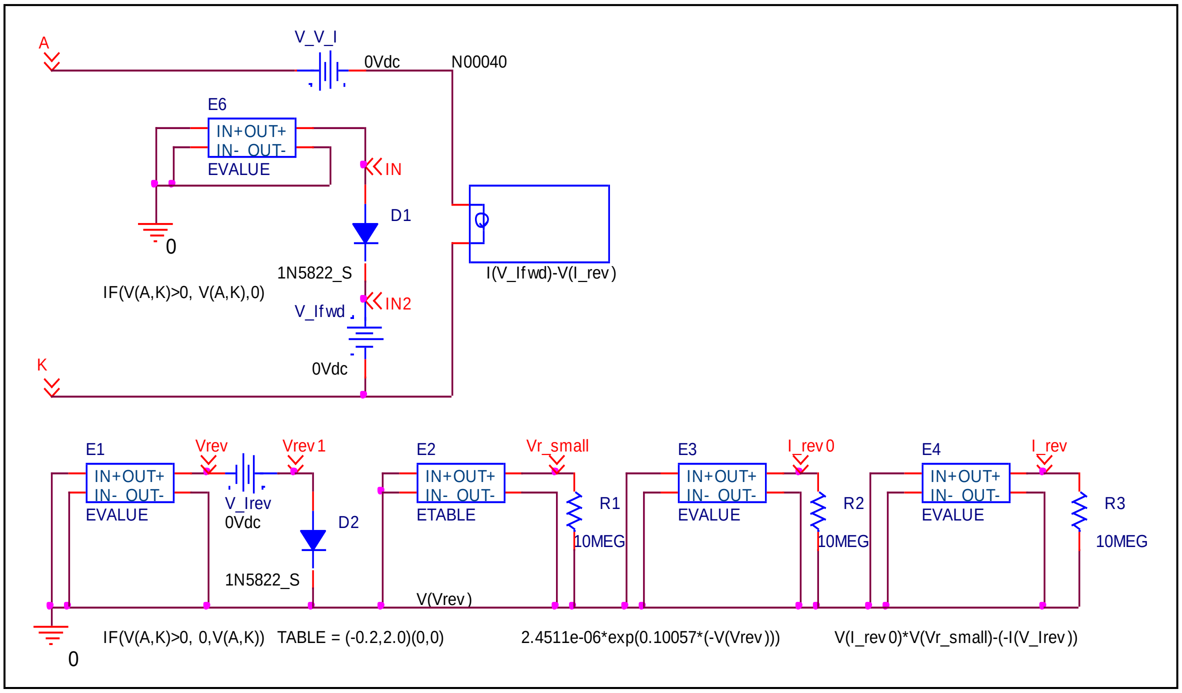
Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ PROFESSIONAL
PART NUMBER: 1N5822
MANUFACTURER: ON Semiconductor

Bee Technologies Inc.

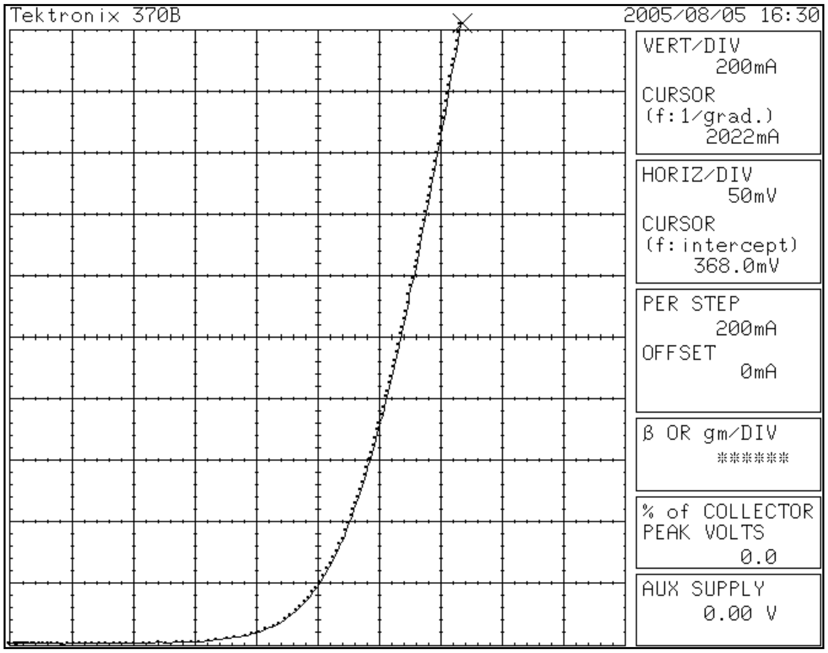
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

EQUIVALENT CUIRCUIT



Forward Current Characteristic

Reference



Tektronix 370B

2005/08/05 16:30

VERT/DIV
200mA

CURSOR
(f:1/grad.)
2022mA

HORIZ/DIV
50mV

CURSOR
(f:intercept)
368.0mV

PER STEP
200mA

OFFSET
0mA

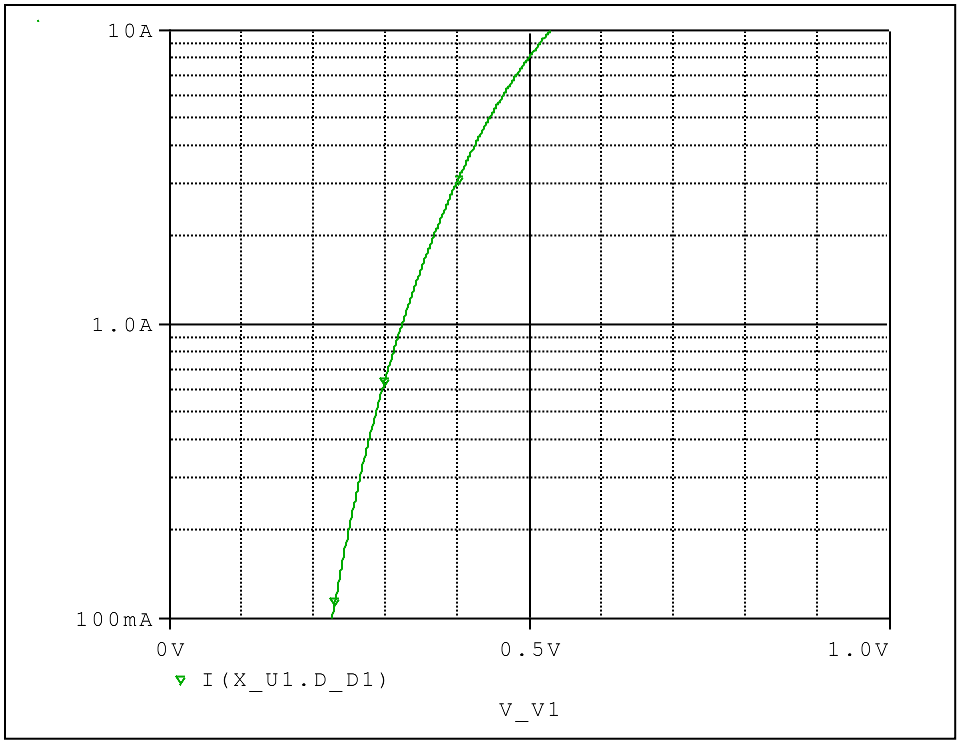
β OR gm/DIV
******

% of COLLECTOR
PEAK VOLTS
0.0

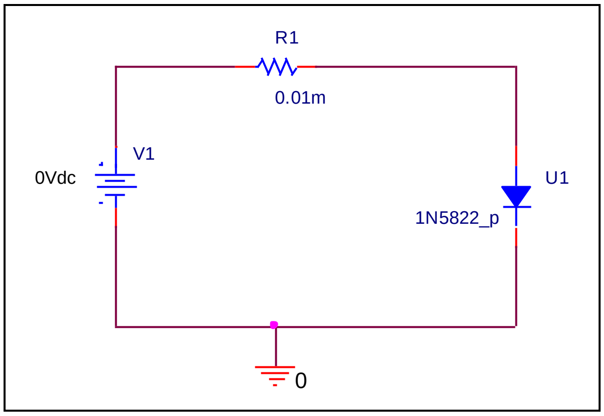
AUX SUPPLY
0.00 V

Forward Current Characteristic

Circuit Simulation Result

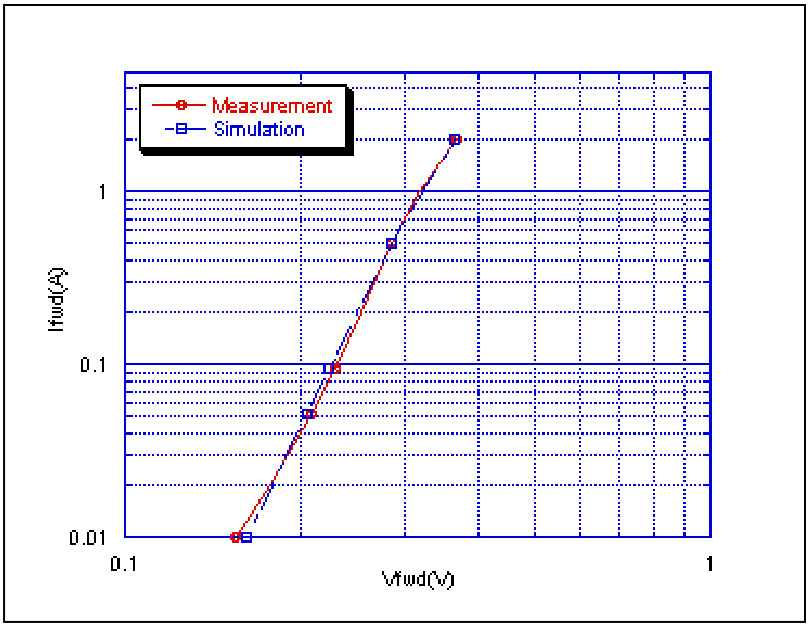


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

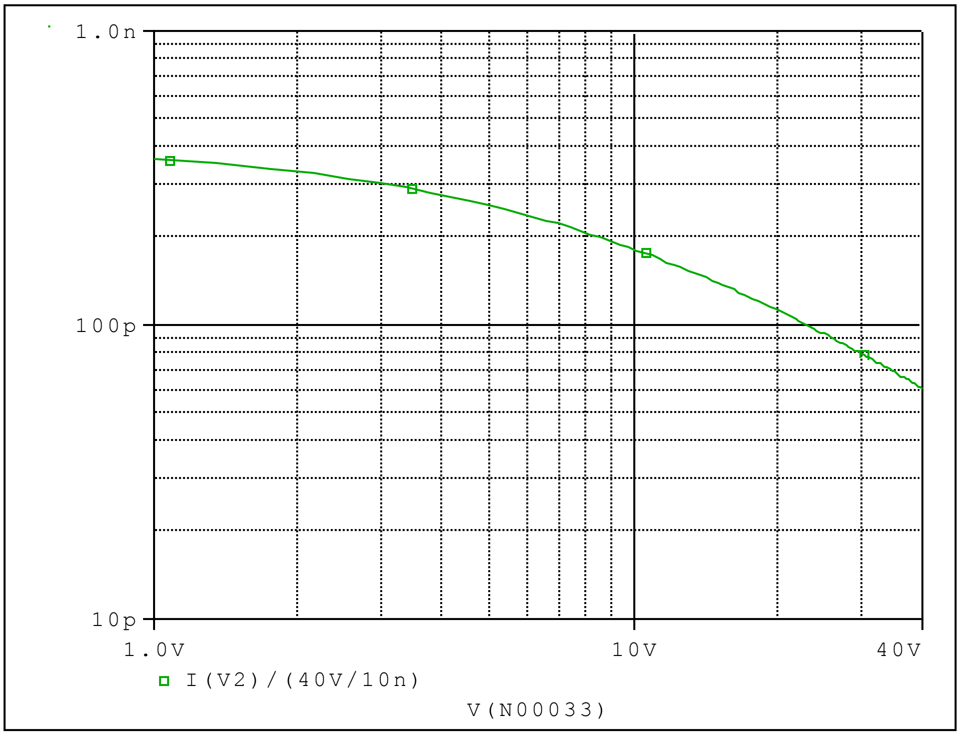


Simulation Result

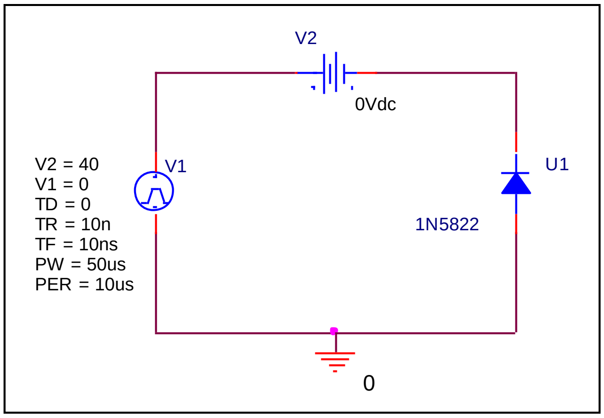
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.15	0.16	4.21
0.02	0.18	0.18	1.13
0.05	0.21	0.21	-1.68
0.1	0.23	0.22	-2.41
0.2	0.25	0.25	-1.78
0.5	0.29	0.29	-0.18
1	0.32	0.32	1.10
2	0.37	0.37	-0.41

Capacitance Characteristic

Circuit Simulation Result

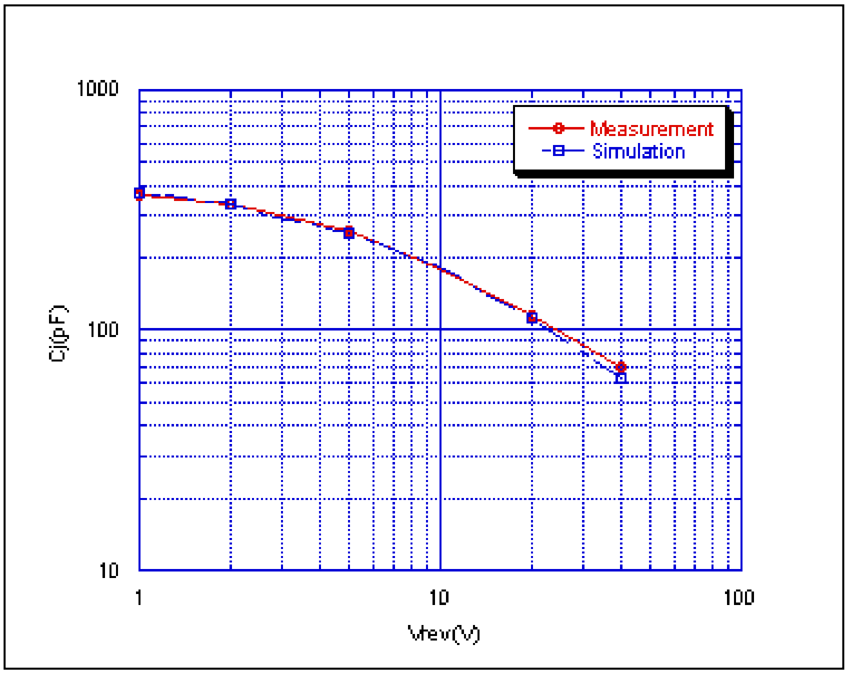


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

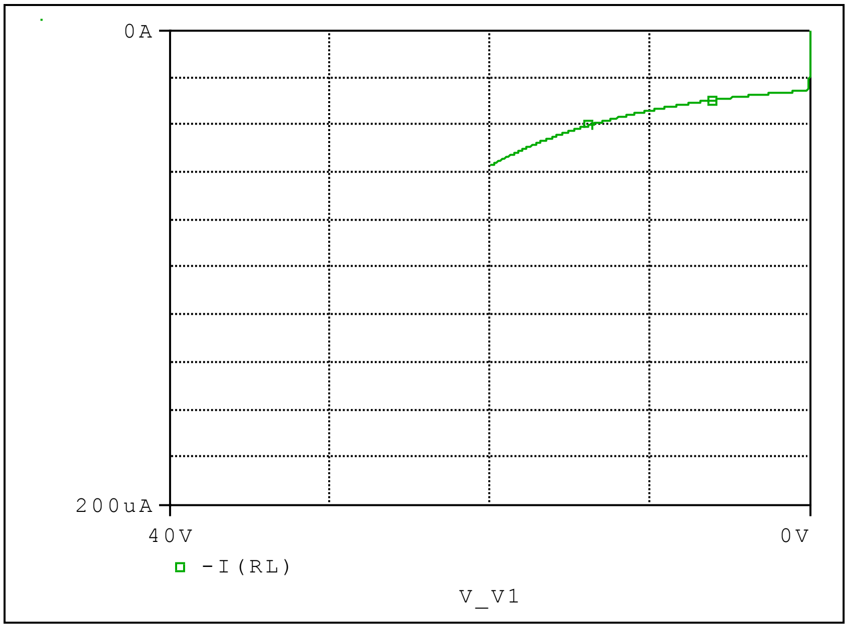


Simulation Result

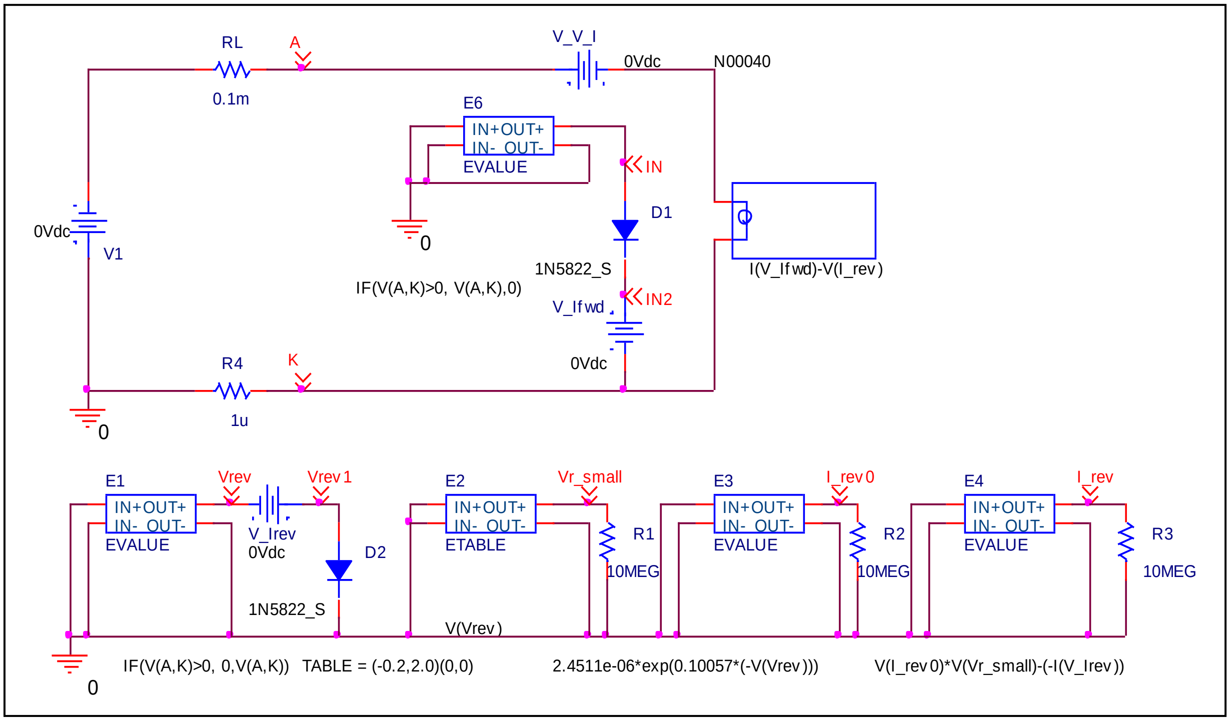
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
1	365.7	368.7	0.8203
2	330.63	332.1	0.4446
5	260.92	255.2	2.1922
10	180.84	181.5	0.3649
20	115.41	112.2	2.7813
40	70	63.17	9.7571

Reverse Characteristic

Circuit Simulation Result

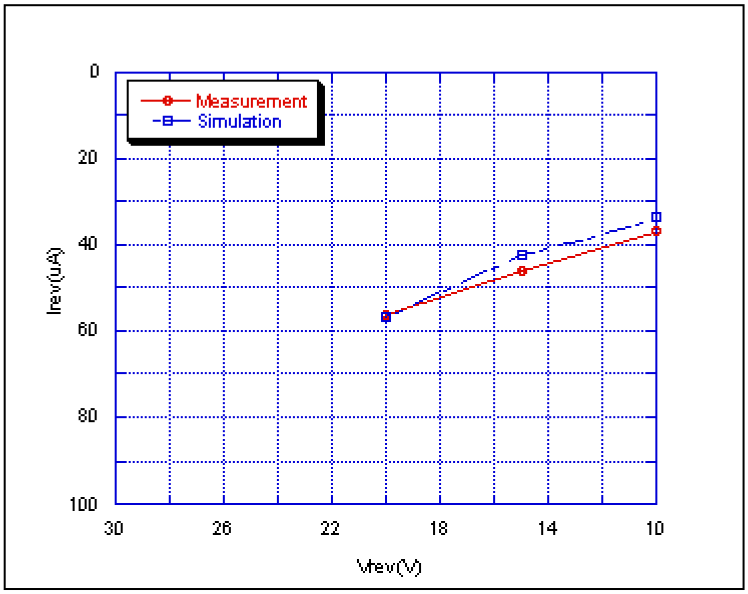


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

Vrev(V)	Irev(uA)		%Error
	Measurement	Simulation	
10	36.80	33.67	-8.51
15	46.00	42.38	-7.87
20	56.40	56.82	0.74

Reverse Characteristic **Reference**