

Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / STANDARD
PART NUMBER: RHRG7560
MANUFACTURER: INTERSIL
REMARK: TC=25 degree

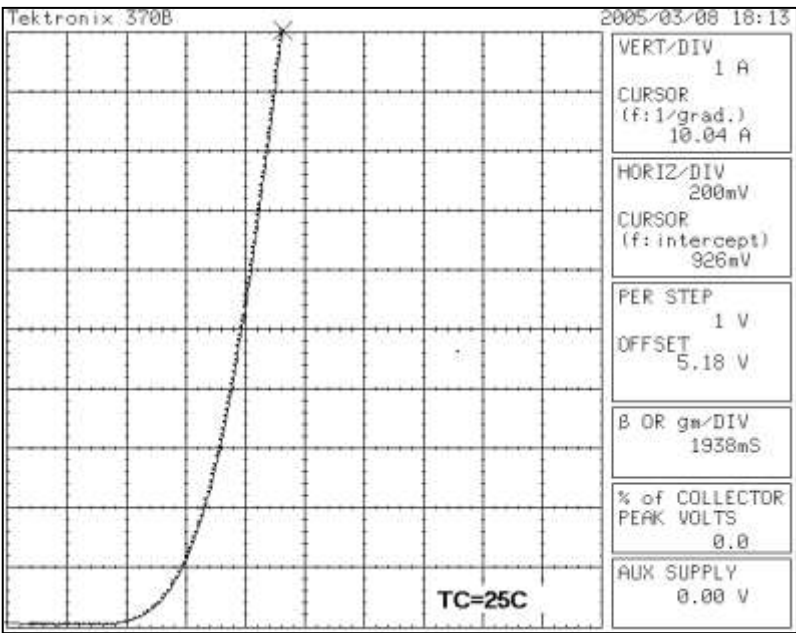


Bee Technologies Inc.

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

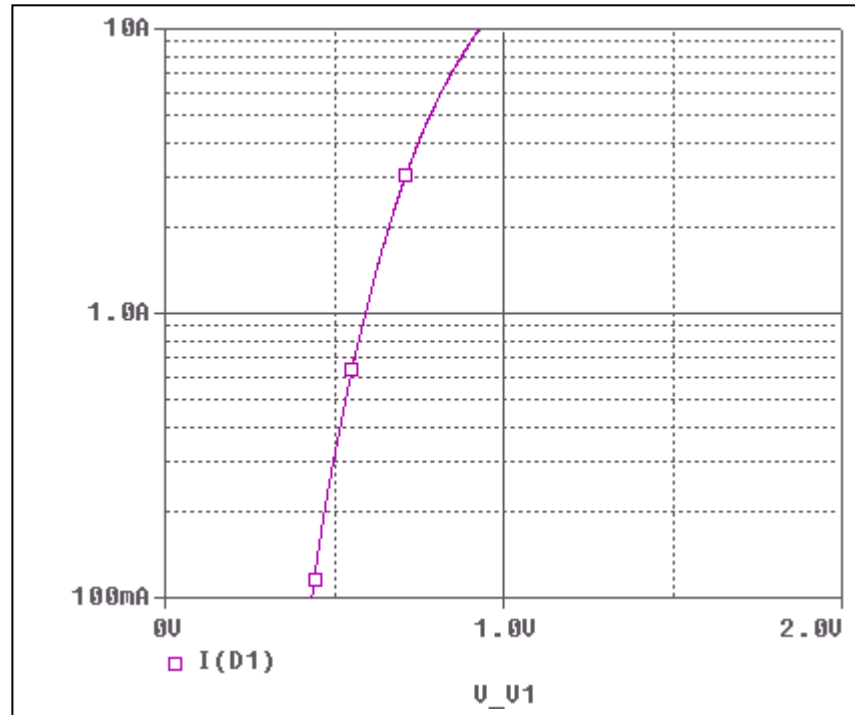
Forward Current Characteristic

Reference

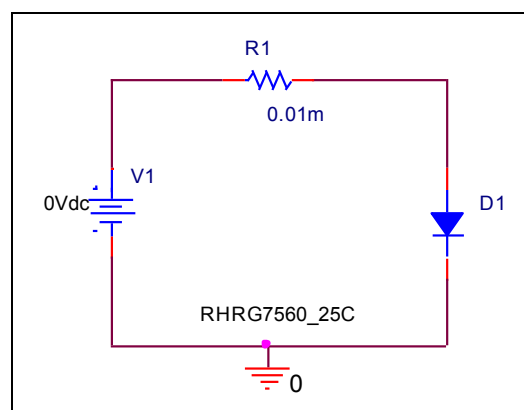


Forward Current Characteristic

Circuit Simulation Result

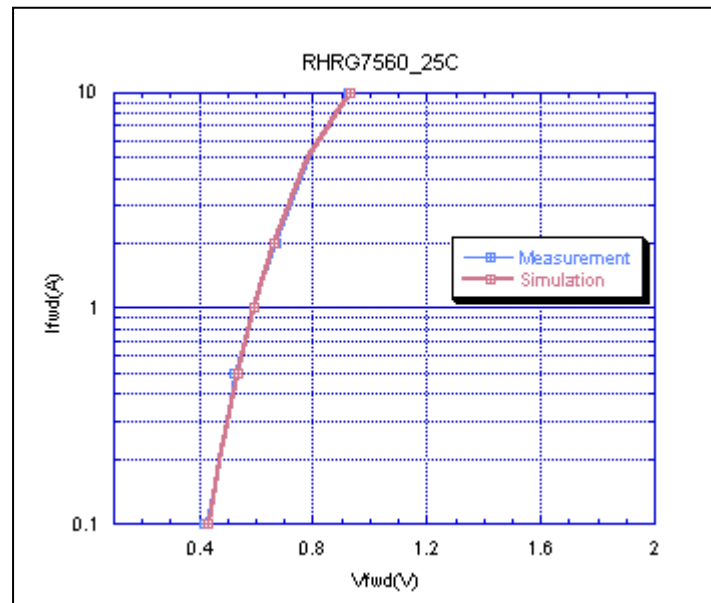


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

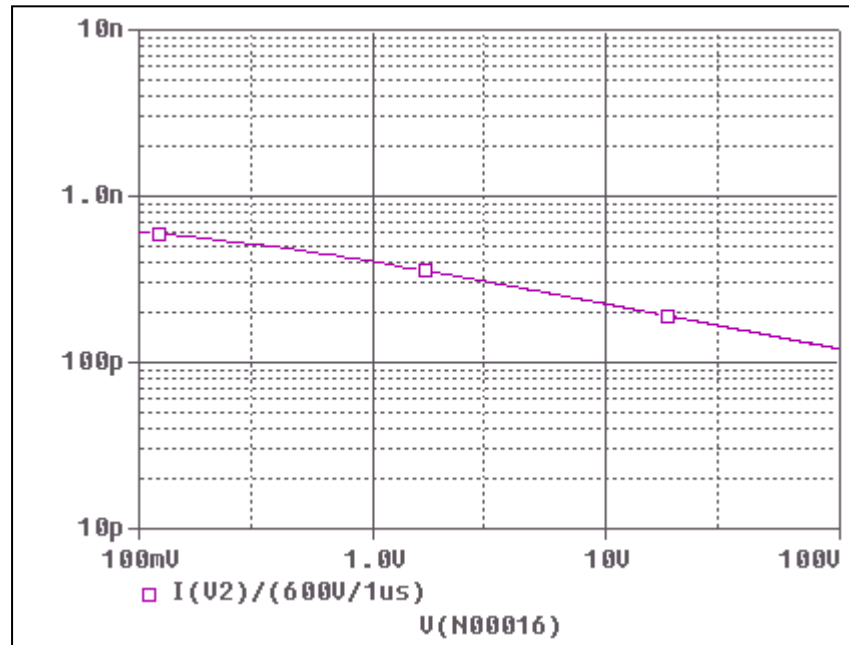


Simulation Result

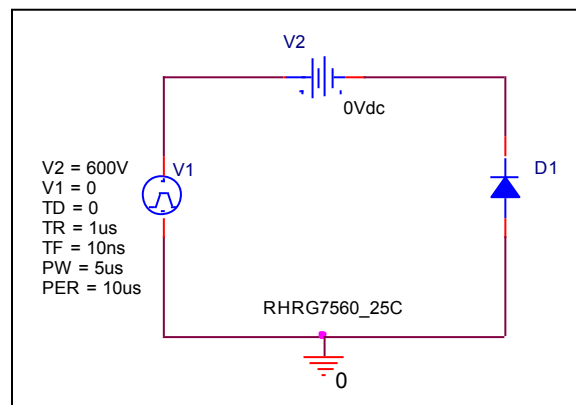
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.1	0.416	0.432	-3.85
0.2	0.470	0.470	0.00
0.5	0.526	0.534	-1.52
1	0.590	0.593	-0.51
2	0.668	0.662	0.90
5	0.790	0.784	0.76
10	0.926	0.928	-0.22

Capacitance Characteristic

Circuit Simulation Result

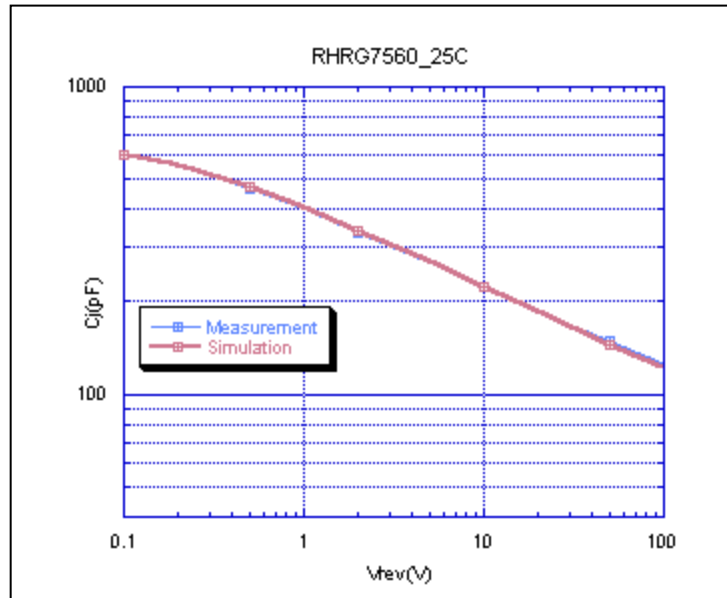


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

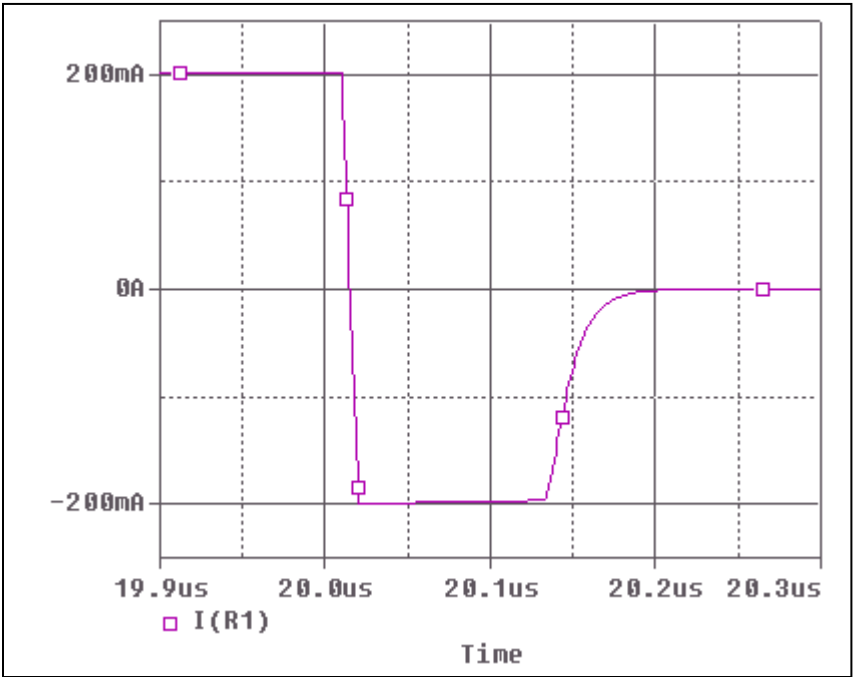


Simulation Result

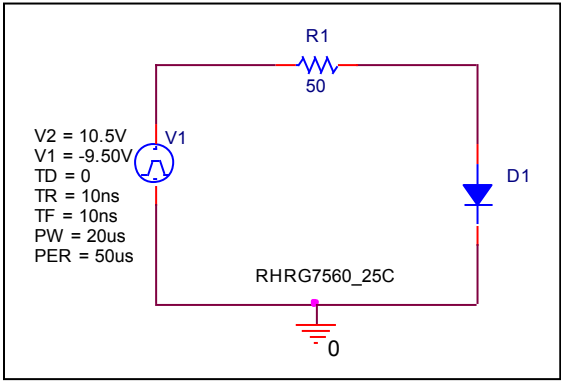
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	662.120	662.120	0.00
0.1	600.220	603.052	-0.47
0.2	554.420	551.880	0.46
0.5	466.330	470.482	-0.89
1	399.710	404.184	-1.12
2	335.330	341.509	-1.84
5	266.330	270.132	-1.43
10	225.220	224.453	0.34
20	188.100	186.585	0.81
50	149.100	145.643	2.32
100	124.200	120.557	2.93

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

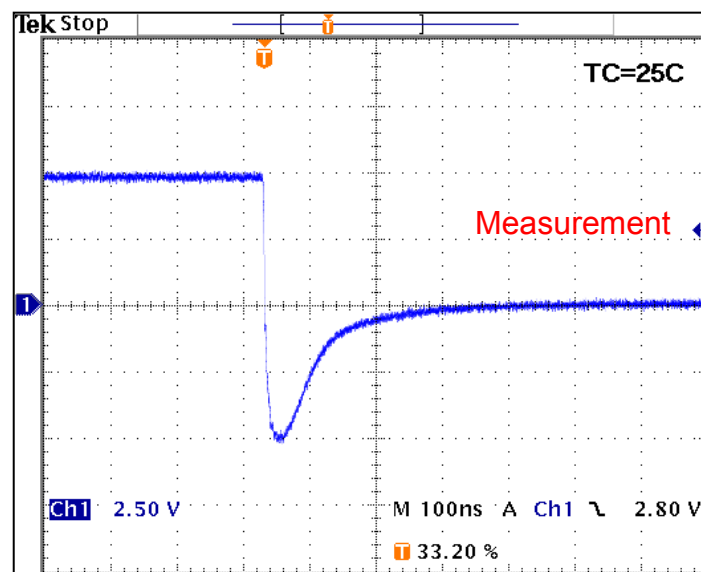


Compare Measurement vs. Simulation

trr	Measurement		Simulation		%Error
	150	ns	150.2	ns	

Reverse Recovery Characteristic

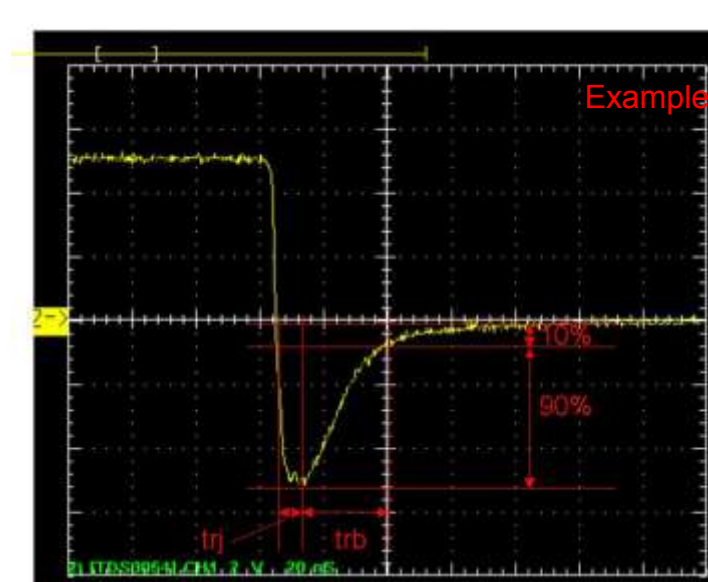
Reference



$T_{rj} = 20 \text{ (ns)}$

$T_{rb} = 130 \text{ (ns)}$

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



Relation between t_{rj} and t_{rb}