

Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / STANDARD
PART NUMBER: RHRG7560
MANUFACTURER: INTERSIL
REMARK: TC=80C

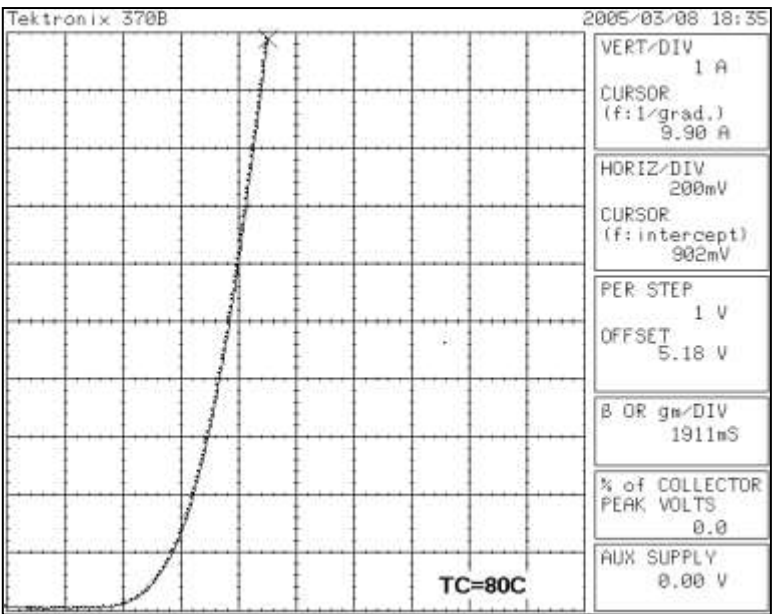


Bee Technologies Inc.

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

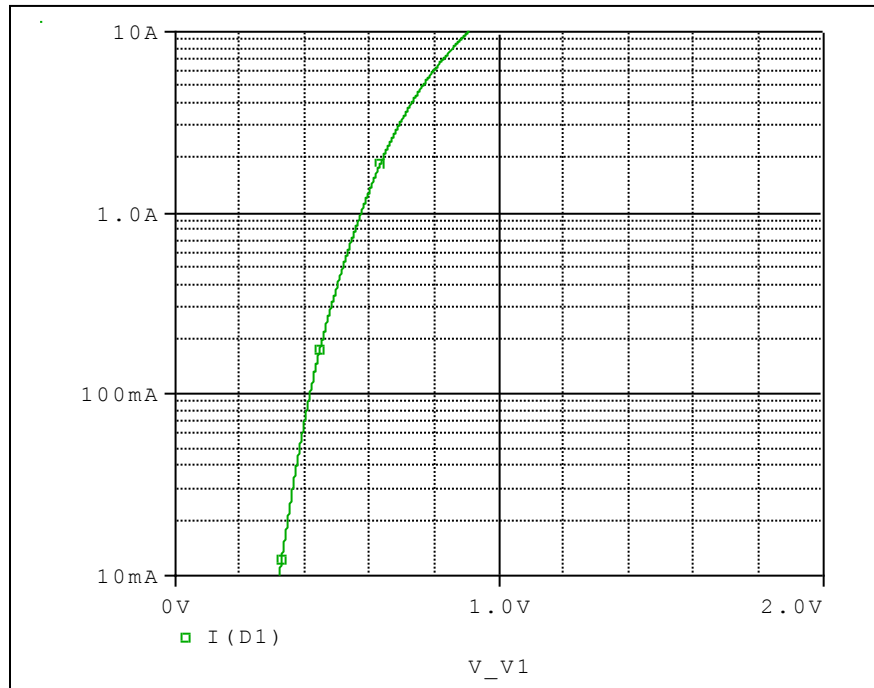
Forward Current Characteristic

Reference

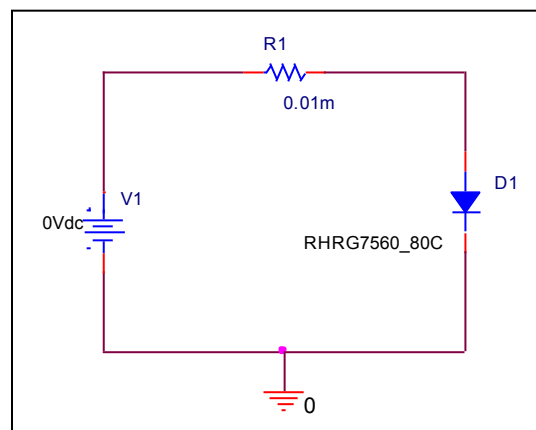


Forward Current Characteristic

Circuit Simulation Result

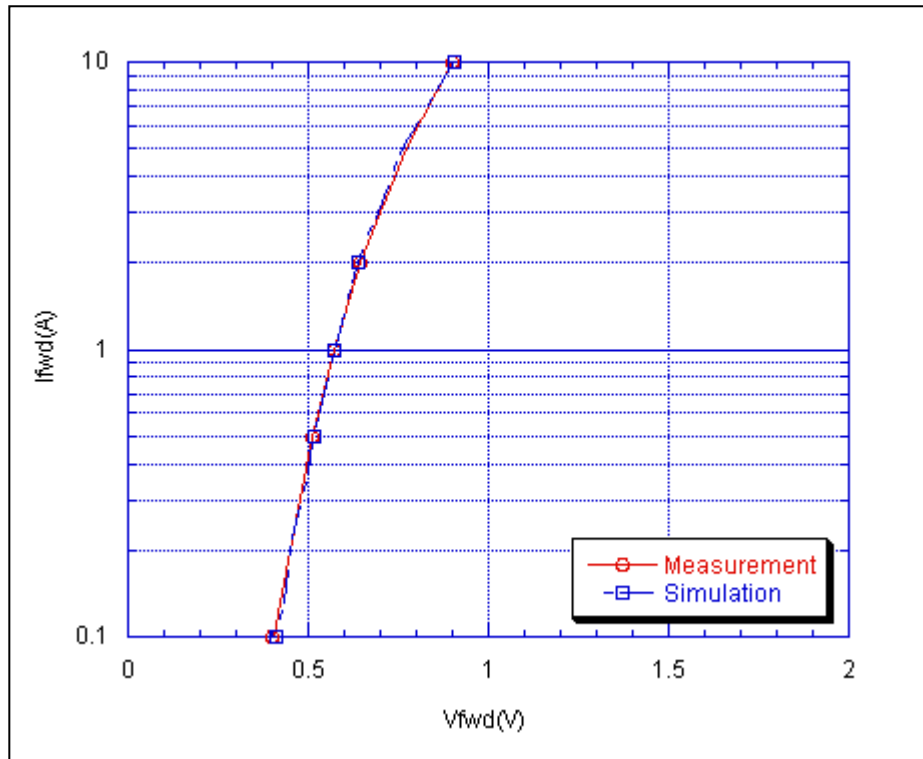


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

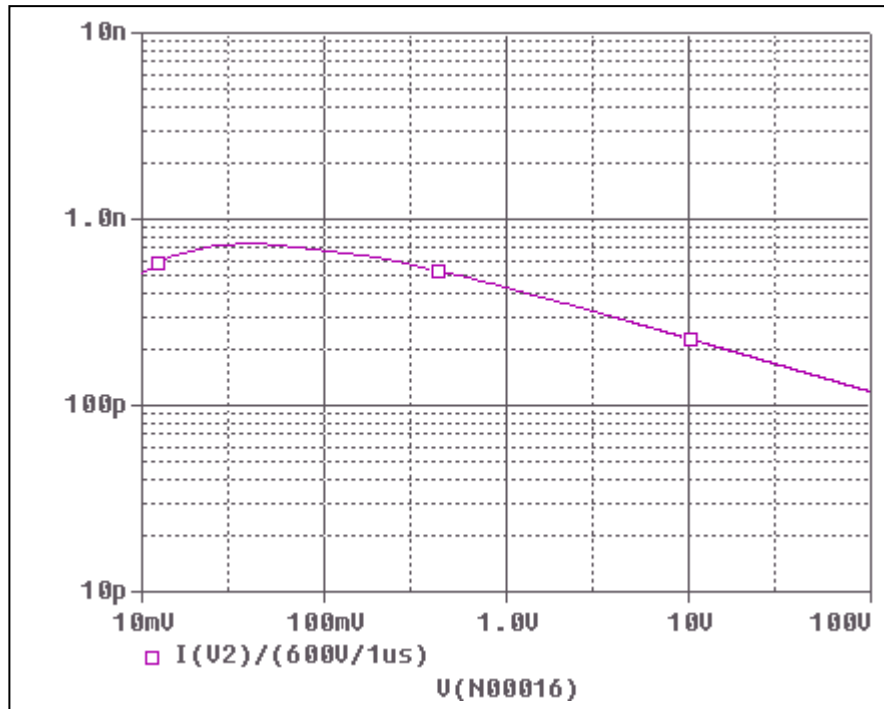


Simulation Result

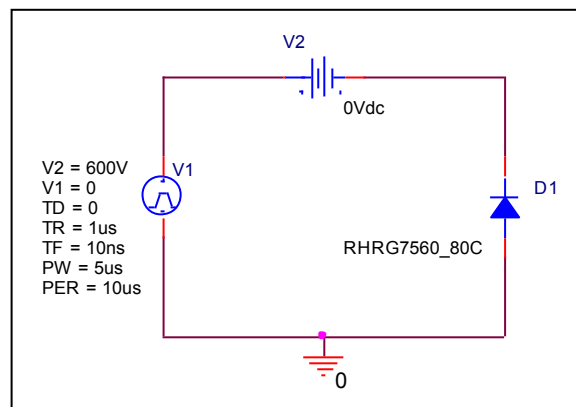
I_{fwd} (A)	V_{fwd} (V) Measurement	V_{fwd} (V) Simulation	%Error
0.1	0.400	0.414	-3.50
0.2	0.448	0.452	-0.89
0.5	0.510	0.516	-1.18
1	0.572	0.572	0.00
2	0.646	0.639	1.08
5	0.770	0.761	1.17
10	0.902	0.907	-0.55

Capacitance Characteristic

Circuit Simulation Result

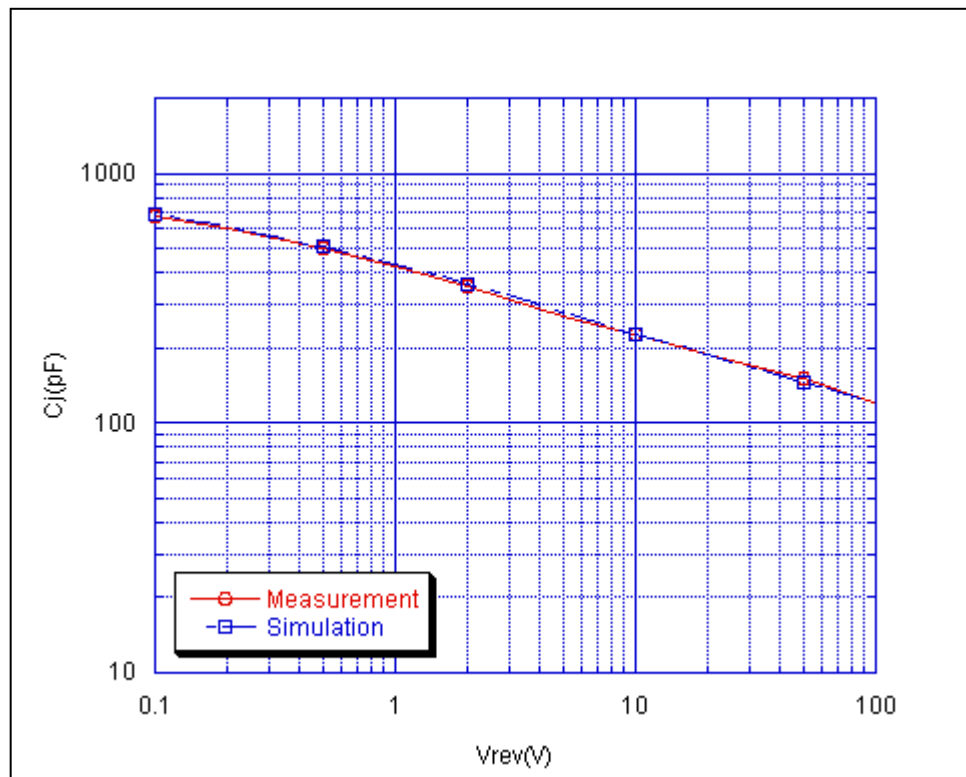


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

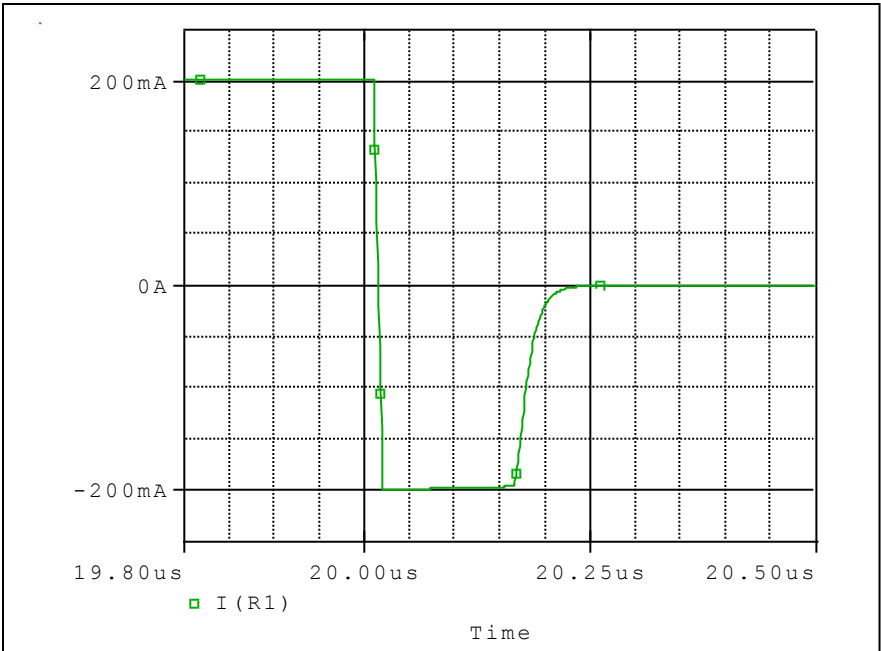


Simulation Result

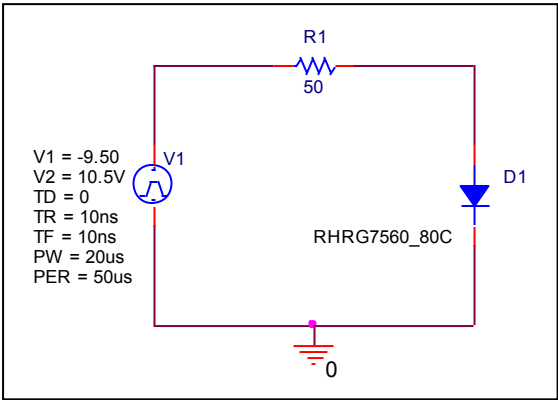
V_{rev} (V)	C_j (pF) Measurement	C_j (pF) Simulation	%Error
0	780.220	780.220	0.00
0.1	678.120	681.053	-0.43
0.2	604.200	614.190	-1.65
0.5	505.100	507.908	-0.56
1	427.370	429.245	-0.44
2	356.130	356.398	-0.08
5	269.490	276.666	-2.66
10	228.550	228.438	0.05
20	190.150	187.726	1.27
50	150.060	144.843	3.48
100	119.750	118.499	1.04

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

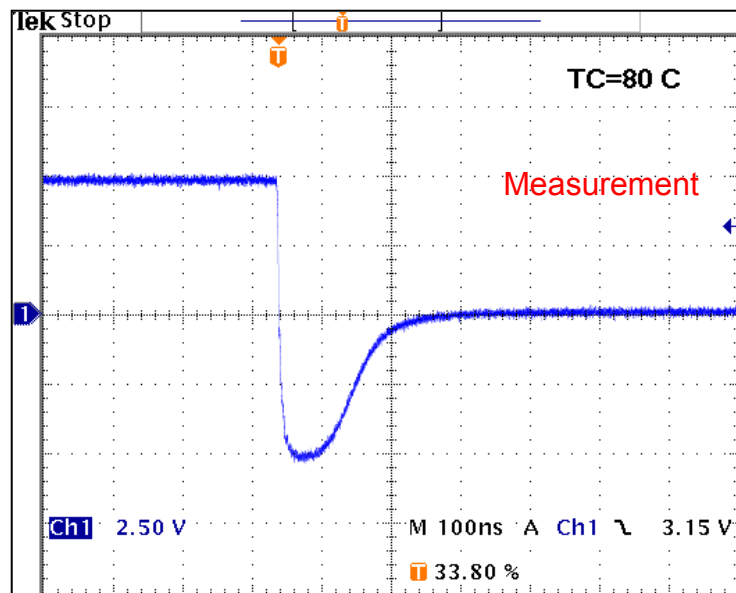


Compare Measurement vs. Simulation

trr	Measurement		Simulation		%Error
	184	ns	183.47	ns	

Reverse Recovery Characteristic

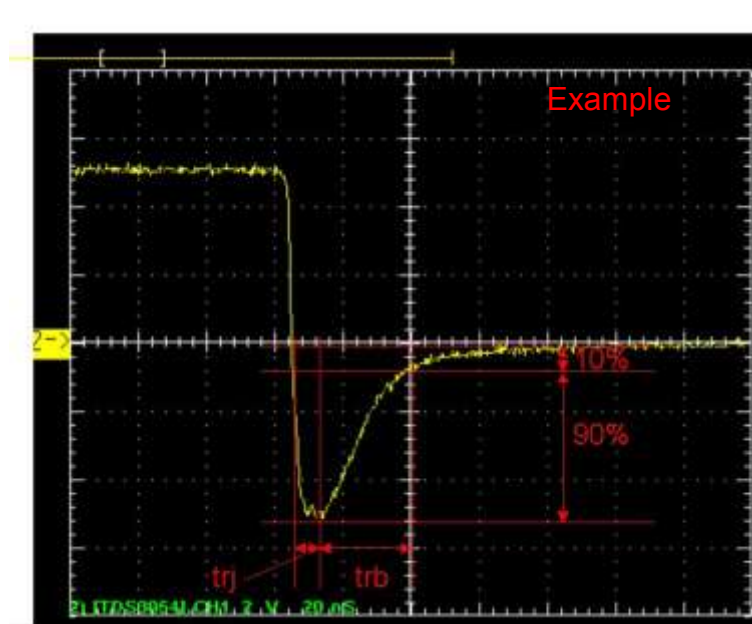
Reference



$T_{rj} = 74 \text{ (ns)}$

$T_{rb} = 110 \text{ (ns)}$

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



Relation between t_{rj} and t_{rb}