Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / STANDARD
PART NUMBER: RHRP30120
MANUFACTURER: INTERSIL
REMARK: TC=110C

Bee
Technologies

Bee Technologies Inc.

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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

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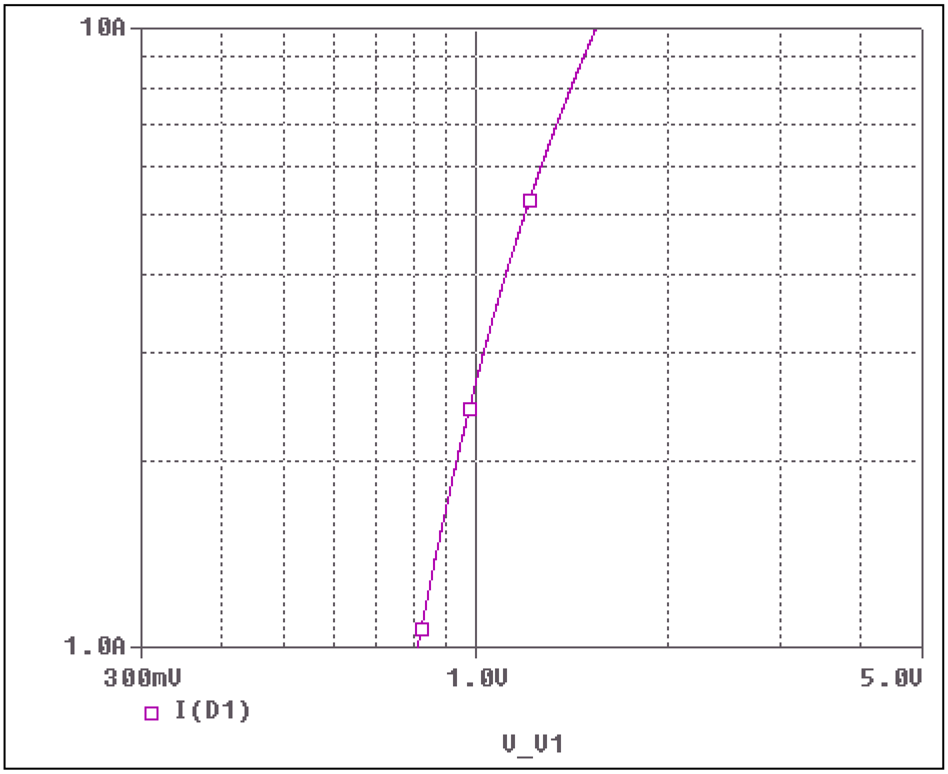
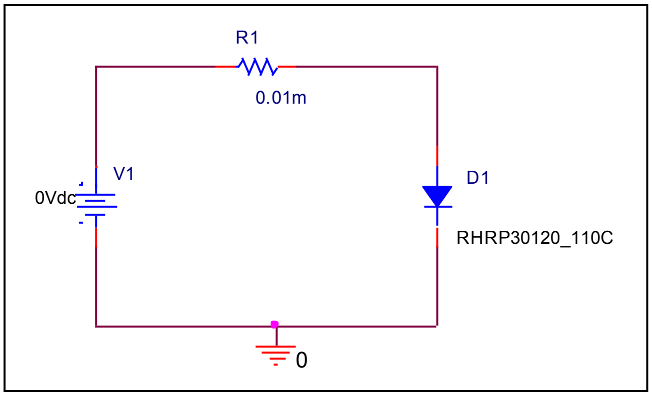
Forward Current Characteristic

Circuit Simulation Result



Evaluation Circuit



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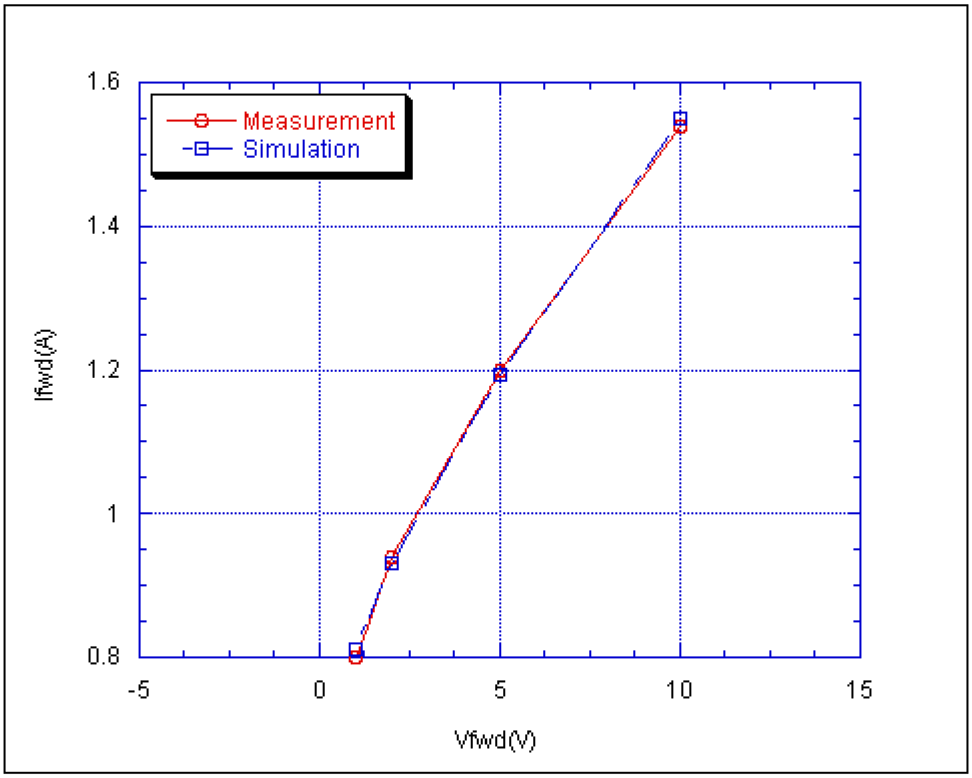
Comparison Graph

Circuit Simulation Result



Simulation Result

Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
1	0.800	0.811	-1.38
2	0.940	0.933	0.80
5	1.200	1.193	0.63
10	1.540	1.550	-0.64

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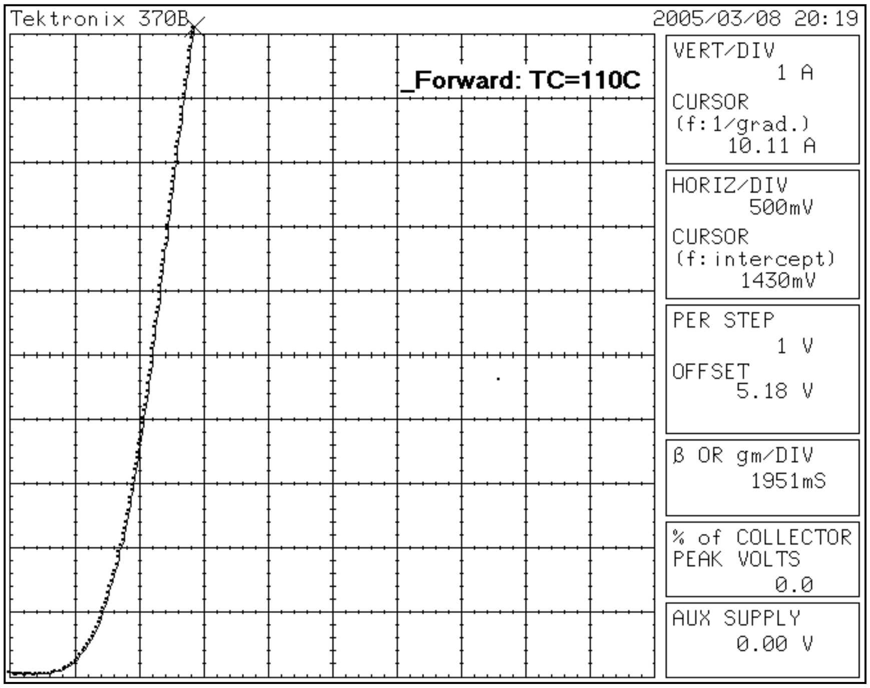
Forward Current Characteristic Reference



VERT/DIV
1 A
CURSOR
(f:1/grad.)
10.11 A

HORIZ/DIV
500mV
CURSOR
(f:intercept)
1430mV

PER STEP
1 V
OFFSET
5.18 V

β OR gm/DIV
1951mS

% of COLLECTOR
PEAK VOLTS
0.0

AUX SUPPLY
0.00 V

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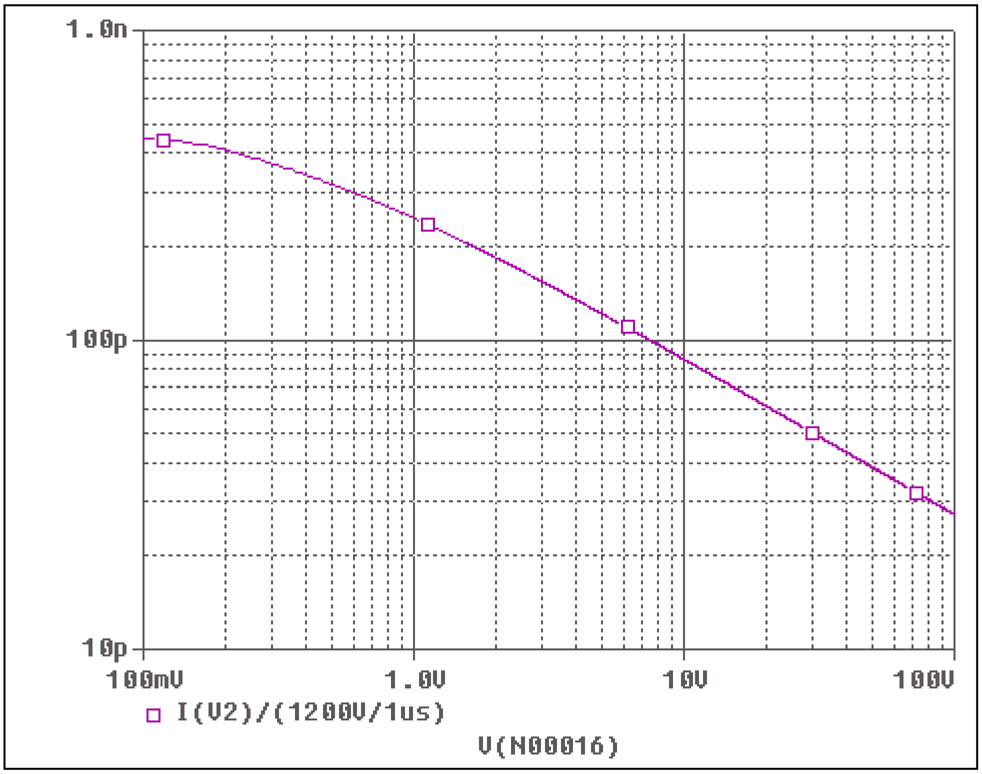
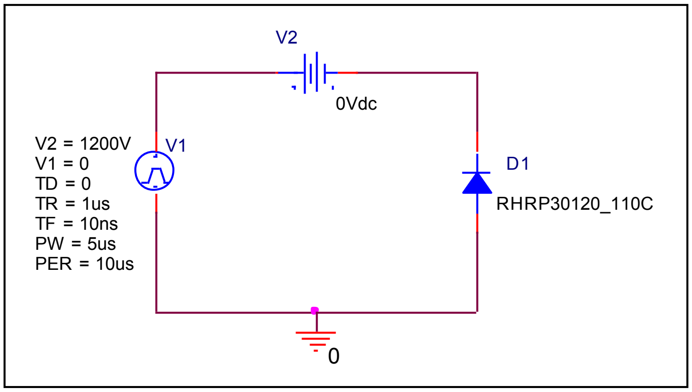
Capacitance Characteristic

Circuit Simulation Result



Evaluation Circuit



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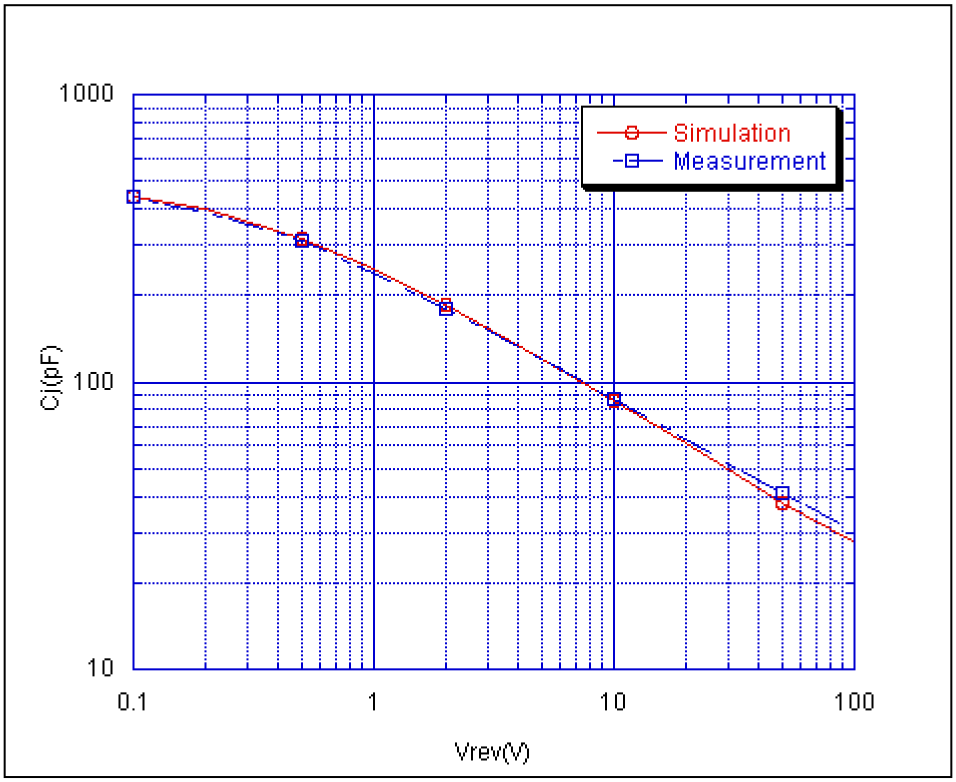
Comparison Graph

Circuit Simulation Result



Simulation Result

Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	486.000	486.000	0.00
0.1	440.000	442.203	-0.50
0.2	390.000	401.496	-2.95
0.5	308.000	315.614	-2.47
1	240.000	246.984	-2.91
2	180.000	184.319	-2.40
5	120.000	120.395	-0.33
10	88.000	86.394	1.82
20	63.000	61.207	2.85

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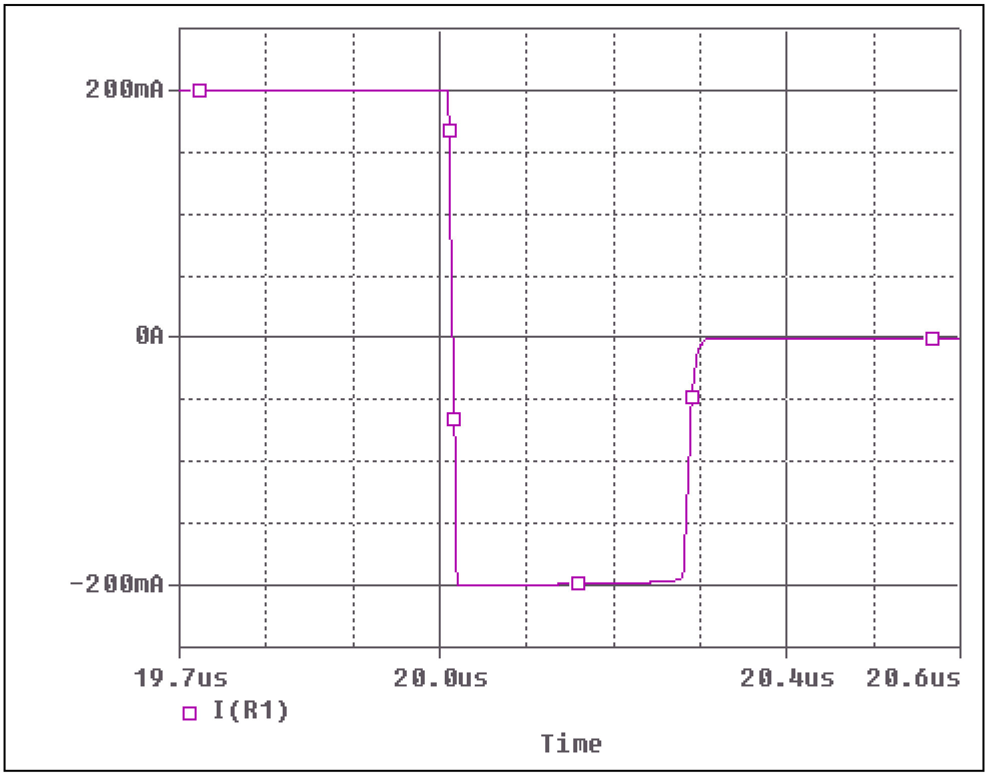
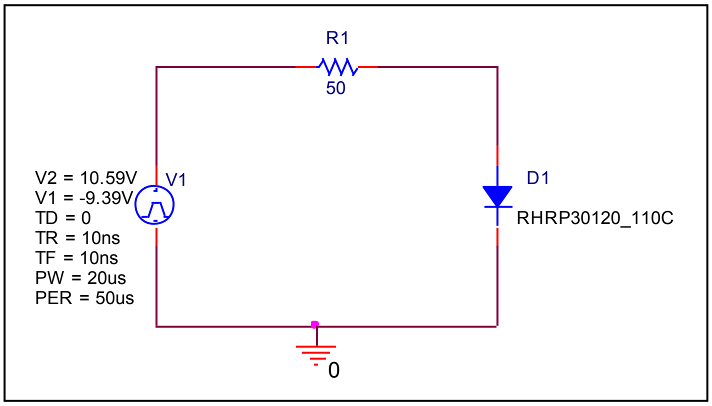
Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit



Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trr	**280**	**ns**	**279.65**	**ns**	**0.125**

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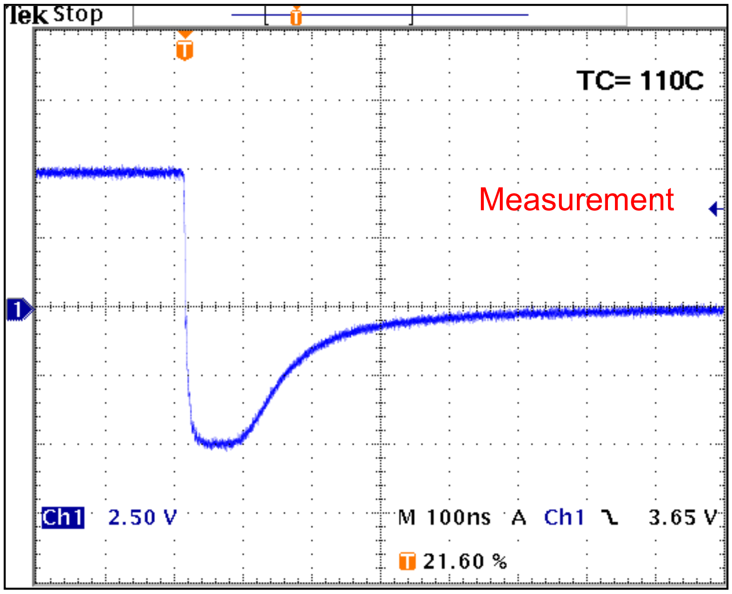
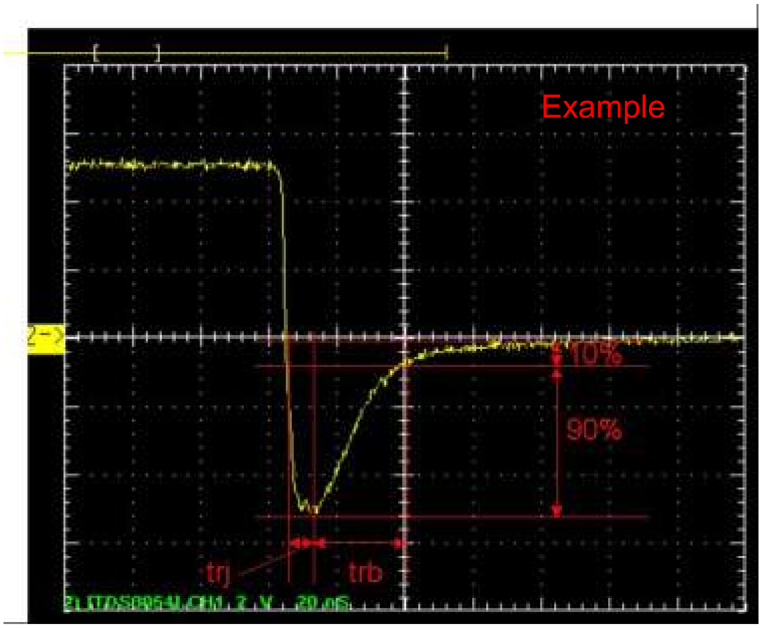
Reverse Recovery Characteristic   Reference



Trj =70 (ns)
Trb=210 (ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb

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