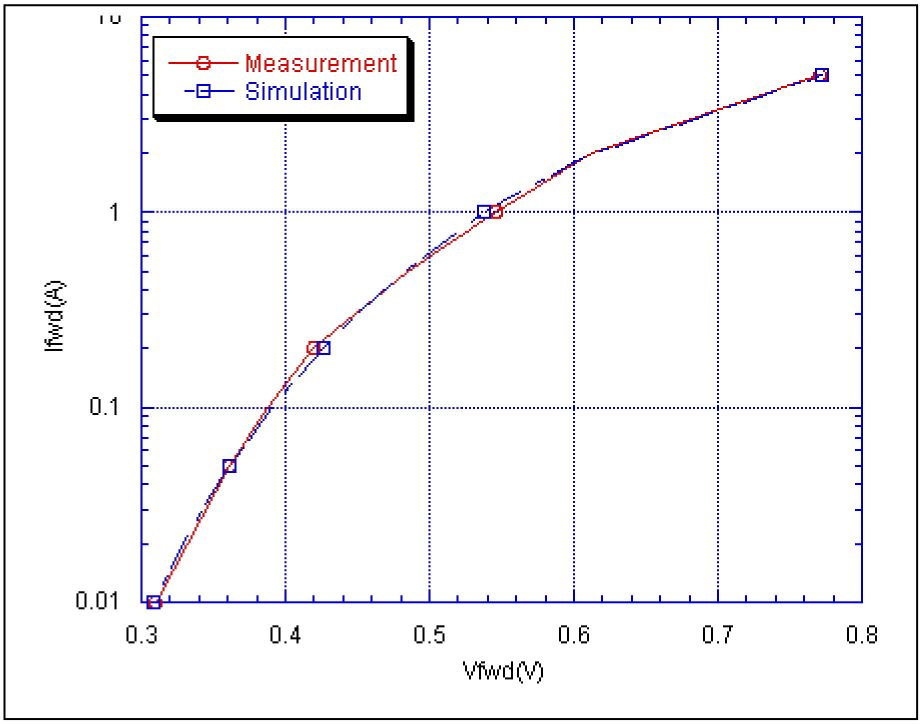


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

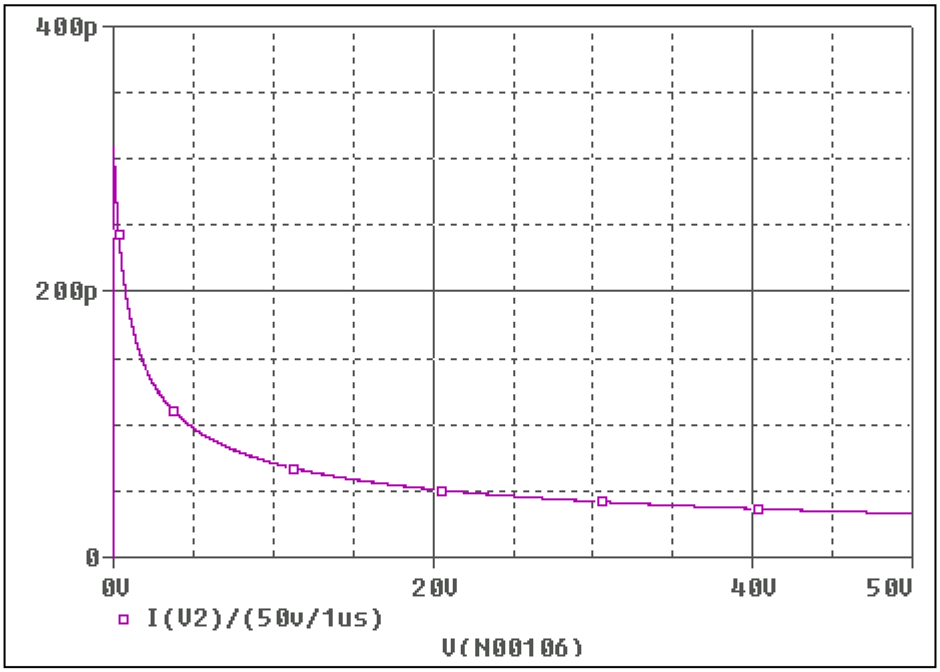


Simulation Result

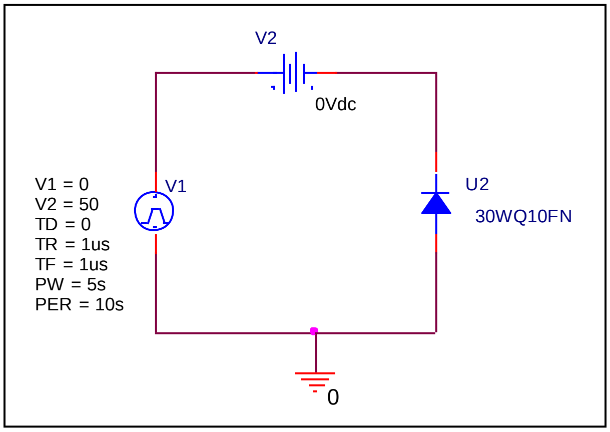
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.310	0.309	-0.32
0.02	0.332	0.329	-0.91
0.05	0.361	0.360	-0.28
0.1	0.388	0.390	0.51
0.2	0.420	0.426	1.41
0.5	0.485	0.484	-0.21
1	0.546	0.538	-1.49
2	0.612	0.611	-0.16
5	0.771	0.772	0.13

Junction Capacitance Characteristic

Circuit Simulation Result

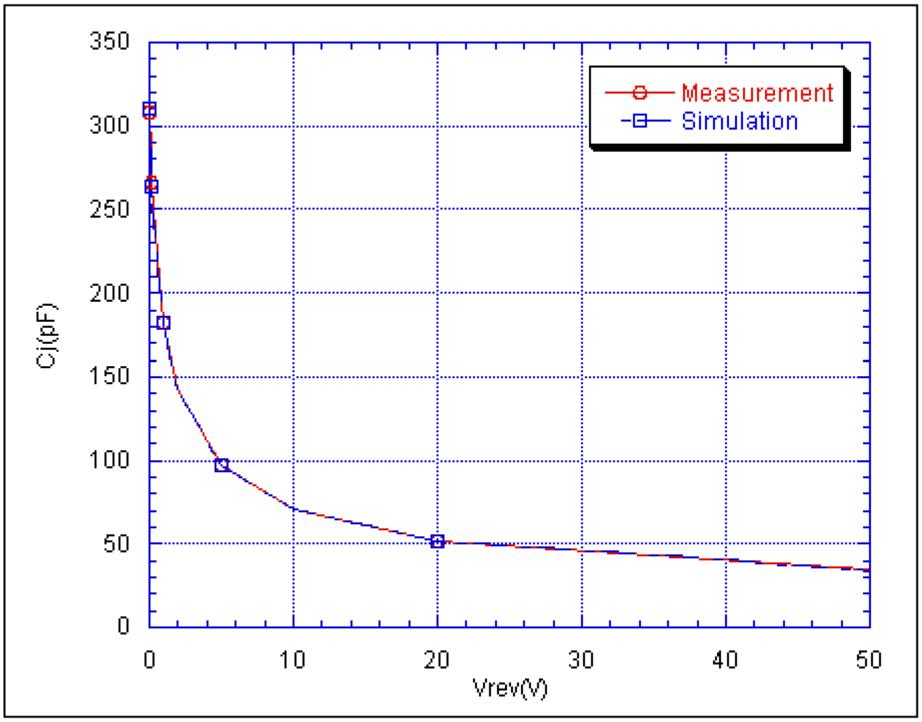


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

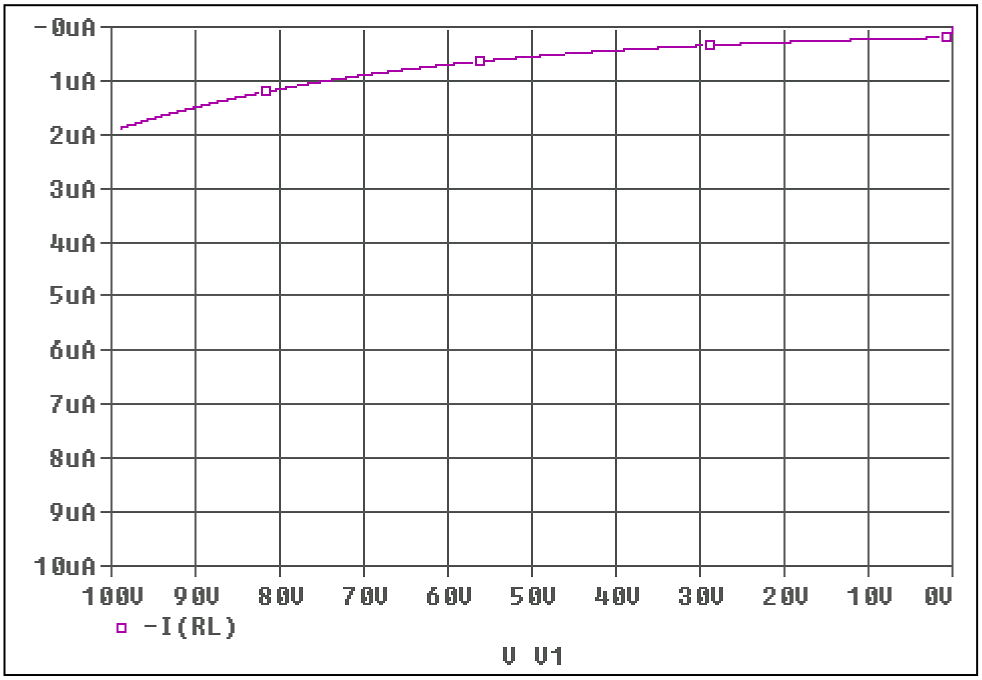


Simulation Result

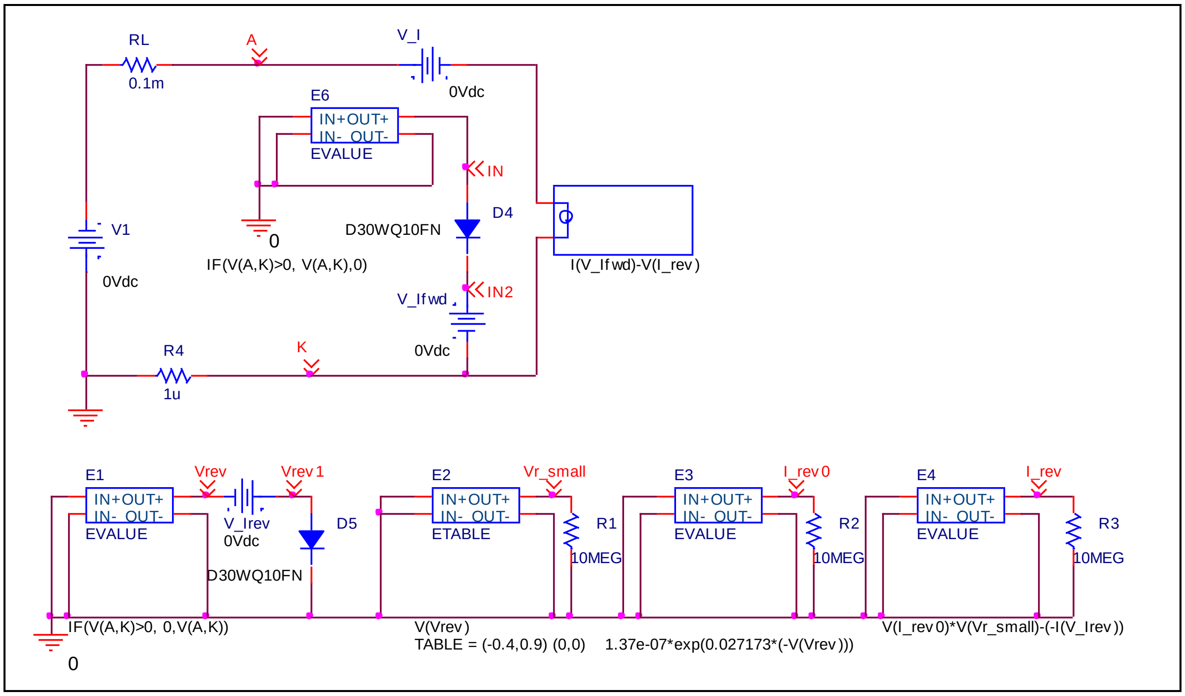
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	308.588	309.885	0.42
0.1	285.982	284.520	-0.51
0.2	266.161	264.363	-0.68
0.5	221.666	222.890	0.55
1	182.319	183.192	0.48
2	142.822	142.253	-0.40
5	97.381	97.348	-0.03
10	70.955	71.016	0.09
20	51.343	51.241	-0.20
50	33.773	32.992	-2.37

Reverse Characteristic

Circuit Simulation Result

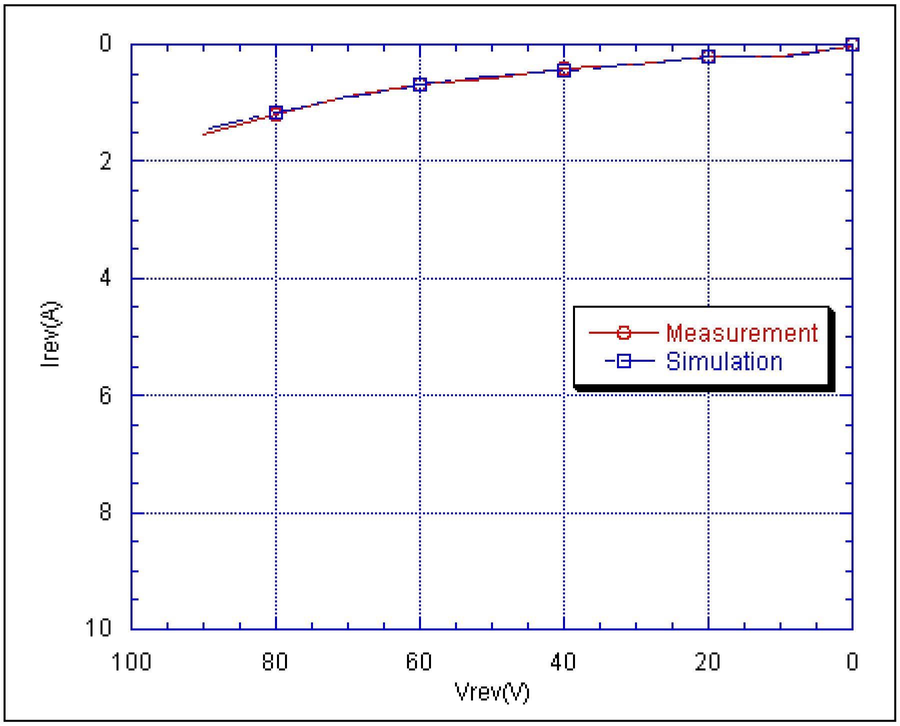


Evaluation Circuit



Comparison Graph

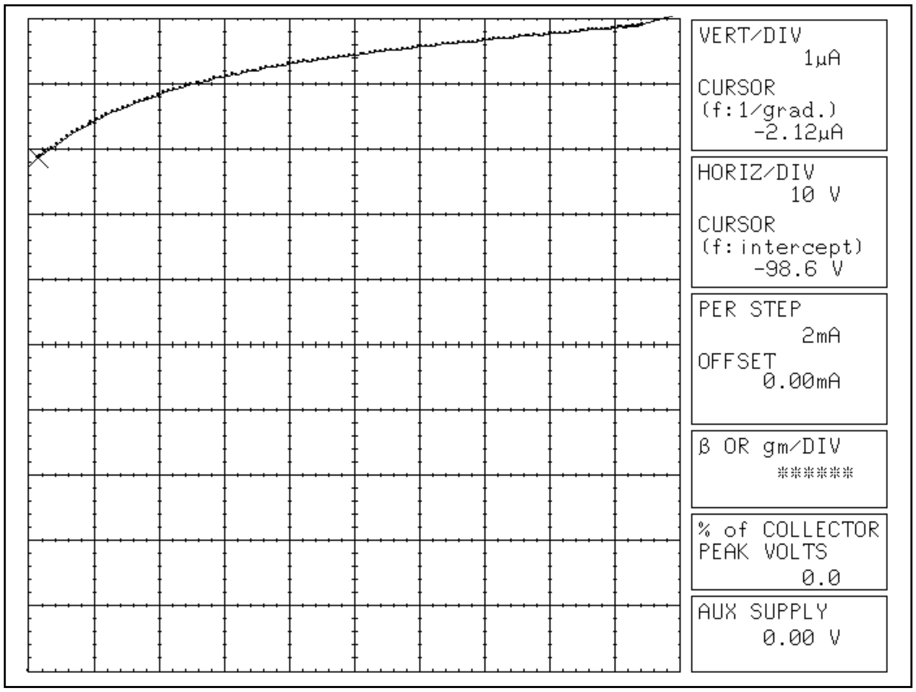
Circuit Simulation Result



Simulation Result

Vrev(V)	Irev(uA) Measurement	Irev(uA) Simulation	%Error
30	0.340	0.349	2.58
40	0.400	0.436	8.26
50	0.570	0.550	-3.64
60	0.700	0.698	-0.29
70	0.900	0.896	-0.45
80	1.200	1.150	-4.35
90	1.550	1.490	-4.03

Reverse Characteristic Reference



VERT/DIV
1μA
CURSOR
(f:1/grad.)
-2.12μA

HORIZ/DIV
10 V
CURSOR
(f:intercept)
-98.6 V

PER STEP
2mA
OFFSET
0.00mA

β OR gm/DIV
******

% of COLLECTOR
PEAK VOLTS
0.0

AUX SUPPLY
0.00 V