

# Device Modeling Report

COMPONENTS:  
DIODE/ GENERAL PURPOSE RECTIFIER / PROFESSIONAL  
PART NUMBER: 1SR153-400  
MANUFACTURER: ROHM  
REMARK: TC=150C

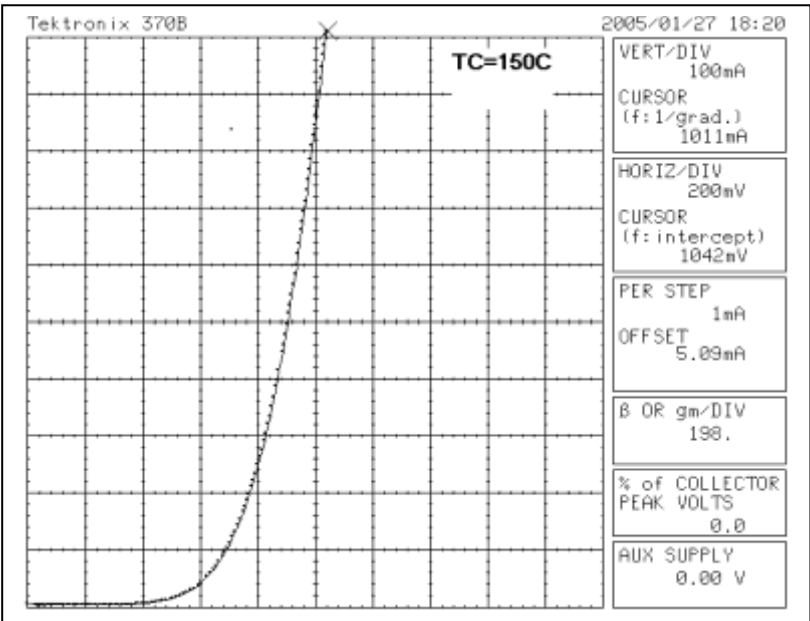


**Bee Technologies Inc.**

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

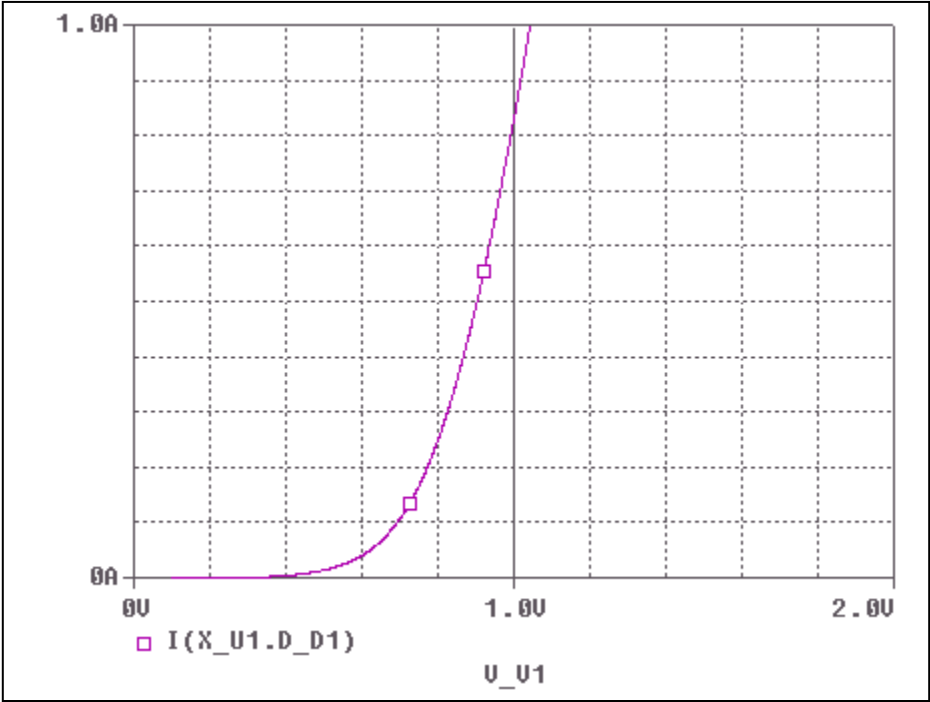
# Forward Current Characteristic

# Reference

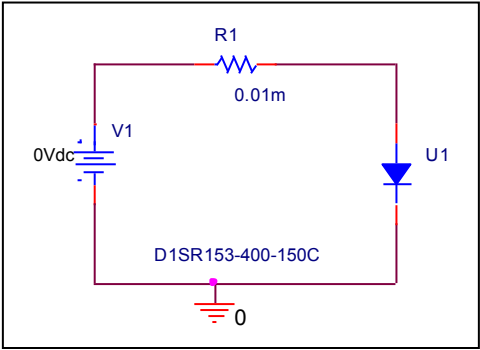


# Forward Current Characteristic

## Circuit Simulation Result

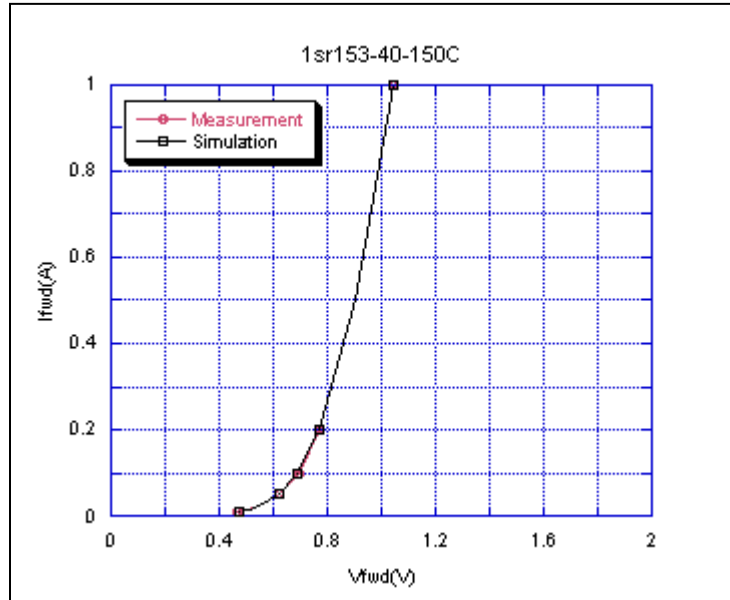


## Evaluation Circuit



# Comparison Graph

## Circuit Simulation Result

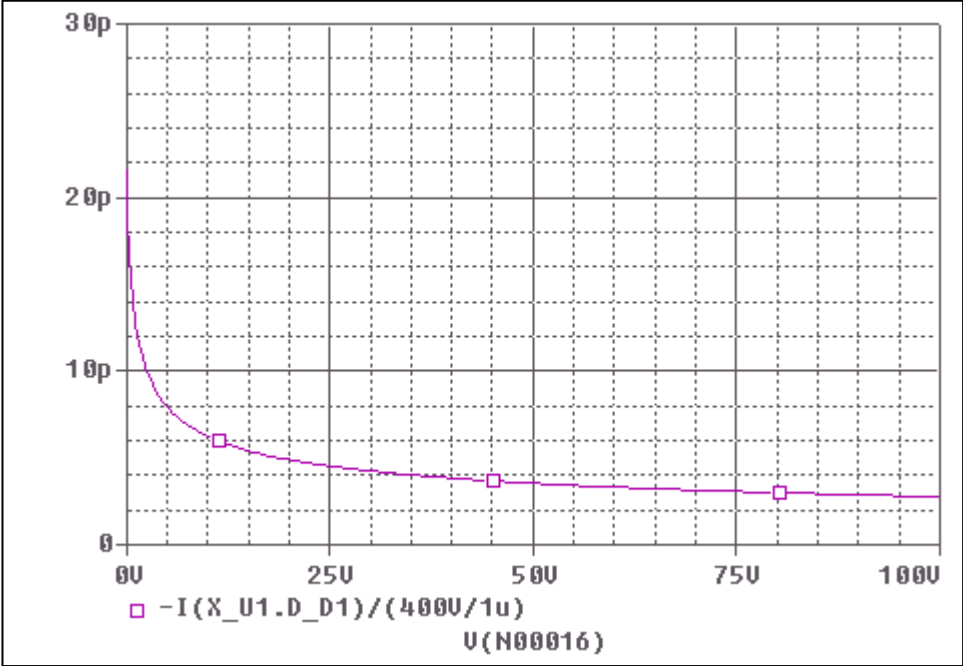


## Simulation Result

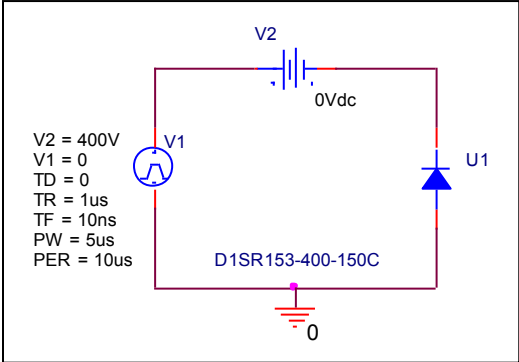
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.464	0.472	-1.72
0.02	0.532	0.533	-0.19
0.05	0.626	0.620	0.96
0.1	0.698	0.692	0.86
0.2	0.770	0.771	-0.13
0.5	0.904	0.903	0.11
1	1.042	1.041	0.10

# Capacitance Characteristic

## Circuit Simulation Result

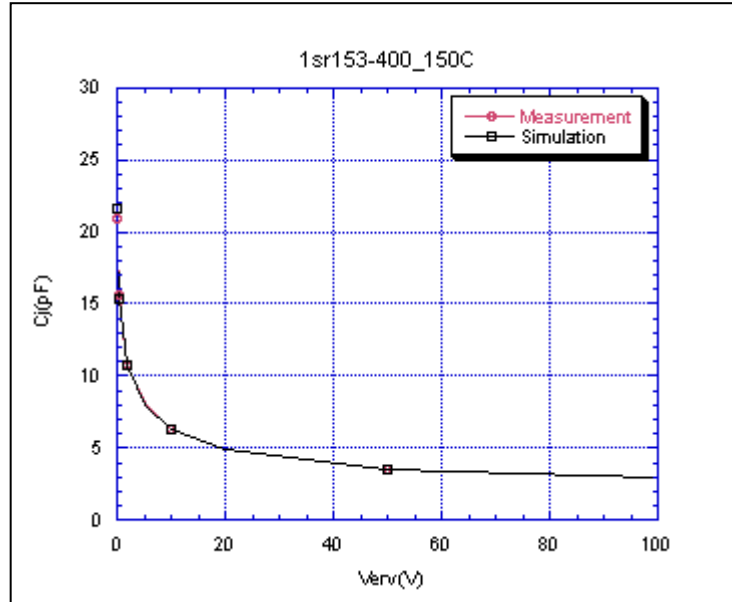


## Evaluation Circuit



## Comparison Graph

### Circuit Simulation Result

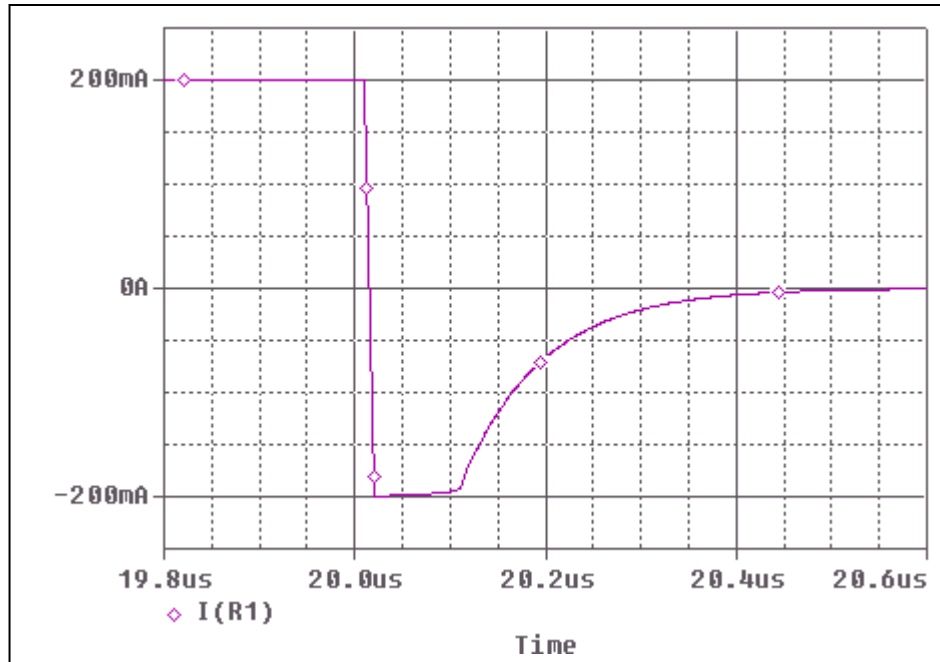


### Simulation Result

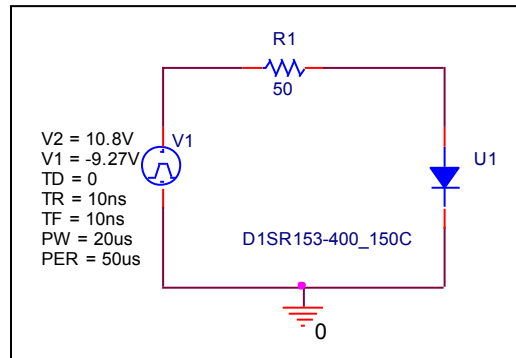
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	22.998	22.998	0.00
0.1	20.965	21.635	-3.20
0.2	19.136	19.021	0.60
0.5	15.664	15.298	2.34
1	13.075	13.276	-1.54
2	10.685	10.778	-0.87
5	8.039	7.974	0.81
10	6.349	6.257	1.45
20	4.944	4.935	0.18
50	3.517	3.532	-0.43
100	2.748	2.751	-0.11

# Reverse Recovery Characteristic

## Circuit Simulation Result



## Evaluation Circuit

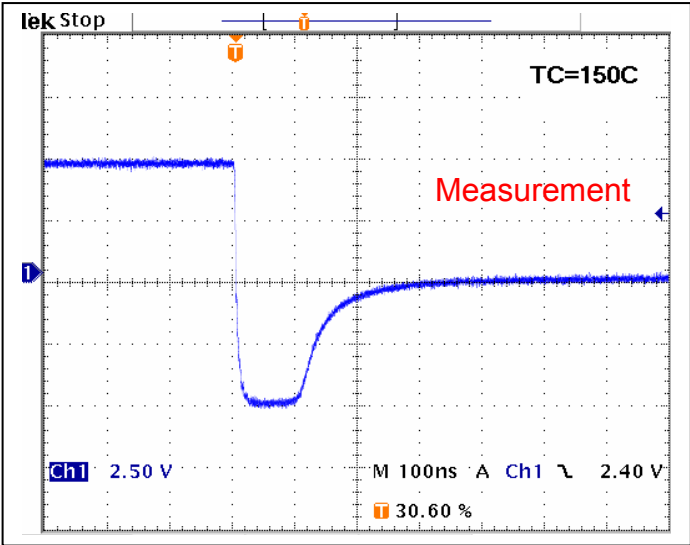


## Compare Measurement vs. Simulation

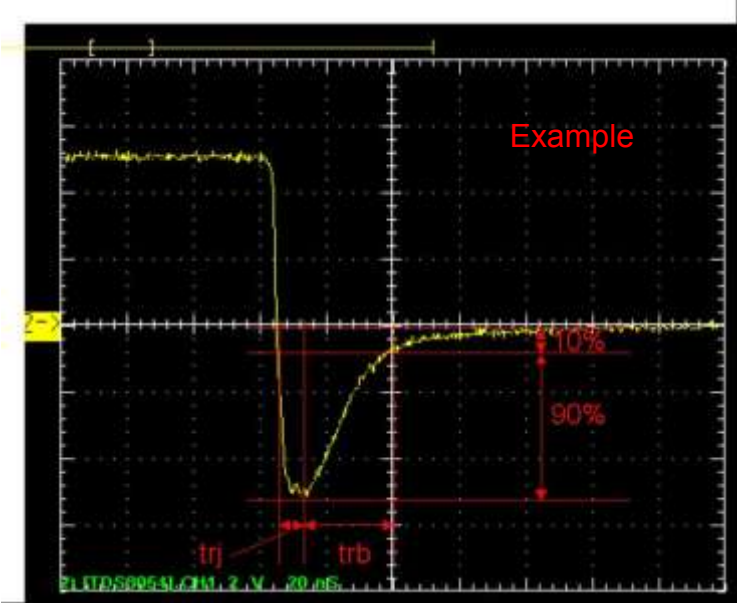
	Measurement		Simulation		%Error
trj	96.00	ns	95.40	ns	0.62
trb	192.00	ns	192.00	ns	0.00

# Reverse Recovery Characteristic

# Reference



Trj =96(ns)  
Trb=192(ns)  
Conditions: Ifwd=Irev=0.2(A), RI=50



Relation between trj and trb