Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / STANDARD
PART NUMBER: RHRP30120
MANUFACTURER: INTERSIL
REMARK: TC=150C

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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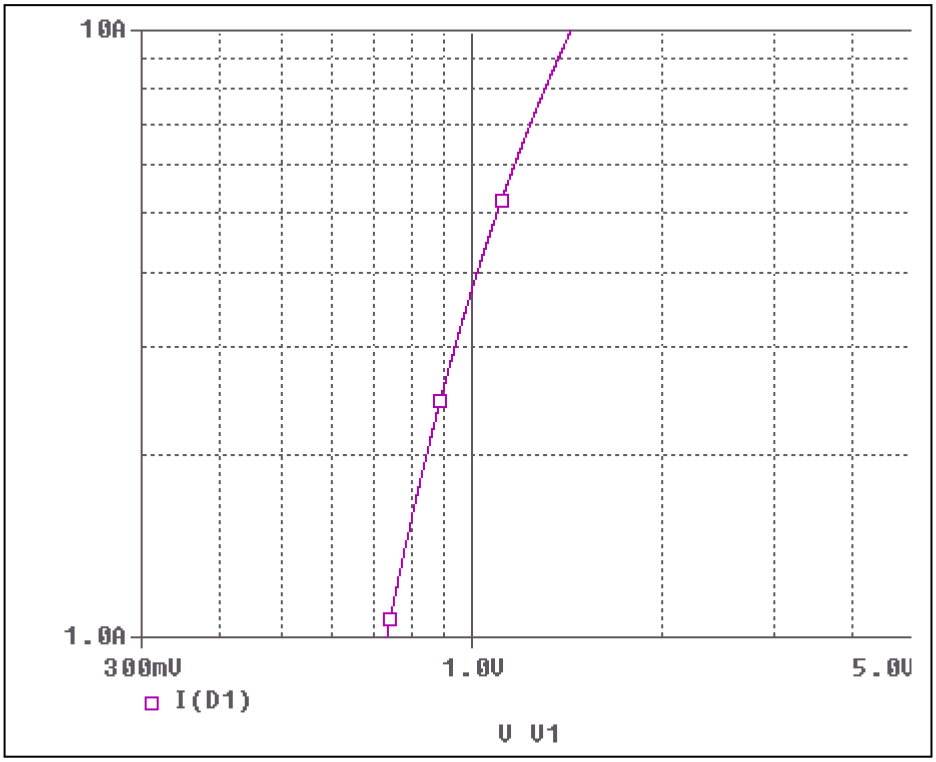
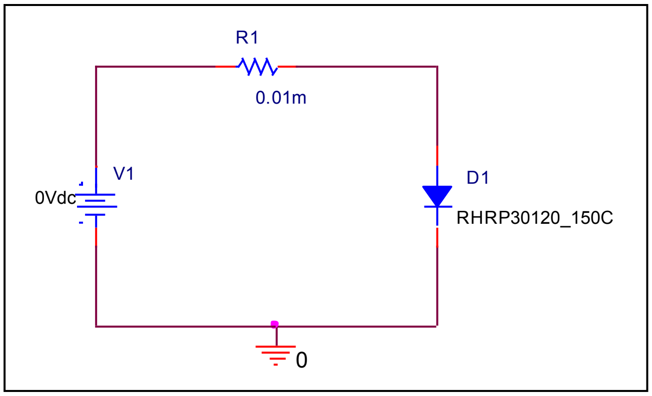
Forward Current Characteristic

Circuit Simulation Result



Evaluation Circuit



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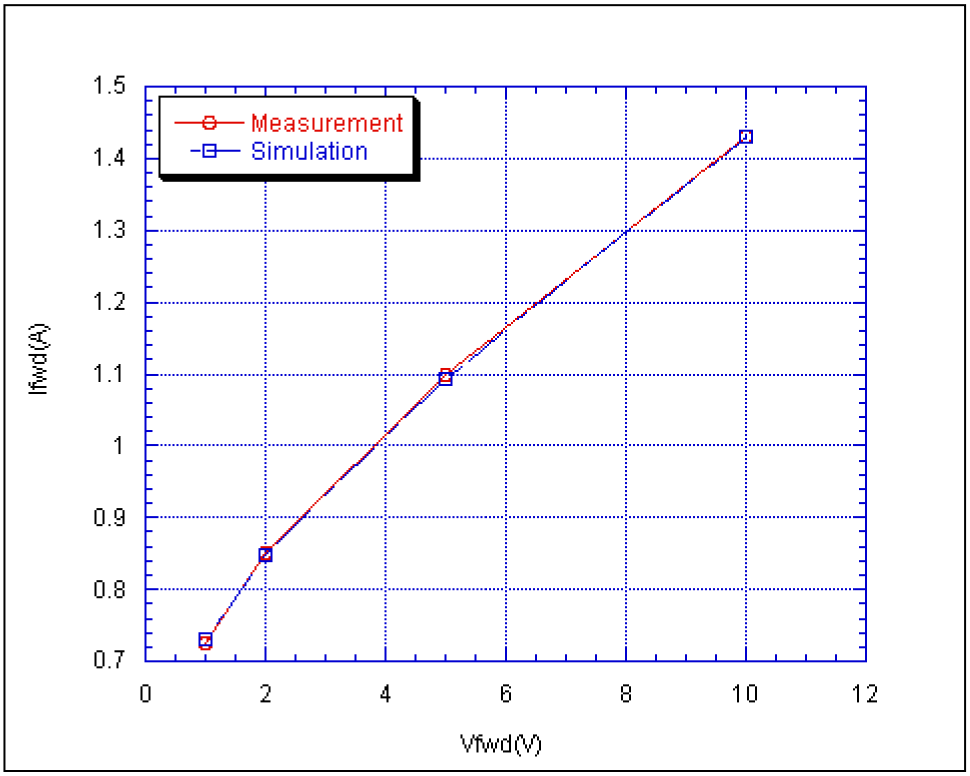
Comparison Graph

Circuit Simulation Result



Simulation Result

Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
1	0.725	0.732	-0.97
2	0.850	0.847	0.35
5	1.100	1.093	0.64
10	1.430	1.430	0.00

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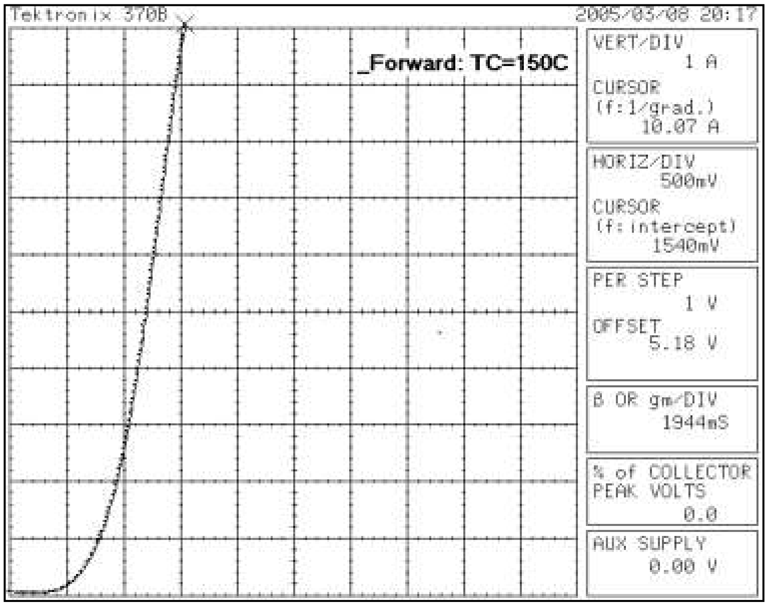
Forward Current Characteristic Reference



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

HORIZ/DIV
500mV
CURSOR
(f:intercept)
1540mV

PER STEP
1 V
OFFSET
5.18 V

β OR gm/DIV
1944mS

% of COLLECTOR
PEAK VOLTS
0.0

AUX SUPPLY
0.00 V

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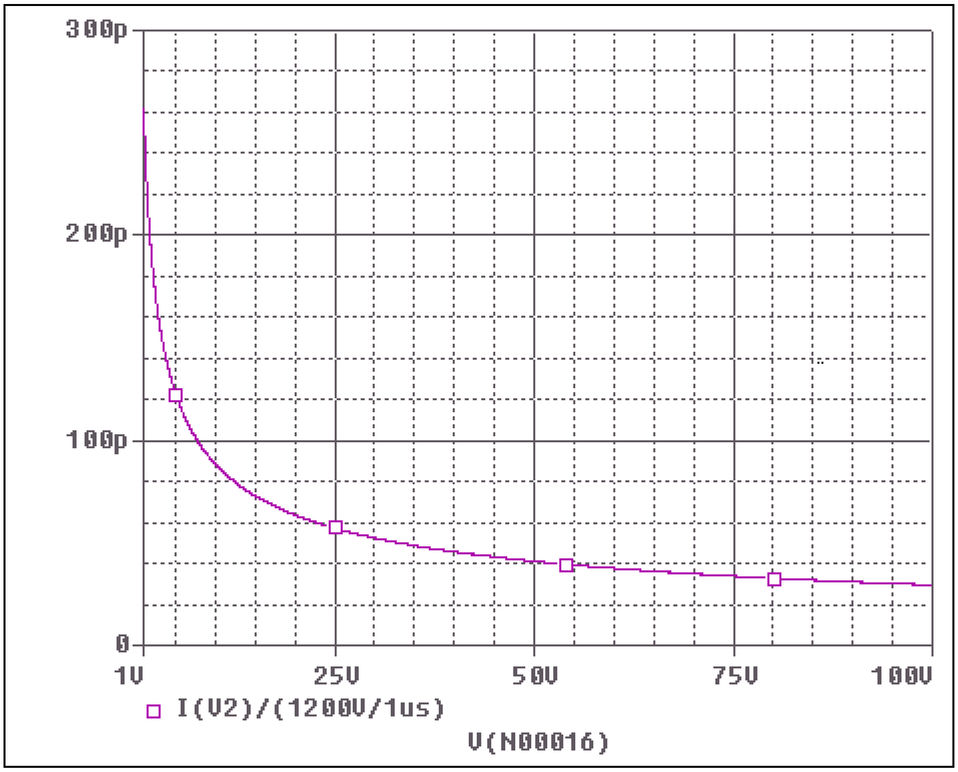
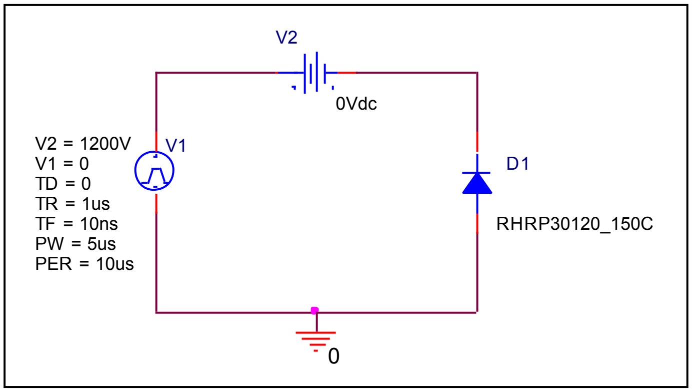
Capacitance Characteristic

Circuit Simulation Result



Evaluation Circuit



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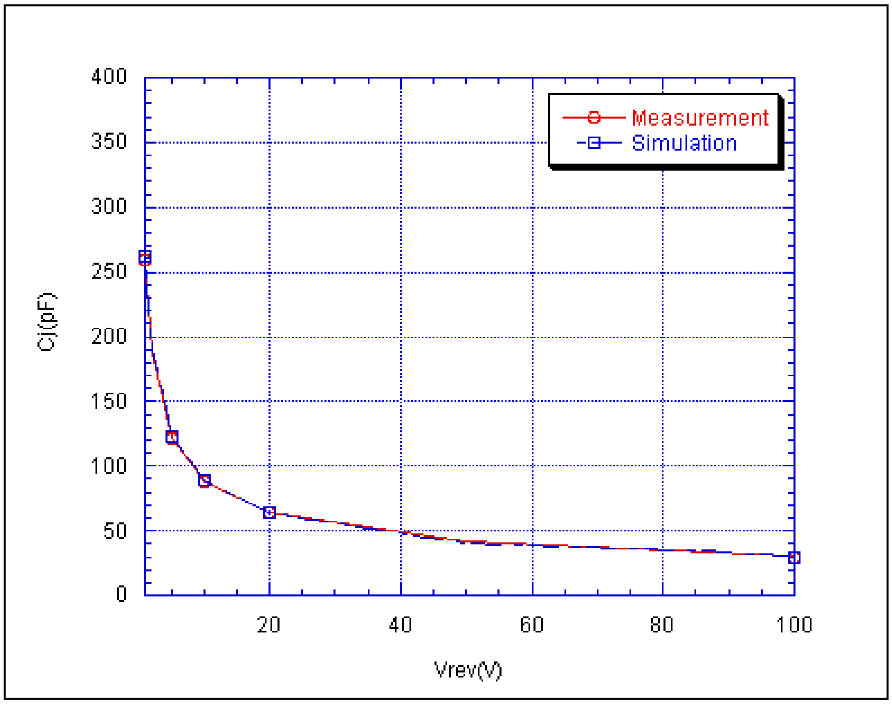
Comparison Graph

Circuit Simulation Result



Simulation Result

Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	571.000	571.000	0.00
1	259.000	262.245	-1.25
2	188.000	189.633	-0.87
5	122.000	123.176	-0.96
10	88.000	88.609	-0.69
20	64.000	63.585	0.65
50	42.000	41.011	2.35
100	30.000	29.409	1.97

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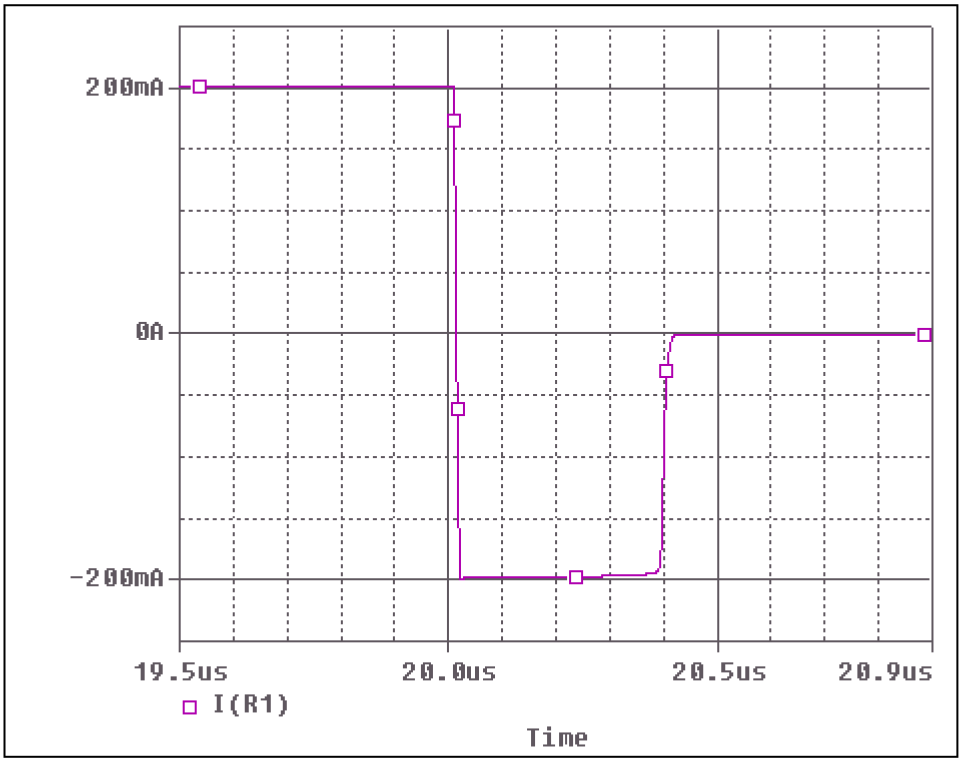
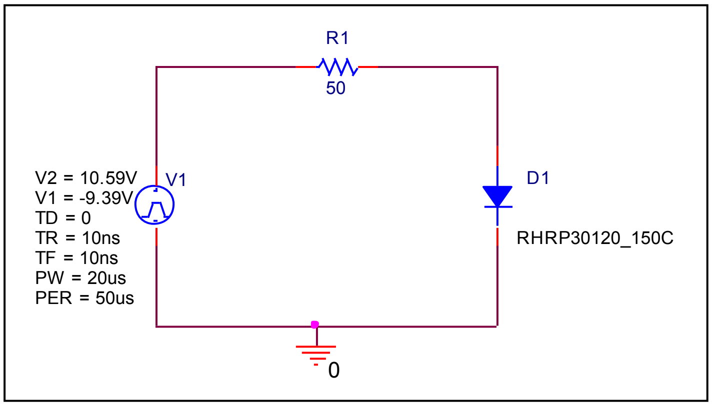
Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit



Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trr	**392.00**	**ns**	**393.29**	**ns**	**0.073**

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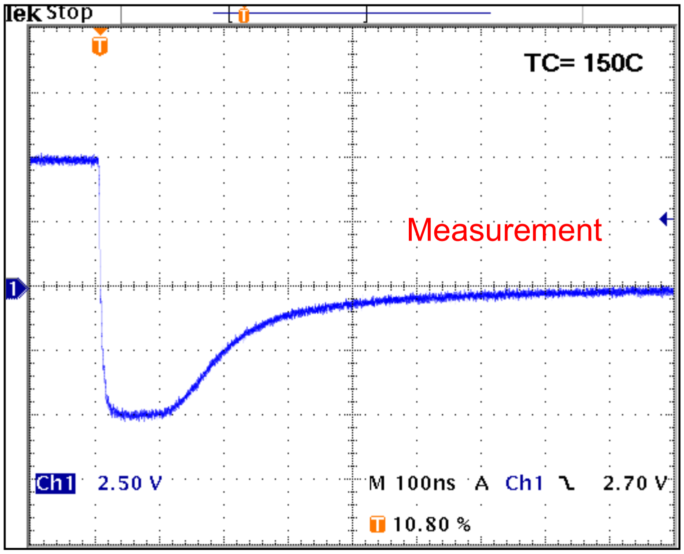
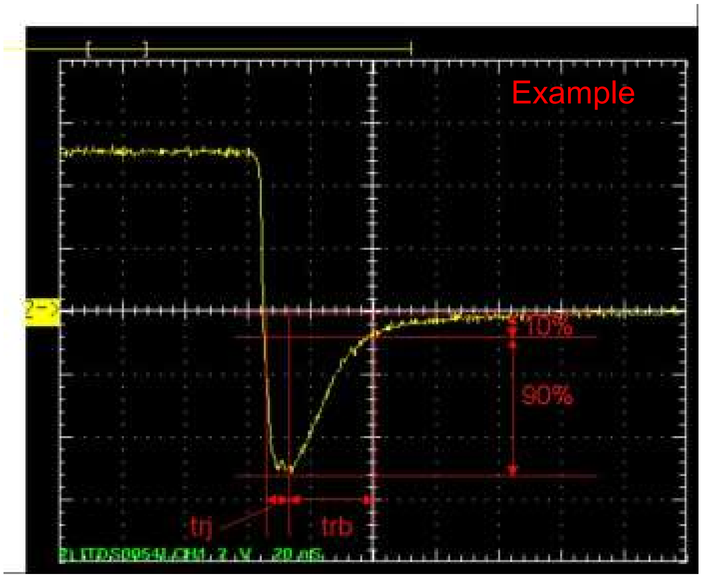
Reverse Recovery Characteristic

Reference



Trj =96 (ns)
Trb=296 (ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb

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