

Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / STANDARD
PART NUMBER: HFA08TB60
MANUFACTURER: INTERNATIONAL RECTIFIER
REMARK: TC=25C

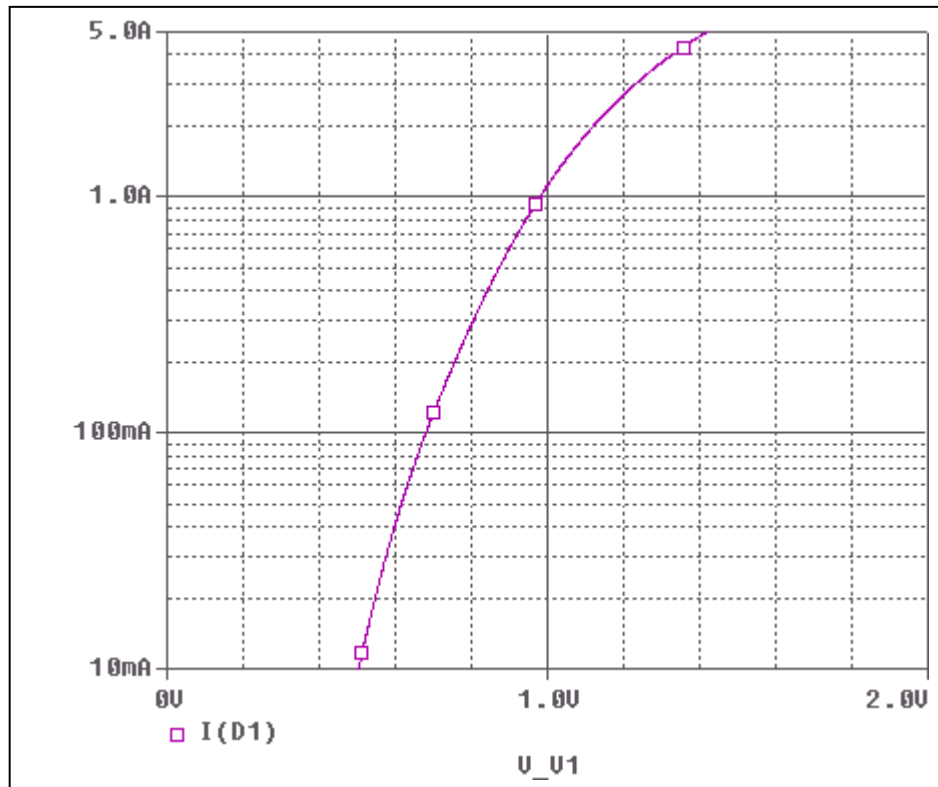


Bee Technologies Inc.

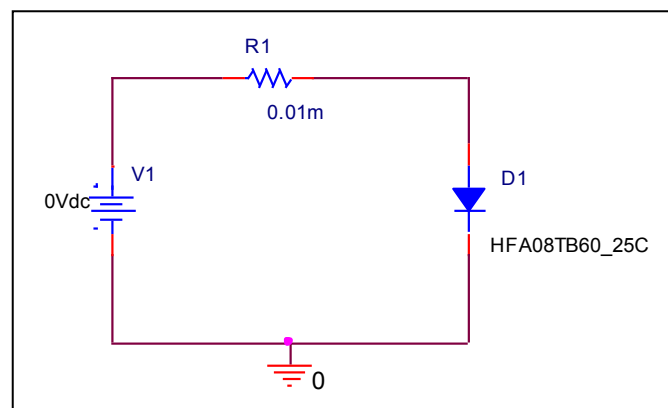
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

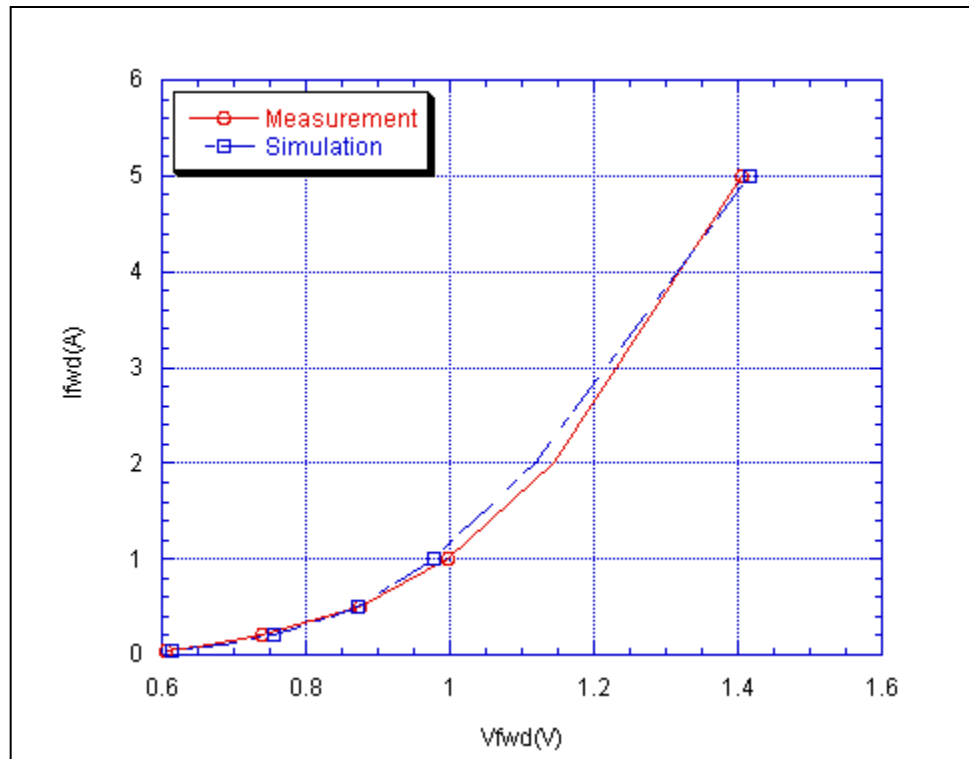


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

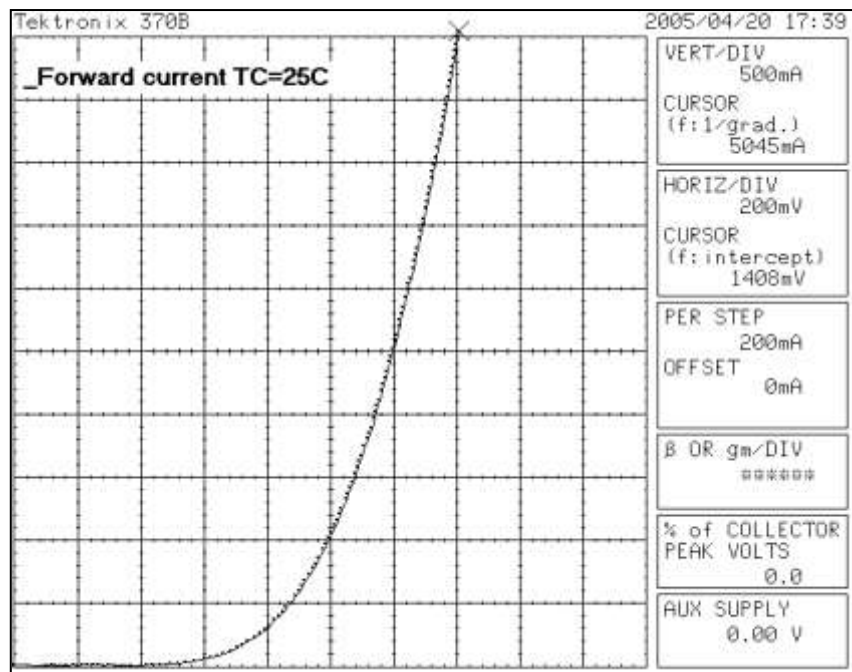


Simulation Result

Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.05	0.606	0.615	-1.485
0.1	0.666	0.680	-2.102
0.2	0.740	0.756	-2.162
0.5	0.874	0.872	0.229
1	0.998	0.979	1.904
2	1.144	1.120	2.098
5	1.406	1.418	-0.853

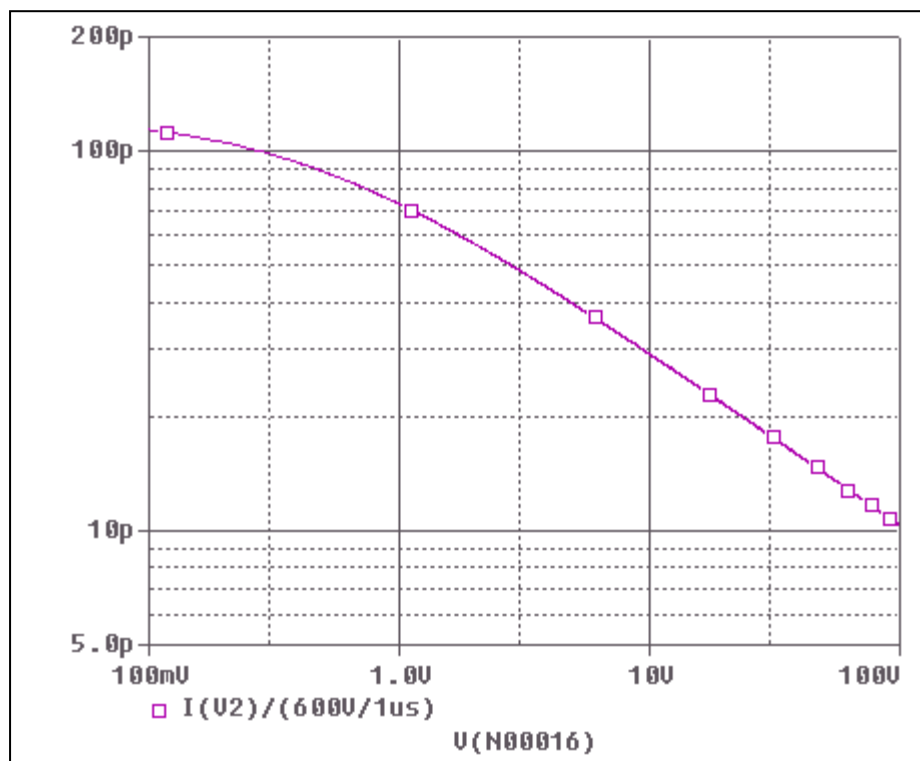
Forward Current Characteristic

Reference

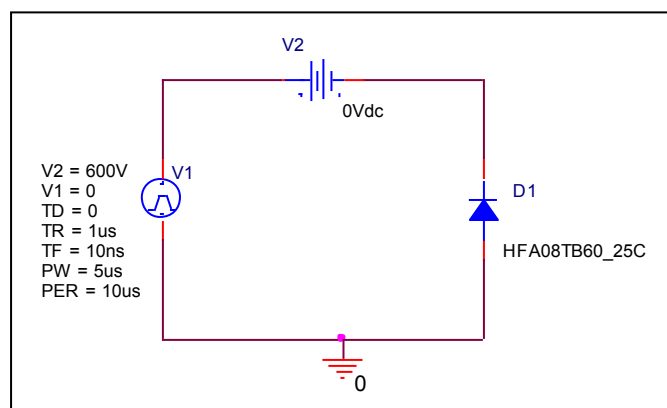


Capacitance Characteristic

Circuit Simulation Result

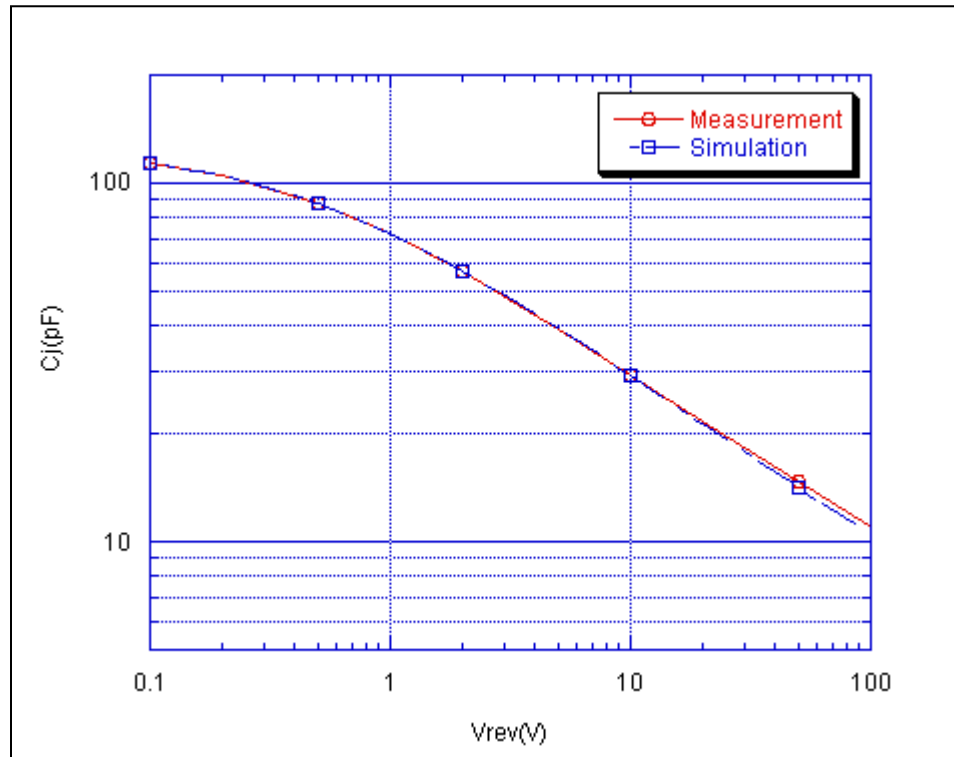


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

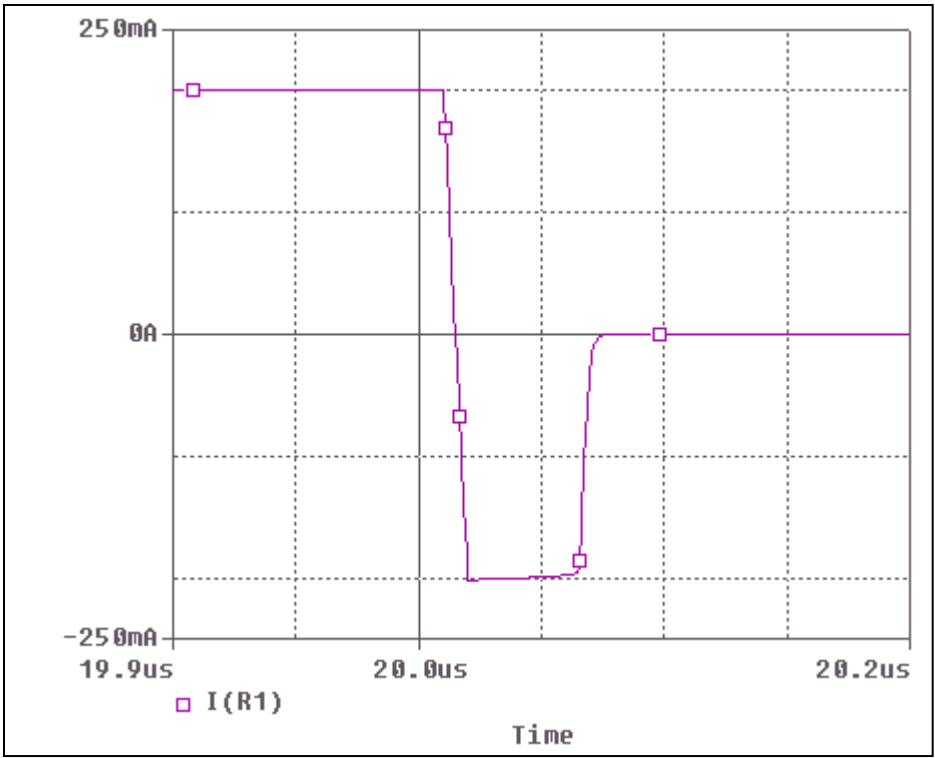


Simulation Result

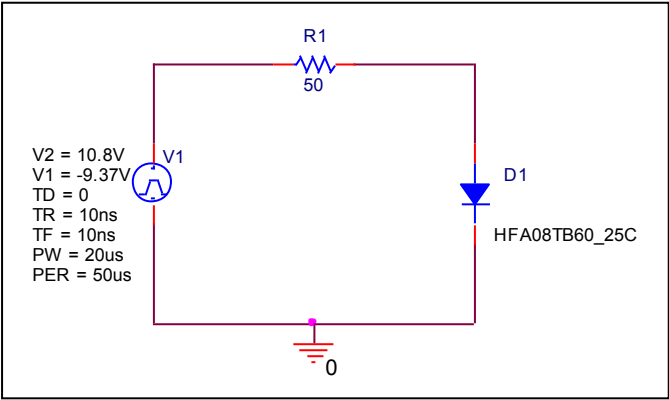
V_{rev} (V)	C_j (pF) Measurement	C_j (pF) Simulation	%Error
0	123.158	123.158	0.000
0.1	114.125	113.973	0.133
0.2	105.148	105.416	-0.255
0.5	87.761	88.182	-0.480
1	72.339	72.535	-0.271
2	56.576	57.034	-0.810
5	38.891	39.396	-1.299
10	28.973	29.260	-0.991
20	21.551	21.443	0.501
50	14.649	14.159	3.345
100	11.026	10.563	4.199

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

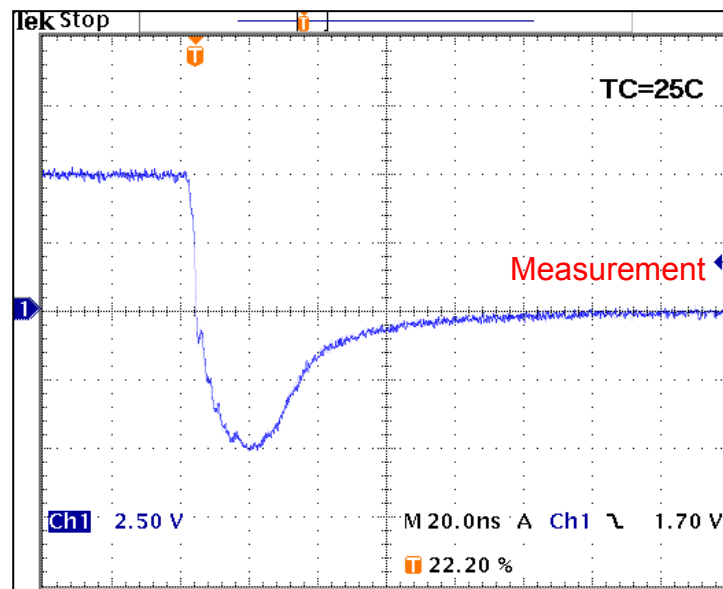


Compare Measurement vs. Simulation

trr	Measurement		Simulation		%Error
	55.2	ns	54.8	ns	

Reverse Recovery Characteristic

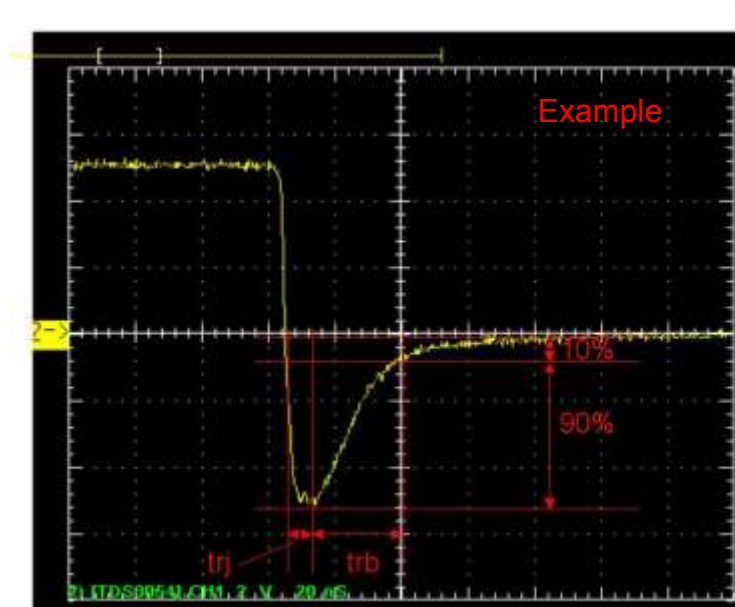
Reference



$T_{rj} = 16.4 \text{ (ns)}$

$T_{rb} = 38.8 \text{ (ns)}$

Conditions: $I_{fwd} = I_{rev} = 0.2 \text{ (A)}$, $R_I = 50$



Relation between t_{rj} and t_{rb}