Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / STANDARD
PART NUMBER: 1SR154-400
MANUFACTURER: ROHM
REMARK: TC=25C

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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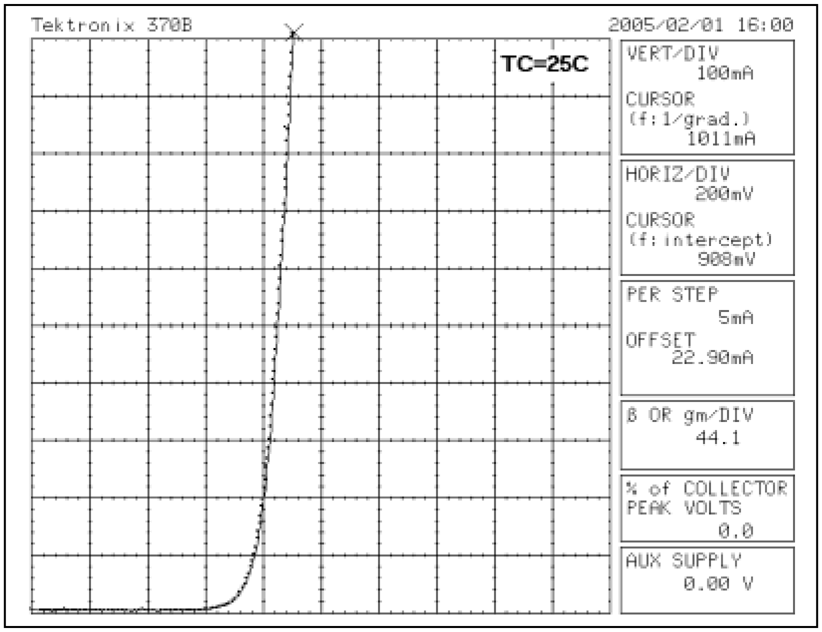
Forward Current Characteristic Reference



VERT/DIV
100mA
CURSOR
(f:1/grad.)
1011mA

HORIZ/DIV
200mV
CURSOR
(f:intercept)
908mV

PER STEP
5mA
OFFSET
22.90mA

β OR gm/DIV
44.1

% of COLLECTOR
PEAK VOLTS
0.0

AUX SUPPLY
0.00 V

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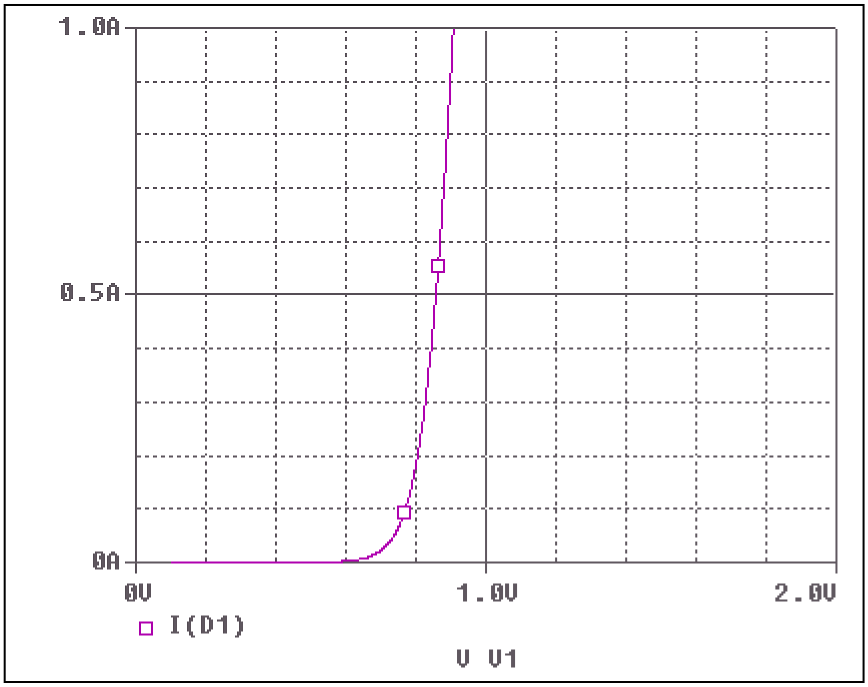
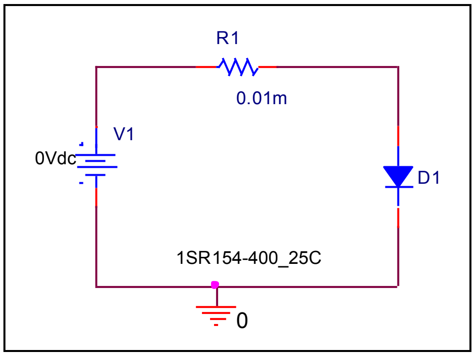
Forward Current Characteristic

Circuit Simulation Result



Evaluation Circuit



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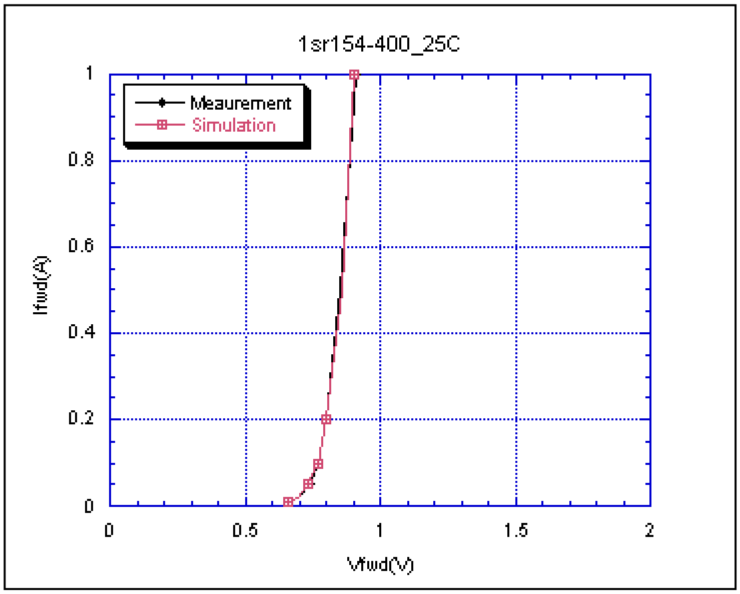
Comparison Graph

Circuit Simulation Result



Simulation Result

Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.660	0.663	-0.45
0.02	0.698	0.695	0.43
0.05	0.740	0.737	0.41
0.1	0.772	0.770	0.26
0.2	0.802	0.804	-0.25
0.5	0.855	0.857	-0.23
1	0.908	0.906	0.22

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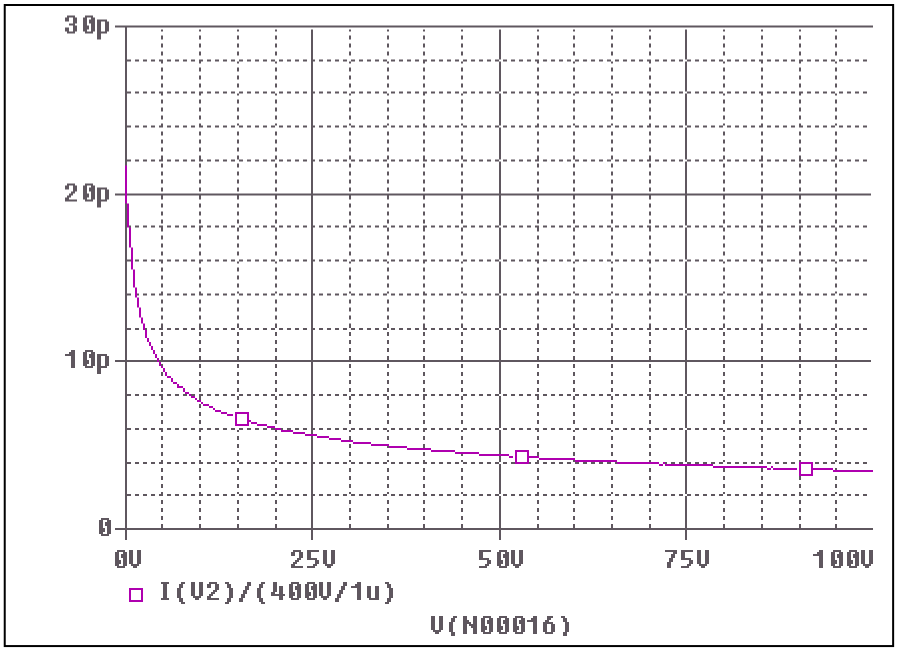
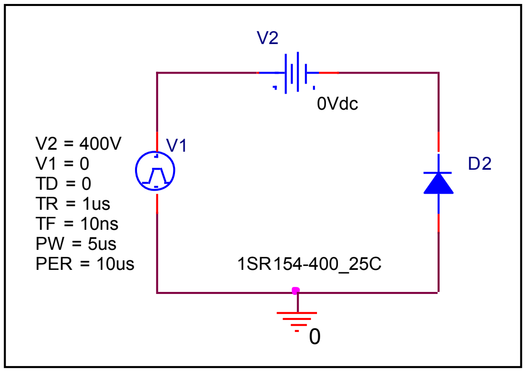
Capacitance Characteristic

Circuit Simulation Result



Evaluation Circuit



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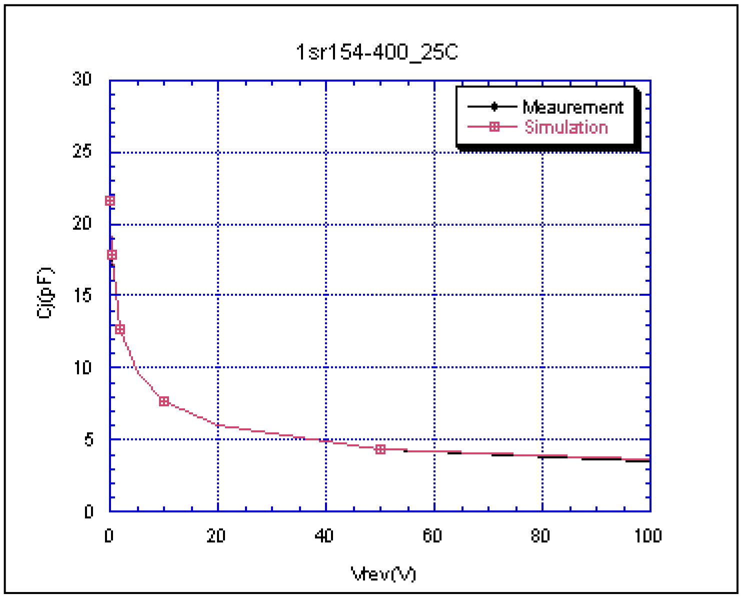
Comparison Graph

Circuit Simulation Result



Simulation Result

Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	23.185	23.185	0.00
0.1	21.588	21.577	0.05
0.2	20.365	20.320	0.22
0.5	17.681	17.777	-0.54
1	15.275	15.326	-0.33
2	12.705	12.710	-0.04
5	9.647	9.599	0.50
10	7.672	7.624	0.63
20	6.033	6.036	-0.05
50	4.362	4.391	-0.66
100	3.428	3.459	-0.90

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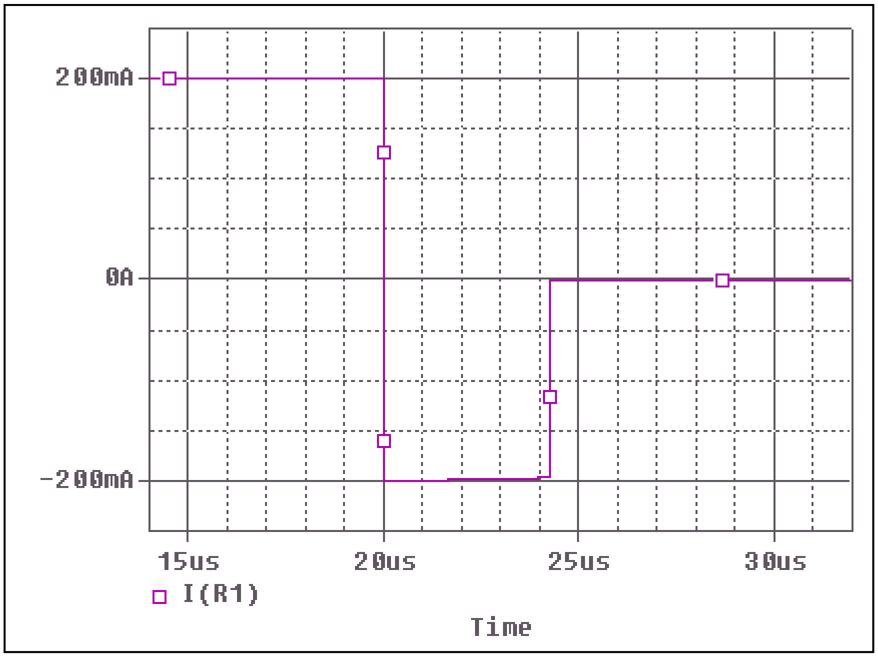
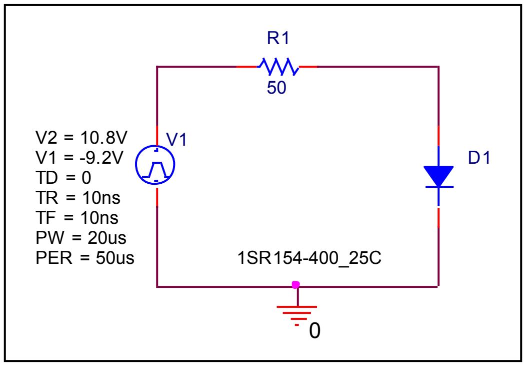
Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit



Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trr	**4.30**	**us**	**4.27**	**us**	**0.60**

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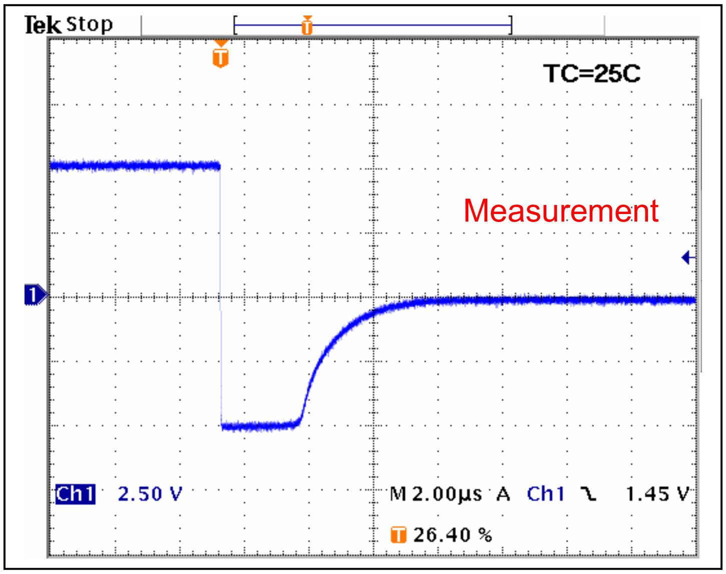
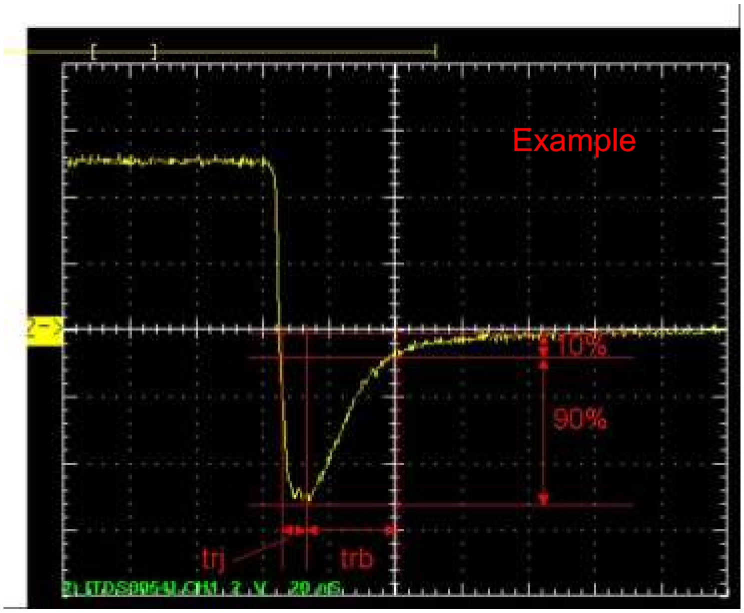
Reverse Recovery Characteristic Reference



Trj =2.26(us)
Trb=2.04(us)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb

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