

Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / STANDARD
PART NUMBER: 1SR154-600
MANUFACTURER: ROHM
REMARK: TC=25C

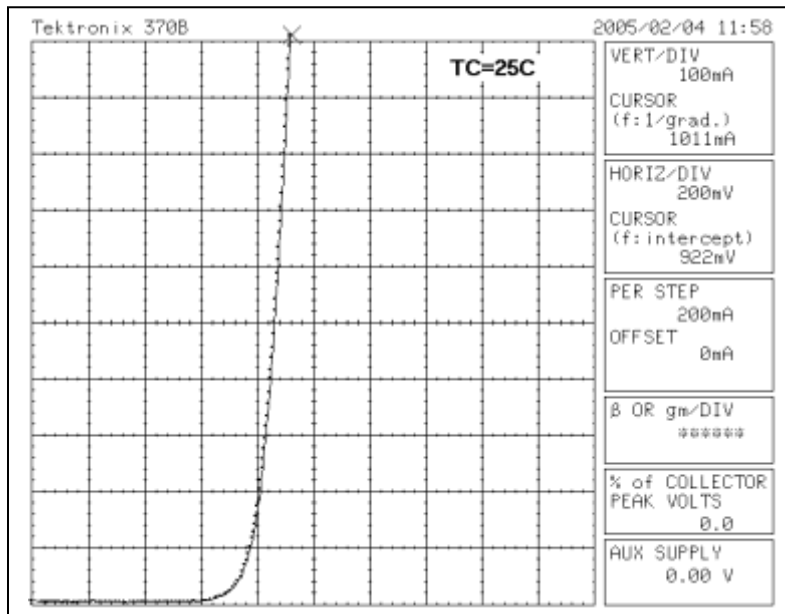


Bee Technologies Inc.

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

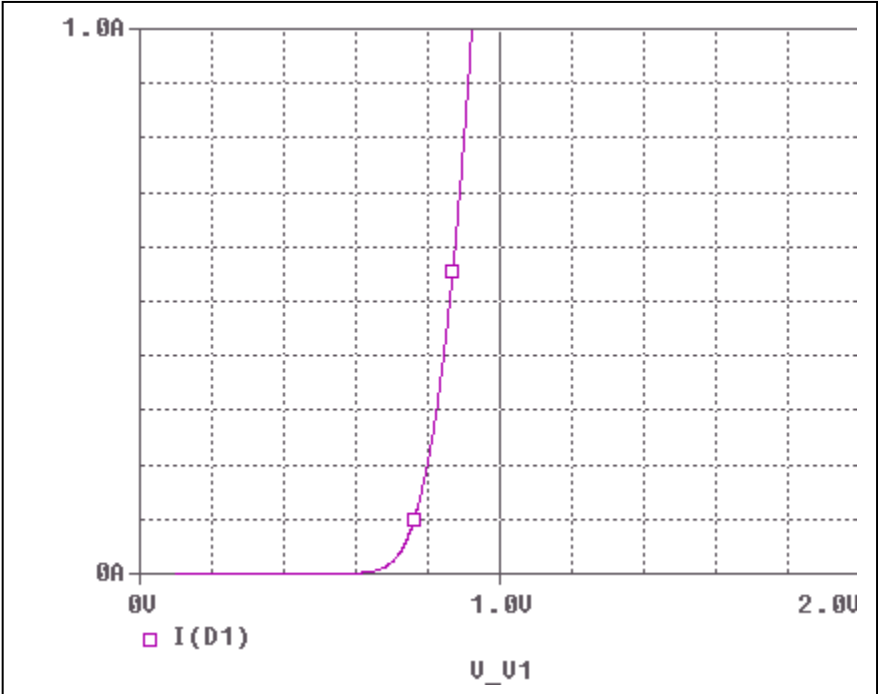
Forward Current Characteristic

Reference

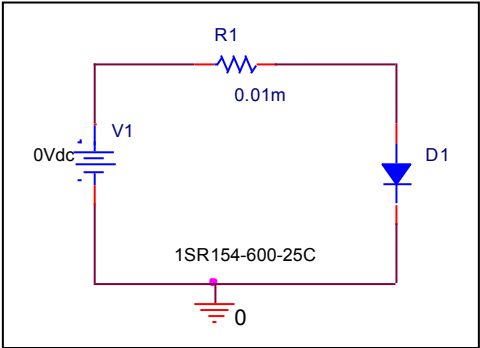


Forward Current Characteristic

Circuit Simulation Result

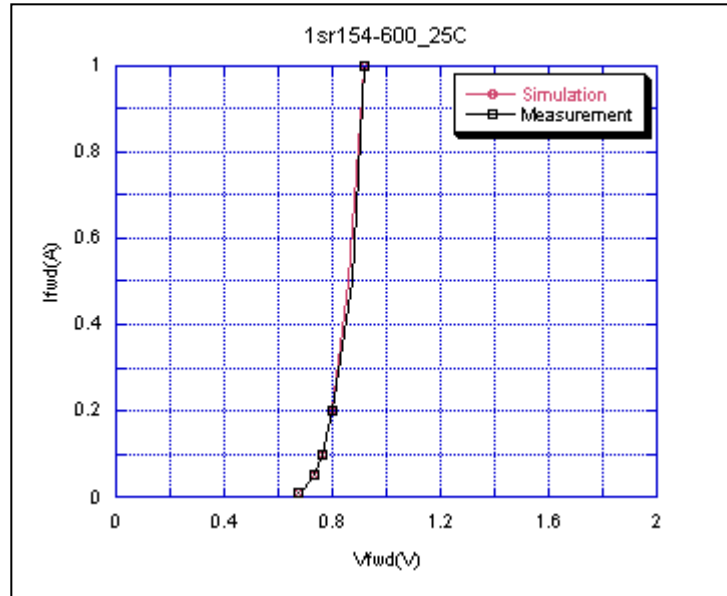


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

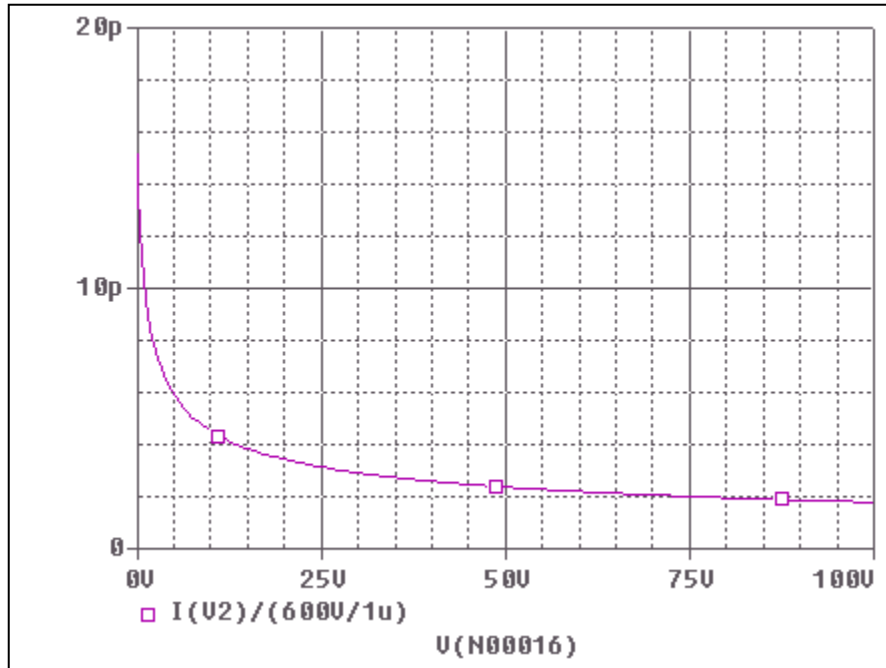


Simulation Result

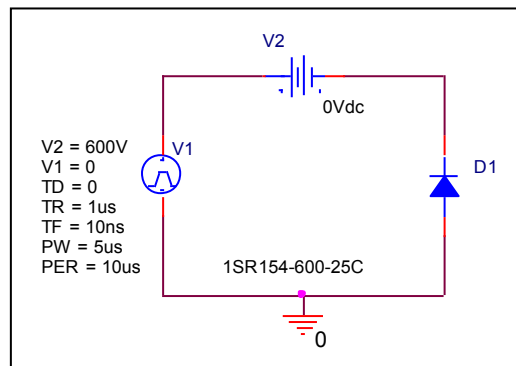
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.672	0.672	0.00
0.02	0.698	0.697	0.14
0.05	0.734	0.731	0.41
0.1	0.760	0.761	-0.13
0.2	0.800	0.797	0.38
0.5	0.873	0.860	1.49
1	0.922	0.921	0.11

Capacitance Characteristic

Circuit Simulation Result

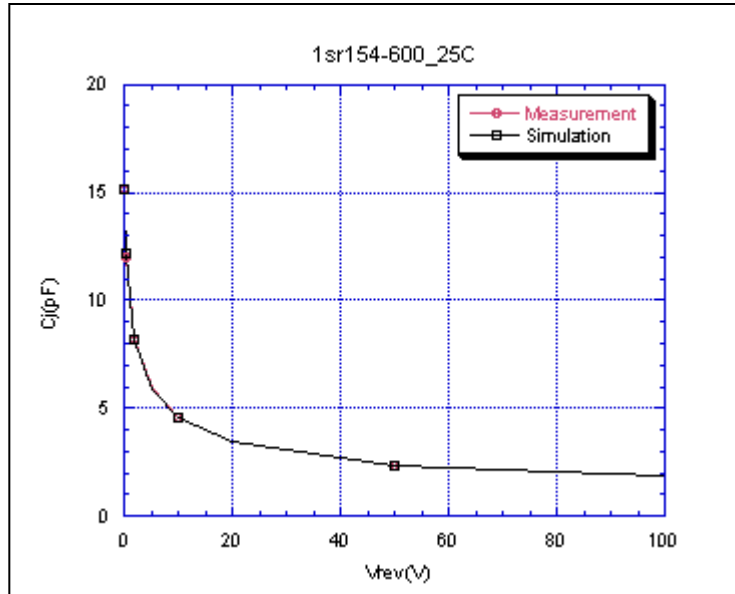


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

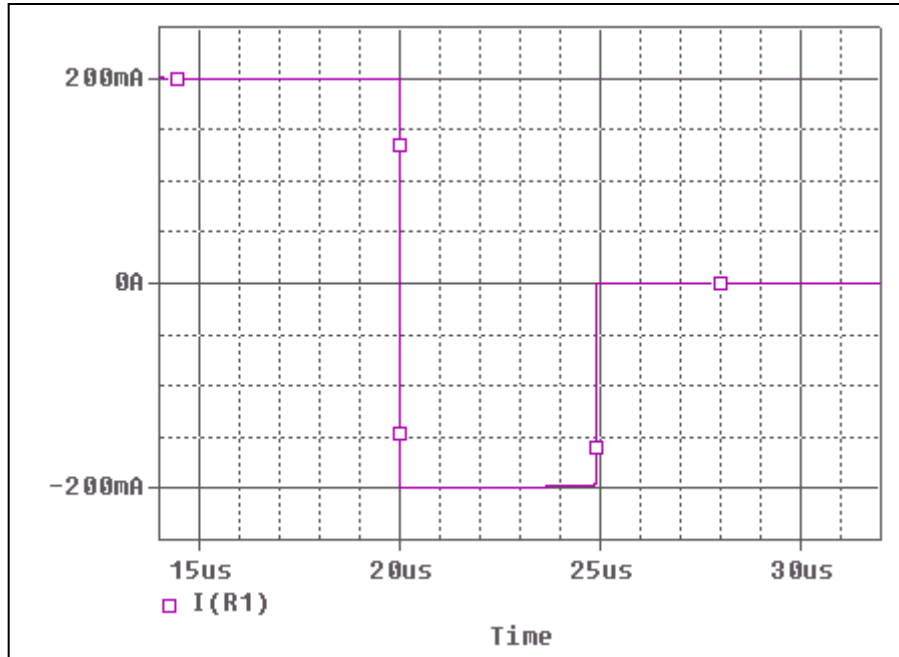


Simulation Result

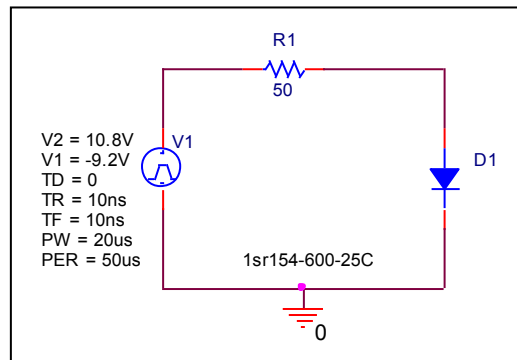
V_{rev} (V)	C_j (pF) Measurement	C_j (pF) Simulation	%Error
0	16.450	16.450	0.00
0.1	15.117	15.135	-0.12
0.2	14.138	14.170	-0.23
0.5	12.014	12.128	-0.95
1	10.244	10.124	1.17
2	8.221	8.213	0.10
5	5.942	5.885	0.96
10	4.531	4.525	0.13
20	3.416	3.432	-0.47
50	2.342	2.371	-1.24
100	1.781	1.784	-0.17

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

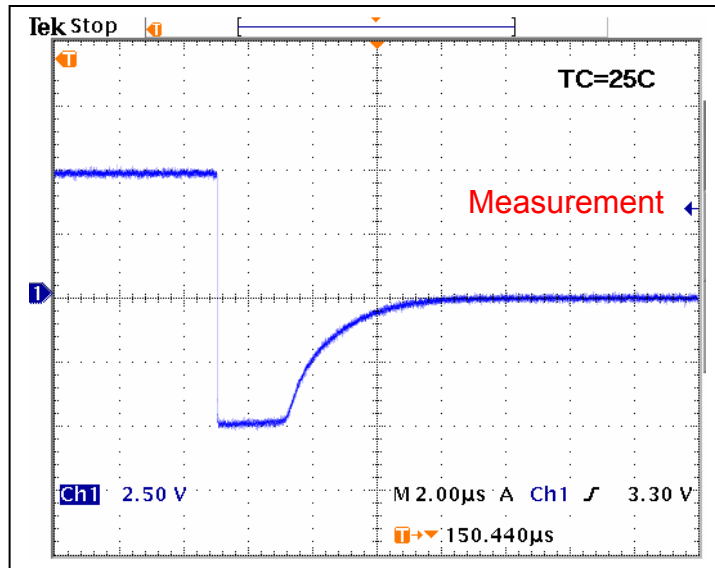


Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trr	4.92	us	4.902	us	0.365

Reverse Recovery Characteristic

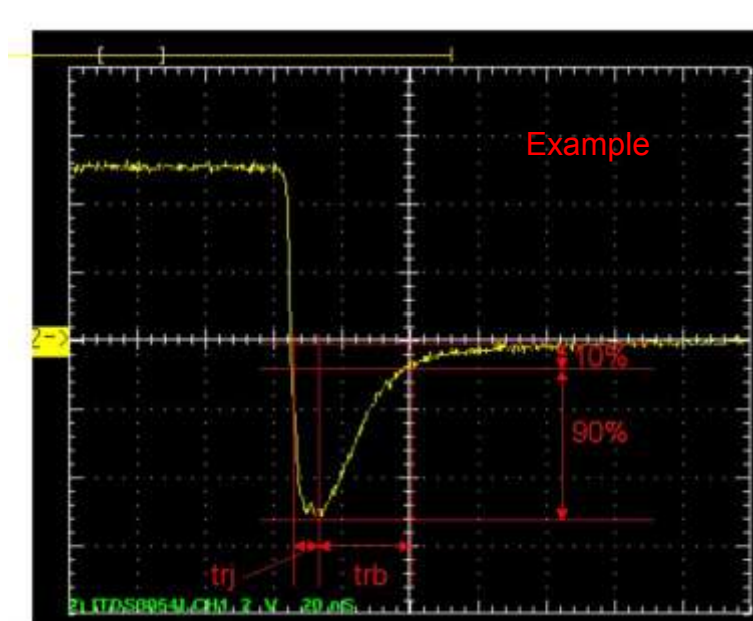
Reference



Trj =2.12(us)

Trb=2.80(us)

Conditions: Ifwd=Irev=0.2(A), RI=50



Relation between trj and trb