Device Modeling Report

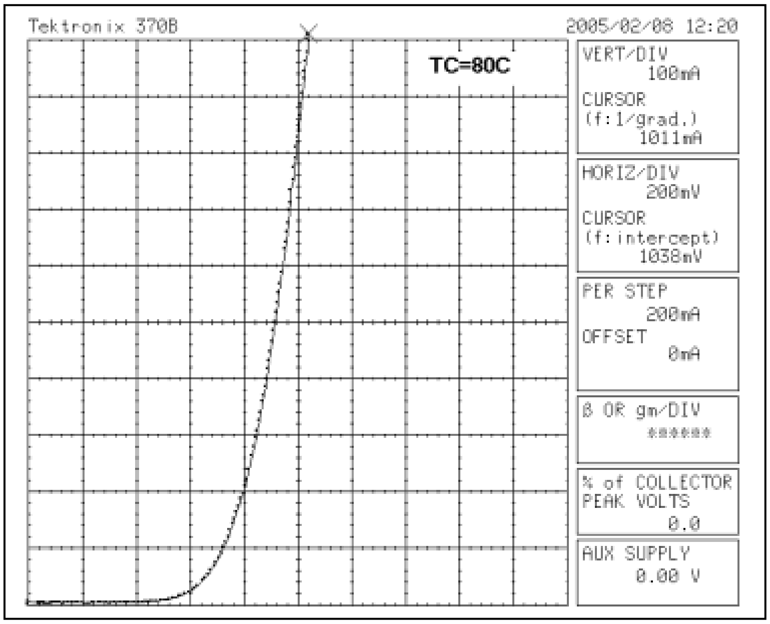
COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / PROFESSIONAL
PART NUMBER: 1SR156-400
MANUFACTURER: ROHM
REMARK: TC=80C

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

Reference



VERT/DIV
100mA
CURSOR
(f:1/grad.)
1011mA

HORIZ/DIV
200mV
CURSOR
(f:intercept)
1038mV

PER STEP
200mA
OFFSET
0mA

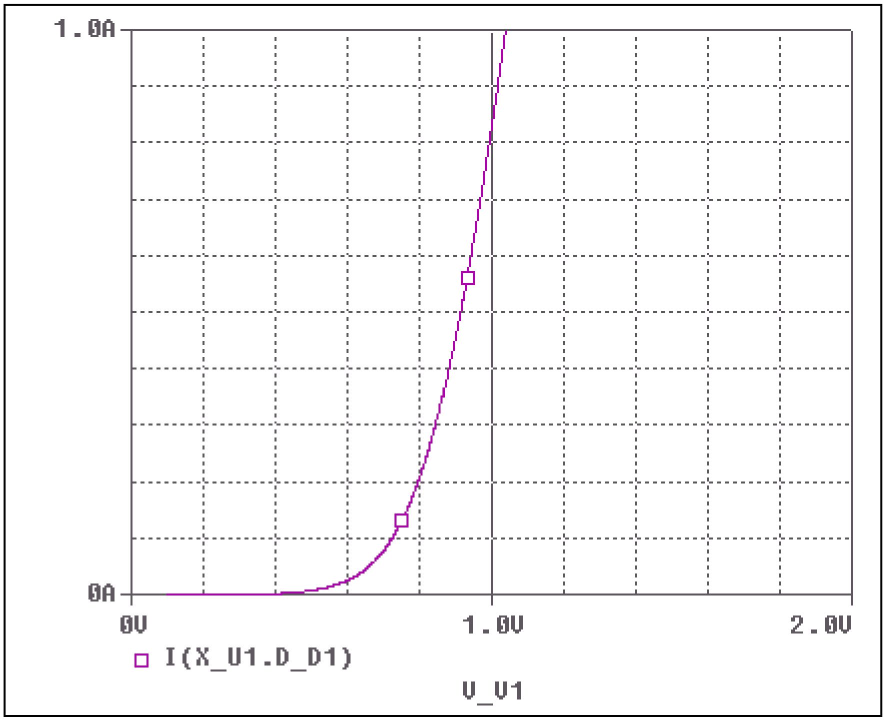
β OR gm/DIV
******

% of COLLECTOR
PEAK VOLTS
0.0

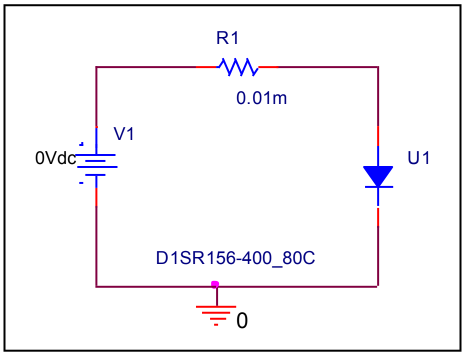
AUX SUPPLY
0.00 V

Forward Current Characteristic

Circuit Simulation Result

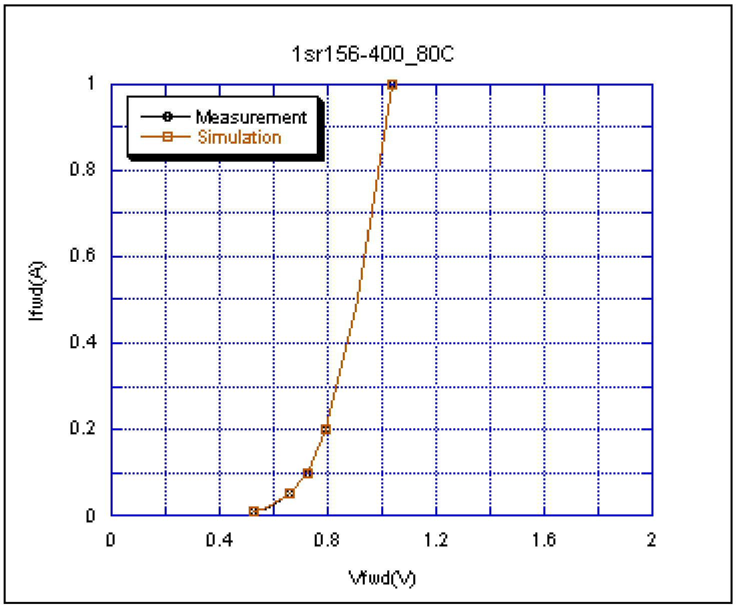


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

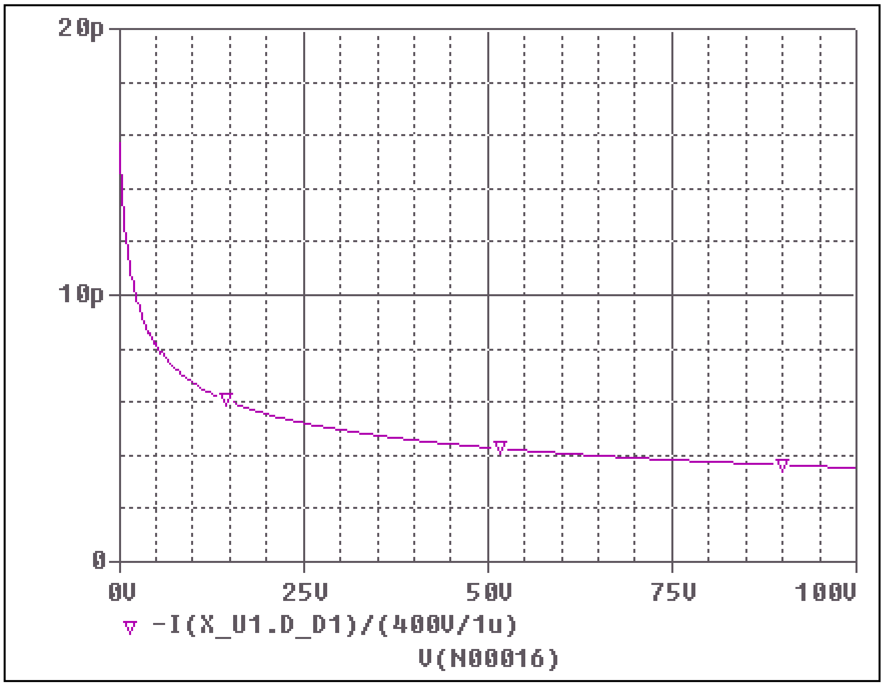


Simulation Result

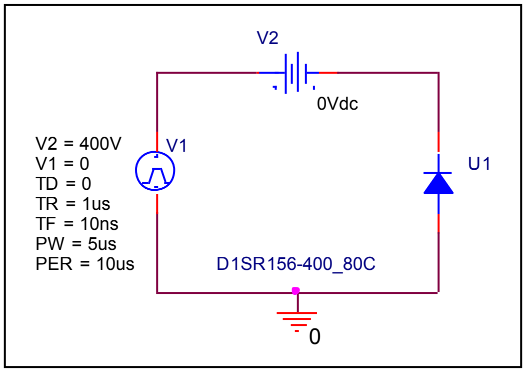
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.526	0.525	0.19
0.02	0.582	0.580	0.34
0.05	0.658	0.660	-0.30
0.1	0.726	0.724	0.28
0.2	0.796	0.796	0.00
0.5	0.914	0.913	0.11
1	1.038	1.038	0.00

Capacitance Characteristic

Circuit Simulation Result

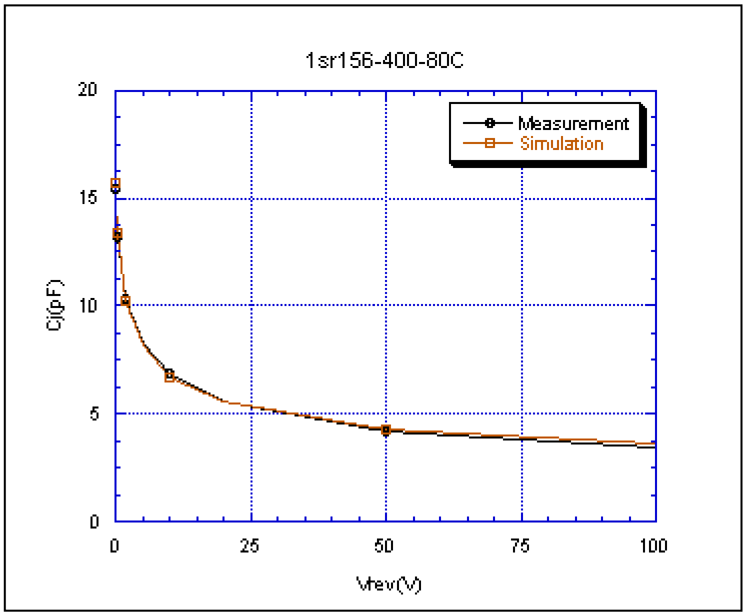


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

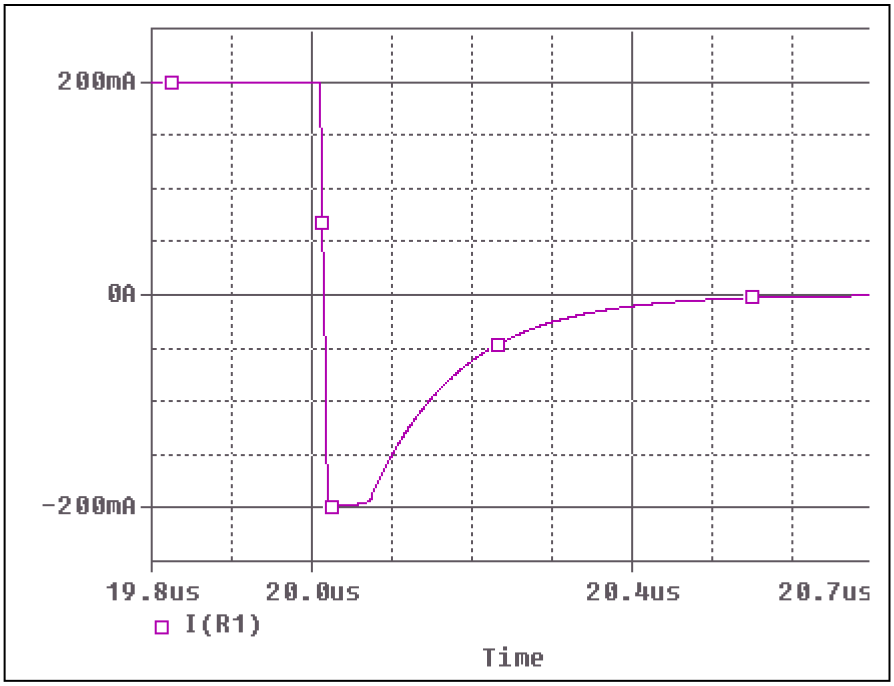


Simulation Result

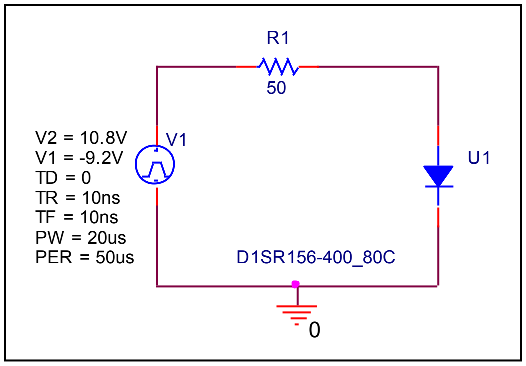
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	16.690	16.690	0.00
0.1	15.428	15.712	-1.84
0.2	14.699	14.828	-0.88
0.5	13.184	13.375	-1.45
1	11.852	11.904	-0.44
2	10.333	10.246	0.84
5	8.314	8.180	1.61
10	6.853	6.739	1.66
20	5.553	5.563	-0.18
50	4.153	4.294	-3.40
100	3.389	3.500	-3.28

Reverse Recovery Characteristic

Circuit Simulation Result



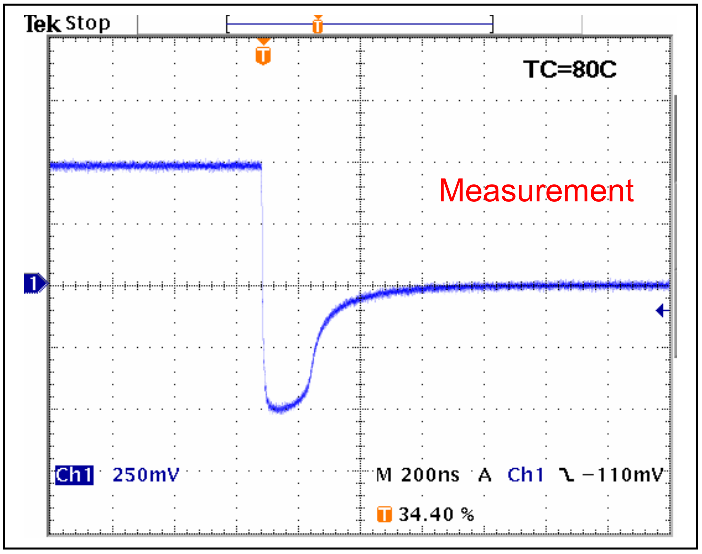
Evaluation Circuit



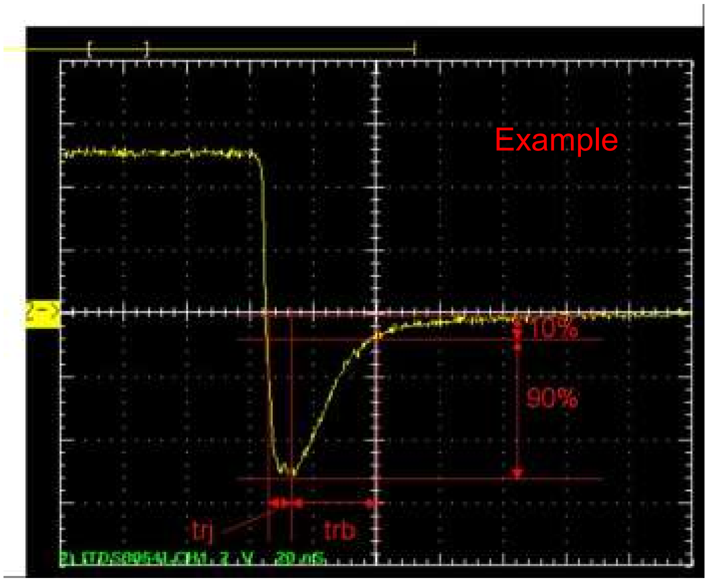
Compare Measurement vs. Simulation

	Measurement		**Simulation**		**%Error**
trj	**56.0**	**ns**	**56.5**	**ns**	**0.89**
Trb	**256.0**	**ns**	**254.4**	**ns**	**0.62**

Reverse Recovery Characteristic Reference



Trj =56(ns)
Trb=256(ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb